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# Acta Zoologica Hungarica

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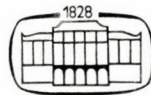
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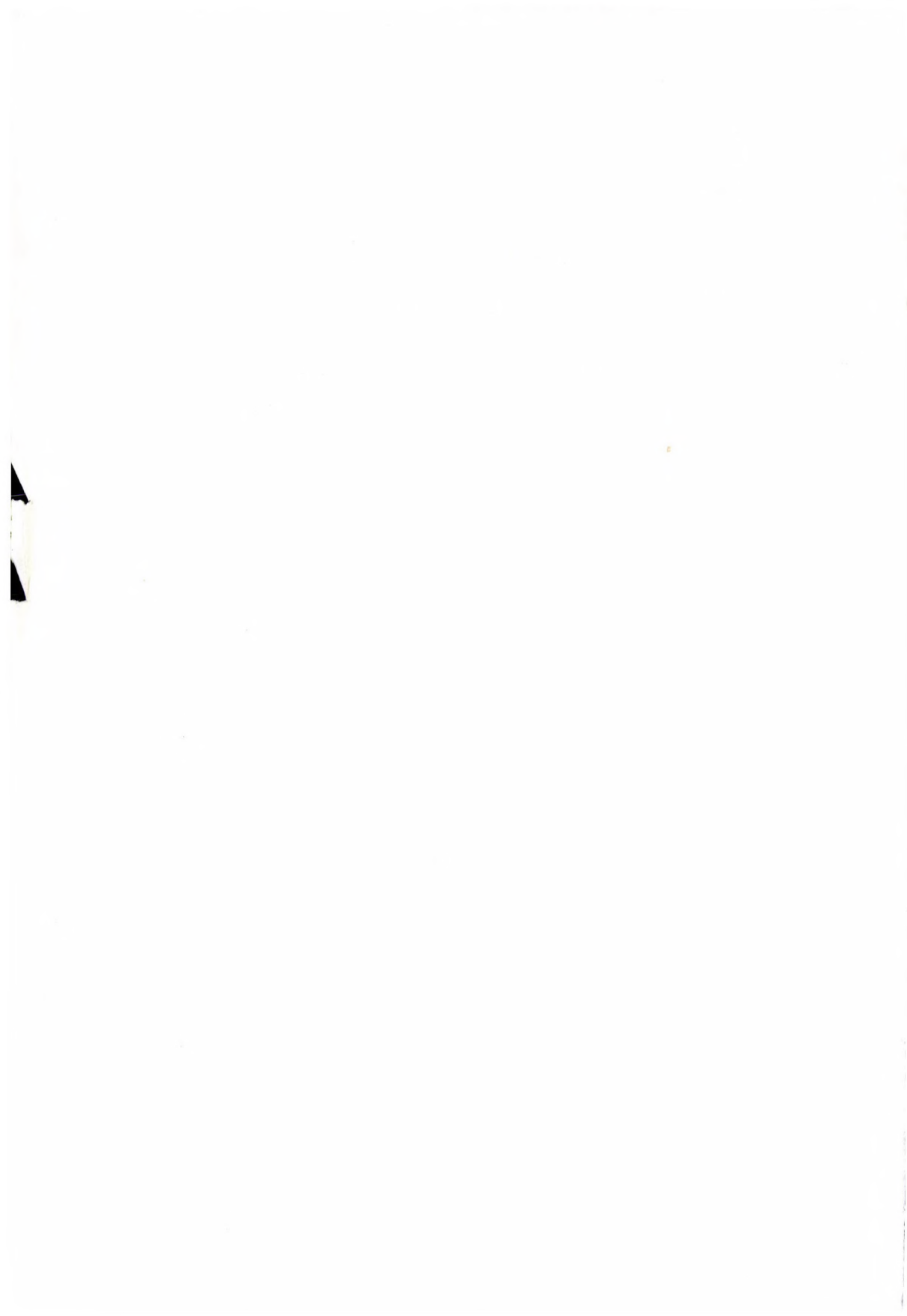
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**Volume 34**



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1988**



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A REVISION OF THE ORIENTAL  
FORFICULA LINNAEUS, 1758 SPECIES  
(DERMAPTERA: FORFICULIDAE)

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(Received 18 September, 1986)

A revision, based on the comparative morphological description of male forceps and genitalia of the Oriental *Forficula* species, with descriptions of *F. puella* sp. n. (China: Szechwan), *F. fontana* sp. n. (Kashmir), *F. calmar* sp. n. (China: Fujian), and *F. cicero* sp. n. (Vietnam) is given.

In 1911 MALCOLM BURR erected the genus *Guanchia* to accommodate the *Forficula* species with the posterior margins of tegmina obliquely truncate. For the purposes of the revision in the "Das Tierreich" series I separated the species with abbreviated tegmina (*Proforficula* STEINMANN, in print), and with rudimentary tegmina represented only by lateral flaps (*Afroforficula* STEINMANN, in print). In this study those *Forficula* species are treated whose tegmina are normally developed, not shortened, the posterior margin is generally truncate, and the wings are either present or absent.

**Forficula LINNAEUS, 1758**

*Forficula* LINNAEUS, 1758, Syst. Nat., 10 (1): 423. — Type-species: *Forficula auricularia* LINNAEUS, 1758, by subsequent designation. — *Forficula* — BORMANS & KRAUSS, 1900: Das Tierreich, Berlin, 11: 119 (key to species). — *Forficula* — BURR, 1907: Trans. ent. Soc. Lond., 1907: 109 (key to species). — *Forficula* — BURR, 1910: Fauna brit. India, Dermaptera: 164 (key to Indian species). — *Forficula* — HOULBERT, 1924: Thysan.-Derm., Orth. de France, 1: 246. Type-species: *Forficula decipiens* GENÉ, 1832 (original designation). — *Emiforficula* MENOZZI, 1927: Ent. Mitt., 16: 239. Type-species: *Forficula ornata* BORMANS, 1884 (original designation). — *Forficula* — HINCK, 1947: Ark. Zool., 39A (1): 29 (key to Burmese species). — *Forficula* — NISHIKAWA, 1970: Kontyû, 38 (1): 75 (key to Japanese species).

Male forceps with branches of varying length, often widened on inner margins to form inner basal flanges or teeth. Some species with micro- and macrolabial forms. Male genitalia comparatively simple, with a single genital lobe. Virga within genital lobe usually short (of *Forficula*-type) or long, and with a characteristic basal vesicle. Central parameral plate with weakly sclerotized external parameres, latter simple, tips obtuse.

Distribution: Mainly Palaearctic, less well represented in the Ethiopian, Oriental and Indo-Australian Regions.

### Key to Oriental species

- 1 (12) Wings absent.
- 2 (3) Male forceps not of *Forficula*-type; each branch with a short basal, depressed denticle at inner margin (Fig. 1); inner margins of basal denticles concave; pygidium small, a little broader than long. Virga within male genital lobe long with a characteristic basal vesicle (Fig. 2); external parameres comparatively large, lateral margins convex  
**puella** sp. n.
- 3 (2) Male forceps of *Forficula*-type; branches flattened, forming a rectangular inner flange basally.
- 4 (5) Inner basal flange of male forceps indistinct, with (Fig. 3) or without a smaller, but prominent inner or dorsal tooth; the tooth directed inwards; rest of branch cylindrical in cross-section, sometimes with a short denticulated section basally  
**beebei** BURR, 1911
- 5 (4) Inner basal flange of male forceps distinct, short or long; the flange without inner or dorsal tooth.
- 6 (7) Inner basal flange of male forceps short, the inner margin of the flange concave (Fig. 4); ultimate tergite with a smaller or larger teeth at lateral portions; male genitalia characteristic, moderately broad, not of *Forficula*-type; virga within genital lobe long, as in Fig. 5  
**cherapunjiae** KAPOOR, 1968
- 7 (6) Inner basal flange of male forceps normally developed, shorter or longer, but inner margin of flange not concave.
- 8 (9) Male pygidium comparatively large (Fig. 6); inner basal flange of male forceps moderately short; male genitalia with central parameral plate comparatively narrow, as in Fig. 7  
**kashmirensis** SRIVASTAVA, 1984
- 9 (8) Male pygidium small; inner basal flange of male forceps very long, fully developed (Figs 8, and 10).
- 10 (11) Distal end of the flange ending smoothly (Fig. 8); inner margin of basal flange more or less straight; central parameral plate of male genitalia strongly widened medially (Fig. 9)  
**kambaitensis** HINCKS, 1947
- 11 (10) Distal end of the flange with a large blunt tooth (Fig. 10); inner margin of basal flange faintly concave; central parameral plate of male genitalia normally widened medially (Fig. 11)  
**macrobasis** BEY-BIENKO, 1934
- 12 (1) Wings present.
- 13 (20) Male ultimate tergite with two characteristic, smaller or larger dorsal tubercles near posterior margin.
- 14 (17) Male forceps not of *Forficula*-type; each branch with a short, generally broadly rounded basal, depressed denticle at inner margin (Figs 12, and 14).
- 15 (16) Dorsal tubercles of male ultimate tergite very long, prominent (Fig. 12); each branch of male forceps elongate; male genitalia as in Fig. 13  
**externa** BEY-BIENKO, 1959
- 16 (15) Dorsal tubercles of male ultimate tergite not spiniform, obtuse (Fig. 14); male forceps comparatively short, and regularly curved; male genitalia as in Fig. 15  
**fontana** sp. n.
- 17 (14) Male forceps of *Forficula*-type; branches flattened, forming a rectangular inner flange basally.
- 18 (19) Dorsal tubercles of male ultimate tergite comparatively large (Fig. 16); male forceps very short; male genitalia as in Fig. 17  
**davidi** BURR, 1905
- 19 (18) Dorsal tubercles of male ultimate tergite comparatively small (Fig. 18); male pygidium characteristic, much longer than wide; male genitalia as in Fig. 19  
**meenae** KAPOOR, 1974
- 20 (13) Male ultimate tergite without dorsal tubercles.
- 21 (28) Male forceps not of *Forficula*-type; branches without inner basal flange (Figs 20 – 23).
- 22 (23) Male forceps with branches straight, inner margin with two smaller, but prominent teeth (Fig. 20)  
**mogul** BURR, 1904
- 23 (22) Male forceps regularly curved.
- 24 (25) Inner basal denticle of male forceps angular (Fig. 21); inner margin with a further tooth ventrally  
**subauricularia** BEY-BIENKO, 1934
- 25 (24) Inner basal denticle of male forceps triangular.
- 26 (27) Male pygidium very large, narrowed posteriorly (Fig. 22)  
**berезovskyi** BEY-BIENKO, 1934
- 27 (26) Male pygidium small, rounded posteriorly (Fig. 23)  
**sinica** BEY-BIENKO, 1934
- 28 (21) Male forceps of *Forficula*-type; branches flattened, forming a rectangular inner basal flange.

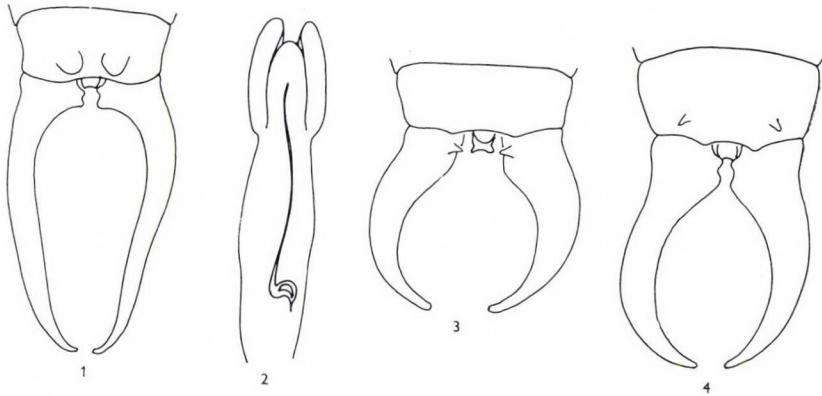


- 29 (38) Inner margins of flanges of male forceps not parallel basally.
- 30 (35) Virga within male genital lobe very long.
- 31 (32) Inner margin of male forceps with a smaller, but sharp and prominent median tooth ventrally (Fig. 25); basal section of male forceps without inner or dorsal denticles; male genitalia as in Fig. 26 **wittmeri** SRIVASTAVA, 1982
- 32 (31) Inner margin of male forceps without median tooth; basal section of each branch with prominent inner (Fig. 27) or dorsal (Fig. 29) denticles.
- 33 (34) Basal section of male forceps with a shorter inner denticle (Fig. 27); inner margin of denticle crenulated and flattened; external paramere of the male genitalia comparatively narrow, as in Fig. 28 **planicollis** KIRBY, 1891
- 34 (33) Basal section of male forceps with a specific dorsal denticle (Fig. 29); inner margin of denticle with two or three tubercles; external paramere of the male genitalia comparatively broad, as in Fig. 30 **crista** SRIVASTAVA, 1982
- 35 (30) Virga within male genital lobe short.
- 36 (37) Basal vesicle of male genitalia strongly and typically curved, forming a curvature of *Forficula*-type (Fig. 33); male forceps with a prominent inner tooth medially; branches with a shorter (Fig. 31) or longer (Fig. 32) apical portion **auricularis** LINNAEUS, 1758
- 37 (36) Basal vesicle of male genitalia without a curvature of *Forficula*-type (Fig. 35); external paramere very long; male forceps characteristic, as in Fig. 34 **bajjali** KAPOOR, 1968
- 38 (29) Inner margins of flanges of male forceps with a shorter or longer parallel section.
- 39 (56) Inner basal flange of male forceps comparatively long, about as long as or longer than half length of forceps.
- 40 (41) Inner margins of inner basal flanges of male forceps ornamented by some large denticles (Fig. 36) **biplaga** BEY-BIENKO, 1959
- 41 (40) Inner margins of inner basal flanges of male forceps with smaller tubercles, or serrated.
- 42 (53) Virga within male genital lobe long.
- 43 (44) Basal vesicle of male genitalia very small (Fig. 38); male forceps strongly flattened basally, as in Fig. 37 **tawangensis** SRIVASTAVA, 1983
- 44 (43) Basal vesicle of male genitalia normally developed and generally strongly sclerotized.
- 45 (46) Distal part of male forceps strongly curved, apices of branches directed inwards (Fig. 39); male genitalia as in Fig. 40 **jayarami** SRIVASTAVA, 1972
- 46 (45) Distal part of male forceps less curved.
- 47 (48) Wings yellow; apices of branches of male forceps well separated (Fig. 41); male genitalia as in Fig. 42 **greeni** BURR, 1901
- 48 (47) Wings darker.
- 49 (50) Male pygidium angular; branches of male forceps with a longer (Fig. 44) apical portion; male genitalia as in Fig. 45 **lucasi** DOHRN, 1865 (f. *macrolabia*)
- 50 (49) Male pygidium trigonal or rounded.
- 51 (52) Apex of external paramere of male genitalia excised internally (Fig. 47); inner margins of inner basal flanges of male forceps more or less straight (Fig. 46) **indiae** KAPOOR, 1968
- 52 (51) Apex of external paramere of male genitalia broadly rounded (Fig. 49); inner margins of inner basal flanges of male forceps undulate (Fig. 48) **harberei** BURR, 1911
- 53 (42) Virga within male genital lobe short.
- 54 (55) Distal end of inner basal flange of male forceps broadly rounded or ending smoothly (Fig. 50); male genitalia with a characteristic, very short virga (Fig. 51) **sagitta** SEMENOV, 1936
- 55 (54) Distal end of inner basal flange of male forceps ending angularly (Fig. 52); male genitalia as in Fig. 53 **abbottabadiensis** BHARADWAJ & KAPOOR, 1967
- 56 (39) Inner basal flange of male forceps comparatively short, slightly or strongly shorter than half length of forceps.
- 57 (58) Inner basal flange of male forceps comparatively broad and strongly flattened (Fig. 54) **interrogans** BURR, 1905
- 58 (57) Inner basal flange of male forceps normally developed, very short or shorter than half length of forceps.
- 59 (62) Inner basal flange of male forceps very short, much shorter than half length of forceps.
- 60 (61) Tegmina short, only a little longer than pronotum measured along suture; wings short; tarsi yellow; abdomen broad and depressed but less so than in *schlagintweiti* (BURR); male forceps as in Fig. 55 **bhutanensis** BRINDLE, 1965
- 61 (60) Tegmina longer, about twice as long as pronotum measured along suture; wings normally developed; tarsi brown; male forceps with a shorter distal portion (Fig. 56) **schlagintweiti** (BURR, 1904) (f. *microlabia*)

- 62 (59) Inner basal flange of male forceps long, but shorter than half length of forceps.
- 63 (64) Pygidium hidden; male forceps slender, as in Fig. 59; male genitalia characteristic, basal vesicle within genital lobe specific (Fig. 60), strongly sclerotized and S-shaped  
**calmar** sp. n.
- 64 (63) Pygidium present.
- 65 (70) Posterior margin of male pygidium concave or truncate.
- 66 (67) Posterior margin of male pygidium concave (Fig. 61); male genitalia characteristic, very narrow, external paramere conspicuous, very slender, as in Fig. 62  
**cicero** sp. n.
- 67 (66) Posterior margin of male pygidium transverse, more or less straight; male genitalia broad, normally or fully developed.
- 68 (69) Distal part of male forceps strongly curved (Fig. 63); external paramere of male genitalia a little curved (Fig. 64)  
**mandarina** BORELLI, 1915
- 69 (68) Distal part of male forceps less curved (Fig. 43); external paramere of male genitalia more or less straight (Fig. 45)  
**lucasi** DOHRN, 1865 (f. microlabia)
- 70 (65) Posterior margin of male pygidium rounded.
- 71 (72) Virga within male genital lobe extraordinarily long and slender (Fig. 66); male forceps very simple, as in Fig. 65  
**genitalia** KAPOOR, 1968
- 72 (71) Virga within male genital lobe normally developed.
- 73 (74) Distal end of inner basal flange of male forceps broadly rounded (Fig. 67); male genitalia as in Fig. 69  
**ornata** BORMANS, 1884 (f. microlabia)
- 74 (73) Distal end of inner basal flange of male forceps with a blunt tooth.
- 75 (76) Basal vesicle of male genitalia more or less straight and strongly sclerotized (Fig. 71); posterior margin of male pygidium ornamented by a small tubercle medially (Fig. 70)  
**flavalis** BRINDLE, 1983
- 76 (75) Basal vesicle of male genitalia curved and less sclerotized; posterior margin of male pygidium without median tubercle.
- 77 (80) Distal part of male forceps strongly curved (Figs 72 and 57)
- 78 (79) Central parameral plate of male genitalia comparatively narrow, as in Fig. 73; distal part of male forceps regularly narrowed apically (Fig. 72)  
**hinnales** HINCKS, 1947
- 79 (78) Central parameral plate of male genitalia comparatively wide, as in Fig. 58; distal part of male forceps irregularly narrowed apically (Fig. 57)  
**schlagintweiti** (BURR, 1904) (f. macrolabia)
- 80 (77) Distal part of male forceps less curved.
- 81 (82) Inner margin of inner basal flange of male forceps characteristic, as in Fig. 68; short and with smaller, obtuse denticles  
**ornata** BORMANS, 1884 (f. macrolabia)
- 82 (81) Inner margin of inner basal flange of male forceps without obtuse denticles.
- 83 (84) External paramere of male genitalia moderately long and narrow (Fig. 76); distal portion of male forceps shorter (Fig. 74) or longer (Fig. 75)  
**beelzebub** (BURR, 1900)
- 84 (83) External paramere of male genitalia moderately short and broad (Fig. 78)  
**splendida** BEY-BIENKO, 1933

### **Forficula puella** sp. n.

Male general colour reddish brown; head a little orange; antennae light brown; lateral margins of pronotum and legs yellowish; forceps light brown. Head comparatively small, tumid, postfrontal and coronal sutures indistinct, posterior margin of head concave in the middle. Eyes small, essentially shorter than the length of head behind eyes. Antennae 12-jointed; first joint moderately long, faintly shorter than distance between antennal bases. Pronotum strongly transverse, anterior margin truncate, anterior angles produced, lateral margins more or less straight and parallel anteriorly, and broadly rounded posteriorly; hind margin convex; median longitudinal furrow present; prozona tumid, metazona deplanate. Tegmina short, about as long as pronotum mea-



Figs 1—4. 1 = Holotype, ultimate tergite with forceps of *Forficula puella* sp. n., and 2 = ditto, male genitalia. — 3 = Male ultimate tergite with forceps of *F. beebei* BURR, 1911. — 4 = Male ultimate tergite with forceps of *F. cherapunjiae* KAPOOR, 1968 (Original)

sured along suture; posterior margins transversely truncate. Wings absent. Abdomen a little widened medially, depressed; all tergites faintly punctured; lateral glandular folds on third tergite very small, those on fourth large. Ultimate tergite strongly transverse, depressed medially near posterior margin; disc with two tumid elevations over roots of the forceps. Pygidium present, narrowed distally, posterior margin faintly concave. Each branch of forceps (Fig. 1) not of *Forficula*-type; branches with a very short basal lobe internally; inner margins of basal lobe concave, with two very small tubercles anteriorly and posteriorly; distal portion of forceps elongate and cylindrical in cross-section; each branch straight medially and regularly curved apically. Genitalia (Fig. 2) specific, central parameral plate very narrow, virga within genital lobe long with specific basal vesicle; external parameres broad, rounded apically.

Length of body with forceps: 12—13 mm.

Female unknown.

Holotype male: China, Szechwan, Huaying Shan, VIII. 1932, G. LIU, gen. prep. No. 1024, det. DR. H. STEINMANN (deposited in Museum for Comparative Zoology, Cambridge, USA). Paratype male: ditto (deposited in Természettudományi Múzeum, Budapest).

### *Forficula beebei* BURR

*Forficula beebei* BURR, 1911, J. Asiat. Soc. Bengal, 7: 796. Type-locality: Bengal. Holotype male: British Museum (Natural History), London. — *Forficula beebei* — SRIVASTAVA, Proc. Wkshp. High Alt. Ent. & Wildl. Ecol. zool. Surv. India: 130 (India, Nepal, Bhutan).

Male forceps characteristic (Fig. 3), short and strongly curved, almost simple, slightly broader towards base, and with a dorso-median tubercle near

base, which is sometimes developed as a short ridge; rest of branch cylindrical in cross-section, sometimes with small denticulations on inner margin on basal half. Genitalia unknown.

Distribution: Himalayas, from Nepal to Bhutan, and Northern India.

*Forficula cherapunjiae* KAPOOR

*Forficula cherapunjiae* KAPOOR, 1968, Entomologist, London, **101**: 11. Type-locality: Assam. Type male: KAPOOR's Collection.

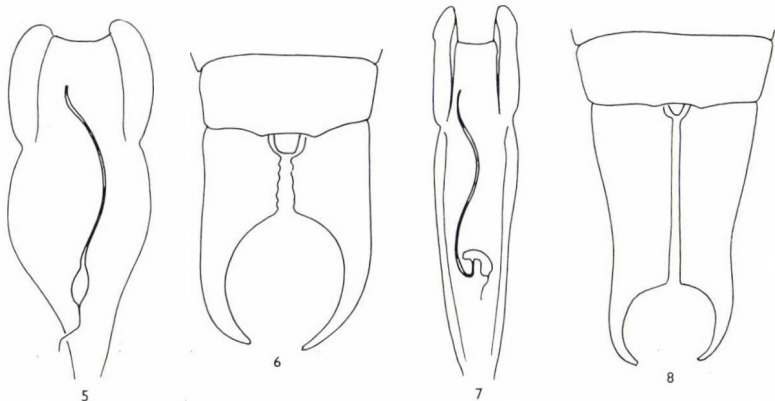
Each branch of male forceps (Fig. 4) medium sized and stout, covered with hairs, leaving a smooth space for the pygidium. Inner basal flange short, inner margin of flange concave; distal portion of forceps arcuate, tips pointed. Genitalia (Fig. 5) characteristic, very broad; central parameral plate strongly widened apically, virga within genital lobe long, basal vesicle not of *Forficula*-type; external parameres fully developed, broadly rounded apically.

Distribution: India.

*Forficula kashmirensis* SRIVASTAVA

*Forficula kashmirensis* SRIVASTAVA, 1984, Bull. zool. Surv. India, **5** (2—3): 14. Type-locality: Kashmir. Type male: National Collection, Zoological Survey of India, Calcutta.

Each branch of male forceps (Fig. 6) of *Forficula*-type; branches flattened basally, forming a rectangular inner flange, the flange moderately short, inner margins parallel and crenulated; distal portion of forceps less curved. Genitalia (Fig. 7) slender, central parameral plate narrow, elongate, virga within genital



Figs 5—8. 5 = Male genital armature of *Forficula cherapunjiae* KAPOOR, 1968. — 6 = Male ultimate tergite with forceps of *F. kashmirensis* SRIVASTAVA, 1984, and 7 = ditto, male genitalia. — 8 = Male ultimate tergite with forceps of *F. kambaitensis* HINCKS, 1947 (Original)

lobe medium sized, basal vesicle specific, not of *Forficula*-type; external parameres normally developed, rounded apically, inner margins typical, outer ones a little excised near tips.

Distribution: Kashmir.

*Forficula kambaitensis* HINCKS

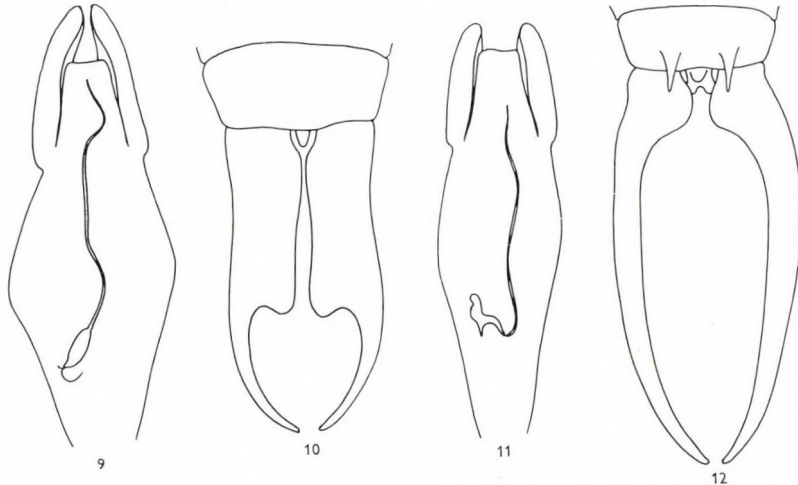
*Forficula kambaitensis* HINCKS, 1947, Ark. Zool., Uppsala, **39A** (1): 29. Type-locality: Burma. Type male: Naturhistoriska Riksmuseum, Stockholm.

Male forceps (Fig. 8) rather long; branches flattened basally and medially, forming a very long rectangular inner flange; inner margins of flanges contiguous in a straight line, minutely crenulate over entire length. Distal portion of forceps very short, strongly curved, tips acuminate. Genitalia (Fig. 9) fully developed; central parameral plate strongly dilated medially, virga within genital lobe long, basal vesicle characteristic, not of *Forficula*-type; external parameres fully developed, contracted apically.

Distribution: Burma.

*Forficula macrobasis* BEY-BIENKO

*Forficula macrobasis* BEY-BIENKO, 1934, Ann. Mag. nat. Hist., (10) **13**: 423. Type-locality: China: Szechwan. Type male: Zool. Inst. Mus. Acad. Sci. URSS, Leningrad. — *Forficula macrobasis* — STEINMANN, Folia ent. hung., **28** (1): 172, fig. 64 (male genitalia, gen. prep. No. 123, det. Dr. H. STEINMANN).



Figs 9–12. 9 = Male genital armature of *Forficula kambaitensis* HINCKS, 1947. — 10 = Male ultimate tergite with forceps of *F. macrobasis* BEY-BIENKO, 1934, and 11 = ditto, male genitalia. — 12 = Male ultimate tergite with forceps of *F. externa* BEY-BIENKO, 1959 (Original)

Male forceps (Fig. 10) very large, strongly flattened basally and medially, the inner flange long, longer than half length of forceps; distal end of flange with a large and blunt tooth. Distal portion of forceps short, regularly curved, and cylindrical in cross-section with sharpened apex. Genitalia (Fig. 11) large; central parameral plate normally developed, wide, virga within genital lobe long, basal vesicle strongly sclerotized specific, not of *Forficula*-type; external parameres typical.

Distribution: China: Szechwan, Tibet; Vietnam.

### *Forficula externa* BEY-BIENKO

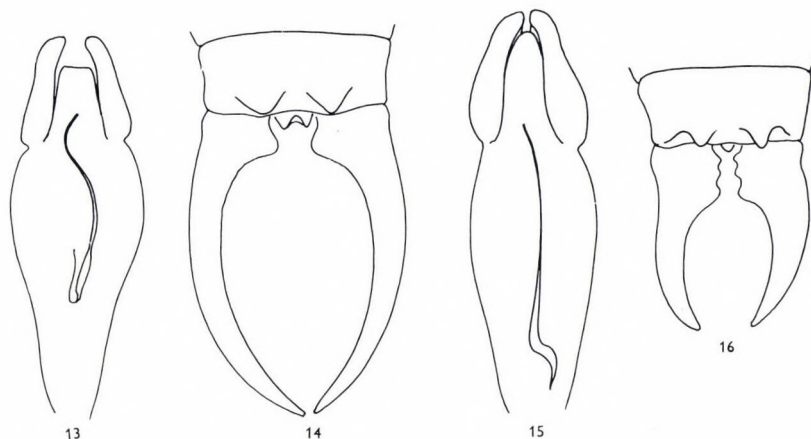
*Forficula davidi externa* BEY-BIENKO, 1959, Ent. Obozr., **38**: 617. Type-locality: China: Yunnan. Type male: perhaps in Peking Museum. — *Forficula externa* — STEINMANN, Das Tierreich, Berlin, in print.

Each branch of male forceps (Fig. 12) not of *Forficula*-type, very long; branches strongly flattened basally, forming a broadly rounded basal lobe, and cylindrical and straight medially, less curved apically. Pygidium comparatively large, with a rounded dorsal and a flattened ventral portion; posterior margin of ventral part excised. Genitalia (Fig. 13) gen. prep. No. 550, det. DR. H. STEINMANN) characteristic, not of *Forficula*-type; central parameral plate widened apically, virga within genital lobe long, basal vesicle specific; external parameres normally developed, with incurved apices.

Distribution: China: Yunnan.

### *Forficula fontana* sp. n.

Male dark brownish anteriorly, and yellowish brown posteriorly; head antennae, median part of pronotum, tegmina, wings and abdominal tergites 1—3 laterally, dark brown; legs, abdominal tergites 1—3 medially, and 4—5 with forceps yellowish brown. Head large, a little tumid, postfrontal and coronal sutures present, represented by a narrow line, posterior margin of head concave in the middle. Eyes small, essentially shorter than the length of head behind eyes. Antennae broken; first joint small, narrowed basally, shorter than distance between antennal bases. Pronotum strongly transverse, anterior angles produced, lateral margins more or less straight and parallel, posterior angles rounded, and hind margin straight; median longitudinal furrow fine. Tegmina and wings comparatively short but perfect. Abdomen depressed, normally developed; lateral glandular folds on tergites 3—4 distinct. Ultimate tergite transverse, depressed medially near posterior margin; disc with two large but obtuse protuberances medio-laterally. Pygidium prominent, broad,



Figs 13–16. 13 = Male genital armature of *Forficula externa* BEY-BIENKO, 1959. — 14 = Holotype, ultimate tergite with forceps of *F. fontana* sp. n., and 15 = ditto, male genitalia. — 16 = Male ultimate tergite with forceps of *F. davidi* BURR, 1905 (Original)

posterior margin deeply concave. Forceps (Fig. 14) not of *Forficula*-type; branches strongly flattened basally, forming a broadly rounded inner lobe; inner margins of basal lobe smooth, not serrated or crenulated. Median and distal portions of branches regularly curved, cylindrical in cross-section. Genitalia (Fig. 15) characteristic, not of *Forficula*-type; central parameral plate broad, oval, virga within genital lobe long, basal vesicle not of *Forficula*-type; external parameres well developed, apices a little incurved and tips rounded.

Length of body with forceps: 18.5 mm.

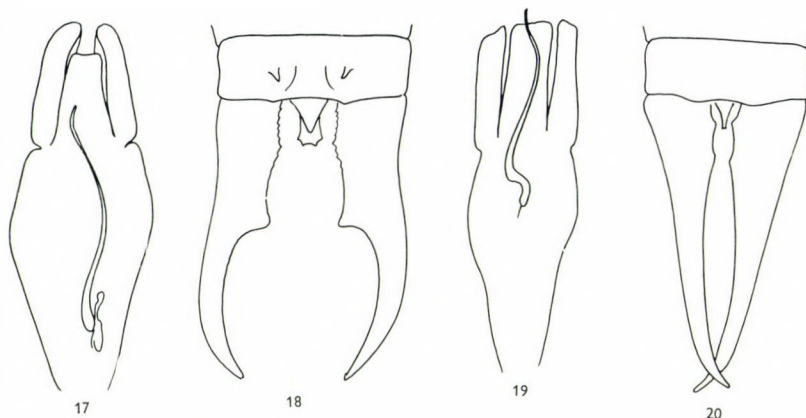
Female unknown.

Holotype male: Kashmir, gen. prep. No. 1025, det. DR. H. STEINMANN (deposited in Természettudományi Múzeum, Budapest).

### *Forficula davidi* BURR

*Forficula davidi* BURR, 1905, Entomologist's mon. Mag., 2 (16): 86. Type-locality: Tibet. Type male: Mus. nation. Hist. nat., Paris. — *Forficula davidi davidi* — BEY-BIENKO, 1959, Ent. Obozr., 38: 617.

Male forceps (Fig. 16) very short, strongly depressed, branches flattened basally, forming a rectangular inner basal flange, the median portions of branches more or less trigonal in cross-section and less curved. Inner margins of flange more or less parallel, with larger tubercles or denticles. Genitalia (Fig. 17, gen. prep. No. 949, det. DR. H. STEINMANN) comparatively short and



Figs 17—20. 17 = Male genital armature of *Forficula davidi* BURR, 1905. — 18 = Male ultimate tergite with forceps of *F. meenae* KAPOOR, 1974, and 19 = ditto, male genitalia. — 20 = Male ultimate tergite with forceps of *F. mogul* BURR, 1904 (Original)

broad; central parameral plate wide, virga within genital lobe long, basal vesicle not of *Forficula*-type; external parameres normally developed.

Distribution: China: Szechwan, Yunnan, Gansu, and Tibet.

#### *Forficula meenae* KAPOOR

*Forficula meenae* KAPOOR, 1974, Zool. J. Linn. Soc., **55** (3): 245. Type-locality: Kashmir. Type male: KAPOOR's Collection.

Male forceps (Fig. 18) medium sized; branches flattened basally, forming a rectangular inner flange, the flange specific, inner margins finely toothed; the distal end of flange ending in a large blunt tooth. Genitalia (Fig. 19) comparatively short, central parameral plate oval and widened apically, virga within genital lobe not of *Forficula*-type, with a specific basal vesicle; external parameres nearly straight, feebly narrowed at apices.

Distribution: India.

#### *Forficula mogul* BURR

*Forficula mogul* BURR, 1904, Trans. ent. Soc. London, **1904**: 321. Type-locality: India. Type male: HARMAND's Collection.

Male forceps (Fig. 20) characteristic, not of *Forficula*-type, elongate, more or less straight; branches a little broadened basally with two inner teeth near pygidium; broadened basal part short and gradually dying out. Distal portion of forceps cylindrical in cross-section, regularly curved apically. Genitalia unknown.

Distribution: India.



*Forficula subauricularia* BEY-BIENKO

*Forficula subauricularis* BEY-BIENKO, 1934, Ann. Mag. nat. Hist., (10) **13**: 417. Type-locality: China: Szechwan. Type male: Zool. Inst. Mus. Acad. Sci. URSS, Leningrad.

Male forceps (Fig. 21) long and slender; branches not of *Forficula*-type, flattened basally and forming a smaller inner lobe; inner margins of inner lobe not touching each other, with a broad triangular projection. Distal portion of forceps cylindrical in cross-section, inner margins with a smaller, but prominent median tooth ventrally.

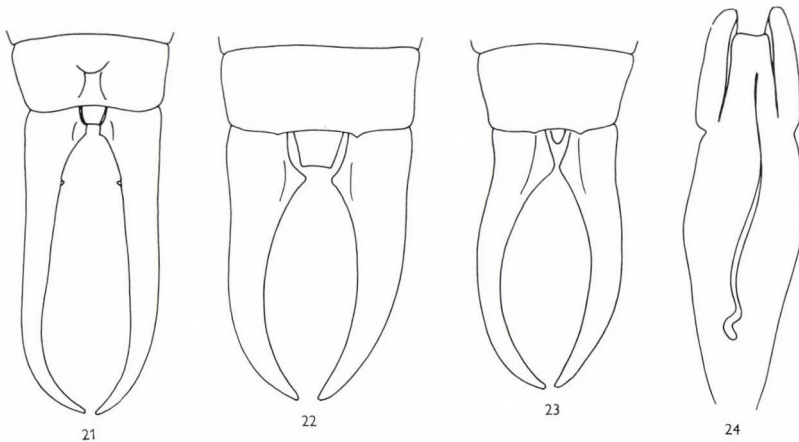
Distribution: China: Szechwan.

*Forficula berezovskyi* BEY-BIENKO

*Forficula berezovskyi* BEY-BIENKO, 1934, Ann. Mag. nat. Hist., (10) **13**: 419. Type-locality: China: Szechwan. Type male: perhaps in Peking Museum.

Male pygidium very large, strongly produced between inner margins of the basal part of forceps, distinctly narrowed posteriorly, with quite straight posterior margin. Forceps (Fig. 22) not of *Forficula*-type; branches elongate and slender, cylindrical, except flattened basal part and narrowed apical portion. Inner basal lobe of forceps short, more or less triangular, inner margins indistinctly denticulated, not touching each other, convergent to apex of pygidium, and forming with the strongly divergent posterior margins of the basal part an acute angle.

Distribution: China: Szechwan.



Figs 21—24. 21 = Male ultimate tergite with forceps of *Forficula subauricularia* BEY-BIENKO, 1934. — 22 = Male ultimate tergite with forceps of *F. berezovskyi* BEY-BIENKO, 1934. — 23 = Male ultimate tergite with forceps of *F. sinica* BEY-BIENKO, 1934, and 24 = ditto, male genitalia (Original)

*Forficula sinica* BEY-BIENKO

*Forficula sinica* BEY-BIENKO, 1934, Ann. Mag. nat. Hist., (10) 13: 421. Type-locality: China: Szechwan. Type male: perhaps in Peking Museum.

Male forceps (Fig. 23) not of *Forficula*-type, branches depressed basally, forming a triangular inner lobe; distal portion of forceps cylindrical, feebly incurved, regularly narrowed to the apex, with very sparse and short hairs. Basal part of the external margin with a small but distinct rounded triangular tubercle placed quite near to the externo-posterior angle of the ultimate tergite. Genitalia (Fig. 24, gen. prep. No. 548, det. DR. H. STEINMANN) large; central parameral plate broad, virga within genital lobe long, basal vesicle sclerotized, not of *Forficula*-type; external parameres normally developed.

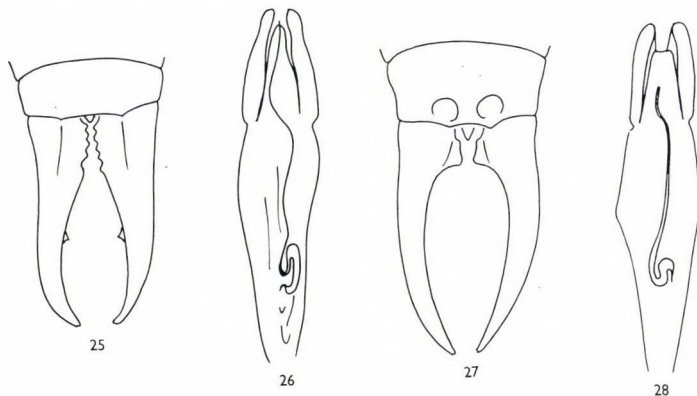
Distribution: China: Szechwan.

*Forficula wittmeri* SRIVASTAVA

*Forficula wittmeri* SRIVASTAVA, 1982, Ent. Basil., 7: 70. Type-locality: India. Type male: Naturhist. Mus., Basel.

Male forceps (Fig. 25) with branches contiguous, depressed, almost straight, gently incurved a little before apex. Inner basal flange without parallel section; inner margin of flange with smaller, but prominent and sharp denticles. Inner margin of distal portion of forceps with a single ventral tooth. Genitalia (Fig. 26) specific; central parameral plate narrow, virga within genital lobe very long, not of *Forficula*-type; external parameres normally developed, rounded apically.

Distribution: India.



Figs 25–28. 25 = Male ultimate tergite with forceps of *Forficula wittmeri* SRIVASTAVA, 1982, and 26 = ditto, male genitalia. — 27 = Male ultimate tergite with forceps of *F. planicollis* KIRBY, 1891, and 28 = ditto, male genitalia (Original)

*Forficula planicollis* KIRBY

*Forficula planicollis* KIRBY, 1891, JI Linn. Soc. London, Zool., **23**: 525. Type-locality: North India. Type female: Brit. Mus. nat. Hist., London. — *Forficula ambigua* BURR, 1904, Trans. ent. Soc. London, **1904**: 321. Type-locality: India. Type male: Mus. nation. Hist. nat., Paris. — *Forficula lebongae* HEBARD, 1923, Mem. Dept. agr. India, Ent., **7**: 226. Type-locality: India. Type male: Acad. nat. Sci., Philadelphia. — *Forficula bhatnagari* GANGOLA, 1965, Entomologist, London, **98**: 229. Type-locality: India. Type male: GANGOLA's Collection. — *Forficula gardneri* KAPOOR, BHARADWAJ & BENERJEE, 1972, Bull. ent. New Delhi, **12** (1): 37. Type-locality: India. Type male: Coll. Dehra Dun, India.

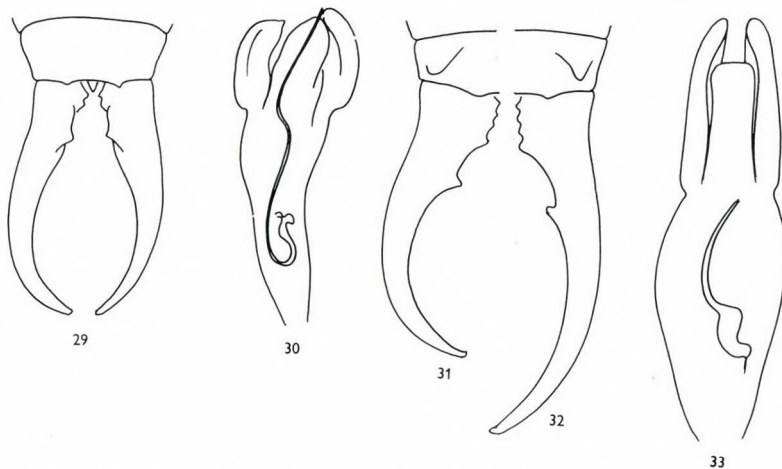
Male forceps (Fig. 27) with branches flattened basally, inner basal lobe short, only extending over one-quarter the length of forceps, inner margin straight and unarmed, ending gradually as branches attenuate, then strongly arched; branches are bowed from base, distal part shorter (from brachylabia) or longer (form macrolabia). Genitalia (Fig. 28, gen. prep. No. 950, det. DR. H. STEINMANN) narrow; central parameral plate elongate, virga within genital lobe long, basal vesicle not of *Forficula*-type; external parameres comparatively small and short.

Distribution: India, Nepal, Bhutan (all along the Himalayas), Burma and South China.

*Forficula crista* SRIVASTAVA

*Forficula crista* SRIVASTAVA, 1982, Ent. Basil., **7**: 72. Type-locality: India. Type male: Naturhist. Mus., Basel.

Male forceps (Fig. 29) with branches specific, not of *Forficula*-type, subcontiguous at base, depressed, gradually curving from base to apex, internally



Figs 29—33. 29 = Male ultimate tergite with forceps of *Forficula crista* SRIVASTAVA, 1982, and 30 = ditto, male genitalia. — 31—32 = Microlabial and macrolabial male forceps of *F. auricularia* LINNAEUS, 1758, and 33 = ditto, male genitalis (Original)

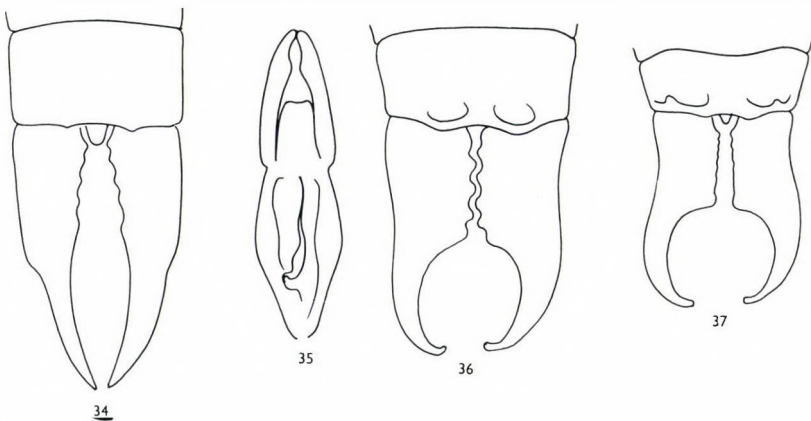
at base deplanate followed by a triangular vertical lamellation, apical point of which directed posteriorly, afterwards unarmed and tapering. Genitalia (Fig. 30) characteristic; central parameral plate comparatively narrow, virga within genital lobe very long, basal vesicle specific, not of *Forficula*-type; external parameres conspicuous, very broad.

Distribution: India.

### *Forficula auricularia* LINNAEUS

*Forficula auricularia* LINNAEUS, 1758, Syst. Nat., (1) 1: 423. Type-locality: "Europe". Type male: Linnean Collection, London. — *Forficula major* DE GEER, 1773, Mém. Hist. Ins., 3: 545. Type unknown. — *Forficula dentata* FABRICIUS, 1775, Syst. Ent.: 270. Type-locality: Central Africa. Type male: Brit. Mus. nat. Hist., London. — *Forficula parallela* FABRICIUS, 1775 (nec WESTWOOD, 1837, and nec DOHRN, 1862), Syst. Ent.: 270. Type-locality: Madeira. Type female: Brit. Mus. nat. Hist., London. — *Forficula media* MARSHAM, 1802 (nec HAGENBACH, 1822), Ent. Brit., 1: 530. Type unknown. — *Forficula infumata* MEGERLE, in CHARPENTIER, Hor. Ent.: 70. Type unknown. — *Forficula borealis* LEACH, in STEPHENS, 1835, Ill. Brit. Ent. Mandibulata, 6: 5. Type-locality: "Eur. bor.". Type unknown. — *Forficula forcipata* STEPHENS, 1835, ibid.: 6. Type unknown. — *Forficula caucasica* KOLENATI (nec SEMENOV, 1903), Melet. ent. 1846 5: 72. Type unknown.

Each branch of male forceps broadened at base. flattened portion forming an inner flange, but flange without parallel margins; inner margins of flange irregularly dentate basally, and this irregular margin ending in a larger tooth. Distal part of forceps shorter (Fig. 31, form microlabia) or longer (Fig. 32, form macrolabia); cylindrical in cross-section and curved. Genitalia (Fig. 33) typical for the genus; central parameral plate comparatively short and oval,



Figs 34—37. 34 = Male ultimate tergite with forceps of *Forficula baijali* KAPOOR, 1968, and 35 = ditto, male genitalia. — 36 = Male ultimate tergite with forceps of *F. biplaga* BEY-BIENKO, 1959. — 37 = Male ultimate tergite with forceps of *F. tawangensis* SRIVASATAVA, 1983 (Original)

virga within genital lobe with *Forficula*-type curvature, and a strongly sclerotized basal vesicle; external parameres well or fully developed, rounded apically,  
Distribution: Cosmopolitan.

*Forficula baijali* KAPOOR

*Forficula baijali* KAPOOR, 1968, Entomologist, London, **98**: 13. Type-locality: India. Type male: KAPOOR's Collection.

Male forceps (Fig. 34) characteristic, not of *Forficula*-type; branches depressed, dilated on base somewhat less than half of forceps with inner margin denticulate and then attenuate, unarmed, smooth and gently curved. Genitalia (Fig. 35) specific, not of *Forficula*-type; central parameral plate comparatively small, short and oval, virga within genital lobe short, with a specific basal vesicle; external parameres fully developed, very long.

Distribution: India.

*Forficula biplaga* BEY-BIENKO

*Forficula biplaga* BEY-BIENKO, 1959, Ent. Obozr., **38**: 616. Type-locality: China: Yunnan  
Type male: perhaps in Peking Museum.

Male forceps (Fig. 36) of *Forficula*-type; branches flattened basally, forming a rectangular inner flange; the flange long, inner margins more or less parallel and ornamented by large denticles. Distal portion of forceps short, strongly curved. Genitalia unknown.

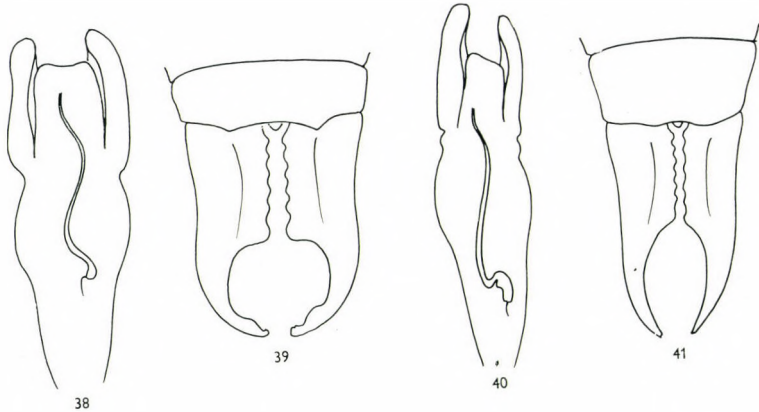
Distribution: China: Yunnan.

*Forficula tawangensis* SRIVASTAVA

*Forficula tawangensis* SRIVASTAVA, 1983, Proc. Wkshp. High Alt. Ent. & Wildl. Ecol. zool. Surv. India: 133. Type-locality: India. Type male: Nation. Collection zool. Surv. India, Calcutta.

Male forceps (Fig. 37) short, stout, concave externally and flattened basally; inner basal flange fully developed, inner margins parallel and serrated. Distal portion of forceps cylindrical in cross-section, tapering with apices pointed. Genitalia (Fig. 38) moderately broad; central parameral plate short and wide, virga within genital lobe medium sized, with a very small basal vesicle; external parameres fully developed, large, broad.

Distribution: India.



Figs 38—41. 38 = Male genital armature of *Forficula tawangensis* SRIVASTAVA, 1983. — 39 = Male ultimate tergite with forceps of *F. jayarami* SRIVASTAVA, 1972, and 40 = ditto, male genitalia. — 41 = Male ultimate tergite with forceps of *F. greeni* BURR, 1907 (Original)

### *Forficula jayarami* SRIVASTAVA

*Forficula jayarami* SRIVASTAVA, 1972, Rev. zool. Surv. India, **66** (1—4): 139. Type-locality: India. Type male: Nation. Collection zool. Surv. India, Calcutta.

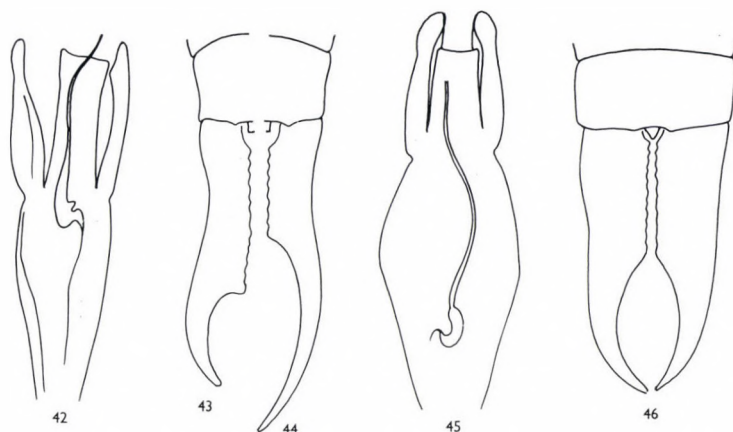
Male forceps (Fig. 39) of *Forficula*-type; branches strongly flattened basally, forming a well-developed rectangular inner flange; inner margins of the flange strongly crenulate, subcontiguous at base then diverging gently and again slightly converging apically; distal portion of forceps very short, strongly curved, sometimes with light yellow hairs. Genitalia (Fig. 40) normally developed; central parameral plate a little widened apically, virga within genital lobe long, basal vesicle strongly sclerotized, not of *Forficula*-type; external parameres well developed, obtuse apically.

Distribution: India.

### *Forficula greeni* BURR

*Chelisoches pulchellus* BURR, 1901 (nec GERSTAECKER, 1883), J. Bombay nat. Hist. Soc., **14**: 327. Type-locality: Ceylon. Type male: Brit. Mus. nat. Hist., London. — *Forficula greeni* BURR, 1907, Trans. ent. Soc. London, **1907**: 115 (new name for *Chelisoches pulchellus* BURR, 1901, a junior secondary homonymy of *Chelisoches pulchellus* GERSTAECKER, 1883).

Male forceps (Fig. 41) of *Forficula*-type; branches flattened basally, forming a rectangular inner flange; the distal end of the flange more or less parallel and crenulated. Genitalia (Fig. 42, gen. prep. No. 755, det. DR. H. STEINMANN) characteristic; central parameral plate comparatively short and



Figs 42—46. 42 = Male genital armature of *Forficula greeni* BURR, 1907. — 43—44 = Micro-labial and macrolabial male forceps of *F. lucasi* DOHRN, 1865, and 45 = ditto, male genitalia. — 46 = Male ultimate tergite with forceps of *F. indiae* KAPOOR, 1968 (Original)

small, virga within genital lobe long, specific; external parameres fully developed, conspicuous.

Distribution: Sri Lanka, India, Taiwan, Malaysia.

### *Forficula lucasi* DOHRN

*Forficula lucasi* DOHRN, 1865, Stettiner ent. Ztg. **26**: 98. Type-locality: Syria. Type male: unknown. — *Forficula barroisi* BOLIVAR, 1893 (nec BORMANS, 1900), Biol. Nord France, **5**: 447. Type-locality: Syria. Type unknown. — *Forficula escherichi* KRAUSS, 1895, Ent. Nach., **21**: 97. Type unknown.

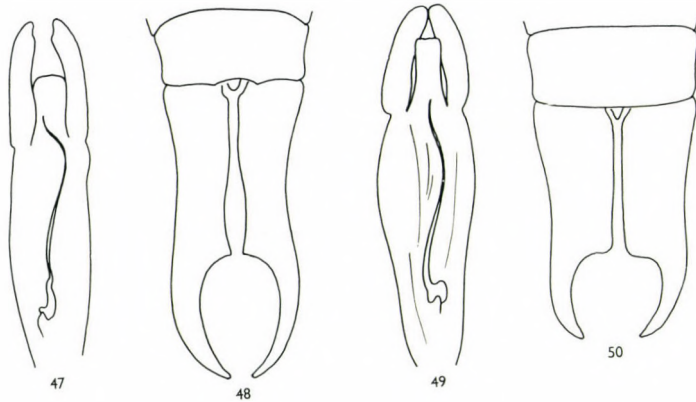
Male forceps of *Forficula*-type, highly varying in length: inner basal flange well or fully developed; inner margins of flange serrated. Distal portion of forceps shorter (Fig. 43) or longer (Fig. 44). Genitalia (Fig. 45, gen. prep. No. 525, det. DR. H. STEINMANN) normally developed; central parameral plate widened medially, virga within genital lobe comparatively long with a sclerotized basal vesicle; external parameres well developed, broadly rounded apically.

Distribution: Madeira, Chad, Sudan, Egypt, Lebanon, Turkey, Syria, Arabia, India and Burma.

### *Forficula indiae* KAPOOR

*Forficula indiae* KAPOOR, 1968, Entomologist, London, **98**: 15. Type-locality: India. Type male: KAPOOR's Collection.

Male forceps (Fig. 46) of *Forficula*-type; branches flattened basally and forming a longer inner flange; inner margins of the flange parallel and finely



Figs 47–50. 47 = Male genital armature of *Forficula indiae* KAPOOR, 1968. — 48 = Male ultimate tergite with forceps of *F. harberei* BURR, 1911, and 49 = ditto, male genitalia. — 50 = Male ultimate tergite with forceps of *F. sagitta* SEMENOV, 1936 (Original)

crenulate. Distal portion of forceps short, cylindrical, and gently curved. Genitalia (Fig. 47) typical; central parameral plate normally developed, virga within genital lobe long with a specific basal vesicle; external parameres well developed.

Distribution: South India.

#### *Forficula harberei* BURR

*Forficula harberei* BURR, 1911, Ann. Mag. nat. Hist., (8) 8: 52 (new name for *Forficula ruficeps* SHIRAKI, 1905, a junior secondary homonymy of *Forficula ruficeps* BURMEISTER, 1838. — *Forficula ruficeps* SHIRAKI, 1905, Trans. Sapporo nat. Hist. Soc., 1: 8. Type-locality: Formosa. Type unknown.

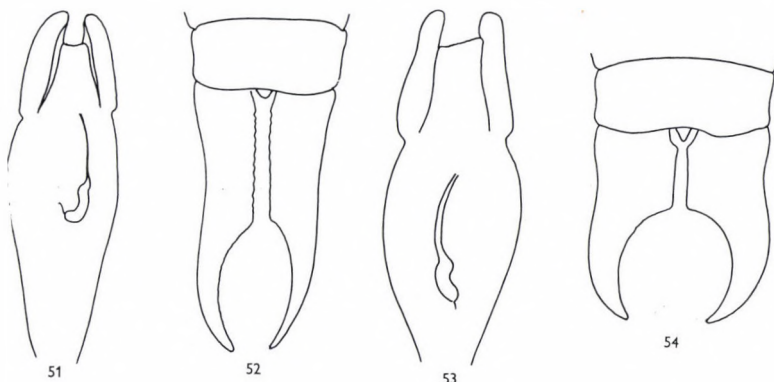
Male forceps (Fig. 48) elongate, branches flattened basally and medially forming a long rectangular inner flange; inner margins of the flange generally undulate and very finely crenulate. Distal portion of forceps short, strongly curved, and pointed apically. Genitalia (Fig. 49, gen. prep. No. 1020, det. DR. H. STEINMANN) characteristic, not of *Forficula*-type; central parameral plate oval and widened apically, virga within genital lobe long, with a strongly sclerotized basal vesicle; external parameres broadly rounded apically.

Distribution: Taiwan, and South China.

#### *Forficula sagitta* SEMENOV

*Forficula sagitta* SEMENOV, in BEY-BIENKO, 1936, Faune de l'URSS, Dermaptera: 135. Type-locality: Turkmenia. Type male: Zool. Inst. Mus. Acad. Sci. URSS, Leningrad. — *Forficula sagitta rufula* BEY-BIENKO, Acta ent. Boh., 64 (6): 433. Type-locality: Nuristan. Type male: Természettudományi Múzeum, Budapest.





Figs 51–54. 51 = Male genital armature of *Forficula sagitta* SEMENOV, 1936. — 52 = Male ultimate tergite with forceps of *F. abbottabadiensis* BHARADWAJ & KAPOOR, 1967, and 53 = ditto, male genitalia. — 54 = Male ultimate tergite with forceps of *F. interrogans* BURR, 1905 (Original)

Male forceps (Fig. 50) of *Forficula*-type; branches strongly flattened basally and medially; flange long, longer than half length of forceps; inner margins of flange parallel with weak serration. Genitalia (Fig. 51, gen. prep. No. 549, det. DR. H. STEINMANN) moderately short; central parameral plate broad, virga within genital lobe of *Forficula*-type, short, basal vesicle comparatively large and strongly sclerotized; external parameres well developed.

Distribution: Eastern Transcaucasia, Armenia, South-Western Turkmenia, Tashkent, Burma, and Sikkim.

#### *Forficula abbottabadiensis* BHARADWAJ & KAPOOR

*Forficula abbottabadiensis* BHARADWAJ & KAPOOR, 1967, Bull. Ent., 8 (2): 5. Type-locality: India. Type male: FLETCHER's Collection.

Male forceps (Fig. 52) subcontiguous, elongated, of *Forficula*-type; branches strongly flattened basally and medially, forming a longer inner flange; inner margins of flange more or less parallel and feebly crenulate. Distal portion of forceps short, regularly narrowed apically. Genitalia (Fig. 53) specific, of *Forficula*-type; central parameral plate short, oval, virga within genital lobe short with a strongly sclerotized basal vesicle; external parameres normally developed with apices obtuse.

Distribution: India, and Pakistan.

#### *Forficula interrogans* BURR

*Forficula interrogans* BURR, 1905, Entomologist's month. Mag., (2) 184: 85. Type-locality: India. Type male: Mus. nation. Hist. nat., Paris.

— Male forceps (Fig. 54) short, of *Forficula*-type; branches flattened basally, forming a strongly depressed inner flange; inner margins of flange parallel. Distal portion of forceps short, very gently incurved apically, not meeting at the apex.

Distribution: India.

*Forficula bhutanensis* BRINDLE

*Forficula bhutanensis* BRINDLE, 1975, Ent. Basil., 1: 43. Type-locality: Bhutan. Type male: Naturhist. Mus., Basel.

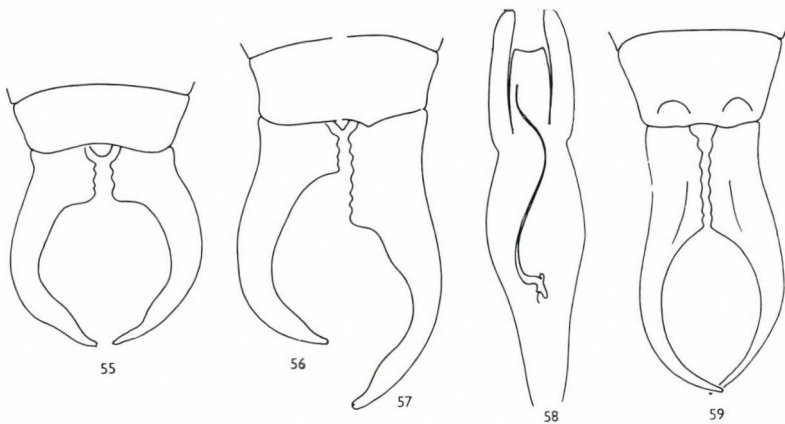
Male forceps (Fig. 55) stout, strongly bowed; branches flattened basally, forming a shorter inner flange; inner margins of flange with smaller or larger tubercles and denticles. Distal portion of forceps a little angularly curved, tips acuminate.

Distribution: India, Nepal, Bhutan.

*Forficula schlagintweiti* (BURR)

*Anechura schlagintweiti* BURR, 1904, Trans. ent. Soc. London, 1904: 313. Type-locality: Tibet. Type male: Mus. nation. Hist. nat., Paris.

Male forceps various; generally stout, strongly bowed, somewhat straight, gently curved near apices. Branches flattened basally, flange shorter or longer, inner margins with parallel section. Distal portion of forceps strongly curved,



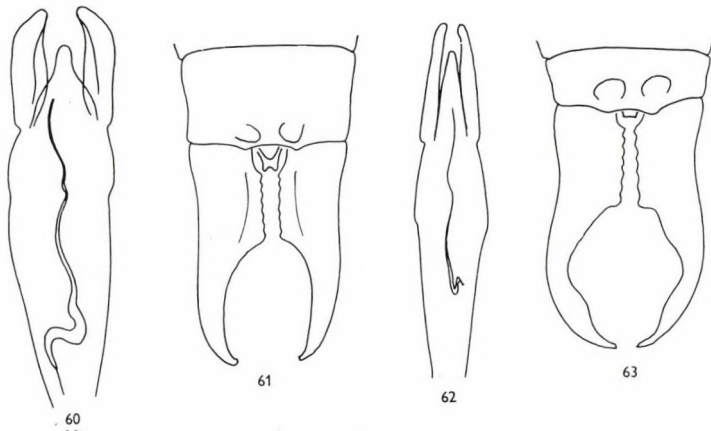
Figs 55–59. 55 = Male ultimate tergite with forceps of *Forficula bhutanensis* BRINDLE, 1975. — 56–57 = Microlabial and macrolabial male forceps of *F. schlagintweiti* (BURR, 1904), and 58 = ditto, male genitalia. — 59 = Holotype, ultimate tergite with forceps of *F. calmar* sp. n. (Original)

either shorter or longer: form brachylabia (Fig. 56) and macrolabia (Fig. 57). Genitalia (Fig. 58) normally developed; central parameral plate narrowed basally, virga within genital lobe long, basal vesicle not of *Forficula*-type; external parameres narrow, simple, obtuse.

Distribution: India, Nepal, Bhutan, China: Tibet, Szechwan, and Burma.

### *Forficula calmar* sp. n.

Male general colour dark brownish black to black; head, antennae, and legs dark brown, tegmina dark reddish brown, wings yellow, conspicuous, but sutural margins and tips with narrow, dark brown margins. Head large, frons and occiput tumid, postfrontal and coronal sutures deeply marked, posterior margin of head concave in the middle. Eyes very small, significantly shorter than the length of head behind eyes. First antennal joint typical, shorter than distance between antennal bases. Pronotum transverse, semicircular, anterior margin truncate, lateral margins convex, posterior angles with margin broadly rounded; median longitudinal furrow present; prozona tumid, well differentiated from flat metazona. Tegmina normally developed, surface shining with deep punctures. Wings prominent. Abdomen fusiform, a little depressed, all tergites punctured, lateral glandular folds on third tergite small, those on fourth large; Ultimate tergite transverse, sloping, depressed medially near posterior margin. Pygidium not visible in superior view. Forceps (Fig. 59) of *Forficula*-type, branches flattened basally, forming a median size and rectangular inner flange. inner margins of flange with a crenulated parallel section. Distal portion of forceps a little longer than the length of inner flange, regularly curved, tips



Figs 60–63. 60 = Holotype, genital armature of *Forficula calmar* sp. n. — 61 = Holotype, ultimate tergite with forceps of *F. cicero* sp. n., and 62 = ditto, male genitalia. — 63 = Male ultimate tergite with forceps of *F. mandarina* BORELLI, 1915 (Original)

hooked. Genitalia (Fig. 60) specific; central parameral plate fully developed, comparatively long, virga within genital lobe long, basal vesicle strongly sclerotized, characteristic; external parameres moderately short, broad, tips obtuse.

Length of body with forceps: 15 mm.

Female unknown.

Holotype male, China: Fujian, Kuatun (2300 m) 27, 40n, Br. 117,40ö, L. J. KLAPPERICH, 10. 5. 1938 (Fukien), gen. prep. No. 1022, det. DR. H. STEINMANN (deposited in Természettudományi Múzeum, Budapest).

### ***Forficula cicero* sp. n.**

Male head and forceps dark reddish; antennae dark brown; fore leg brown, middle and hind legs, tegmina and wings dirty dark yellowish brown; abdominal tergites dark reddish medially and posteriorly, anterior segments blackish. Lateral margins of pronotum yellowish, median portion blackish. Head normally developed, rounded, frons tumid, postfrontal and coronal sutures present; posterior margin of head concave in the middle. Eyes typical, shorter than the length of head behind eyes. First antennal joint small, shorter than distance between antennal bases. Pronotum faintly transverse, lateral margins straight, a little converging posteriorly, hind margin convex; median longitudinal furrow present in prozona. Tegmina and wings normally developed. Abdomen elongate, a little depressed; lateral glandular folds on tergites 3—4 distinct. Ultimate tergite transverse, with a smaller median depression near posterior margin. Pygidium distinct, dorsal part small, rounded, ventral portion narrowed posteriorly, and posterior margin concave. Forceps (Fig. 61) short, of *Forficula*-type; branches with moderate inner flange, the inner flange with crenulated and more or less parallel inner margins. Distal portion of forceps less curved, elliptical and cylindrical in cross-section. Genitalia (Fig. 62) narrow, central parameral plate elongate and very narrow, virga within genital lobe long, basal vesicle very small, not of *Forficula*-type; external parameres very narrow and long.

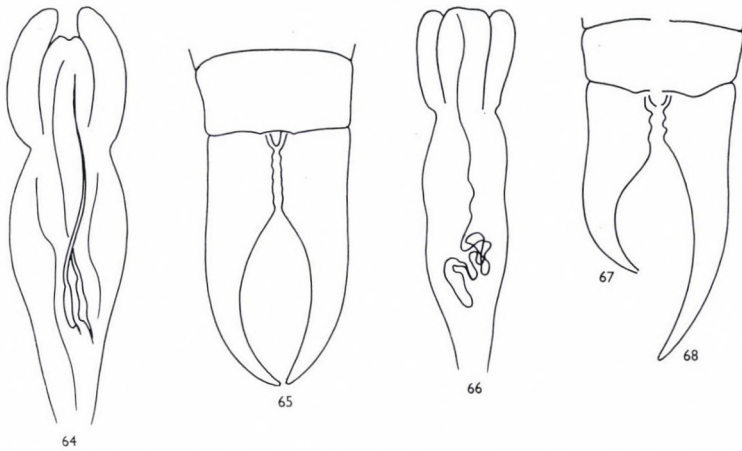
Length of body with forceps: 13 mm.

Female unknown.

Holotype male: Vietnam, Prov. Lao Cai, O-quy ho, near Sa Pa, 1950 m, near stream, from under bark of trees, 25. 11. 1971, leg. GY. TOPÁL & I. MATSKÁSI, gen. prep. No. 1023, det. DR. H. STEINMANN (deposited in Természettudományi Múzeum, Budapest).

### *Forficula mandarina* BORELLI

*Forficula mandarina* BORELLI, 1915, Boll. Musei Zool. Anat. comp. R. Univ. Torino, **30** (698): 2.  
Type-locality: China: Szechwan. Type male, gen. prep. No. 756, det. DR. H. STEINMANN: Mus. Ist. Zool. sist. Univ., Torino.



Figs 64–68. 64 = Male genital armature of *Forficula mandarina* BORELLI, 1915. — 65 = Male ultimate tergite with forceps of *F. genitalia* KAPOOR, 1968, and 66 = ditto, male genital armature. — 67–68 = Microlabial and macrolabial male forceps of *F. ornata* BORMANS, 1884 (Original)

Male forceps (Fig. 63) of *Forficula*-type; branches flattened basally and forming a typical inner flange; inner margins of flange serrated and more or less parallel; distal end of flange ending smoothly or in a blunt tooth. Distal portion of forceps depressed, oval or elliptical in cross-section, and strongly curved. Genitalia (Fig. 64, gen. prep. No. 451, det. DR. H. STEINMANN — from Fujian: Kuatum (2300 m), 117, 40ö, L.J.K. 5. 5. 1938 (Fukien), the specimen with two virgae, as in Fig. 64, normally developed; central parameral plate large, oval, narrowed basally; virga within genital lobe with a sclerotized basal vesicle; external parameres fully developed and rounded.

Distribution: China: Szechwan, and Fujian.

### *Forficula genitalia* KAPOOR

*Forficula genitalis* KAPOOR, 1968, Entomologist, London, 198: 17. Type-locality: India. Type male: KAPOOR's Collection.

Male forceps (Fig. 65) of *Forficula*-type; branches normally flattened basally, forming a typical rectangular flange internally; inner margins of flange parallel and crenulated. Distal portion of forceps cylindrical, regularly curved apically. Genitalia (Fig. 66) characteristic; not of *Forficula*-type, quite different from the other described species of the genus *Forficula*. Virga within genital lobe very long with a specific basal vesicle; external parameres broadly rounded.

Distribution: India.

*Forficula ornata* BORMANS

*Forficula ornata* BORMANS, 1884, Notes Leyden Mus., 6: 192. Type-locality: Madras. Type male: Mus. civ. Stor. nat. Genova. — *Forficula (Emiforficula) ornata* — SAKAI, Derm. Cat. Prael., Tokyo, 7: 295.

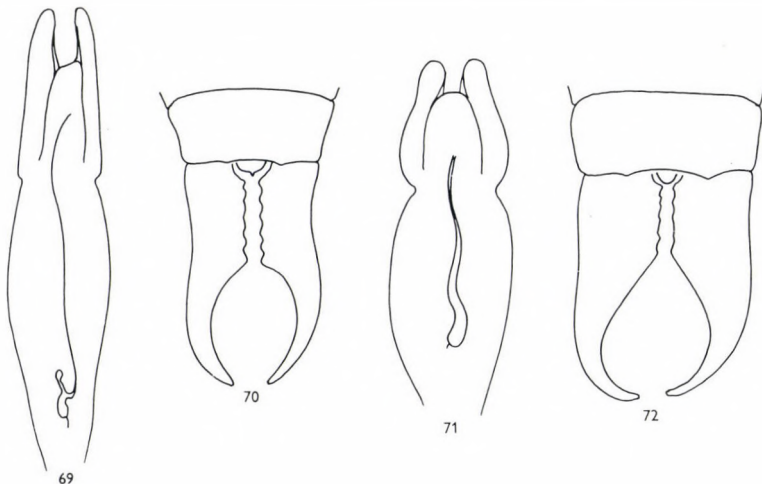
Male forceps with branches rather convex and stout, subcontiguous; inner basal flange undeveloped, distal end of flange broadly rounded (Fig. 67, form microlabia) or ending smoothly (Fig. 68, form macrolabia). Distal portion of forceps shorter or longer. Genitalia (Fig. 69, gen. prep. No. 529, det. DR. H. STEINMANN) not of *Forficula*-type; central parameral plate oval, normally developed, virga within genital lobe long, basal vesicle specific; external parameres very long, obtuse apically.

Distribution: India, Nepal, South China, Burma, Vietnam, and Sumatra.

*Forficula flavalis* BRINDLE

*Forficula flavalis* BRINDLE, 1983, Senckenbergiana biol., 93 (1982): 102. Type-locality: Nepal. Type male: Senckenberg Mus., Frankfurt am Main.

Male forceps (Fig. 70) of *Forficula*-type; branches strongly flattened basally, inner flange well developed, inner margins of flange parallel and crenulated. Distal portion of forceps evenly curved. Genitalia (Fig. 71) specific, central parameral plate oval, broad, comparatively short; virga within genital lobe normally developed, basal vesicle more or less straight or undulate, and



Figs 69–72. 69 = Male genital armature of *Forficula ornata* BORMANS, 1884. — 70 = Male ultimate tergite with forceps of *F. flavalis* BRINDLE, 1983, and 71 = ditto, male genitalia. — 72 = Male ultimate tergite with forceps of *F. hinnulea* HINCKS, 1947 (Original)

strongly sclerotized, not of *Forficula*-type; external parameres fully developed, broadened basally, narrowed apically, apices broadly rounded.

Distribution: Nepal.

### *Forficula hinnulea* HINCKS

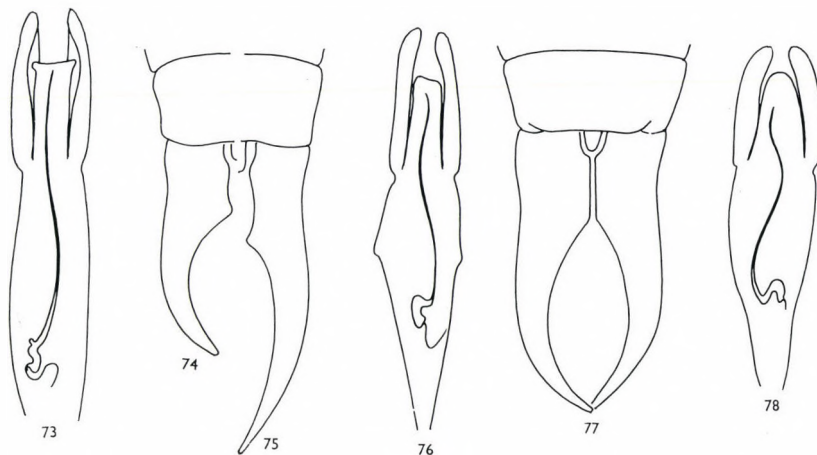
*Forficula hinnulea* HINCKS, 1947, Ark. Zool., Uppsala, **39A** (1): 36. Type-locality: Burma. Type male: Naturhist. Riksmus., Stockholm.

Male forceps (Fig. 72) of *Forficula*-type; branches flattened and forming a rectangular inner flange; inner margins of flange parallel and crenulated. Distal part of forceps specific, irregularly narrowed apically. Genitalia (Fig. 73) very narrow and elongate; central parameral plate narrow, long, virga within genital lobe with a conspicuous basal vesicle; external parameres fully developed.

Distribution: Burma.

### *Forficula beelzebub* (BURR)

*Chelisoches beelzebub* BURR, 1900, Anns Soc. ent. Belg., **44**: 51. Type-locality: India. Type male: Inst. R. Sci. Nat., Brussels. — *Forficula aceris* BURR, 1905, J. Asiat. Soc. Bengal, **1** (2): 30. Type-locality: India. Type male: Nation. Collection zool. Surv. India, Calcutta. — *Forficula celeris* BURR, 1905, J. Asiat. Soc. Bengal, **1** (2): 31. Type-locality: India. Type male: Nation. Collection zool. Surv. India, Calcutta. — *Forficula ignota* BURR, 1909, Ann. Mag. nat. Hist., (8) **4**: 120. Type-locality: India. Type male: Brit. Mus. (Nat. Hist.), London.



Figs 73–78. 73 = Male genital armature of *Forficula hinnulea* HINCKS, 1947. — 74–75 = Microlabial and macrolabial male forceps of *F. beelzebub* (BURR, 1900), and 76 = ditto, male genitalia. — 77 = Male ultimate tergite with forceps of *F. splendida* BEY-BIENKO, 1933, and 78 = ditto, male genitalia (Original)

Each branch of male forceps flattened basally, forming a rectangular inner flange; distal portion of forceps shorter (Fig. 74, form microlabia) or longer (Fig. 75, form macrolabia); cylindrical, sometimes elliptical in cross-section. Genitalia (Fig. 76, gen. prep. No. 175, det. DR. H. STEINMANN) narrow; central parameral plate elongate, virga within genital lobe comparatively long; external parameres fully developed, narrow.

Distribution: East Africa, and India, Nepal, Bhutan, South China, Vietnam, Burma.

### *Forficula splendida* BEY-BIENKO

*Forficula splendida* BEY-BIENKO, 1933, Ark. Zool., Uppsala, **25A** (20): 7. Type-locality: China: Gansu. Type male: place of deposition unknown.

Male forceps (Fig. 77) of *Forficula*-type; branches flattened basally, and forming a depressed rectangular inner flange; inner margins of flange parallel and faintly crenulated. Distal portion of forceps regularly narrowed apically. Genitalia (Fig. 78, gen. prep. No. 417, det. DR. H. STEINMANN from Vietnam) small, central parameral plate oval, strongly narrowed basally, virga within genital lobe long, basal vesicle not of *Forficula*-type; external parameres normally developed.

Distribution: Southern China, and Vietnam.

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DESCRIPTION OF THE ADULTS  
AND THE POSTEMBRIONAL DEVELOPMENT  
OF *NEUROCTENUS SUBSERRULATUS* SP. N.  
(HETEROPTERA: ARADIDAE)

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*Neuroctenus subserrulatus* sp. n. is described from Viet-Nam. The postembrional development is also discussed together with comments on development of other taxa in different subfamilies. With 34 figures

Comparative data gathered on various species of different subfamilies of Aradidae constituted a part of my C.Sc. theses (VÁSÁRHELYI, 1983), however, complete series of larvae were available in *Aradus* and *Aneuris* only. Some observations on the striking change of the different body parts could not be published without examining a complete series of a Mezirine species. Recently, I had the opportunity to collect series of different larval instars of a Mezirine species in Viet-Nam. To collect conspecific material which exclude misidentification seems to be a difficult task in the tropics. All materials available for me, either the present ones or those made by some colleagues throughout the world, contained several species in larval or adult stage. In one of the recent samples larvae and adults could be identified. The species is new to science. Below I describe this new species and discuss its postembrional development.

All drawings were made with a drawing apparatus. In the series there were 2  $L_5$  larvae only, one was cleared up in diluted KOH, while the other was prepared for SEM examination. This specimen later proved to be covered by a thin layer of unknown origin so the photos are unsatisfactory and some unsuitable for publication.

***Neuroctenus subserrulatus* sp. n. (Figs 1—5)**

More or less unicolorous dark brown, carinae on abdomen darker than sclerites. Wings shiny, reflecting light in the colours of the rainbow. Corium hyaline, with yellow veins and sparse yellow granulation.

Head 0.95 times as long as wide. Anterior process reaching 4/5 of antennal joint 1, antenniferous tubercles pointed, sides straight, subparallel. Post-ocular tubercles not reaching, reaching or slightly surpassing outer border of

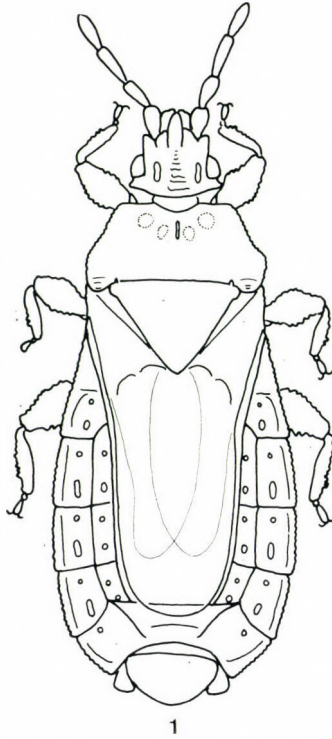


Fig. 1. *Neuroctenus subserrulatus* sp. n., male holotype

eyes. Antennal joint 3 apically cylindrical, others clavate. Relative length of antennal joints 1—4 as 23 : 22 : 29 : 26. Vertex transversally rugose.

Pronotum 2.7 times as wide as long. Anterior margin straight with deep insinuation at neck. Anterolateral border slightly sinuate, margin serrate. Posterolateral angles prolonged posteriorly, hind border slightly concave. Disc granulate, with a short deep median longitudinal furrow. Callosities inconspicuous, posterolateral angles transversally rugose, disc otherwise granulate.

Scutellum triangular, 0.72 times as long as wide. One narrow longitudinal spine and one wider lateral lobe on anterolateral angles. All three borders slightly convex, tip pointed. Disc longitudinally rugose in anterior 2/5, transversally rugose in posterior 3/5. Hemelytra narrow, almost reaching (female) or slightly surpassing (male) anterior border of tergite 7. Hind border of corium bisinuate. Legs short, femora flattened and wide, granulate, tibiae with long, spiniform granules preapically, fore tibia with a comb of 8—9 spines. Pulvillus lobe like (as in Fig. 31).

Abdomen oval, lateral margin with a double row of granules and a carina parallel with the margin both on the dorsal and ventral side. Surface mostly

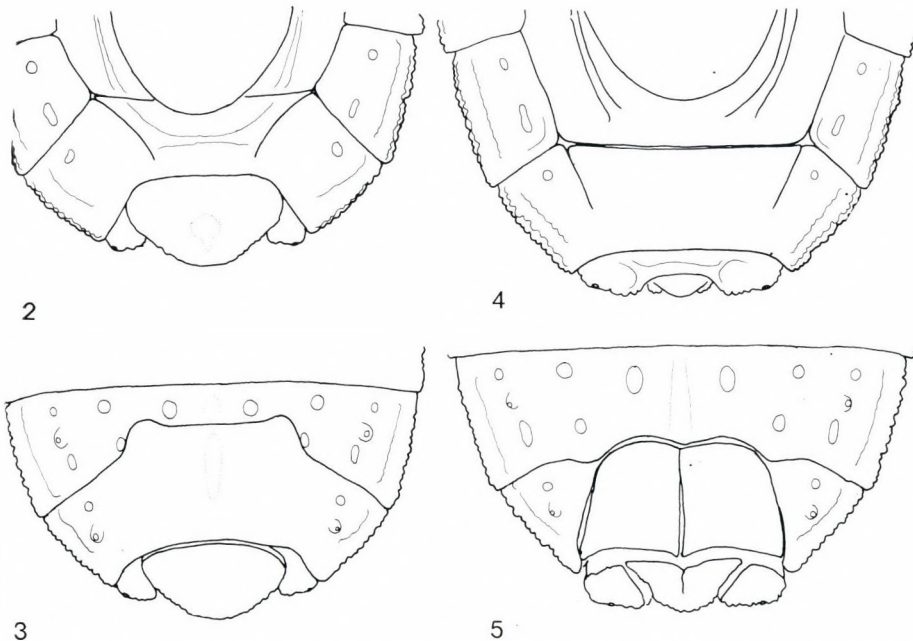
reticulate, tip of abdomen granulate. Laterotergites 2 and 3 fused. Tergal disc with a stronger lateral carina and a finer but distinct carina bordering the median part and the area of midlateral apodemal impressions. Sternites punctuate between midlateral apodemal impressions, with a longitudinal opaque area of small pointed elevations medially. Dorsal and ventral view of genital segments as shown in Figs 2—5. Spiracles 2—7 ventral, in the line of lateral apodemal impressions, 8 marginal, visible either from below or above.

Measurements (male, female): total length of body 5.23, 5.60 mm; length of head 0.78, 0.84 mm; width of head 0.83, 0.85 mm; length of pronotum 0.59, 0.62 mm; width of pronotum 1.58, 1.69 mm; length of scutellum 0.83, 0.88 mm; width of scutellum 1.16, 1.22 mm; maximum width of abdomen 2.17, 2.33 mm; length of antenna 1.3, 1.35 mm. (Measurements are averages of five specimens.)

Holotype (male) and paratypes (29 males and 31 females): Vietnam, Vinh Phú, Tam Dao, 200 m, 12. 10. 1986, leg. MÉSZÁROS—OLÁH—VÁSÁRHELYI, No. 31. Deposited in the Zoological Department, Hungarian Natural History Museum, Budapest.

The specimens, together with numerous larvae, were collected from under bark of a dead (No. 31/a) and a living (No. 31/b) tree.

The species runs in KORMILEV's (1971) key to *N. serrulatus* STÅL, 1870 and *N. hyalinipennis* KORMILEV, 1971, but differs from *serrulatus* as well as



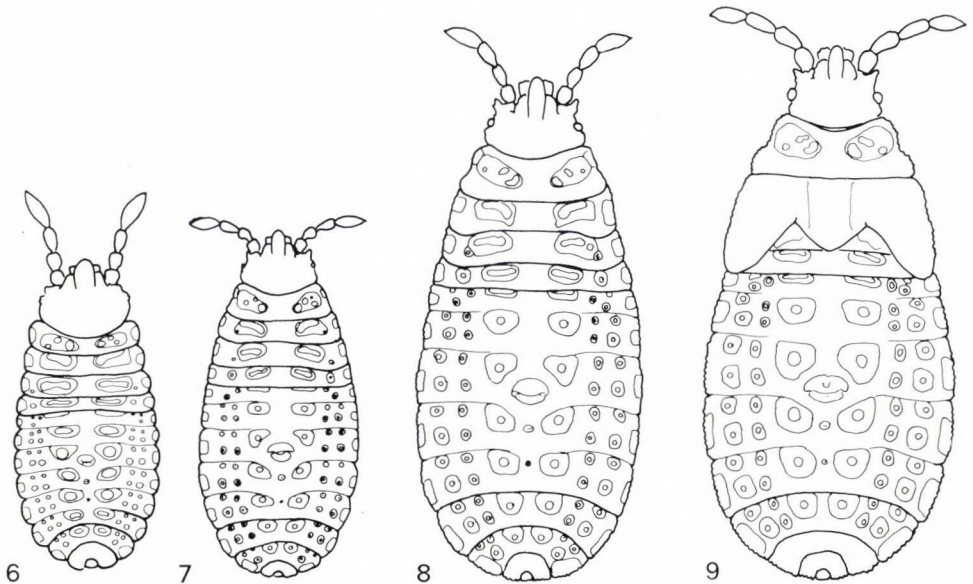
Figs 2—5. Tip of abdomen of *Neuroctenus subserrulatus* sp. n., 2—3 = male, 4—5 = female, 2, 4 = dorsal view, 3, 5 = ventral view

from *N. subrugosus* KORMILEV, 1977 in the not coriaceous corium and several measurements, from *hyalinipennis* in the shape of the pregenital tergites, in the measurements of antennal joints, in the shape of pronotum (anterolateral border being sinuate here), etc.

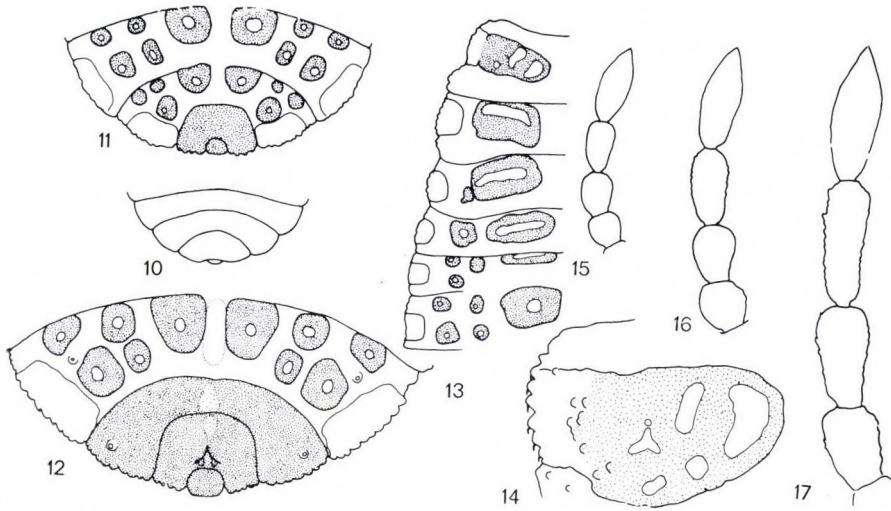
### Postembryonal development (Figs 6—34)

The habituses of the different instars are given in Figs 6—9 (of  $L_1$  only exuviae were available). Below the development of the selected body parts is treated. Different attributes may be used for specific identification and in the identification of the larval instar of a given specimen. The latter, in apterous specimens, may prove to be difficult. Some characteristics discussed below are of phylogenetic importance.

**Clypeus and labrum** are fused to form a clypeolabrum from the first instar on, but they can easily be distinguished, since clypeus is granulate while the short labral part is smooth. The latter one is increasingly longer in later stadia (c.f. Fig. 28). Clypeal part will also be more developed, longitudinally as well as dorsoventrally, to incorporate the coiled setae which are missing in the first instar. — The same was found in *Mezira* sp. (Figs 22—24, erroneously mentioned as *Neuroctenus* sp. in VÁSÁRHELYI, 1983) and in *Aneururus laevis* FABRICIUS, 1775 (Figs 18—19, 25—26), while the labrum is free in the genus *Aradus* (Fig. 27). Here, in later stadia, the labrum will be triangular and in the adults it is rectangular.



Figs 6—9. Larvae of *Neuroctenus subserrulatus* sp. n., 6 =  $L_2$ , 7 =  $L_3$ , 8 =  $L_4$ , 9 =  $L_5$



Figs 10–17. *Neuroctenus subserrulatus* sp. n., 10 = tip of abdomen of  $L_1$ , dorsal view, 11 = same,  $L_4$ , dorsal view, 12 = same,  $L_5$ , ventral view, 13 = apodemal impressions on the thorax and anterior abdominal segments,  $L_4$ , 14 = same on the pronotum,  $L_5$ , 15 = antenna,  $L_3$ , 16 = same,  $L_4$ , 17 = same,  $L_5$

**J u g u m** is distinct on  $L_1$ , **g e n a** is not visible on the exuvium. In the later stadia **g e n a** is almost reaching tip of clypeus, they grow together longitudinally (Figs 6–9). In younger larvae the clypeus is much wider than **g e n a**, in  $L_5$  apex of **g e n a** is about as wide as clypeus. The jugum changes proportionately with head, i.e. less quickly than clypeus. — In *Aneurys laevis* and a *Mezira* sp. **g e n a** is also invisible in  $L_1$ , the subgenal suture is distinct. Jugum is more developed in young larvae, in  $L_4$ , however, **g e n a** is surpassing jugum apically (Figs 20, 23–24). In a *Chinessa* sp. and in another unknown species **g e n a** is surpassing apex of clypeus in the instars  $L_2$  and  $L_3$ , respectively. In Aradinae jugum and **g e n a** are indistinct in  $L_1$ , in lateral stadia they grow isometrically.

**R o s t r u m** is three jointed in  $L_2$ – $L_5$ , and, though not visible on the exuvium, is obviously similar in the first instar (Fig. 29), but four jointed in adults, since joint 2 divides into two. Joint 2 is somewhat narrower at base in each larval instars. This basal part, forming the joint 2 of the adult, is very narrow and passes through the slit-like opening of the rostral atrium. — Rostrum is three jointed in *Aneurys* larvae and adults (VÁSÁRHELYI, 1983, JACOBS, 1986). In a *Mezira* sp. it is three jointed in  $L_1$ – $L_2$  and is four jointed in  $L_4$  (Figs 22, 24). In *Arictus* sp. three jointed in  $L_2$ , four jointed in  $L_5$ . In *Aradus* the rostrum is four jointed from the first instar on. Reduced number of rostral joints is obviously an apomorphic character which seems to be genetically not yet fixed in Mezirinae. The relatively long rostrum of  $L_1$  sur-

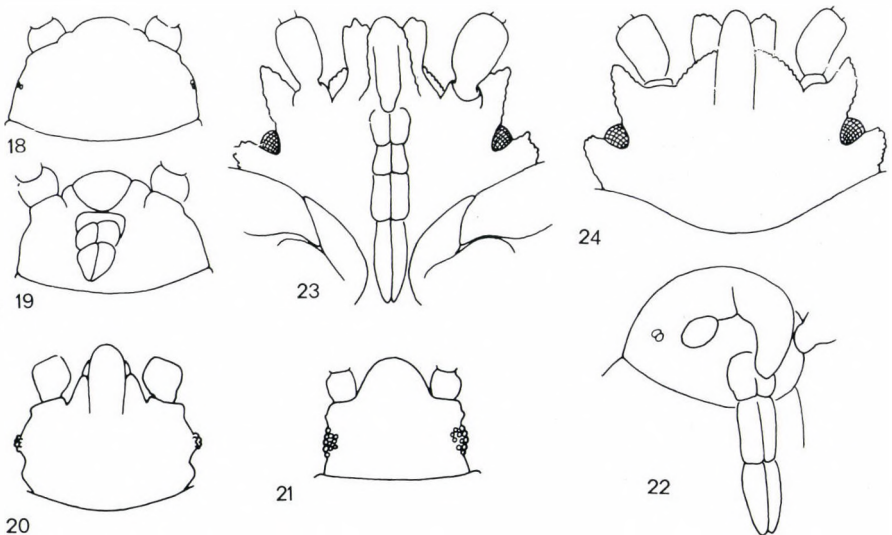
passes hind border of head in Mezirinae, since the clypeolabrum is short. In  $L_2$  rostrum does not reach prosternum.

**Antenniferous tubercle** is distinct also on the first instar exuvium, developing more rapidly in the younger larvae, diverging and acute in larvae, while subparallel and subacute in adults. — Antenniferous tubercle was observed on all  $L_1$  larvae which grows in a similar fashion. In *Aradus* larvae it has a lateral tooth (with a few exceptions) which may disappear during the last moulting.

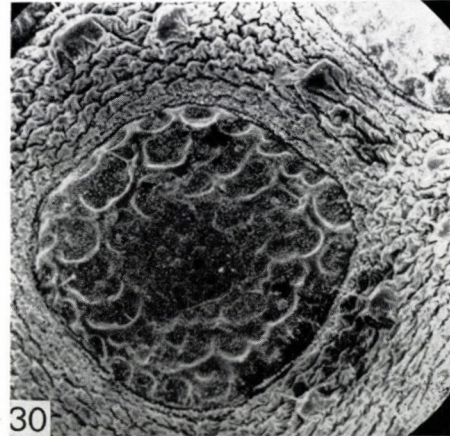
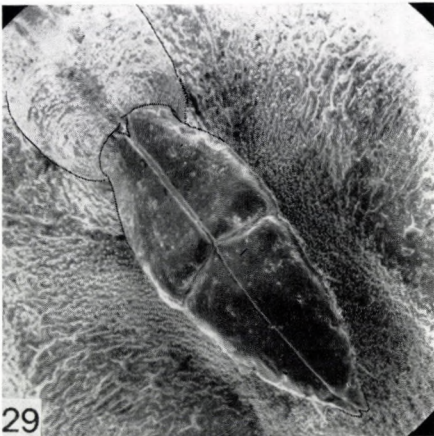
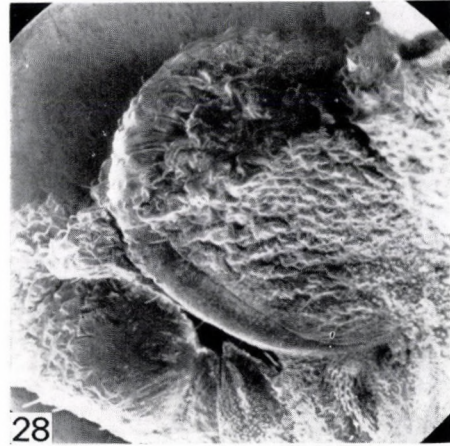
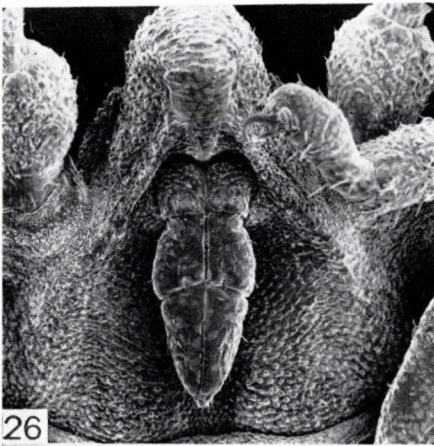
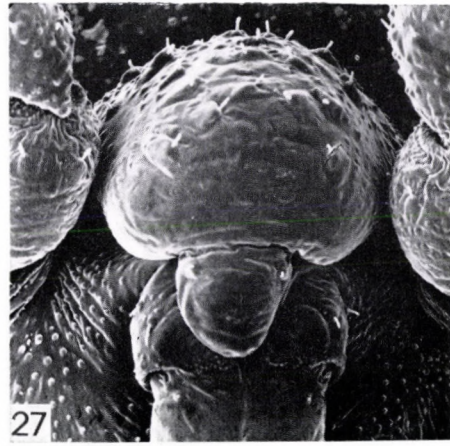
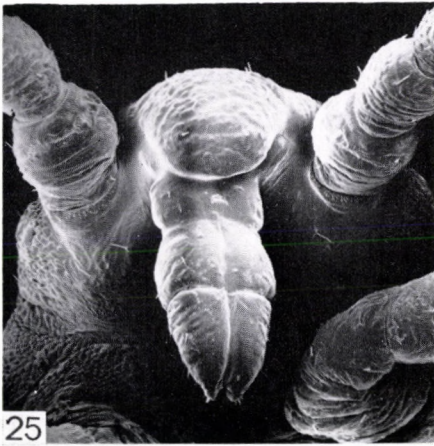
**Antenna** is four jointed in each stadia (Figs 15—17). The allometric growth of the individual joints follows a regular pattern (VÁSÁRHELYI, 1985). — Number of antennal joints is four in most cases, but in *Biroana*, *Arictus*, *Glochocoris* and an unknown Aradid species the antenna is three jointed in the last larval instar. The border of joints 3 and 4 is marked in the last joint.

**Number of ommatidia** is the following in the successive larval instars: 2, 2, 2, 14, 45. — Increasing number of ommatidia is a regular feature in Heteroptera (c.f. COBBEN, 1978, but with erroneous data for *Aneurus*). In *Aneurus* spp. the number of ommatidia is 2, 2, 2, 8, 40, in *Mezira* sp. 2, 2, ?, 20, ?, in *Arictus* sp. in the second instar 2, in *Aradus* spp. approximately 20, 40, 50, 60, 80.

**Pronotum** of the first larval instar is very short, in later instars it grows more rapidly. General shape of pronotum is increasingly similar to that of the adult, which may help to identify adults and larvae. Pattern of lateral border is preformed also in the last instars. — The same refers in general to



Figs 18—24. 18—20 = *Aneurus laevis*, 21 = *Aradus cinnamomeus*, 22—24 = *Mezira* sp.,  
18—19, 21—22 = head,  $L_1$ , 20, 23—24 = same,  $L_4$



Figs 25–30. 25–29 = Mouthparts of larvae, 30 = apodemal impression, 25 = *Aneurus laevis*, L<sub>1</sub>, 26 = same, L<sub>4</sub>, 27 = *Aradus corticalis* (LINNÉ, 1758), L<sub>1</sub>, 28–30 = *Neuroctenus subserrulatus* L<sub>5</sub>

all the taxa investigated. In *Aradus* the lateral lamellar lobe is distinct on the  $L_2$ , and gradually reaches the adult form including also the character of its margin.

Wing pads are not visible on  $L_3$ , are hardly developed on  $L_4$  but are reaching abdomen on  $L_5$  (Figs 7—9). — Development of wing pads are often used to determine the larval stadia of a Heteroptera. They are usually visible on the third instar larvae in Aradidae, but not on the investigated *Mezira* and *Neuroctenus* spp.

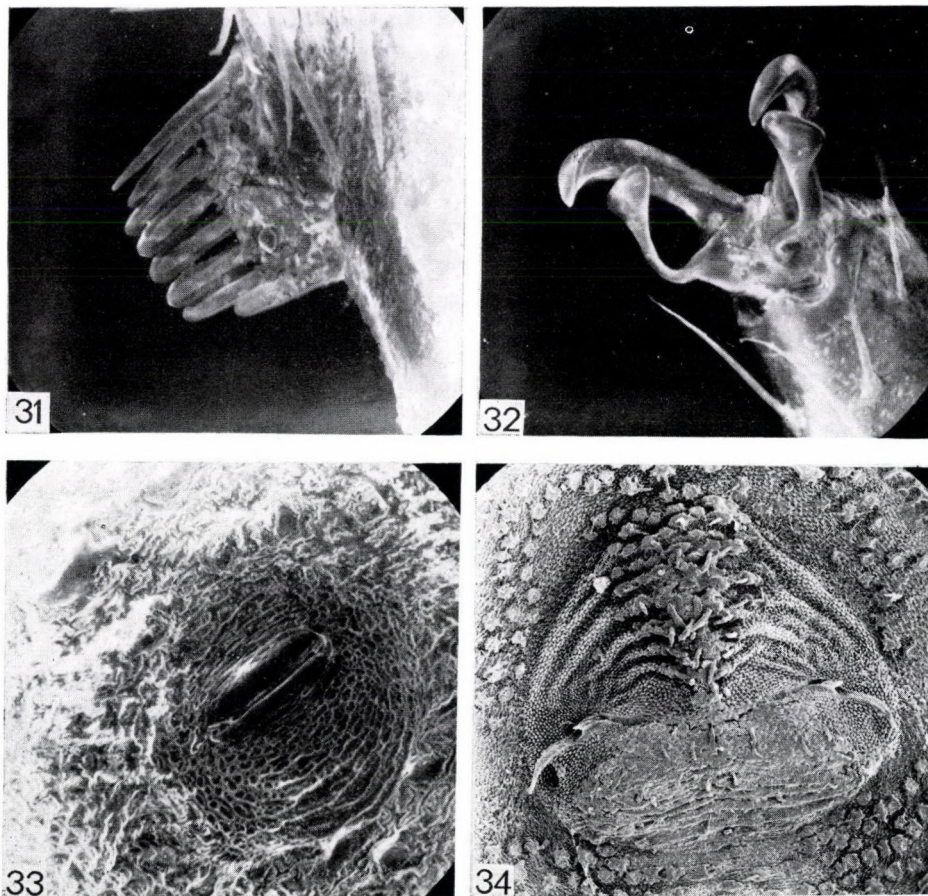
Tibial comb of the fore tibia, comprising of spines of varying number during development may be characteristic of the stadia. The increasing number of spines in the successive instars is 1, 4, 6, 7, 8—9 (Fig. 30). — In *Aradus cinnamomeus* PANZER, 1806 number of spines is 1, 1, 1—2, 2—3, 4—5.

Tergal plate is not clearly recognizable on larvae. The border between tergites 1—2 is sharp and borders between tergites 2—6 are inconspicuous between median apodemal impressions. — In *Aneururus* spp. the border between tergites 2—3 is also sharp. In *Aradus* spp. sutures are usually clear, however, in several species may not be distinct between tergites 3—6.

Scent gland openings are not equally developed on the abdomen. The opening of the first gland (opening originally on the hind margin of tergite 3) is the largest. In  $L_1$  it is represented by two transversal slits, in  $L_2$  it is surrounded by reticulate cuticule anteriorly and rugose cuticule posteriorly, but without obvious channel. In  $L_3$  two ejaculatory channels appear, reaching laterally, and the anterior, reticulate surface forms an evaporative area. Opening of the second gland is a transversal slit, which is surrounded by a transversally or concentrically rugose cuticule from the second instar on. Opening of the third gland is represented by a transversal, short, more sclerotized ridge with signs of a narrow transversal opening in  $L_1$ . It is the same, surrounded by a rounded area of reticulate surface in  $L_2$ . In the third instar the opening is wedge-shaped on a rounded, strongly sclerotized elevation, still surrounded by reticulate surface. The surface pattern of the openings is still recognizable on the adults. Openings are situated on the hind margin of tergites 3—4—5 in the first instar. From the second instar on openings appear on the hind portion of tergites 4—5—6. — In other taxa of Mezirinae the first scent gland opening, as described above, may be present, the third may be missing on the  $L_5$  larvae (*Mezira* sp., *Glochocoris* sp.), but may be present on  $L_3$  larvae (other *Mezira* sp.). In *Aneururus* spp. the third opening is marked in the first three instars by a more sclerotized spot only, it is open in  $L_4$  and  $L_5$  only, as a small, round aperture. In *Aradus* spp. all three openings are about equally developed. They are transversal slits surrounded by rugose cuticule and granulation. Their structure does not change much during ontogeny.

Apodemal impressions are developing as in Figs 6—14. The first instar larva has no apodemal impression. Each impression consists of a





Figs 31–34. 31–33 = *Neuroctenus subserrulatus*  $L_5$ , 34 = *Mezira* sp.  $L_5$ , 31 = tibial comb, 32 = pretarsus, 33 = opening of the second scented gland, 34 = opening of the first scented gland

(sub)median area covered by a fine hexagonal sculpture, and this area is surrounded by a strongly sculptured reticulate surface. In younger larvae a relatively larger part of the apodemal impression is covered by the hexagonally sculptured surface. The structure of impressions on the thorax may be derived from those on the abdomen, having a similar general structure. The pattern 2 : 2 : 1 characteristic of *Mezirinae* can be seen on segments 3–7 only, anteriorly and posteriorly to these segments impressions may be fused or may disappear. In anterior direction fusion of impressions is quite obvious (Fig. 13). The only apodemal impression of the pronotum has, on the  $L_5$  specimen investigated, five hexagonally sculptured centres resembling the pattern 2 : 2 : 1 (Fig. 14). The fusion of impressions is visible also in successive stadia on the meso- and metanotum ( $L_2$ – $L_4$ ) and on tergite and sternite 8 ( $L_4$ – $L_5$ , Figs

11—12). — A similar change in the abdominal impressions was observed in *Aneurus* spp., with the difference, that on segment 8 in  $L_3$  the anterior medio-lateral and lateral impressions are present, in  $L_4$  the anterior mediolateral impression is incorporated by the median impression and in  $L_5$  the whole segment is strongly sclerotized. In *Aradus* spp. the pattern of the apodemal impressions is 1 : 2 : 1 in younger larvae on the ventral side. In elder stadia and in adults the lateral impression may divide into two or may have two hexagonally sculptured centres within the same reticulate area.

Tip of abdomen is strikingly different in  $L_1$  and  $L_2$  (Figs 6—7, 10), since the anal opening is closed in  $L_1$ , and apical segments are not sclerotized. From the second instar on contours are not changing significantly, but the sclerotization of different sclerites may vary among stadia (see above). Rudiments of genitalia are visible on the fifth instar. — The same was observed in *Aneurus* spp. The development of the tip of the abdomen is characteristic of the species in *Aradus*, several cases it can be used in identifying elder stadia.

**Acknowledgements:** The author is much indebted to Mrs. I. GONDÁR for making the SEM photos.

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DATA TO THE EUPITHECIA FAUNA OF NEPAL, III  
(LEPIDOPTERA: GEOMETRIDAE)\*

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The description of 12 new species from the Nepalese collection of the National Science Museum (Natural History Institute), Tokyo, Japan: *Eupithecia pulla* sp. n., *noncoacta* sp. n., *particeps* sp. n., *apparatissima* sp. n., *iracunda* sp. n., *mira* sp. n., *beneficaria* sp. n., *owadai* sp. n., *sempiterna* sp. n., *balintzsolti* sp. n., *aceszteri* sp. n., and *Gymnoscelis caelestis* sp. n.

The Japanese collecting trip to Nepal in 1979 resulted in a relatively small Eupitheciini (s.l.) material, but it contained a great number of new taxa. In the following I propose to describe 11 new *Eupithecia* and a new *Gymnoscelis* species; compared with the results of the earlier German expeditions one may safely assume that only a very small part of the Eupitheciini fauna of Nepal is known. Compared with the total number of species of both the German and Japanese materials from Nepal, the number of new taxa is very high.

I am greatly indebted to the authorities of the National Science Museum and to my kind colleague, HIROSHI INOUE, for making available the material for study and elaboration, as well as to the Humboldt Foundation, Bonn, for a stipend which made it possible for me to carry out the necessary comparative investigations in various museums abroad.

*Eupithecia likiangi* VOJNITS, 1976

*Acta zool. hung.*, 22: 203—204, Figs 1: E, 2: D, 3: B.

A very late specimen of the species described from Li-kiang (North Yünnan, China) was captured in Nepal; it is slightly whiter than the Chinese exemplars (Plate 1: I).

Examined material: E Nepal, Manidingma, 2240 m, Solukhumbu, Sagarmatha, 8. X. 1979, 1 ♂, leg. M. OWADA.

Slide: 15710 (♂), gen. prep. A. VOJNITS.

Photo: 85 E 3.

\* Studies on Palaearctic *Eupithecia* Species.

*Eupithecia torva* VOJNITS, 1983

Acta zool. hung., **29**: 271—274, Figs 14, 17.

In contrast with the specimens known so far, the latest exemplar was captured during the autumn and not in the spring, and at a somewhat lower altitude. The species may — at least at lower localities — be bivoltine. It does not differ, either in external morphology or in genitalic structure, from the known specimens. The alar expanse of the fore wings is 25.5 mm.

Examined material: 1 ♀, E Nepal, Bagmati Zone, Sindhu, Palati 1200 m, 9. XI. 1979, leg. M. OWADA.

Slide: No. 14659 (♀), gen. prep. A. VOJNITS.

Photo: 85 D 15.

*Eupithecia mustangata* SCHÜTZE, 1961

Veröff. d. Zool. Staatssmlg. München, **6**: 101—188, Figs 4, 9; Pl. 31, Fig. 4, Pl. 32, Fig. 1.

The eleven female and two male specimens were collected in September and October; accordingly, the species is not univoltine (as assumed before) but bivoltine. Exemplars of the second generation are smaller and their hind wings darker (Plate 1: A, B, D, E, F, G, Plate 3: 1).

Examined material: Nepal, Sagarmatha, Solukhumbu, Phakding, 2580 m, 29. IX. 1979, 4 ♀♀: Ringmo, 2780 m, Solukhumbu, Sagarmatha, 9—11. X. 1979, 3 ♀♀; Junbesi, 2670 m, Solukhumbu, Sagarmatha, 10—11. X. 1979, 2 ♂♂ and 1 ♀; Namche Bazar, 3440 m, Solukhumbu, Sagarmatha, 30. IX. 1979, 1 ♀; Jiri, 1860 m, Janakpur, Dolakha, 1 ♀; Monjo, 2800 m, Sagarmatha, Solukhumbu, 1 ♀, leg. M. OWADA.

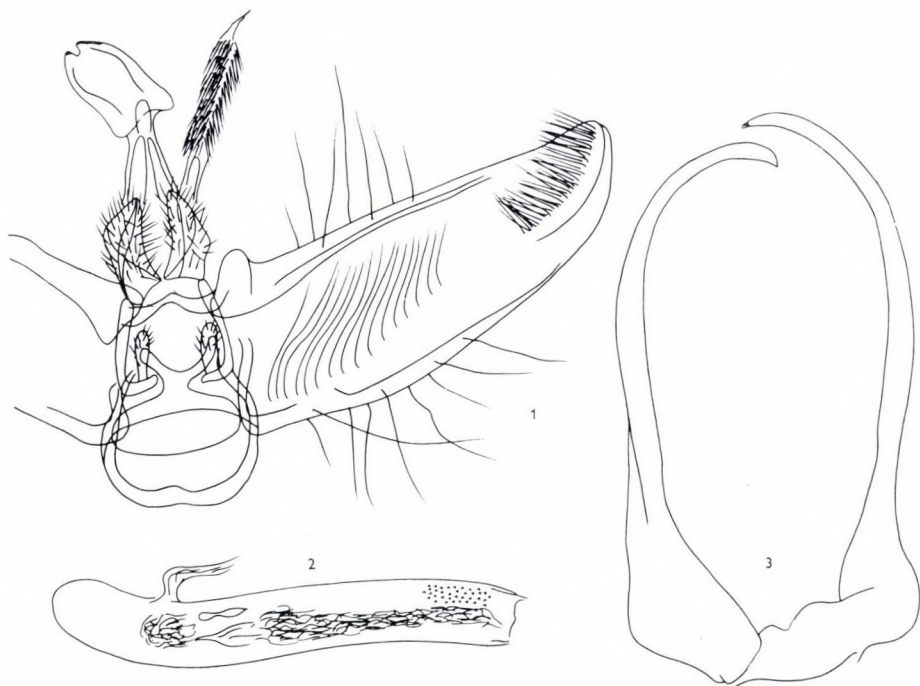
Slides: Nos 14702, 14703 (♂♂); 14663, 14664, 14686, 14687, 14691, 14701, 14704, 14705, 14708 (♀♀), gen. prep. A. VOJNITS.

Photos: 85 D 0, 85 D 19, 85 D 20, 85 D 24, 85 D 25, 85 D 29, 85 D 31, 85 D 32, 85 D 33, 85 D 34, 85 D 35, 85 E 1, 85 E 2.

*Eupithecia pulla* sp. n.

(Derivation of specific name: pullus = dark brown)

**D i a g n o s i s.** Alar expanse of fore wings of four male specimens 22, 22.5, 23, and 24.5 mm, respectively; that of the single female 23.5 mm. A broad-winged species. Costa of fore wing strongly arcuate at apex, apex pointed. Termen arcuate, tornus obtusely angulate. Hind wing obtusely angulate. Basic colour of fore wing violet brown. Transverse stripes obsolete, marked only near costa. Terminal field with a disjunct row of white spots, and a white blotch appearing also above tornus. Discal spot large, dark brown. Hind wing white with greyish irroration. Transverse stripes grey and composed of a row of grey spots, terminal field grey, transverse stripes very broad and grey at



Figs 1—3. *Eupithecia pulla* sp. n. 1 = male genitalia 2 = aedeagus 3 = sternite VIII

dorsum. Underside of fore wing dark fuscous, that of hind wing yellowish grey, all pattern elements brown. Cilia comparatively long, striated brown-dark brown on fore wing and light brown—brown on hind wing (Plate 2:G, H).

**Genitalia.** ♂: Uncus broad, flat, lamellate. Falces robust, densely spinose. Valva elongate, moderately wide. Papilla elongate, very densely hairy. Saccus wide. Aedeagus long, tubular, with two small, twisted and sclerotized formations. Basal part of sternite VIII finely concave, its two arm-shaped and inclinate appendages heavily sclerotized (Figs 1—3). ♀: Bursa copulatrix relatively small, with elongate and robust cornuti. Colliculum long. Both anterior and posterior apophyses long and strong. Papillae anales considerably elongate (Fig. 10).

**Biology.** First stages and foodplant unknown. The type specimens were collected at the beginning of October.

**Distribution.** Found at medium high altitudes in Nepal. Locus typicus: Sagarmatha, Solukhumbu, Thame Og, 3800 m.

**Specific difference.** The new species is the biggest and very marked representative of the “*bohatschi* group”.

**Remarks.** The species with a lamellate uncus shown so far from Nepal (*Eupithecia lineidistincta* VOJNITS, *violacea* VOJNITS, *matura* VOJNITS,

*discolor* VOJNITS, *circumscripta* VOJNITS) agree in the long aedoeagus displaying comparatively few sclerotized formations and in sternite VIII having split into long, arm-shaped appendages. Evidently we have to deal with a well-defined group of closely related species in the genus *Eupithecia*.

Holotype ♂: "E NEPAL Sagarmatha Solukhumbu Thame Og 3,800 m 1-2. X. 1979 M. OWADA". "gen. prep. No. 14655 ♂ det. A. VOJNITS photo 85 D 11". Paratypes: 3 ♂♂ and 1 ♀ with data as above. Holotype deposited in the National Science Museum, Tokyo, paratypes in Tokyo and in the Hungarian Natural History Museum, Budapest.

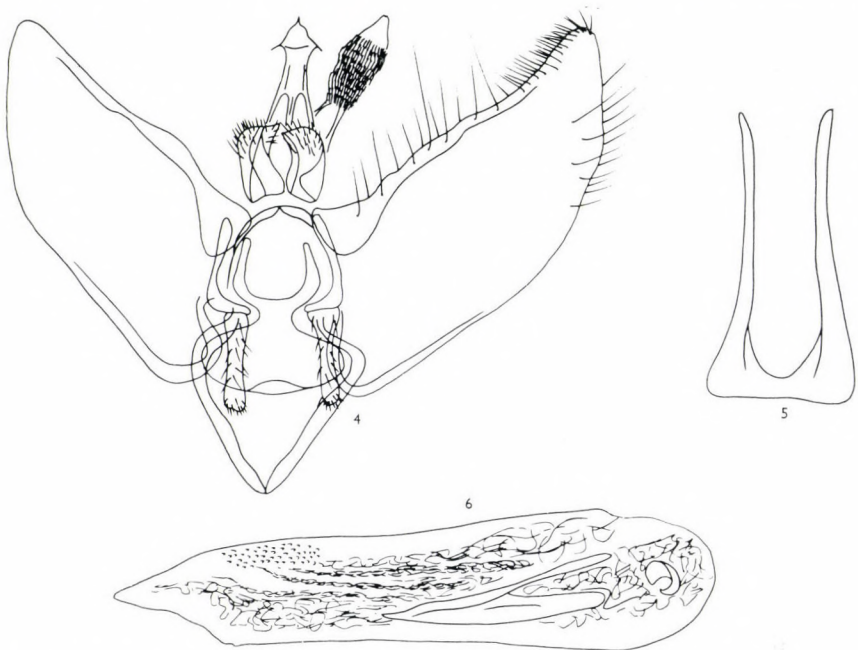
Slides: Nos 14655, 14656, 14657, 14658 (♂♂), 14654 (♀), gen. prep. A. VOJNITS.

Photos: 85 D 10, 85 D 11, 85 D 12, 85 D 13, 85 D 14.

### *Eupithecia noncoacta* sp. n.

(Derivation of specific name: non coactus = spontaneous)

**D i a g n o s i s.** Alar expanse of fore wings of the two male specimens 25 and 26 mm, respectively, that of females also 25 and 26 mm. Wings elongate. Costa and termen of fore wing finely, dorsum hardly, arcuate. Apex pointed. Tornus widely rounded. Hind wing elongate, only slightly angulate. Basic colour of fore wing yellowish brown, apical, costal and terminal fields darker, greyish. Transverse stripes obsolete, discal spot marked, long, narrow, black—dark brown. Apical and tornal areas with an elongate, greyish fuscous spot



Figs 4-6. *Eupithecia noncoacta* sp. n. 1 = male genitalia 2 = aedoeagus 3 = sternite VIII

each. Hind wing yellowish white. Transverse stripes crenellate, pale brownish. Discal spot brown, minute, round. Margin of both fore and hind wings indicated by a sharp dark brown line. Underside of fore wing pale brown, that of hind wing brownish white. Discal spots sharply delineated, transverse stripes obsolete. Cilia rather long, striated dark brown—blackish brown and dark brown—pale brown (Plate 2: D, E, F).

**Genitalia.** ♂: Uncus wide, short, pointed, bifid. Falces extending considerably beyond uncus, elongately spinose. Valva wide, dorsum convex, ventrum broken. Papilla long, apically truncate and there with densely arranged hairs. Saccus elongate and obtusely angulate. Aedoeagus long, apically with thickened and ribbon-like sclerotized formations. Arm-shaped appendages of sternite VIII straight (Figs 4—6). ♀: Bursa copulatrix lemon-shaped, very densely padded with minute signa. Colliculum long. Posterior apophyses medium long, anterior ones very long. Papillae anales elongate, small, narrow (Fig. 11).

**Biology.** First stages and foodplant unknown. The type specimens were collected in November.

**Distribution.** Found at low altitudes in Nepal. Locus typicus: Sindhu, Drumthali, 2420 m.

**Specific differences.** As to external morphology, the new species resembles *Eupithecia torva* VOJNITS, but the configuration of the genitalia is wholly different.

Holotype ♂: "E NEPAL Bagmati Zone Sindhu Drumthali 2,420 m 13. XI. 1979 M. OWADA" "gen. prep. No. 14648 ♂ det. A. VOJNITS photo 85 D 4". Paratypes: 1 ♂ and 2 ♀♀ with the same data. Holotype deposited in the National Science Museum, Tokyo, paratypes in Tokyo and in the Hungarian Natural History Museum, Budapest.

Slides: 14645, 14648 (♂♂), 14646, 14647 (♀♀), gen. prep. A. VOJNITS.

Photos: 85 D 1, 85 D 2, 85 D 3, 85 D 4.

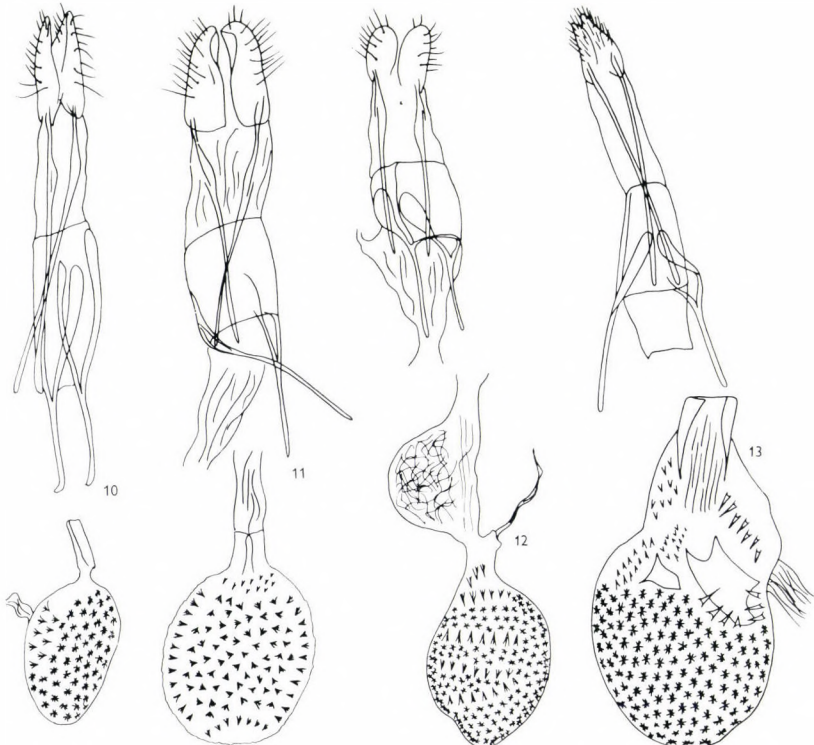
### ***Eupithecia particeps* sp. n.**

(Derivation of specific name: particeps = partaking)

**Diagnosis.** Alar expanse of fore wings of the single male specimen 19 mm. Length of one fore wing (of injured) female exemplar 11.3 mm. Wings slightly elongate. Fore wing an isosceles triangle. Costa arcuate only at apex. Apex rounded. Termen nearly straight, dorsum straight; tornus obtusely truncate. Hind wing elongate, angulate. Fore wing fuscous, at transverse stripe rufous. Transverse stripes wide. Discal spot large, marked, black. Hind wing greyish white, transverse stripes grey, obsolete, discal spot small, elongate. Underside of wings yellowish grey, transverse stripes well discernible. Cilia slightly shorter than medium, striated yellowish grey and fuscous (Plate 3: G, H).



Figs 7—9. *Eupithecia particeps* sp. n. 1 = male genitalia 2 = aedeagus 3 = sternite VIII



Figs 10—13. Female genitalia of 10 = *Eupithecia pulla* sp. n. 11 = *E. noncoacta* sp. n. 12 = *E. particeps* sp. n. 13 = *E. iracunda* sp. n.



**Genitalia.** ♂: Uncus long, robust. Falces of a relatively fine structure, spines minute and densely arranged. Valva long, apically rounded, its two sides nearly parallel. Papilla elongate, scarcely hairy. Saccus wide. Aedoeagus cylindrical with two sinuous cornuti, and a shorter, multiply twisted and a lamelliform chitinous formation. Arm-shaped appendages of sternite VIII very long (Figs 7—9). ♀: Bursa copulatrix small, lemon-shaped very densely padded with signa. Side of colliculum laterally with a soft-walled, sacculiform excrescence. Both anterior and posterior apophyses thin and medium long. Papillae anales elongate (Fig. 12).

**Biology.** First stages and foodplant unknown. The two type specimens were collected in October.

**Distribution.** Found in East Nepal. Locus typicus: Solukhumbu, Ringmo, 2780 m.

**Specific differences.** The new species stands, as regards the configuration of mainly the male genitalia — nearest to *Eupithecia fusca* VOJNITS, but externally and as to the female genitalia it differs essentially; in details also the male genitalia disagree.

Holotype ♂: "Ringmo 2,780 m Solukhumbu Sagarmatha E NEPAL 9—X—1979 M. OWADA" "gen. prep. No. 14689 ♂ det. A. VOJNITS photo 85 D 27". Paratype ♀: Junbesi 2670 m, Solukhumbu, Sagarmatha, 10—11. X. 1979, leg. M. OWADA. Holotype and paratype deposited in the National Science Museum, Tokyo.

Slides: Nos 14689 (♂), 14653 (♀), gen. prep. A. VOJNITS.

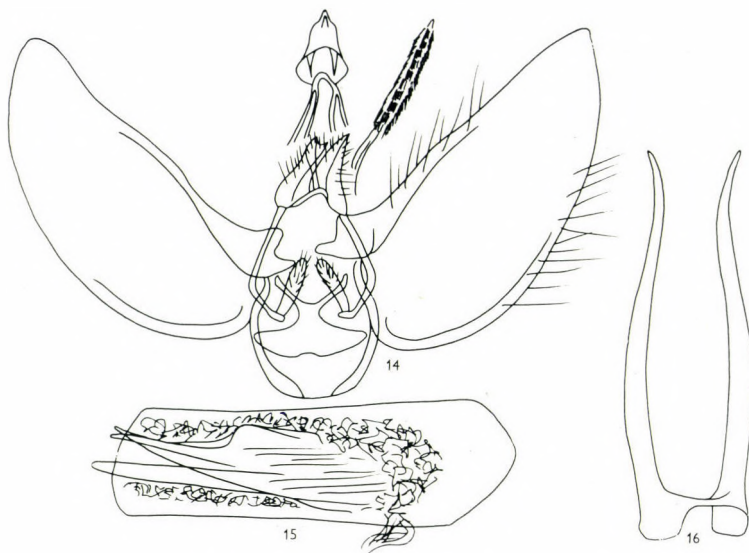
Photos: 85 D 9, 85 D 27.

### ***Eupithecia apparatissima* sp. n.**

(Derivation of specific name: apparatissimus = ornate)

**Diagnosis.** Alar expanse of fore wings of the single known male specimen 19 mm. Fore wing slightly elongate, hind wing rounded. Costa and dorsum of fore wing slightly, termen considerably, arcuate. Apex pointed. Tornus obtusely truncate. Hind wing wide, obtusely angulate. Basic colour of fore wing yellowish brown, mainly median field rufous. Dark brown colour present chiefly in basal field, in terminal area and along costa. Transverse stripes wide. Discal spot slightly elongate, blackish brown. Hind wing yellowish white, transverse stripes disintegrated into fuscous spots. Discal spot obsolete. Underside of fore wing yellowish grey, that of hind wing greyish white, pattern elements marked. Cilia short, striated yellowish brown—dark brown and whitish grey—grey (Plate 3: C).

**Genitalia.** ♂: Uncus bifid, wide, robust. Falces very densely spinose. Valva typically auricular. Papilla much elongated, with sparsely arranged hairs. Saccus wide. Aedoeagus short, thick, with stout and heavily sclerotized



Figs 14—16. *Eupithecia apparatissima* sp. n. 14 = male genitalia 15 = aedeagus 16 = sternite VIII

formations. Arm-shaped appendages of sternite VIII extraordinarily elongated, arcuate, apically considerably tapering (Figs 14—16). ♀ unknown.

**B i o l o g y.** First stages and foodplant unknown. The sole known specimen was collected in the first half of October.

**D i s t r i b u t i o n.** Detected in East Nepal. Locus typicus: Sagarmatha, Solukhumbu, Nangbug, 2550 m.

**S p e c i f i c d i f f e r e n c e s.** As regards the general configuration of the male genitalia, the new species resembles *Eupithecia maculosa* VOJNITS, but the details are different, and the external appearance also differs.

Holotype ♂: "E NEPAL Sagarmatha Solukhumbu Nangbug 2,550 m 5. X. 1979 M. OWADA" "gen. prep. No. 14690 ♂ det. A. VOJNITS photo 85 D 28". Holotype deposited in the National Science Museum, Tokyo.

Slide: No. 14690 (♂), gen. prep. A. VOJNITS.

Photo: 85 D 28.

### ***Eupithecia iracunda* sp. n.**

(Derivation of specific name: iracundus = touchy)

**D i a g n o s i s.** Alar expanse of fore wings of the single female specimen 18.5 mm. A broad-winged species. Fore wing an isosceles triangle, costa and dorsum hardly, termen slightly, arcuate. Apex pointed. Tornus widely rounded. Hind wing angulate. Fore wing fuscous, transverse stripes rufous, discal spot blackish brown. Hind wing yellowish white irrorated with grey, transverse stripes grey. Discal spot minute. Underside of wings yellowish grey, pattern elements grey. (Holotype rather worn, cilia absent) (Plate 2: B.)

**Genitalia.** ♀: Spherical part of piriform bursa copulatrix very densely padded by signa; less densely arranged in cervical section; an extraordinarily large, robust and dentiform signum and a heavily sclerotized plate are especially conspicuous. Colliculum thick. Both anterior and posterior apophyses medium long and thick. Papillae anales long (Fig. 13). ♂: unknown.

**Biology.** First stages and foodplant unknown. The holotype was collected in October.

**Distribution.** Discovered in East Nepal. Locus typicus: Sagarmatha, Solukhumbu, Junbesi 2670 m.

**Specific difference.** By the configuration of the genitalia, the new species stands near *Eupithecia mustangata* SCHÜTZE, but differs from it by both the genitalic details and the external features.

Holotype ♀: "Junbesi 2,760 m Solukhumbu Sagarmatha E NEPAL 10-11. X. 1979 M. OWADA" "gen. prep. No. 14688 ♀ det. A. VOJNITS photo 85 D 26". Holotype deposited in the National Science Museum, Tokyo.

Slide: No. 14688 (♀), gen. prep. A. VOJNITS.

Photo: 85 D 26.

### ***Eupithecia mira* sp. n.**

(Derivation of specific name: mirus = wonderful, from strange)

**Diagnosis.** Alar expanse of fore wings of the single female specimen 18 mm. Fore wing moderately elongate, an isosceles triangle. Costa hardly, termen finely, arcuate. Apex pointed. Tornus obtusely angulate. Hind wing short, angulate. Holotype specimen extremely worn: basic colour probably brown, discal spot marked, dark brown. Underside of wings light, pattern elements obsolete. Cilia worn off (Plate 3: D).

**Genitalia.** ♀: Bursa copulatrix sacculiform, with signa, a heavily sclerotized dentate excrescence and a strobiliform outgrowth. Colliculum short and thick. Both anterior and posterior apophyses short and medium thick. Papillae anales oval (Fig. 23).

**Biology.** First stages and foodplant unknown. The holotype was collected in October.

**Distribution.** Found in East Nepal. Locus typicus: Manidingma, 2240 m, Solukhumbu, Sagarmatha.

**Specific differences.** By its extraordinary armature in the bursa copulatrix, the new species unequivocally differs from all known *Eupithecia* taxa.

Holotype ♀: "Manidingma 2,240 m Solukhumbu Sagarmatha E NEPAL 8-X-1979 M. OWADA" "gen. prep. No. 14684 ♀ det. A. VOJNITS photo 85 D 22". Holotype deposited in the National Science Museum, Tokyo.

Slide: No. 14684 (♀), gen. prep. A. VOJNITS.

Photo: 85 D 22.

***Eupithecia beneficiaria* sp. n.**

(Derivation of specific name: *beneficiarius* = beneficiary)

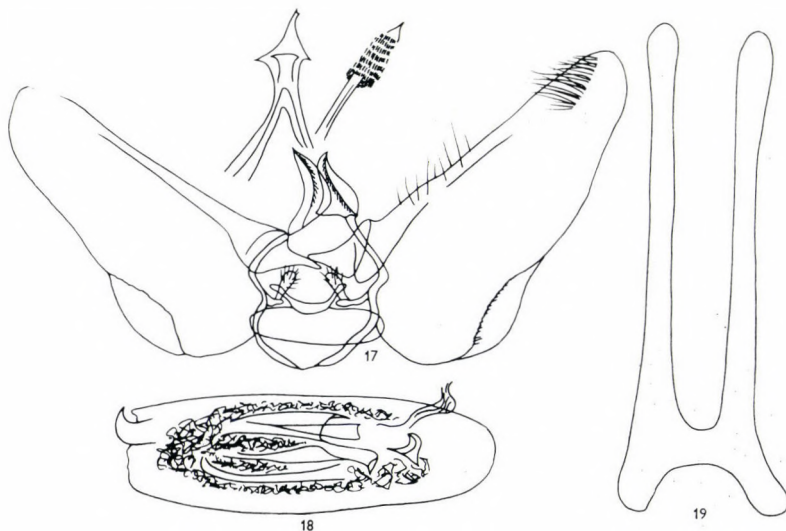
**Diagnosis.** Left fore wing of the single male specimen missing, length of right fore wing 10 mm. A moderately broad-winged species. Fore wing an isosceles triangle, costa arcuate only at base and apex, termen evenly and finely arcuate. Apex obtuse. Tornus rounded, wide. Fore wing rufous brown, apical and terminal areas darker, median field yellower. Transverse stripes yellowish. Discal spot long, black. Hind wing greyish, at margins yellowish or rufous. Transverse stripes obsolete, discal spot minute. Underside of wings shiny, grey, pattern elements rufous brown. Cilia short, striated brown and yellowish brown (Plate 3: E).

**Genitalia.** ♂: Valva wing-shaped, with a definite sacculus. Uncus bifid, moderately elongate. Falces relatively small. Papilla elongate, sparsely hairy. Aedoeagus short and thick, with several sclerotized plates and a beak-shaped formation. Lateral branches of sternite VIII largely of uniform width (Figs 17—19). ♀ unknown.

**Biology.** First stages and foodplant unknown. The holotype was collected in October.

**Distribution.** Discovered in East Nepal. Locus typicus: Khari-khola, 1980 m, Solukhumbu, Sagarmatha.

**Specific differences.** As to external features, the new species mostly resembles *Eupithecia particeps* sp. n., but the configuration of the genitalia is completely different.



Figs 17—19. *Eupithecia beneficiaria* sp. n. 17 = male genitalia 18 = aedoeagus 19 = sternite VIII

Holotype ♂: "Kharikhola 1,980 m Solukhumbu Sagarmatha E NEPAL 7-X-1979 M. OWADA" "gen. prep. No. 14683 ♂ det. A. VOJNITS photo 85 D 21". Holotype deposited in the National Science Museum, Tokyo.

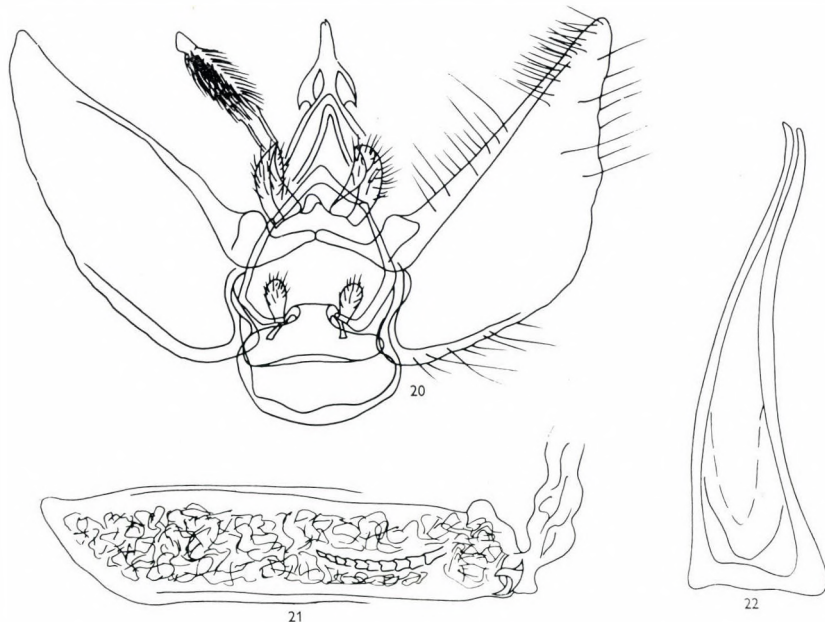
Slide: No. 14683 (♂), gen. prep. A. VOJNITS.

Photo: 85 D 21.

### *Eupithecia owadai* sp. n.

**D i a g n o s i s.** Alar expanse of fore wings of the single female specimen 20 mm. A broad-winged species. Costa of fore wing considerably, termen hardly, dorsum not at all, arcuate. Apex somewhat elongate. Tornus obtuse. Basic colour rufous, anterior third of median field and part of terminal field dark fuscous with a violet sheen. Discal spot long, black nearly parallel with dorsum and situated near costa, at border of dark blotch. Between median field and apex a darker brownish spot present. Hind wing triangular, greyish, with a rufous spot in a yellowish frame near tornus. Underside of wings light. Cilia medium long, rufous, brown and fuscous on fore wing, yellowish on hind wing (Plate 3: F).

**G e n i t a l i a.** ♀: Bursa copulatrix very small, lemon-shaped, densely padded with minute signa. Colliculum thick. Both anterior and posterior apophyses rather thin and medium long. Papillae anales elongate, terminally obtuse and relatively large (Fig. 24). ♂ unknown.



Figs 20–22. *Eupithecia sempiterna* sp. n. 20 = male genitalia 21 = aedoeagus 22 = sternite VIII

**Biology.** First stages and foodplant unknown. The holotype specimen was collected in October.

**Distribution.** Found in East Nepal. Locus typicus: Junbesi, 2670 m, Solukhumbu, Sagarmatha.

**Specific differences.** Although the configuration of the female genitalia of the new species is not very striking, the external features distinguish it from all congeners.

**Dedication.** I dedicate the new species to M. OWADA, renowned Japanese lepidopterist, the collector of the material under discussion.

Holotype ♀: "Junbesi 2,670 m Solukhumbu Sagarmatha E NEPAL 10—11. X. 1979 M. OWADA" "gen. prep. No. 14649 ♀ det. A. VOJNITS photo 85 D 5". Holotype deposited in the National Science Museum, Tokyo.

Slide: No. 14649 (♀), gen. prep. A. VOJNITS.

Photo: 85 D 5.

### ***Eupithecia sempiterna* sp. n.**

Derivation of specific name: sempiternus = eternal)

**Diagnosis.** Alar expanse of fore wings of three male specimens 22, 24 and 24.5, respectively, that of three females 25, 25.5 and 27 mm, respectively. A large-sized species. Fore wing elongate, an isosceles triangle. Costa and termen arcuate, dorsum straight. Apex pointed. Tornus rounded. Hind wing short, wide, obtusely angulate. Basic colour of fore wing brown, median field and partly basal field greyish, wide terminal field rufous. Discal spot black. Transverse stripes narrow. Submarginal line white. Hind wing pale grey, transverse stripes grey. Underside of wings yellowish grey, pattern elements well discernible. Cilia medium long, striated brown—dark brown and greyish yellow—pale brown (Plate 2: A, B, C).

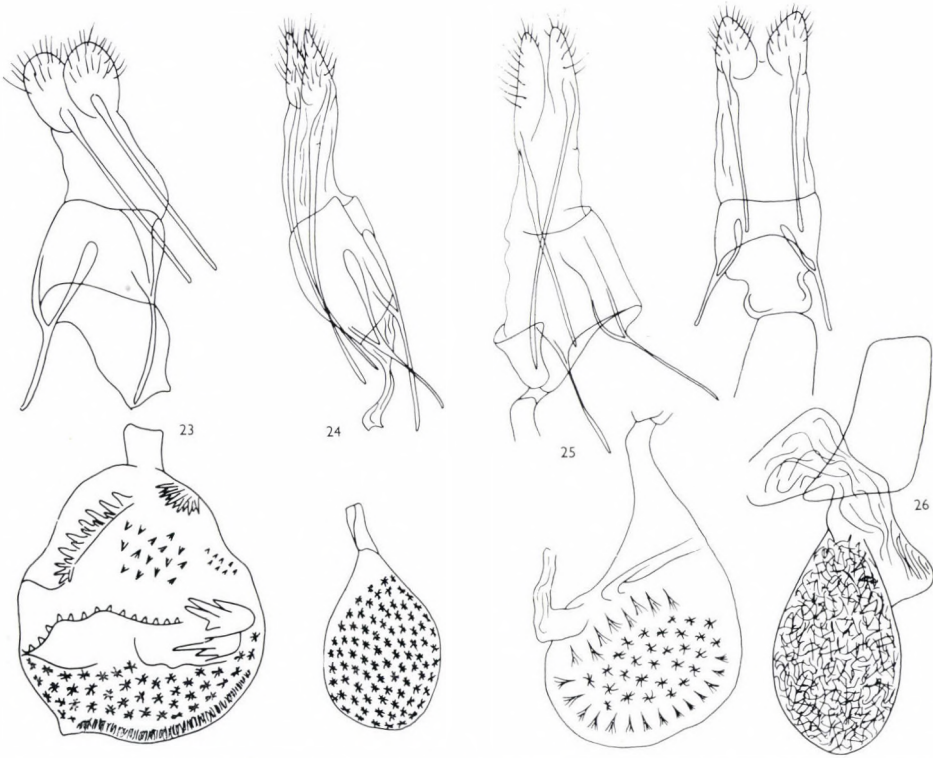
**Genitalia.** ♂: Uncus robust, bifid. Falces relatively short. Valva tapering. Papilla stout and densely hairy. Saccus wide. Aedoeagus with a strobiliform outgrowth. Lateral branches of sternite VIII long (Figs 20—22). ♀: Bursa copulatrix spherical, with densely arranged signa. Colliculum long. Anterior apophyses short, posterior ones medium long. Papillae anales rice-shaped (Fig. 25).

**Biology.** First stages and foodplant unknown. The type series was collected at the end of September and the first days of October.

**Distribution.** Found in East Nepal. Locus typicus: Sagarmatha, Solukhumbu, Thame Og, 3800 m.

**Specific differences.** The new species belongs in the *mustangata* group, wherein it differs from its relatives by many external and genital features.

Holotype ♀: "E NEPAL Sagarmatha Solukhumbu Thame Og 3,800 m 1—2. X. 1979 M. OWADA" "gen. prep. No. 14660 ♀ det. A. VOJNITS photo 85 D 16". Paratypes: 1 ♂ and



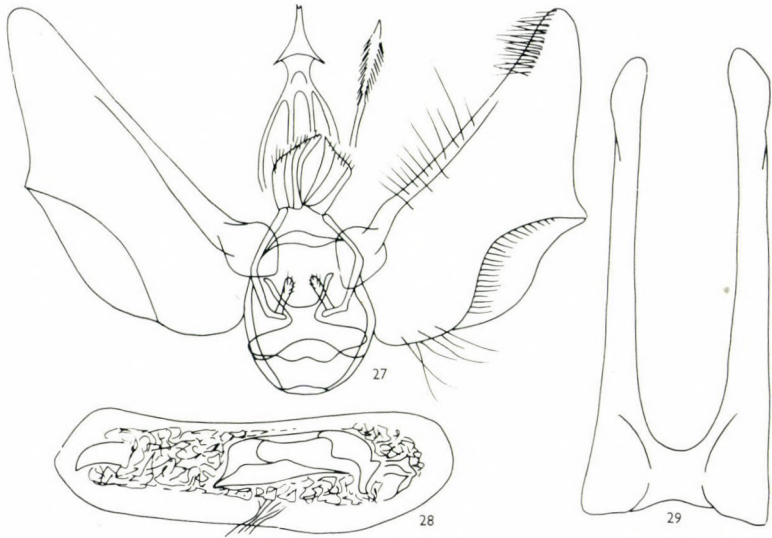
Figs 23—26. Female genitalia of 23 = *Eupithecia mira* sp. n. 24 = *E. owadai* sp. n. 25 = *E. sempiterna* sp. n. 26 = *E. caelestis* sp. n.

2 ♀♀ with the same data, 1 ♂ from Sagarmatha, Solukhumbu, Namche Bazar, 3440 m; 1 ♂ from Sagarmatha, Solukhumbu, Nangbug, 2550 m. Holotype deposited in the National Science Museum, Tokyo; paratypes in the same institute and in the Hungarian Natural History Museum, Budapest.

Slides: 14650, 14651, 14661 (♂♂), 14652, 14660, 14662 (♀♀), gen. prep. A. VOJNITS.  
Photos: 85 D 6, 85 D 7, 85 D 8, 85 D 16, 85 D 17, 85 D 18.

### *Eupithecia balintzolti* sp. n.

**D i a g n o s i s.** Alar expanse of fore wings of the single male specimen 18 mm. A broad-winged species. Fore wing an isosceles triangle. Costa slightly, termen more strongly, arcuate, dorsum straight. Apex pointed. Hind wing broad. Basic colour of fore wing brown, chiefly along costa and in terminal area greyish, median field rufous. Discal spot very large, marked, round, black. Hind wing of same tint as fore wing, but lighter, discal spot smaller. Transverse stripes obsolete on all wings. Underside of wings light brown, pattern faint. Cilia worn off (Plate 1: 4).



Figs 27—29. *Eupithecia balintzsolti* sp. n. 27 = male genitalia 28 = aedeagus 29 = sternite VIII

**Genitalia.** ♂: Uncus bifid, elongate. Falces extending slightly beyond uncus. Ventrums of valva emorse. Papillae long, relatively sparsely hairy. Saccus wide. Aedeagus short and stout, with some sclerotized excrescences of indefinite shape. Lateral arms of elongate sternite VIII long (Figs 27—29). ♀ unknown.

**Biology.** First stages and foodplant unknown. The holotype was collected at the beginning of November.

**Distribution.** Found in East Nepal. Locus typicus: Bagmati, Sindhu, Palati 1200 m.

**Specific differences.** The shape of the valva distinguishes the new species from all similar Chinese species.

I dedicate the new species to ZSOLT BÁLINT, specialist of Rhopalocera in the Hungarian Natural History Museum, Budapest.

Holotype ♂: "E NEPAL Bagmati Zone Sindhu Palati 1,200 m 14. XI. 1979 M. OWADA" "gen. prep. No. 14692 ♂ det. A. VOJNITS photo 85 D 30". Holotype deposited in the National Science Museum, Tokyo.

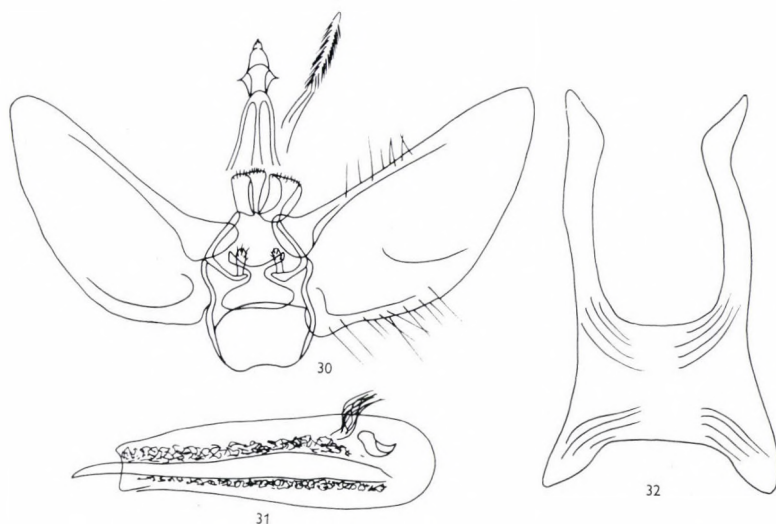
Slide: 14692 (♂), gen. prep. A. VOJNITS.

Photo: 85 D 30.

### ***Eupithecia acseszteri* sp. n.**

**Diagnosis.** Alar expanse of fore wings of the single male specimen 17 mm. Wings elongate: fore wing an isosceles triangle, costa hardly, dorsum slightly, arcuate. Apex pointed. Tornus widely rounded. Hind wing obtusely angulate, short. Fore wing much worn, brownish, discal spot round, black.





Figs 30—32. *Eupithecia acseszteri* sp. n. 30 = male genitalia 31 = aedeagus 32 = sternite VIII

Hind wing whitish, discal spot minute. Underside of wings light brown, transverse stripes obsolete, discal spots well discernible. Cilia worn off (Plate 1: C).

**G e n i t a l i a.** ♂: Uncus bifid, short and stout. Falces long, clavulus large. Valva short and wide. Papilla moderately elongate, terminally sparsely hairy. Saccus wide, truncate. Aedeagus with a long cornutus. Sternite VIII wide, its lateral arms robust (Figs 30—32). ♀ unknown.

**B i o l o g y.** First stages and foodplant unknown. The holotype was collected at the beginning of October.

**D i s t r i b u t i o n.** Found in East Nepal. Locus typicus: Kharikhola, 1980 m, Solukhumbu, Sagarmatha.

**S p e c i f i c d i f f e r e n c e s.** The new species differs from its similar congeners chiefly by the combined characteristics of the aedeagus and sternite VIII.

I dedicate the new species to Dr. ESZTER ÁCS, Microlepidopterist of the Hungarian Natural History Museum, Budapest.

Holotype ♂: "Kharikhola 1,980 m Solukhumbu Sagarmatha E NEPAL 7—X—1979 M. OWADA" "gen. prep. No. 15706 ♂ det. A. VOJNITS photo 85 D 36". Holotype deposited in the National Science Museum, Tokyo.

Slide: No. 15706 (♂), gen. prep. A. VOJNITS.

Photo: 85 D 36.

### ***Gymnoscelis caelestis* sp. n.**

(Derivation of specific name: caelestis = heavenly)

**D i a g n o s i s.** Alar expanse of fore wings of the single female specimen 14 mm. Fore wing elongate, an isosceles triangle. Costa hardly, dorsum not,

termen considerably, arcuate. Apex somewhat elongate, tornus widely rounded. Hind wing obtusely angulate. Basic colour of wings yellowish brown, terminal area greyish. Postmedian indicated by a dark brown row of spots. Underside of wings light, pattern marked. Cilia short, striated fuscous—yellowish brown (Plate 3: A).

**Genitalia.** ♀: Bursa copulatrix small, oval. Colliculum very large. Anterior and posterior apophyses short and thin. Papillae anales small (Fig. 26). ♂ unknown.

**Biology.** First stages and foodplant unknown. The holotype was collected in October.

**Distribution.** Detected in East Nepal. Locus typicus: Manidingma, 2240 m, Solukhumbu.

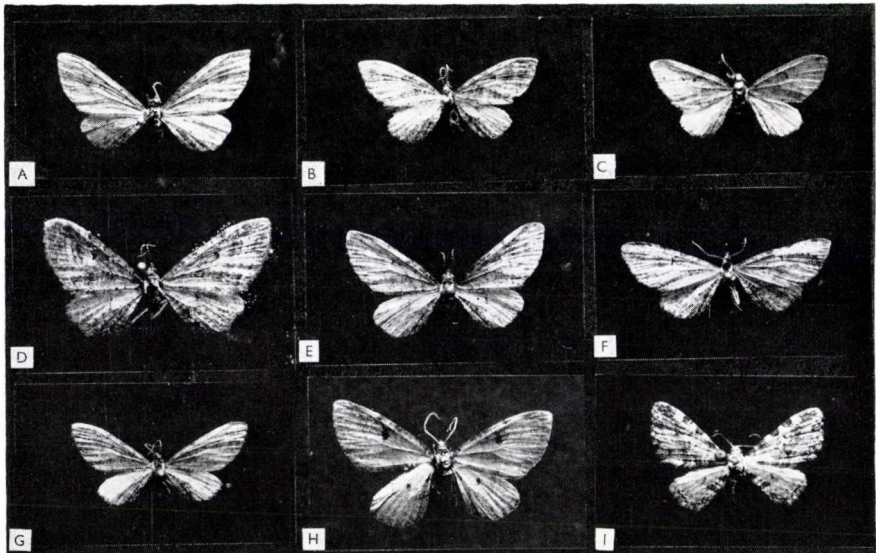
**Specific differences.** The new species somewhat resembles *Gymnoscelis dearmata* DIETZE, described from Mesopotamia, but also differs unequivocally from it.

Holotype ♀: "Manidingma 2,240 m Solukhumbu Sagarmatha E NEPAL 8—X—1979 M. OWADA" gen. prep. No. 14685 ♀ det. A. VOJNITS photo 85 D 23". Holotype deposited in the National Science Museum, Tokyo.

Slide: No. 14685 (♀), gen. prep. A. VOJNITS.

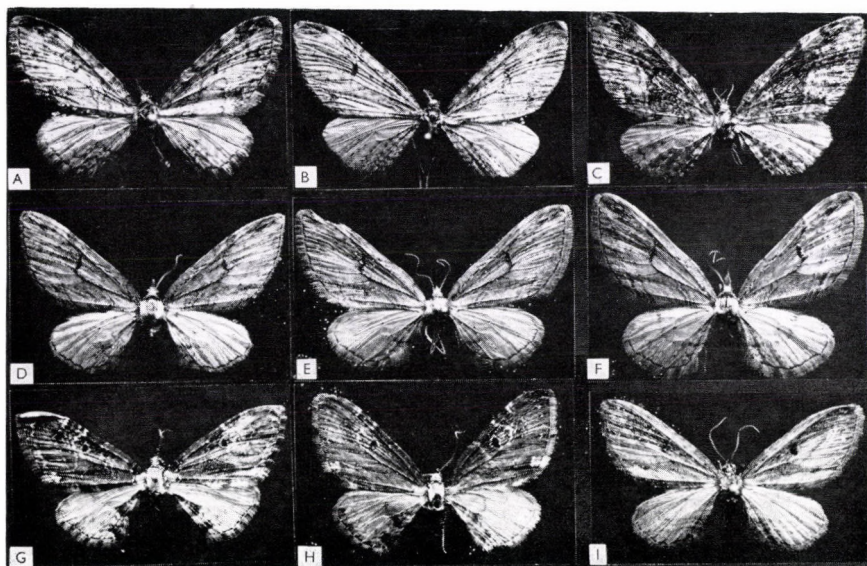
Photo: 85 D 23.

Plate 1



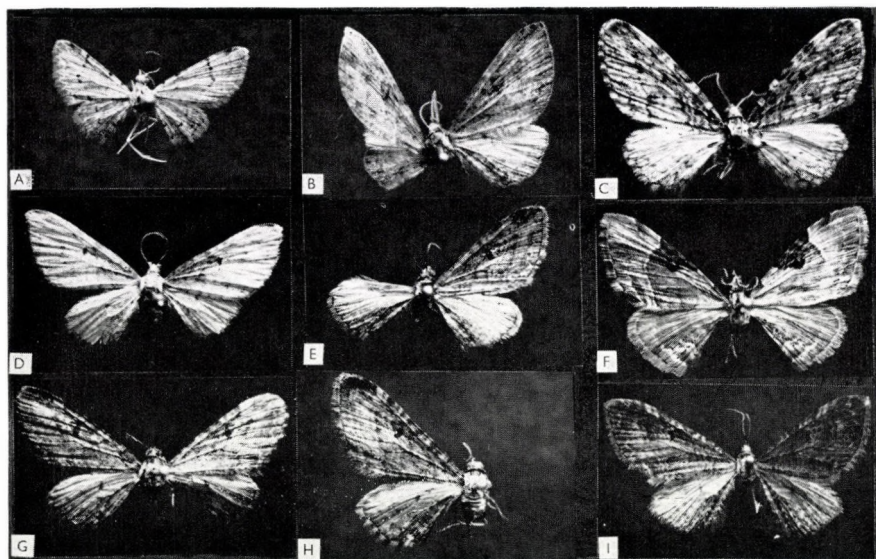
A = *Eupithecia mustangata* SCHÜTZE, ♀, and B = ♂; C = *E. acseszteri* sp. n., Holotype ♂; D—G = *E. mustangata* SCHÜTZE, ♀♀; H = *E. balintzsolti* sp. n., Holotype ♂; I = *E. likiangi* VOJNITS, ♂

## Plate 2



A—B = *Eupithecia sempiterna* sp. n., Paratypes ♂♂, and C = Holotype ♀; D = *E. non-coacta* sp. n., Holotype ♂, and E—F = Paratypes ♀♀; G—H = *E. pulla* sp. n., Paratypes ♂♂; I = *E. torva* VOJNITS, ♀

## Plate 3



A = *Gymnoscelis caelestis* sp. n., Holotype ♀; B = *Eupithecia iracunda* sp. n., Holotype ♀; C = *E. apparatissima* sp. n., Holotype ♂; D = *E. mira* sp. n., Holotype ♀; E = *E. beneficaria* sp. n., Holotype ♂; F = *E. owadai* sp. n., Holotype ♀; G = *E. particeps* sp. n., Holotype ♂; H = Paratype ♀; *E. mustangata* SCHÜTZE, ♀



# ÜBER EINE NEUE REGENWURM-GATTUNG AUS EKUADOR (OLIGOCHAETA: GLOSSOSCOLECIDAE) REGENWÜRMER AUS SÜDAMERIKA I

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(Eingegangen am: 25. November 1986)

Present article is the first of a series on the elaboration of the earthworm fauna of South America. A new genus: *Onoreodrilus* gen. nov. is described, with the type-species: *O. festae* (COGNETTI, 1904). Furthermore three species new for science are described: *O. botariorum* sp. n., *O. benavidesi* sp. n., and *O. loksai* sp. n.

Die Erkundung der Regenwurmfauna Südamerikas ist, mit Ausnahme der von Brasilien, in den letzten Jahrzehnten vernachlässigt worden. Abgesehen von einigen Angaben aus Venezuela (OMODEO, 1955; RIGHI u. NÉMET, 1981; RIGHI, 1984, 1985) und Ekuador (RIGHI, 1981) stützt sich die Anden erforschende faunistische Tätigkeit, ausser den grundlegenden Arbeiten von COGNETTI, 1904, 1905, 1906 und MICHAELSEN, 1910, 1913, 1918 vom Anfang des Jahrhunderts, zuletzt auf die von ČERNOSVITOV, 1939, bzw. CORDERO, 1944 bekannt gewordenen Angaben. Die in den letzten Jahrzehnten von RIGHI in Brasilien ausgeübte rege Tätigkeit liefert einen vorzüglichen Beweis dafür, dass noch zahlreiche und interessante Arten aus diesem Erdteil zu erwarten sind. Dieser Umstand veranlasste mich, unter anderem mein vor vielen Jahren in verschiedenen Ländern Südamerikas gesammelte Regenwurm-Material einer Bearbeitung zu unterziehen, weiterhin in solchen Anden-Ländern weitere Aufsammlungen durchzuführen, die bei den Reisen in den 60er Jahren ausgeblieben waren.

In der mit diesem Aufsatz beginnenden Aufarbeitung des Materials wird eine Serie von Veröffentlichungen der in Südamerika gesammelten Regenwürmer begonnen, wo vor allem das Material der Ungarischen Bodenzologischen Expedition aus den Jahren 1965/66 und 1966/67 sowie das aus dem Jahr 1986 bekanntgegeben werden soll. Im Zusammenhang damit werden die in den letzten Jahrzehnten mir von verschiedenen Personen bzw. Institutionen überlassenen Regenwürmer aus Südamerika ebenfalls laufend bestimmt.

Im vorliegenden Aufsatz wird ein Teil des im Februar 1986 in Ekuador gesammelten Regenwurm-Materials bearbeitet. Es handelt sich um Arten, die zuletzt von MICHAELSEN (1936) der neu geordneten Gattung *Thamnodrilus* BEDDARD, 1887 zugestellt wurden, die jedoch meines Erachtens einer neuen Gattung angehören.

Der Gattung *Aptodrilus* COGNETTI, 1904, die schon 2 Jahre nach der Beschreibung von COGNETTI, 1906 selbst als Untergattung von *Rhinodrilus* E. PERRIER, 1872 betrachtet wird, werden zunächst nur Arten aus Ekuador mit 5 Chylustaschen (*A. excelsus* Typusart, *A. ruvidus* und *A. festae*) zugereiht.

Der Zahl der Chylustaschen, im späteren dem inneren Bau dieser Organe (MICHAELSEN, 1918) wird bei der Aufstellung von Gattungen innerhalb der Familie Glossoscolecidae eine gewisse Priorität eingeräumt. Dieser Umstand veranlasste MICHAELSEN (1936), als er die Typusart von *Thamnodrilus* (*T. gulielmi* BEDDARD, 1887) einer Nachbestimmung unterzog und feststellte, dass diese Art über Rispenschlauchtaschen (6 Paar) verfügt, sie mit den Arten der Gattung *Aptodrilus* zu vereinigen. Aus Prioritätsgründen musste die Gattung *Aptodrilus* eingezogen, der einzigen *Thamnodrilus gulielmi* einige *Aptodrilus*-Arten zugestellt werden. Für sämtliche übrigen *Thamnodrilus*-Arten wurde von MICHAELSEN die Sammelgattung *Martiodrilus* aufgestellt (MICHAELSEN, 1936).

Den bisherigen Kenntnissen nach werden folgende Arten der Gattung *Thamnodrilus* BEDDARD zugeordnet: Typusart *T. gulielmi* BEDD. 1887, *T. festae* (COG. 1904), *T. ruvidus* (COG. 1904), *T. excelsus* (COG. 1904), *T. uncinatus* (MICH. 1910), *T. fuhrmani* (MICH. 1918), *T. ohausi* (MICH. 1918), *T. salatheii* (MICH. 1934).

Obwohl eine Verschmelzung der Gattungen durchgeführt wurde, blieben selbst für MICHAELSEN einige Fragen offen, die von ihm nicht zufriedenstellend beantwortet werden konnten. Nachdem von mir zahlreiche Exemplare verschiedener Arten wieder gesammelt wurden, sehe ich mich gezwungen, diese unzulänglich geklärten Probleme an dieser Stelle zu erörtern.

Bereits 1918 erwähnt MICHAELSEN, dass die Arten der Gattung *Aptodrilus* COG. deutlich in 2 Gruppen zerfallen, wobei *A. festae* allein die eine, alle übrigen Arten die andere Gruppe bilden. Die Unterschiede liegen nach MICHAELSEN erstens darin, dass die Dissepimente hinter dem Muskelmagen (6/7 und 7/8) geschwunden, die übrigen sehr zart verdickt sind. Die Borsten am Hinterende des Körpers weisen keine besondere Krümmung auf und sind auch nicht vergrößert. Weitere Unterschiede sind auch im inneren Bau der Chylustaschen zu vermerken. In der gleichen Arbeit werden weitere Exemplare von *A. festae* aus Ekuador, leg. OHAUS, 1905 untersucht, die MICHAELSEN veranlassen, eine Ergänzung der Originalbeschreibung zu geben (MICHAELSEN, 1918 p. 158—159). Da diese Ergänzung sehr kurz gefasst ist, sich nicht auf alle wichtigen Kennzeichen erstreckt, ist es sehr schwer zu beurteilen, ob MICHAELSEN tatsächlich einer *A. festae* gegenüberstand. Die Angaben über Form und Lage der Chylustaschen veranlassen mich anzunehmen, dass es sich nicht um die gleiche Art gehandelt hat.

Bei COGNETTI (1906: 227—229) wird angegeben, dass die zungenförmig ausgebreiteten Chylustaschen durch einen kurzen Stiel lateroventral an die

Oesophaguswand gehaftet sind und nach unten der ventralmedianen Linie zu gerichtet stehen. Das distale Ende jeder Chylustasche setzt sich in einem dünnen Blutgefäß fort, welche sich unterhalb des Oesophagus in ein längsverlaufendes Blutgefäß ergießen. Wie also aus der Beschreibung hervorgeht, sind die Chylustaschen bei *A. festae* am proximalen Ende nicht frei, wie dies bei allen übrigen *Aptodrilus*-Arten angeführt ist. Bei allen anderen *Aptodrilus*-Arten sind die Chylustaschen nach oben gerichtet und stehen mit keinem Blutgefäß in Verbindung. Bei den von MICHAELSEN erwähnten Chylustaschen seiner als *A. festae* betrachteten Exemplare (1918: 159) spricht er von einem freien Ende des Organs "mit gerundeter Abstutzungskante und unebener Abstutzungsfläche . . .". Da auch die Samentaschen seiner Exemplare eine ganz andere Form haben, nehme ich an, dass ich richtig vermute und es sich nicht um eine *A. festae* handeln kann. Meine Vermutung wird auch durch mein neueres Material erhärtet, wo ich im inneren Aufbau der verschiedenen Organe die gleichen Kennzeichen erkennen konnte, die auch in der Beschreibung von COGNETTI für *A. festae* angeführt werden.

Da sich *A. festae* in Hinsicht der Form und Lage der Chylustaschen auch von *T. gulielmi* absondert, wie dies aus der Originalbeschreibung BEDDARD's und auch aus der Ergänzungsbeschreibung von MICHAELSEN (1936) hervorgeht, muss allein für die Art *A. festae* eine neue Gattung aufgestellt werden. Dies deswegen, da anstatt *A. excelsus*, die bei der Erstbeschreibung (1904, p. 15, *Aptodrilus excelsus* nov. gen., nov. spec.) als Typusart designiert wurde, sich irrümlicherweise in der Literatur *A. festae* als Typusart eingebürgert hat [COGNETTI, 1906, p. 226, Subgen. *Aptodrilus*, Tipo: *Rh. (A.) festae*].

Die übrigen aus Kolumbien und Ekuador beschriebenen Arten, die an und für sich eine sehr einheitliche Gruppe bilden, mögen einstweilen, bis nicht neueres Material von *T. gulielmi* gesammelt wird, in dieser Gattung bleiben.

### **Onoreodrilus gen. n.\***

Gattungsdiagnose: Normale Borsten in 8 Längslinien. Männliche Poren intraclitellial. Vordere Dissepimente hinter dem Muskelmagen geschwunden, die übrigen zart verdickt. 5 Paar Chylustaschen im 10—14. Segment, Rispsenschlauchtaschen, die durch einen Stiel ventrolateral an den Oesophagus geheftet sind. Chylustaschen ventromedian beiderseits mit einem längsverlaufenden Blutgefäß verbunden, stehen nicht frei. Geschlechtsapparat holoandrisch und metagyn. Samensäcke nicht auf ein Segment beschränkt, unter Durchbrechung der Dissepimente auch sehr weit nachhinten reichend.

\* Die neue Gattung wird zu Ehren nach Herrn Professor DR. G. ONORE, Quito, Katholische Universität, benannt, der uns auf unseren Sammelreisen in Ekuador weitgehend unterstützte.

Typusart: *Onoreodrilus festae* (COGNETTI, 1904.)

Die Gattung *Onoreodrilus* unterscheidet sich von allen übrigen Gattungen mit holoandrischem undmetagynem Geschlechtsapparat einerseits durch die Zahl der Chylustaschen, von *Thamnodrilus* andererseits durch die Lage dieser Organe.

*Onoreodrilus festae* ? (COGNETTI, 1904)

Es liegt mir ein einziges, nicht vollkommen geschlechtsreifes Tier vor, welches in vielen Kennzeichen mit *O. festae* übereinstimmt.

Der Gürtel liegt am 15—1/2 22. Segment, wenn auch nicht ganz deutlich ausgebildet. Bei *festae* erstreckt er sich vom 15—23. Segment. Die Pubertätsstreifen sind vom 1/4 19—1/2 24. Segment ausgebildet, bei *festae* sind sie vom 1/2 20—1/2 25. Segment zu finden. In der inneren Organisation konnten zwei unpaarige Testikelblasen im 10. und 11. Segment erkannt werden, die mich, ebenso wie die kurzen Samensäcke, bewegt haben, sie einstweilen zu *festae* zu stellen. Die Samentaschen sind in der Form vollkommen mit der Beschreibung und Abbildung von COGNETTI übereinstimmend, nur liegen sie bei meinem Exemplar in 7., 8. und 9. Segment und münden in die Intersegmentalfurchen 6/7—8/9 aus. Bei *festae* münden sie in die Intersegmentalfurchen 7/8—9/10. aus.

Fundort: Ekuador, AF/323. 1 Ex. Zwischen Quito und S. Domingo, 2650 m bei den Wasserfällen. 18. II. 1936, leg. ZICSI + LOKSA + BENAVIDES.

*Onoreodrilus botariorum* sp. n.

Länge des Holotypus 65 mm, Breite 4 mm, Segmentzahl 99. Bei den übrigen Exemplaren Länge 42—68 mm, Breite 3,5—4,2 mm, Segmentzahl 81—102.

Farbe: grün, grün irisierend. Konserviert grün schimmernd, Pigmentbinden intersegmental ausgelöscht, Tiere erscheinen dadurch gestreift.

Kopflappen rüsselförmig, erstes und zweites Segment getrennt, nicht verschmolzen und nicht einziehbar. Segmente nicht geringelt. Anus kurz, abgesehen.

Borsten insbesondere am Vorderkörper sehr eng gepaart. Ventrale und laterale Borsten vom 3. Segment beginnend. Borstendistanz am Vorderkörper  $aa : ab : bc : cd = 20 : 2 : 10 : 1$ . Am Hinterkörper wird die Borstendistanz  $bc$  bedeutend grösser als  $aa$ , das Verhältnis  $aa : bc$  wie 10 : 15. Bei einigen Exemplaren sind die Borsten  $ab$  des 6. Segmentes von Borstenpapillen umgeben (bei einem Exemplar am 7. Segment), die Borsten sind in Kopulationsborsten umgewandelt.



Weibliche Poren am hinteren Rand des 14. Segmentes. Männliche Poren von aussen nur schwer zu erkennen, von innen verläuft die Samenrinne bis zum 20. Segment und mündet in Höhe der Pubertätsstreifen aus.

Nephridialporen im 3. Segment beginnend, liegen in Höhe der Borstenlinie *cd*.

Gürtel vom 14.—19. Segment, bei einigen Exemplaren weniger deutlich nur bis zum 1/2 19. Segment ausgebildet. Pubertätsstreifen bei allen Exemplaren konstant vom 1/4 19.—1/2 20. Segment.

Samentaschen 3 Paar, sie münden in die Intersegmentalfurche 6/7—8/9 in der Höhe der Borstenlinie *cd* aus.

Innere Organisation. Ein grosser Muskelmagen im 6. Segment beginnend. Dissepimente 6/7 und 7/8 geschwunden, die vom 8/9 beginnend etwas verdickt. Querbinden zwischen Oesophagus und Muskelmagen nur sehr schwach entwickelt. Chylustaschen im 10.—14. Segment, 5 Paar. Chylustaschen des 10. Segmentes stehen vor den mächtigen Intestinalherzen desselben Segmentes und sind nach vorne gerichtet, die übrigen vier Paar sind nach hinten gerichtet, alle auf Stielen ventrolateral an den Oesophagus geheftet. Sämtliche Chylustaschen sind durch Blutadern in ventromedianer Richtung beiderseits mit einem Blutgefäss verbunden. Innerer Bau der Chylustaschen: Rispenschlauchtaschen mit fjordförmigen Querschnitt (Abb. 1).

Lateralerherzen des 7., 8., 9. Segmentes gehen aus dem Dorsalgefäss hervor, Intestinalherzen im 10. und 11. Segment sehr gross, sind mit dem Ventralblutgefäss verbunden. Dorsalblutgefäss ist vom 11.—19. Segment kräftig perlchnurartig vergrössert.

Nephridien im Vorderkörper sehr lang, durch viele Segmente reichend, am Ende mit einer Verdickung. Nephridien münden unterhalb der Samen-

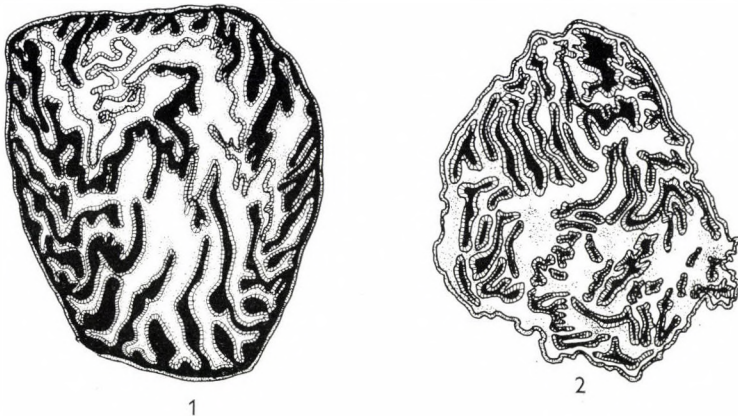


Abb. 1. *Onoreodrilus botariorum* sp. n. Querschnitt durch den mittleren Teil einer Chylustasche. — Abb. 2. *Onoreodrilus benavidesi* sp. n. Querschnitt durch den mittleren Teil einer Chylustasche

taschenporen aus. Besonders vom 18. Segment beginnend ein deutlicher Blind-sack vorhanden.

Männliche Geschlechtsorgane. 2 Paar Testikelblasen im 10. und 11. Segment. Die Testikelblasen einer Seite sind beiderseits miteinander in Verbindung. Aus den Testikelblasen setzen sich die Samensäcke des 11. und 12. Segmentes fort, die dicht nebeneinander, fest an den Darm geschmiegt weit nach hinten gehen, beim Holotypus bis zum 33.—34. Segment, bei allen übrigen seziierten Tieren mindestens bis zum 30. Segment reichend.

Samentaschen 3 Paar, mehr oder weniger birnenförmig, Ausführungsgang kurz ohne Samenkammerchen. Samentaschen liegen im; 7., 8., 9. Segment. Ovarien im 13. Segment.

Die neue Art steht der Art *O. benavidesi* sp. n. am nächsten, unterscheidet sich von dieser durch die Lage des Gürtels und der Pubertätsstreifen. Von *O. festae* unterscheidet sie sich durch die paarigen Testikelblasen und die Lage der Gürtelorgane.

Die neue Art wird zu Ehren nach Frau und Herrn BOTÁR, Quito, benannt, die uns unsere Sammlungen ermöglichten und weitgehend unterstützten.

Fundorte: AF 308 Holotypus Prov. Cotopaxi, Nationalpark Pasochoa 2800 m, 6. II. 1986, leg. ZICSI + LOKSA + BENAVIDES. Paratypen: AF 389. 12 Ex. + 4 juv. Ex. Fundort wie beim Holotypus. — AF 331. 1 Ex. Pifo, am Wegrand, 13. II. 1986, leg. ZICSI + LOKSA + BENAVIDES. — AF 277. 5 Ex. San Francisco de las Pampas. Prov. Cotopaxi. 1500 m, 9. II. 1986, leg. ZICSI + LOKSA + ONORE. — AF 279. 2 Ex. San Francisco de las Pampas, Naranchito, 10. II. 1986, leg. ZICSI + LOKSA + ONORE.

### ***Onoreodrilus benavidesi* sp. n.**

Länge 110 mm, Breite 5 mm, Segmentzahl 129.

Farbe grün. Pigmentbinden sind nicht ausgelöscht, der Wurm sieht nicht gestreift aus.

Kopflappen rüsselförmig, erstes und zweites Segment nicht verschmolzen. Segmente nicht geringelt.

Borsten eng gepaart. Ventrals und laterals Borsten vom 3. Segment beginnend. Borstendistanz am Vorderkörper  $aa : ab : bc : cd = 10 : 1,5 : 8 : 0,5$ . Am Hinterkörper Borstendistanz  $aa : ab : bc : cd = 10 : 1 : 15 : 1$ . Dem Körperende zu sind die Borsten kaum vergrößert. Borsten *ab* des 6.—8. Segmentes auf Drüsenpapillen angeordnet.

Weibliche Poren am hinteren Rand des 14. Segmentes. Männliche Poren links am 20., rechts am 21. Segment. Sie liegen in Höhe der Pubertätsstreifen.

Nephridialporen vom 3. Segment beginnend entlang des Körpers in Höhe der Borstenlinie *cd*.

Gürtel vom 1/2 14.—20. Segment, Pubertätsstreifen vom 1/2 19.—24. Segment.

Samentaschenporen 3 Paar auf Intersegmentalfurche 6/7—8/9 in Höhe der Borstenlinie cd.

Innere Organisation. Muskelmagen im 6. Segment. Dissepimente 6/7—7/8 geschwunden, 8/9—9/10 etwas verdickt, die übrigen wider nicht verdickt. Chylustaschen im 10—14. Segment, 5 Paar, die ersten Paare vor den Intestinalherzen des 10. Segmentes, die übrigen in einer Reihe mit verhältnismässig langem Stiel ventrolateral an den Oesophagus geheftet. Alle Chylustaschen sind nach unten, in Richtung der ventromedianen Linie gerichtet, durch dünne Blutadern beiderseits mit einem Blutgefäss verbunden. Dem inneren Bau nach sind die Chylustaschen Rispenschlauchtaschen mit fjordförmigem Querschnitt (Abb. 2).

Lateralherzen im 7., 8., 9. Segment, gehen aus dem Dorsalgefäss hervor, welches eine perlschnurartige Verdickung, bis zum 19. Segment reichend, aufweist.

Nephridien im Vorderkörper sehr lang, am Ende mit einer kleinen Verdickung. Vom 14. Segment beginnend besitzen die Nephridien einen Blindsack.

Männliche Geschlechtsorgane. 2 Paar Testikelblasen im 10. und 11. Segment. Die des 10. Segmentes gehen schlauchförmig in die Samensäcke des 11. Segmentes über, die des 11. Segmentes gehen durch einen langegezogenen Schlauch in die Samensäcke des 12. Segmentes über. Die Samensäcke des 11. Segmentes reichen bis ins 19. Segment, die des 12. Segmentes bis ins 22/23. Segment.

Samentaschen im 7.—9. Segment, Borstenpolster im 6.—8. Segment. Samentaschen keulenförmig, nahezu gleichgross. Ovarien im 13. Segment.

Die neue Art steht *O. onorei* sp. n. am nächsten, unterscheidet sich von ihr jedoch durch die Grösse und durch das Fehlen der ausgelöschten Pigmentbinden. Weiterhin unterscheidet sie sich von allen *Onoreodrilus*-Arten durch die Lage der Pubertätsstreifen und durch die Gestaltung der männlichen Geschlechtsorgane.

Die neue Art wird zu Ehren nach Herrn V. BENAVIDES, Quito benannt, der uns auf unseren Sammelreisen weitgehend behilflich war.

Fundort: Holotypus AF 284. Prov. Cotopaxi. San Francisco de las Pampas, Narancho, 10. II. 1986, leg. ZICSI + LOKSA + ONORE.

### ***Onoreodrilus loksai* sp. n.**

Länge des Holotypus 28 mm, Breite 1,8 mm, Segmentzahl 86. Bei den Paratypen Länge: 17—32 mm, Breite 1,5—2 mm. Segmentzahl 47—90.

Farbe grün, Pigmentbinden sind nicht ausgelöscht.

Kopf rüsselförmig, erstes und zweites Segment nicht verschmolzen.

Borsten eng gepaart. Ventrale und laterale Borsten vom 3. Segment

beginnen. Borstendistanz am Vorderkörper  $aa : ab : bc : cd = 10 : 1 : 6 : 0,5$ . Borstendistanz am Hinterkörper  $aa : ab : bc : cd = 8 : 1 : 15 : 1$ . Dem Körperende zu sind die Borsten deutlicher zu erkennen. Borsten  $ab$  des 9. und 18. Segmentes von Borstenpapillen umgeben.

Weibliche Poren am hinteren Rand des 14. Segmentes. Männliche Poren auf dem 20. Segment in Höhe der Pubertätsstreifen.

Nephridialporen vom 3. Segment beginnend entlang des Körpers in Höhe der Borstenlinie  $cd$ .

Gürtel vom 14.—20. Segment, Pubertätsstreifen vom  $1/2$  19.— $1/2$  24. Segment.

Samentaschenporen 3 Paar auf Intersegmentalfurche  $6/7$ — $8/9$ , in Höhe der Borstenlinie  $cd$ .

Innere Organisation. Muskelmagen im 6. Segment. Dissepimente  $6/7$ ,  $7/8$  geschwunden,  $8/9$  und  $9/10$  etwas verdickt, die übrigen nicht zu erkennen. Chylustaschen 5 Paar im 10.—14. Segment, ventrolateral mit kleinen Stielen an die Oesophaguswand angeheftet. Die Chylustaschen sind nach unten, in Richtung der ventromedianen Linie gerichtet und durch dünne Blutadern beiderseits an ein Blutgefäss gebunden. Dem inneren Bau nach sind die Chylustaschen Rispenschlauchtaschen mit fjordförmigem Querschnitt.

Lateralherzen im 7., 8., 9. Segment, Intestinalherzen im 10. und 11. Segment gross, sind mit dem Ventralblutgefäss verbunden.

Nephridien im Vorderkörper lang. Vom 14. Segment beginnend mit einem Blindsack versehen.

Männliche Geschlechtsorgane. 2 Paar unpaarige Testikelblasen im 10. und 11. Segment. Aus den Testikelblasen gehen die Samensäcke des 11. und 12. Segmentes hervor und ziehen sich fest an den Darm geschmiegt bis ins 40.—47. Segment. Ovarien im 13. Segment. Samentaschen 3 Paar, nahezu gleichgross, Stiel kurz, Ampulle keulenförmig.

Durch die unpaarigen Testikelblasen steht die neue Art *O. festae* am nächsten, unterscheidet sich jedoch von ihr durch die Lage des Gürtels und der Pubertätsstreifen. Auch die Samentaschen sind um ein Segment höher gelegen.

Die neue Art wird zu Ehren nach meinem lieben Freund und Kollegen Herrn DR. I. LOKSA benannt, mit dem ich auf der Sammelreise in Ekuador war.

Fundort: AF 390 Holotypus, Ekuador Prov. Cotopaxi. San Francisco de las Pampas, Naranchito, Laubstreu des Urwaldes. 9. II. 1986, leg. LOKSA + ZICSI + ONORE. — Paratypen: AF 259. 2 + 2 juv. Ex. Prov. Cotopaxi. San Francisco de las Pampas, 1800 m im Urwald, in der Laubstreu. 8. II. 1986, leg. ZICSI + LOKSA + ONORE.

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# **Acta Zoologica Hungarica**

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IN MEMORIAM DR. ZOLTÁN KASZAB  
(1915—1986)

I. MATSKÁSI

*Hungarian Natural History Museum  
H-1088 Budapest, Baross utca 13, Hungary*

The Hungarian zoologists were saddened by the death of DR. ZOLTÁN KASZAB full member of the Hungarian Academy of Sciences, coleopterologist of world-wide recognition. He passed away on the 4th of April, 1986.



He was born 23 September 1915 at Farnos. After leaving secondary school he was admitted to the "Pázmány Péter" University in Budapest, where he studied to be teacher of natural history and chemistry. In the last year of his university studies, in 1937, he received the doctoral degree with *summa cum laude* in zoology-geology-mineralogy. Zoology had the greatest appeal to him, so he decided to be a research worker. His scientific work started in the same year at the Zoosystematic Institute of the University headed by Prof. DR. ENDRE DUDICH, and parallel, he also worked in the Hungarian Natural History Museum, Budapest. He became department head of the Zoological Department of the Museum in 1955. Since 1970 until 1985 he was director-general of the Hungarian Natural History Museum. He retired in 1985 after 48 years of strenuous service of zoology, but it did not lessen his scientific activities. He continued to work up to the last day of his life in the coleopterological collection of the Museum.

DR. ZOLTÁN KASZAB as a taxonomist-systematist was an outstanding personality in basic zoological research. In the nearly half a century, he published 397 scientific papers in about 10,000 printed pages in various journals of some 25 countries. As a result of his taxonomic work he described 3700 new taxa. The main field of his scientific work was coleopterology. He was a renown specialist of blister beetles (Meloidae) and darking beetles (Tenebrionidae). His works concentrate on two different but equally important regions. One is the Tenebrionidae fauna of the arid zones of the World, the other major interest of his was the fauna of the same groups of beetles inhabiting the tropical forest belt.

DR. KASZAB's expeditions to Mongolia were of special importance. Between 1963 and 1968 he headed six expeditions in Mongolia with the view to explore the invertebrate fauna of this unknown territory. In a series of papers entitled "Ergebnisse der Zoologischen Forschungen von DR. Z. KASZAB in der Mongolei" 480 studies were published until today.

He was editor-in-chief of the series of Fauna Hungariae, published by the Hungarian Academy of Sciences, since 1965. DR. KASZAB organized and developed this series, and wrote eight parts of the Coleoptera.

DR. KASZAB's huge energy and capacity for research work became legendary. We have lost a great man, and will treasure his memory.

KATALOG UND BESTIMMUNGSTABELLE  
DER GATTUNG PROMETHIS PASCOE, 1869  
(COLEOPTERA, TENEBRIONIDAE)

Z. KASZAB

Ungarisches Naturwissenschaftliches Museum  
H-1088 Budapest, Baross u. 13. Ungarn

(Eingegangen am 10. März 1987)

The tenebrionid genus *Promethis* PASCOE, 1869 (= *Setenis* MOTSCHULSKY, 1872, syn. n.) is revised. A total of 139 species and subspecies are ascertained as valid, of which 69 are described in the identification key as new. All but two of the known species are clarified by the re-examination of the type specimens. Two neotype and 67 lectotypes are designated. A catalogue of the taxa is given. All the species are illustrated by photographs. With 679 figures.

Vorwort

Die großkörperigen Schwarzkäfer, die zu der Gattung *Setenis* gehören, sind für die Wälder der orientalischen und papuanischen Region typisch und kommen dort häufig vor. Von verschiedenen Autoren wurden bisher zahlreiche Arten beschrieben, die monographische Aufarbeitung der gesamten Artengruppe übernahm jedoch als erster DR. ZOLTÁN KASZAB. Im Jahre 1983 begann er mit der Revision der Gattung *Setenis*. Schon zu Beginn der Arbeit war er überzeugt, daß die nur aus Australien bekannten Arten der Gattung *Promethis* PASCOE, 1869 — von denen angenommen wurde, sie kämen in geringer Artenzahl vor — mit den Arten der Gattung *Setenis* MOTSCHULSKY, 1872 kongenerisch sind. Aus Prioritätsgründen ist der gültige Name der Gattung *Promethis*, *Setenis* so ein Junior-Synonym.

Zur Revisionsarbeit wurden von verschiedenen Museen, Instituten sowie auch von Privatsammlern etwa 15 000 Exemplare zur Überprüfung und Bearbeitung dem Autor übersandt. Darüberhinaus konnte DR. KASZAB — mit Ausnahme von 2 Arten (*barbereti* FAIRMAIRE, 1888 und *lotinii* BOISDUVAL, 1835) — auch sämtliche schon beschriebene Typenexemplare der Taxa untersuchen. Die Bearbeitung des Materials erbrachte den Nachweis von 139 validen Arten bzw. Unterarten, wovon 69 auch für die Wissenschaft neu sind.

Zuerst mußten die Typenexemplare der neuen Arten benannt und designiert werden. Nach der Typenrevision der früher beschriebenen Arten sonderte er aus deren Syntypenserien die Lectotypen aus. Nachher stellte er die Fundortsangaben sämtlicher Exemplare die von ihm bearbeitet wurden zusammen und schrieb sie heraus. Anschließend, ehe er die monographische Aufarbeitung

begann, ließ er von jeder Art eine Habitus-Aufnahme verfertigen, dieser folgten, mit der aus seinen früheren Arbeiten bekannten Präzision, die nötigen Einzelteilzeichnungen.

Nach Beendigung der Artenrevision stellte er 34 Artengruppen auf, die er mit den Arten gemeinsam in einer einheitlichen Bestimmungstabelle zusammenfaßte. Er ordnete die Taxa unter Verwendung der gemeinsamen Merkmale und anhand der zustande gekommenen Gruppeneinteilung in neuartige Verwandtschaftskreise. Danach faßte er das Material in einem Katalog zusammen, der die Übersicht der Gruppen außerordentlich erleichtert. Schließlich begann er in der gleichen Reihenfolge des Katalogs mit der ausführlichen Beschreibung der Arten. Eine genaue Beschreibung von 41 Arten war fertiggestellt, als der jähe Tod seine Arbeit abbrach.

Während der Zusammenstellung des reichen wissenschaftlichen Erbes von ZOLTÁN KASZAB ließ es sich erkennen, daß die vor der Vollendung der Revision geschriebenen Teile auch an und für sich einen großen Wert besitzen deshalb entschieden die engsten Mitarbeiter, diese neuen wissenschaftlichen Erkenntnisse für die Coleopterologie zu erhalten.

Anhand des zusammengestellten Materials konnte einwandfrei erkannt werden, daß die vom Autor aufgestellte neue Bestimmungstabelle sehr ausführlich ist und die einzelnen Taxa auch ohne exakte Beschreibung der Arten gut zu identifizieren sind. Auf den Original-Bleistiftzeichnungen sind sämtliche Differenzierungsmerkmale vom Autor dargestellt worden, und auch die Fotografien wurden von ihm selbst kontrolliert. Da die Typenexemplare benannt und designiert wurden, sind die neuen Taxa im Sinne des Nomenklatur-Kodexes gültig.

In der vorliegenden Arbeit wird der vom Autor zusammengestellte Katalog in dem sämtliche valide und synonyme Namen und die Quellen der Originalbeschreibungen zu finden sind, veröffentlicht. Hier werden auch die gesamten (neuen + alten) Angaben über Typenexemplare der Taxa angegeben. Nach dem Katalog wird die Charakteristik der Gattung *Promethis* bekanntgegeben, die vom Verfasser dieses Vorwortes zusammengestellt wurde. Dieser schließt sich die Bestimmungstabelle des Autors an. Danach werden bezugnehmend auf die Reihenfolge der Bestimmungstabelle die Einzelteilzeichnungen zugefügt, die der Verfasser dieses Abschnittes nachträglich durch Ausziehen der Konturen druckreif machte. Diesen folgten die Habitus-Aufnahmen.

Im Band 49 (1988) der »Folia Entomologica Hungarica« werden die von DR. Z. KASZAB aufgearbeiteten, schon früher beschriebenen Angaben der Fundorte der Arten bzw. die aus der Literatur bekannten diesbezüglichen Angaben erscheinen.

Das Manuskript wurde von Frau DR. KASZAB, MAGDA VESZPRÉMY zum Druck vorbereitet.

O. MERKL

## UNTERSUCHUNGSMATERIAL

Die Sammlungen aus welchen das Typen- und Untersuchungsmaterial stammen und die in dieser Arbeit verwendeten Abkürzungen sind folgende:

- AMSA** = Australian Museum, Sydney  
**ANIC** = Australian National Insect Collection, Division of Entomology, Canberra  
**BMNH** = British Museum (Natural History), Department of Entomology, London  
**BPBM** = Bernice P. Bishop Museum, Honolulu  
**BR** = Privatsammlung von Dr. H. J. BREMER, Düsseldorf  
**DASF** = Department of Agriculture, Stock and Fisheries, Konedobu, Papua New Guinea  
**EIAS** = Entomological Institute, Academia Sinica, Peking  
**FISF** = Forschungsinstitut Senckenberg, Frankfurt/M.  
**FR** = Privatsammlung von Prof. D. H. FRANZ, Mödling  
**GR** = Privatsammlung von P. J. M. GREENSLADE, Guadalcanal  
**HCOE** = Hope Entomological Collections, University Museum, Oxford  
**HNHM** = Hungarian Natural History Museum, Budapest  
**IFPE** = Institut für Pflanzenforschung, Kleinmachnow-Eberswalde  
**IRSN** = Institut Royal des Sciences Naturelles de Belgique, Bruxelles  
**KUFA** = Kyushu University, Faculty of Agriculture, Kyushu  
**MA** = Privatsammlung von NOËL MAL, Bruxelles  
**MAS** = Privatsammlung von KIMIO MASUMOTO, Yokohama  
**MCSM** = Museo Civico di Storia Naturale, Milano  
**MCSN** = Museo Civico di Storia Naturale "Giacomo Doria", Genova  
**MCZC** = Museum of Comparative Zoology, Harvard University, Cambridge  
**MGFT** = Museum Dr. Georg Frey, Tutzing  
**MHNG** = Museum d'Histoire naturelle, Genève  
**MMUE** = Manchester Museum, The University, Manchester  
**MNHN** = Museum National d'Histoire naturelle, Entomologie Générale et Appliquée, Paris  
**MWNS** = Museum Wiesbaden, Naturwissenschaftliche Sammlung, Wiesbaden  
**NA** = Privatsammlung von Prof. Dr. T. NAKANE, Kagoshima-shi  
**NHMB** = Naturhistorisches Museum, Basel  
**NHMW** = Naturhistorisches Museum, 2. Zoologische Abteilung, Wien  
**NI** = Privatsammlung von M. NISHIKAWA, Tokyo  
**NMPC** = Narodni Muzeum v Praze, Oddeleni Entomologické, Praha-Kunratice  
**NMVA** = National Museum of Victoria, Melbourne  
**NRSS** = Naturhistoriska Riksmuseet, Stockholm  
**NSMT** = National Science Museum, Tokyo  
**NZAK** = Department of Scientific and Industrial Research, Auckland  
**QMBA** = Queensland Museum, Brisbane  
**RMNH** = Rijksmuseum van Natuurlijke Historie, Leiden  
**RO** = Privatsammlung von G. DE ROUGEMONT, London  
**SAMA** = South Australian Museum, Adelaide  
**SMNS** = Staatliches Museum für Naturkunde, Stuttgart  
**SMTD** = Staatliches Museum für Tierkunde, Dresden  
**TMPA** = Transvaal Museum, Pretoria  
**UQIC** = Department of Entomology, University of Queensland, St. Lucia  
**USNM** = United States National Museum of Natural History, Smithsonian Institution, Washington  
**ZIAK** = Zoologisches Forschungsinstitut und "Alexander Koenig" Museum, Bonn  
**ZIAL** = Zoological Institute, Academy of Sciences of the USSR, Leningrad  
**ZIPA** = Zoological Institute of Polish Academy of Sciences, Warsaw  
**ZIUH** = Zoological Institute of the University, Helsinki  
**ZIZM** = Zoologisches Institut und Zoologisches Museum der Universität Hamburg  
**ZMHU** = Zoologisches Museum der Humboldt Universität, Berlin  
**ZMKD** = Zoologisk Museum, København  
**ZMUA** = Zoologisch Museum — Universiteit van Amsterdam  
**ZMUM** = Zoological Museum, Lomonossow-University, Moskow  
**ZSBS** = Zoologische Sammlung des Bayerischen Staates München

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#### KATALOG DER PROMETHIS-ARTEN

##### Promethis PASCOE, 1869

- PASCOE, 1869: Ann. Mag. nat. Hist., (4) **3**: 148 [Gattungstypus: *Upis (Iphthinus) angulata* ERICHSON, 1842]. — CARTER, 1914: Proc. Linn. Soc. N. S. W., **39**: 49.  
 = *Mederis* MOTSCHULSKY, 1872: Bull. Soc. imp. nat. Mosc., **45** (2): 24 [Gattungstypus: *Upis (Iphthinus) angulata* ERICHSON, 1842].  
 = *Pediris* MOTSCHULSKY, 1872: Bull. Soc. imp. nat. Mosc., **45** (2): 24 (Gattungstypus: *Pediris longipes* MOTSCHULSKY, 1872).  
 = *Setenis* MOTSCHULSKY, 1872: Bull. Soc. imp. nat. Mosc., **45** (2): 24 (Gattungstypus: *Tenebrio valgus* WIEDEMANN, 1823), **syn. n.** — GEBIEN, 1914: Sarawak Mus. J., **2** (5): 35–40. — GEBIEN, 1920: Nova Guinea, **13**, Zool. 3: 288–296. — GEBIEN, 1918–1919: Ent. Mitt., **7** (1918): 121–130, 215–220; **8** (1919): 1–14, Taf. 2. — REITTER, 1920: Best.-Tab., **87**: 16. — DENISOVA, 1940: Trav. Inst. Zool. Ac. Sci. URSS, Moskva–Leningrad **6** (1–2): 223, 235–237.  
 = *Pseudobates* FAIRMAIRE, 1882: Notes Leyden Mus., **5**: 231 (Gattungstypus: *Nyctobates coracina* FAIRMAIRE, 1882 nec *Tenebrio coracina* KNOCH, 1801).

#### I. Gruppe: **glabra**

**Promethis glabra** (HOPE, 1831), comb. n. — *Tenebrio glaber* HOPE, 1831: Zool. Misc. **1831**: 31 (Locus typicus: Nepal). — *Nyctobates parvicollis* FAIRMAIRE, 1894: Anns Soc. ent. Fr., **38**: 37 (Locus typicus: Kurseong), **syn. n.**



Lectotypus ♂ von *Tenebrio glaber* HOPE: Nepaul, Hardwicke (BMNH). — Paralectotypus ♀: wie LT (BMNH) (Design. Z. KASZAB, 1984).

Lectotypus ♀ von *Nyctobates parvicollis* FAIRMAIRE: Kurseong (MNHN). — Syntypus ♀: Kurseong (IRSN) (Design. Z. KASZAB, 1984).

Verbreitung: Nepal, Indien (Westbengal, Sikkim), Bhutan, Burma.

**Promethis glabricula** (MOTSCHULSKY, 1872) comb. n. — *Nyctobates glabriculus* MOTSCHULSKY, 1872: Bull. Soc. imp. nat. Mosc., **45** (3): 31 (Locus typicus: Ind. or.). — *Nyctobates cribrifrons* FAIRMAIRE, 1894: Anns Soc. ent. Belg., **33**: 38 (Locus typicus: Thibet), **syn. n.** — *Setenis semiopaca* BLAIR, 1913: Ann. Mag. nat. Hist., (8) **12**: 57 (Locus typicus: Sylhet; Subatech, Jaunsaur, N. W. Himalaya), **syn. n.** (BLAIR in litt.).

Lectotypus ♀ von *Nyctobates glabriculus* MOTSCHULSKY: Ind. or. [coll. MOTSCHULSKY] (MMUE) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Nyctobates cribrifrons* FAIRMAIRE: Thibet (MNHN) (Design. Z. KASZAB, 1984).

Lectotypus ♀ von *Setenis semiopaca* BLAIR: Sylhet (BMNH) (Design. Z. KASZAB, 1984).  
Verbreitung: Indien (NW Himalaya, Almora, »Thibet«), Nepal.

**Promethis granulata** sp. n.

Holotypus ♂: [Burma]: H<sup>te</sup> Birmanie, Mines des Rubis, 1200—2300 m, 1880, DOHERTY (MNHN).

Paratypen: wie HT (1 ♀ MNHN) Birmah, Ruby M<sup>es</sup>, DOHERTY (1 ♀ BMNH).

Verbreitung: Burma.

**Promethis exigua** (M. T. CHÛJÔ, 1980), comb. n. — *Setenis exigua* M. T. CHÛJÔ, 1980: Esakia, **15**: 19, Fig. 1 (Locus typicus: Yakushima Is., Fundonosawa).

Holotypus ♂: Japan [Yakushima], along Fundonosawa, 150—400 m, 6. X. 1968, M. T. CHÛJÔ (KUFA).

Verbreitung: Japan (Nansei I.).

**Promethis harmandi** ALLARD, 1896 — *Promethis Harmandi* ALLARD, 1896: Bull. Soc. ent. Fr., **1896**: 318 (Locus typicus: Sikkim). — *Setenis crenatostrata*: KASZAB, 1965, nec MOTSCHULSKY, 1872: Misc. Zool., **2** (1): 123 (Misidentifikation). — *Setenis crenatostrata*: KASZAB, 1970, nec MOTSCHULSKY, 1872: Ent. Basiliensis, **1**: 317 (Misidentifikation).

Lectotypus ♂: Sikkim, 1886, HARMAND (MNHN). — Paralectotypus ♀: wie LT (1890, coll. DEYROLLE via NÈGRE, HNHM) (Design. Z. KASZAB, 1984).

Verbreitung: Pakistan, Nepal, Indien (Panjab, Assam, W Bengal, Sikkim), Bhutan, China (Yunnan, SW Tibet), Burma, Thailand (NW Thailand).

**Promethis kaoshana** (MASUMOTO, 1982), comb. n. — *Setenis kaoshana* MASUMOTO, 1982: Elytra, **10** (2): 60, Fig. 5 (Locus typicus: Formosa, Nantou Hsien, Kunyang).

Holotypus ♂: Formosa, Kunyang, I. VII. 1965, Y. KUROSAWA (MAS). — Paratypus ♀: wie HT (MAS).

Verbreitung: Taiwan.

**Promethis vitalisi** (PIC, 1929), comb. n. — *Setenis Vitalisi* PIC, 1929: Mélang. exot. ent., **53**: 17 (Locus typicus: Cambodge).

Verbreitung: Laos, Vietnam, Kambodscha.

**Promethis microthorax** sp. n.

Holotypus ♂: China, Szetchuan, Nitou Tatsienlu, EM. REITTER (HNHM).

Paratypus ♂: wie HT, Tatsienlu Kiulung, EM. REITTER (MGFT).

Verbreitung: China (Szetschuan).

**Promethis almorensis** sp. n.

Holotypus ♂: India, Panjab, Kumaon, W. Almora, H. G. CHAMPION (BMNH).

Paratypen: India N.[orth] W.[est] P.[rovince] (1 ♂ BMNH); N. W. India (3 ♂ 1 ♀ BMNH); Kumaon, W. Almora, H. G. CHAMPION (15 ♂ 17 ♀ BMNH), id., VI. 1917, H. G. CHAMPION (1 ♀ BMNH), id., XI. 1918, H. G. CHAMPION (2 ♂ BMNH); W. Almora Dn., U. Gumti Val[ley], IV. 1919, H. G. CHAMPION (1 ♂ BMNH).

Verbreitung: Indien (Panjab).

**Promethis tatsienlua** sp. n.

Holotypus ♂: China, Szetchuan, Nitou Tatsienlu, EM. REITTER (HNHM).

Paratypen: wie HT (1 ♀ IFPE; 1 ♀ MGFT; 3 ♂ 8 ♀ NMPC; 1 ♂ 1 ♀ SMTD); Tatsienlu-Kiulung, EM. REITTER (1 ♂ FISF; 1 ♂ 1 ♀ MGFT; 1 ♂ 3 ♀ NMPC); Tatsienlu, Juling Süd, EM. REITTER (1 ♂ MNHN; 1 ♂ NMPC); Yunnan, Pe Yen-Tsin, Mines de sel, Père Siméon Ten, 1924, P. GUERRY (5 ♀ MNHN).

Verbreitung: China (Szetschuan).

**Promethis tonkinea** sp. n.

Holotypus ♂: [Vietnam], Tonkin, Lao Kay, VI. 1912, R. VITALIS DE SALVAZA (IRSN).

Verbreitung: Vietnam.

II. Gruppe: **queenslandica****Promethis queenslandica** sp. n.

Holotypus ♂: Australia: Queensland, Purch from mosrainer, Daintree Riv., X. 1882 (NMVA).

Paratypus ♀: [Australia, Queensland], Diantree Riv., VIII. 1928, C. BARRETT (1 Ex. NMVA).

Verbreitung: Australien (Queensland).

III. Gruppe: **darlingtoni****Promethis darlingtoni** sp. n.

Holotypus ♂: [Papua] New Guinea, Lae, IX. 1968, H. OHLMUS (ANIC).

Paratypen: Brit. N. Guinea, vic. Nadzab, VII. 1944, DARLINGTON (2 ♀ MCZC).

Verbreitung: Papua-Neuguinea.

IV. Gruppe: **quadricollis**

**Promethis quadricollis** PASCOE, 1869 — *Promethis quadricollis* PASCOE, 1869: Ann. Mag. nat. Hist., (4) 3: 149 (Locus typicus: Swan River). — *Promethis quadricollis*: CARTER, 1914: Proc. Linn. Soc. N. S. W., 39 (1): 52. — *Promethis Pascoei* MACLEAY, 1872: Trans. ent. Soc. N. S. W., 2: 284 (Locus typicus: Gayndah).

Holotypus ♀ von *Promethis quadricollis* PASCOE: Swan River (BMNH).

Lectotypus ♂ von *Promethis Pascoei* MACLEAY: Gayndah (ex coll. MACLEAY Museum, ANIC). — Paralectotypen ♀: wie LT (1 Ex. ANIC; 1 Ex. SAMA) (Design. Z. KASZAB, 1984).

Verbreitung: Fidschiinseln (?), Neuguinea (?), Australien (Queensland, Neusüdwesten, A. C. T., Victoria, Westaustralien, Tasmanien).

**Promethis minor** CARTER, 1914 — *Promethis minor* CARTER, 1914: Proc. Linn. Soc. N. S. W., 39 (1): 67, Fig. 3 (Locus typicus: Queensland, Rockhampton).

Lectotypus ♂ [Australia], Queensland, Rockhampton (BMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Australien (Queensland, Neusüdwesten).

V. Gruppe: **aberrans****Promethis aberrans** sp. n.

Holotypus ♀: Borneo: Borneo occ., Riv. Sambeh, VII. 1897, FR. BUFFAT (MNHN).

Verbreitung: Borneo.

VI. Gruppe: **borneensis****Promethis borneensis** sp. n.

Holotypus ♀: Borneo, Kartu, C. BORK (HNHM).

Verbreitung: Borneo.

VII. Gruppe: *striatipennis*

**Promethis pubiventris** (BLAIR, 1919), comb. n. — *Setenis pubiventris* BLAIR, 1919: J. fed. Malay St. Mus., 8 (3): 74 (Locus typicus: Sumatra: Sungei Kumbang, Korinchi Peak).  
Holotypus ♂: Sumatra, Sungei Kumbang, Korinchi, 4500 ft, IV, 1914, ROBINSON—KLOSS Expedition (BMNH).

Verbreitung: Sumatra.

**Promethis kinabaluensis** sp. n.

Holotypus ♂: Borneo, [Sabah], B.[ritish] N.[orth] Borneo, Mt. Kinabalu, Lumu Lumu, 5500 ft, 17. IV, 1979, H. M. PENDLEBURY (BMNH).

Paratypen: N. Borneo, Headquarter, 4. IV, 1979, N. NISHIKAWA (1 ♂ 1 ♀ NI).

Verbreitung: Borneo (Sabah).

**Promethis pauperula** (GEBIEN, 1918), comb. n. — *Setenis pauperula* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 124; 8 (1–3) [1919]: 7, Fig. 6 (Locus typicus: Tonkin, Mt. Mauson; Sd. China, Hainan). — *Setenis pauperula*: KASZAB, 1980: Annl. hist.-nat. Mus. natn. hung., 72: 177. — *Setenis vitalisi*: KASZAB, 1980, nec PIC, 1924: Annl. hist.-nat. Mus. natn. hung., 72: 177 (Misidentifikation).

Lectotypus ♂: Tonkin, Mt. Mauson, IV–V., 2–3000', H. FRUHSTORFER (MGFT). — Paralectotypen: wie LT (1 ♂ 2 ♀ MGFT; 1 ♀ USNM); Sd. China, Hainan (1 ♀ USNM); Tonkin, Laos (1 ♂ MCSM) (Design. Z. KASZAB, 1984).

Verbreitung: Japan (?), China (Yunnan), Laos, Vietnam.

**Promethis sinuatocollis** sp. n. — *Setenis sinuatocollis* ARDOIN in litt. — *Setenis pauperula* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 124; 8 (1–3) [1919]: 7, partim. — *Setenis pauperula*: KASZAB, 1980: Annl. hist.-nat. Mus. natn. hung., 72: 177, partim. — *Setenis asperifrons* FAIRMAIRE in litt., partim. — *Setenis frontalis* FAIRMAIRE in litt. — *Setenis crenulatus* FAIRMAIRE in litt.

Holotypus ♂: Laos, Sayabouri, 14. XII, 1965, J. RONDON (HNHM).

Paratypen: India: Assam, F. BATES (1 ♀ BMNH).

China: Yunnan (1 ♂ 1 ♀ HNHM); Yunnan, Hokow, Mts of the river Nanchiho, 200 m, 8. VI, 1956, CHAO J (1 ♀ EIAS), id., HWANG KE-YEN (1 ♀ EIAS); Kouy-Tchéou, Rég. de Pin-fa, 1908, PÈRE CAVALERIE (1 ♀ MNHN); Nienhangei, NONFRIED (1 ♂ DAFS); Szetchuan, Suifu, V, 1928, D. C. GRAHAM (1 ♀ USNM); Hainan (1 ♂ HNHM, Syntypus von *Setenis pauperula* GEBIEN, 1918).

Laos (1 ♀ TMPA); Ban Van Eua près Vientiane, 1–15. I, 1969, J. RONDON (1 ♂ MNHN).

Vietnam: Monts Mauson (2 ♂ MNHN); Montes Mauson, 2–3000 ft, IV–V., H. FRUHSTORFER (1 ♀ HNHM; 2 ♀ IFPE; 1 ♀ MCSM; 1 ♂ MCZC; 8 ♂ 14 ♀ MNHN; 1 ♀ NMPC; 1 ♀ SMNS; 4 ♂ 1 ♀ ZIPA; 7 ♂ 2 ♀ ZMHU; 1 ♂ 2 ♀ ZMKD; 4 ♀ ZMUA; 1 ♂ 2 ♀ ZSBS); Mau Son, W. MÜLLER (1 ♂ SMTD); Caleu, 1922, M. MAUNIER (1 ♂ MNHN); Phuc-Son, XI–XII., H. FRUHSTORFER (2 ♂ 1 ♀ MNHN; 1 ♀ ZMHU); Tam Dao, H. PERROT (1 ♂ 1 ♀ MNHN; 1 ♂ 1 ♀ TMPA); Chapo, Prov. de Laokay (1 ♀ MGFT); Cu Lac, 1902, MAUNIER (1 ♀ MNHN); Env. de Tuyen-Quan, 1901, A. WEISS (1 ♂ MNHN); An Ninh, près Quang-Tri, 1921, M. MAUNIER (2 ♂ 3 ♀ MNHN); Gebirge Bao Lac, 10. IV, 1962, KABAKOV (1 ♀ HNHM) Backan, 1908, LEMÉE (3 ♂ 1 ♀ MNHN); Tonkin, OBERHUMMER (1 ♂ SMNS) Indochina (2 ♀ HNHM).

Patria? (1 ♂ FISF; 1 ♂ NMPC).

Verbreitung: Indien (Assam), China (Szetschuan, Yunnan, Südchina, Hainan), Laos, Vietnam.

**Promethis iriomotensis** (M. T. CHÛJÔ, 1979), comb. n. — *Setenis iriomotensis* M. T. CHÛJÔ, 1979: Esakia, 14: 40, Fig. 1 (Locus typicus: Nansei Is., Iriomote, Shirahama).

Holotypus ♂: Japan, Nansei Is., Shirahama [Iriomote], 3. V, 1974, H. IRIE (KUFA).

Verbreitung: Japan (Nansei I.).

**Promethis szetchuanica** sp. n. — *Setenis biangulata*: KASZAB, 1980, nec GEBIEN, 1918: Annl. hist.-nat. Mus. natn. hung., 72: 177 (Misidentifikation).

Holotypus ♀: China, Szetchuan, Nitou Tatsienlu, EM. REITTER (HNHM).

Paratypen: China: Yunnan, Taveishan, Mts near Pingpien, 900 m, 23. VI, 1956, PANFILOV (1 ♀ EIAS).

Burma: Ruby M<sup>es</sup>, DOHERTY (1 ♀ BMNH); H<sup>te</sup> Birmanie, Mines de Rubis, 1200–2300 m, 1880, DOHERTY (1 ♀ MNHN).

Vietnam: Gebirge bei Sa-pa, 1600—2000 m, 7. VIII. 1962, KABAČOV (1 ♂ HNHM).  
Verbreitung: China (Szetschuan, Yunnan), Burma, Vietnam.

**Promethis striatipennis** (LEWIS, 1894), comb. n. — *Setenis striatipennis* LEWIS, 1894: Ann. Mag. nat. Hist., (6) 13: 473 (Locus typicus: Japan, Yuyama; Konose). — *Setenis striatipennis*: DENISOVA, 1940: Trav. Inst. Zool. Ac. Sci. URSS, Moskva—Leningrad, 6 (1—2): 235—236. — *Setenis striatipennis*: NAKANE & al., 1963: Icon. Ins. japon. Colore nat. ed. 2 (Coleoptera), Tokyo, 229, Pl. 115, Fig. 3. — *Setenis striatipennis*: NAKANE & MASUMOTO, 1969: Nat. Ins. Tokyo, 4 (9): [1]. — *Setenis striatipennis*: NAKANE, 1975: Mem. natn. Sci. Mus. Tokyo, 8: 165. — *Setenis striatipennis*: M. T. CHŪJŌ, 1975: Esakia, 9: 19.

Lectotypus ♂: Japan, Yuyama (Kuromatsu), Pinus sp., G. LEWIS (BMNH). — Paralectotypen: Japan, G. LEWIS (2 ♂ 7 ♀ BMNH 1 ♂ MGFT); Konose, G. LEWIS (1 ♀ BMNH) Yuyama, G. LEWIS (1 ♀ BMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Japan (Honshu, Nansei), Korea (Quellpart = Chejudo, S. Korea).

### VIII. Gruppe: brevicornis

**Promethis temporalis** sp. n. — *Setenis temporalis* ARDOIN in litt.

Holotypus ♂: Laos, Xaignaboury, 13. XII. 1966, A. RONDON (HNHM).

Paratypus: Vietnam, Langbian Prov., Dran, 3000 ft, III—V. 1918, C. BODEN KLOSS (1 ♀ HNHM).

Verbreitung: Laos, Vietnam (Süd).

**Promethis albertisi** sp. n.

Holotypus ♂: Australia [Queensland, Cap York], Somerset, I. 1873, M. L. D'ALBERTIS (MNHN).

Paratypen: New Guinea, Port Moresby, Mt. Lawes, 1300 ft, 5. III.—12. V. 1963, W. W. BRANDT (1 ♂ ANIC).

Australia, J. SEDLACEK (1 Ex. HNHM) Inter. Austral., DONCKIER (1 ♂ ZMUA) Osten Austral., DONCKIER (1 ♂ ZMUA); Queensland (1 ♂ ZMUA), id., F. BATES (1 ♀ BMNH), id., H. PETERS (1 ♂ TMPA); Torresstr.[asse], C.[ap] York, XI. 1881, O. FINSCH (1 ♂ ZMUA); Somerset, I. 1875, M. L. D'ALBERTIS (1 ♀ MNHN); Edungalba, 1972, SMITH (1 ♀ HNHM); Bellenden Ker., 20. I. 1965, K. HYDE (1 ♂ 2 ♀ ANIC) N side of L. Tinaroo, 9. XI. 1966, E. BRITTON (1 ♂ ANIC); Julatten, 18—22. VIII. 1982, J. F. LAWRENCE (1 ♂ 1 ♀ ANIC); Babinda, IX. 1919, F. MUIR (3 ♀ BPBM); env. Ingham, 22—28. III. 1965, J. BALOGH (1 ♂ HNHM); Cairns (1 ♀ ANIC), id., A. M. LEA (4 ♂ SAMA); 13 mi up whitefield, Ra. Rd. Cairns, 1600 ft, 3. XI. 1970, J. A. G. BROOKS (1 ♂ ANIC); Upper Mulgrave River, 1—3. XII. 1965, G. MONTEITH (1 ♀ UQIC); Millaa Millaa, Atherton Tab., 2500 ft, IV. 1932, DARLINGTON (2 ♂ MCZC); Kuranda, 19. VI. 1950, A. E. BROOKES (1 ♂ NZAK), id., WHEELER (1 ♂ 1 ♀ MCZC), id., XI. 1949, F. E. WILSON (1 ♂ NMVA); Barron Falls, Kuranda, 21. XI. 1964, J. G. BROOKS (1 ♀ ANIC); Geraldton (1 ♂ IFPE); M. T. Nebo, 20. II. 1977, J. SEDLACEK (1 ♀ HNHM); Kroombit Plateau, 700 m, 5. XII. 1982, J. SEDLACEK (1 ♀ HNHM); Eungella, 1976, J. SEDLACEK (1 ♂ HNHM); Bundaberg, VII. 1971, H. FRAUCA (1 ♂ 2 ♀ ANIC), id., VIII—IX. 1971, H. FRAUCA (1 ♀ ANIC); Palm L., A. M. LEA (1 ♂ 1 ♀ SAMA); Redland Bay, 9. XI. 1962, G. SHAW (1 ♀ UQIC); New South Wales, Greta, 1951, J. SEDLACEK (1 ♀ BPBM); Victoria, Dunkeld, VIII. 1920, F. E. WILSON (1 ♂ NMVA); South Australia, Gordon's crossing, 26. I. 1931 (1 ♂ 1 ♀ ANIC).

Verbreitung: Neuguinea (Papua-Neuguinea), Australien (Queensland Neusüdwest, Victoria).

**Promethis brevicornis** (WESTWOOD, 1842), comb. n. — *Nyctobates brevicornis* WESTWOOD, 1842: Proc. zool. Soc. Lond., 10: 119 (Locus typicus: »in Mus. D. HOPE«). — *Nyctobates brevicornis*: WESTWOOD, 1843: Ann. Mag. nat. Hist., 11: 534. — *Nyctobates brevicornis*: WESTWOOD, 1849: Trans. zool. Soc. Lond., 3: 226. — *Setenis brevicornis*: WATERHOUSE, 1876: Ann. Mag. nat. Hist., (4) 17: 289. — *Nyctobates indosinicus* FAIRMAIRE, 1896, nec FAIRMAIRE, 1893: Anns Soc. ent. Belg., 40: 27 (Locus typicus: Kanara). — *Setenis opaca* GEBIEN, 1918: Ent. Mitt., 7 (7—9) [1918]: 124; 8 (1—3) [1919]: 10, Taf. 2, Fig. 8 (Locus typicus: Ind. or., Travancore).

Holotypus ♀ von *Nyctobates brevicornis* WESTWOOD: [ohne Fundort], Coll. Hope Oxon. (HCOE) [K. G. BLAIR's Notiz: »Bombay«] (Design. Z. KASZAB, 1984).

Lectotypus ♀ von *Setenis opaca* GEBIEN: Ind. or., Travancore (MGFT). — Paralectotypen: wie LT (1 ♀ HNHM; 3 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Indien.

**Promethis furva** (GEBIEN, 1918), comb. n. — *Setenis furva* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 124; 8 (1–3) [1919]: 11, Taf. 1, Fig. 9 (Locus typicus: Ceylon, Kandy, Südindien, Dindigul und Shembaganur). — *Setenis furva*: KASZAB, 1979: Folia ent. hung., 32 (2): 95.

Lectotypus ♂: S. India, Dindigul (MGFT). — Paralectotypen: S. Indien, Shembaganur (1 ♂ 1 ♀ MGFT; 1 ♀ USNM); Ceylon, Kandy (1 ♂ HNHM; 1 ♀ MCSM; 1 ♂ USNM) (Design. Z. KASZAB, 1984).

Verbreitung: Indien, Sri Lanka.

## IX. Gruppe: aequatorialis

**Promethis rufipennis** (KASZAB, 1980), comb. n. — *Setenis rufipennis* KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 198, Abb. 62, 64–66 (Locus typicus: Vietnam, Ha nam minh, Cuc phuong).

Holotypus ♂: Vietnam, Ha nam minh, Cuc phuong, 21–24. XII. 1965, T. Pócs (HNHM). — Paratypen: wie HT (4 Ex. HNHM); Laos: Ban Van Eua bei Vientiane, 29. IV. 1966, J. RONDON (8 Ex. HNHM), id., II–III. 1969, J. RONDON (19 Ex. HNHM).

Verbreitung: Laos, Vietnam.

**Promethis rugosa** sp. n.

Holotypus ♂: Lombok, Sapit, 2000 ft, IV. 1896, H. FRUHSTORFER (MNHN).

Paratypen: Lombok, Pringabaya, IV. 1896, H. FRUHSTORFER (1 ♀ MNHN).

Sumatra, STAUDINGER (1 ♂ ZMUA).

Sumbawa: v. LANSB.[ERG] (1 ♂ RMNH); id., Colffs. 3 ♂ ZIAK).

Flores (1 ♂ ZIAK).

Verbreitung: Sumatra, Lombok, Sumbawa, Flores.

**Promethis crenatostrata** (MOTSCHULSKY, 1872), comb. n. — *Setenis crenatostrata* MOTSCHULSKY, 1872: Bull. Soc. Imp. Nat. Moscou, 45 (3): 30 (Locus typicus: Ind. or. Birma). — *Nyctobates foveicollis* FAIRMAIRE, 1893: Anns Soc. ent. Fr., 62: 29 (Locus typicus: Indochine, Pnom-Penh), syn. n. — *Setenis crenatostrata*: GRAVELY, 1915: Rec. Indian Mus., 8: 526. — *Setenis sinuatipes* PIC, 1928: Bull. Soc. zool. Fr., 53: 377 (Locus typicus: Indochine). — *Setenis foveicollis*: ARDOIN, 1969: Bull. Soc. ent. Fr., 74: 125. — *Setenis foveicollis*: KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 177.

Lectotypus ♀ von *Setenis crenatostrata* MOTSCHULSKY, 1872: Ind. or. [Birma, coll. MOTSCHULSKY] (ZMUM) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Nyctobates foveicollis* FAIRMAIRE, 1893: Pnomh-Penh (MNHN) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Setenis sinuatipes* PIC, 1928: [Indochine] Bou Mong (NMHN) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (Assam), China (Yunnan, Hainan), Burma, Thailand, Kambojscha, Laos, Vietnam.

**Promethis timorensis** sp. n.

Holotypus ♂: Timor (ZMHU).

Paratypen: wie HT (1 ♂ ZMHU), id., MACKLOT (1 ♂ RMNH).

Verbreitung: Timor.

**Promethis villososternalis** sp. n.

Holotypus ♂: Sumatra, Mt. Tanggamoos Lampongs (MNHN).

Paratypen: India (1 ♂ HNHM); India or. (1 ♂ ZMHU); Indes orientales, DU BUS (2 ♂ 2 ♀ IRSN).

Sumatra: 1883, J. MACHIK (1 ♀ HNHM); wie HT (12 ♂ 13 ♀ MNHN); Rég. de Bangkokelen, Tandjong Sakti, 1935, M. E. WALSH (1 ♂ 2 ♀ MNHN); Lampongs, Wai Lima, Zentral Sumatra, XI–XII. 1921, KARNY & SIEBERS (1 ♂ 1 ♀ IFPE); Lami, BUXTON (1 ♂ BMNH).

Java: Java (2 ♂ 4 ♀ BMNH; 1 ♂ 1 ♀ HNHM; 1 ♂ IFPE; 1 ♂ MCSM; 1 ♂ MCZC; 1 ♂ 1 ♀ MHNG; 1 ♀ NHMB; 2 ♂ NHMW; 1 ♂ ZIPA; 1 ♂ 1 ♀ ZIUH; 5 ♂ ZMUA), id., F. BATES (1 ♂ 2 ♀ BMNH), id., ZIEGLER (1 ♀ MCZC), id., HORSFIED (1 ♂ BMNH), id., FUCHS (2 ♂ MWNS), id., BADOLLET (1 ♀ MHNG), id., BAULNY (1 ♀ ZSBS), id., MAERKEL (2 ♂ SMTD), id., C. FELSCH (2 ♂ 3 ♀ SMTD), id., PFEIFFER (1 ♀ NHMW), id., J. WATERSTRADT (12 ♂ 10 ♀ IRSN), id., 1904, J. WATERSTRADT (1 ♂ MNHN), id., 1862, TOUSSAINT (4 ♂ 1 ♀ MNHN), id.,

12. VI. 1930, E. KALSHOVEN (1 ♀ RMNH), id., DE BORRE (1 ♂ 4 ♀ IRSN), id., 1902, DEFSÄ (9 ♂ 10 ♀ MA), id., J. WILSON (1 ♀ BMNH); Ost-Java, C. FELSCH (2 ♂ 1 ♀ SMTD), id., H. FRUHSTORFER (1 ♂ 2 ♀ ZMHU), id., XI. 1936, J. v. HEURN (1 ♂ ZMUA); Java, Noesa, Kam-bangan, VI. 1917, F. C. DRESCHER (2 ♂ 3 ♀ ZMUA), id., VIII. 1916, F. C. DRESCHER (1 ♂ ZMUA); Afd. Tjiamis, IV. 1907, M. C. DRESCHER (1 ♂ 1 ♀ ZMUA); Besoeki, Res. Kediri (1 ♂ RMNH); Tenger (1 ♀ FISF); Tenger Geb., 4000 ft, H. FRUHSTORFER (4 ♂ 2 ♀ ZMHU), id., Tenger Gebirge, M. C. DRESCHER (1 ♂ 1 ♀ ZMUA); Montes Tengger, 4000 ft, 1890, H. FRUHSTORFER (1 ♀ MGFT; 1 ♂ MNHN); SW Java, Palabuan-Ratu, A. PREYER (2 ♂ ZMHU); Buitenzorg, 1000 ft, II. 1890, I. Z. KANNEGIETER (1 ♂ 1 ♀ MNHN); Mts. Kawie, 1898, J. B. LEDRU (1 ♂ MNHN); G. Kawi, VII. 1934, v. DOESBURG (1 ♂ 1 ♀ HNHM); Mt. Kawi, R. OBERTHÜR (60 ♂ 83 ♀ IRSN); Kediri, V. HAGEL (2 ♂ BMNH); Mt. Moeria, T. JOLD (1 ♀ IRSN); Soekaboemi, LE MOULT (2 ♀ IRNS); Toegoë, 1902, (1 ♀ MNHN), Preanger (3 ♂ MNHN), id., 1899, REGENTSCHAPPEN (17 ♂ 8 ♀ ZMUA) Preanger, Mts. Djampang (2 ♂ MNHN); Montes Preanger, 1878, RAFFRAY & MAINDRON (1 ♀ MNHN); Preanger, Ardja-Sari (1 ♀ RMNH); Preanger, Tjigembong, D. MAC GILLAVRY (1 ♂ ZMUA), id., J. B. CORPORAL (1 ♀ RMNH); Bantam (1 ♂ RMNH); Mt. Salak, J. B. LEDRU (2 ♂ 1 ♀ MNHN); Rindskopf (1 ♀ FISF); Kendeng-rug, 1500 m, XI. 1936, W. C. v. HEURN (1 ♂ ZMUA); Nongko-djajai, XII. 1921, R. MAC GILLAVRY (1 ♂ 1 ♀ ZMUA); G. Oengaran, VI. 1906, DRESCHER (1 ♀ ZMUA); Blum (3 ♂ RMNH); Toeloegagoeng, 84 m, C. J. LOUVERENS (1 ♂ RMNH); Tjiboda, T. BARBEUR (2 ♂ 4 ♀ MCZC); Lawang, M. BUYSMAN (1 ♀ RMNH); Malang, A. KOLLER (1 ♂ RMNH); Ardjoens, 1871 (2 ♂ 3 ♀ ZMUA); Badean, G. RAOENG (1 ♂ BMNH); Pandamas, Mts. Oeker, 1898, J. B. LEDRU (2 ♂ 1 ♀ MNHN); Pander, 1819 (1 ♂ MNHN); Mt. Ardjoëno, V. 1891, W. DOHERTY (2 ♀ MNHN); Pengalengan, 4000 ft, 1893, H. FRUHSTORFER (3 ♀ MNHN; 1 ♂ 1 ♀ ZMHU; 2 ♂ 1 ♀ ZMUA).

Borneo (1 ♂ RMNH).

Sumbawa: Bordja (1 ♀ HNHM).

Ceram: Wahaai, T. BARBOUR (1 ♀ MCZC).

Patria?: 1 ♂ BMNH; 1 ♀ FISF; 1 ♂ 1 ♀ HCOE; 1 ♂ MHNG; 2 ♂ 1 ♀ RMNH; 1 ♂ ZMHU; 8 ♂ 6 ♀ ZMUA.

Verbreitung: Indien (?), Sumatra, Java, Borneo (?), Sumbawa, Ceram.

**Promethis insularis** sp. n.

Holotypus ♂: Sumba, O. Sumba, Langgai, 15. VII. 1949, BÜHLER & SUTTER (NHMB).

Paratypen: Bali, Moendoek, VII. 1915, DRESCHER (1 ♂ ZMUA).

Sumba: wie HT (1 ♀ NHMB); W. Sumba, Pogobina, 18. IX. 1949, BÜHLER & SUTTER (1 ♂ NHMB).

Verbreitung: Bali, Sumba.

**Promethis sumatrana** sp. n.

Holotypus ♂: Sumatra, Loeboe Rankoe, J. MENZEL (RMNH).

Paratypen: Sumatra, Brastagi, 14. II. 1921, J. B. CORPORAL (1 ♂ ZMUA); Mt. Dairi, 1500 m, 25. III. 1984, G. HANGAY (2 ♂ 2 ♀ HNHM).

Verbreitung: Sumatra.

**Promethis walshae** sp. n.

Holotypus ♂: Sumatra, Rég. de Benkoelen, Tandjong Sakti, 1935, M. E. WALSH (MNHN).

Paratypen: wie HT (1 ♀ MNHN); Mocer Tenam, 1935, M. E. WALSH (1 ♀ MNHN); Medan, Dolok Baros Estate, LE MOULT (1 ♂ 1 ♀ MNHN); Westküste, Boekit Gabah, XII. 1918, F. C. DRESCHER (1 ♂ ZMUA); Palembang (1 ♀ MNHN).

Patria?: (1 ♀ MCZC).

Verbreitung: Sumatra.

**Promethis laeicollis** sp. n.

Holotypus ♂: Philippinen, Mountain Prov., Abatan, Buguias, 60 km S of Bontoc, 1800—2000 m, 9—12. V. 1964, H. M. TORREVILLAS (BPBM).

Paratypen: Philippinen (1 ♂ BMNH; 2 ♂ HNHM; 1 ♀ MCZC; 1 ♀ MGFT; 1 ♂ NHMW; 1 ♂ ZMUA); Luzon, A. J. BUIS (1 ♂ 1 ♀ ZMUA); Mountain Prov., Abatan, Buguias, 60 km S of Bontoc, 1800—2000 m, 5. IV., 3. V., 4—7. V., 5. V., 9. V., 15. V., 1. VI., 11—12. VI. 1964, H. M. TORREVILLAS (4 ♂ 9 ♀ BPBM); Luzon, Baguio (1 ♂ 1 ♀ ZIUH); Benguet, Baguio (1 ♀ BMNH; 4 ♂ 1 ♀ USNM), id., BAKER (1 ♂ MGFT; 1 ♀ USNM); Baguio, G. C. HASLAM (7 ♂ 8 ♀ USNM); Luzon, Trinidad, Benguet, MCGREGOR (1 ♂ USNM ohne Vorderkörper); Trinidad,

19. V. 1914, BÖTTCHER (4 ♂ 3 ♀ ZMHU); Momungen, 17. II. 1914, BÖTTCHER (1 ♂ ZMHU); Benguet, Santo Tomas (1 ♂ TmpA), id., Irian River, McGREGOR (1 ♀ MGFT); Luzon, Imugan (2 ♂ ZMHU); Ifugao Prov., Jacmal Bunbian, 24 km E Mayoyao, 800—1000 m, 25—27. IV., 4—6. V. 1967, H. M. TORREVILLAS (3 ♂ 2 ♀ BPBM); Luzon, Mt. Limay, BAKER (1 ♂ BMNH; 3 ♂ 1 ♀ USNM); Imugan, N. Vizcaya, BAKER (2 ♂ BMNH; 3 ♂ USNM); Mt. Dibago, Nueva Vizcaya Prov., McGREGOR (1 ♀ USNM); Mindanao, Zambounga, B. P. CLARK (7 ♂ 9 ♀ USNM); Palawan (1 ♀ USNM); Palawan, P. Princesa, BAKER (1 ♂ USNM); Nord-Palawan, Binaluan, XI—XII. 1913, G. BOETTCHER (1 ♂ 1 ♀ ZMHU); Süd-Palawan (1 ♂ MNHN).  
Verbreitung: Philippinen (Luzon, Mindanao, Palawan).

**Promethis tibialis** (GUÉRIN-MÉNEVILLE, 1834), comb. n. — *Nyctobates tibialis* GUÉRIN-MÉNEVILLE, 1834: Mag. Zool. J. Paris, 4: 34, Pl. 118, Fig. 1a—g (Locus typicus: Bengale). — *Setenis impressa* MOTSCHULSKY, 1872, nec FABRICIUS, 1801: Bull. Soc. Imp. nat. Mosc. 45 (2): 30 (Locus typicus: Java), comb. n., syn. n.

Lectotypus ♂ von *Nyctobates tibialis* GUÉRIN-MÉNEVILLE, 1834: Beng[ala] (MNHN) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Setenis impressa* MOTSCHULSKY, 1872, nec FABRICIUS, 1801: Java (ZMUM) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (?), China (?), Japan (?), Malay Penin., Sumatra, Java.

**Promethis luzonica** sp. n.

Holotypus ♂: Philippinen, Luzon, Pangil, Laguna, 1000 ft, 1. VI. 1931, F. C. HADDEN (BPBM).

Paratypen: wie HT (1 ♀ BPBM); Luzon, Camarines Sur, Mt. Iriga, 500—600 m, 13. IV., 18. IV. 1962, H. M. TORREVILLAS (1 ♂ 1 ♀ BPBM); Camarines Sur, Mt. Isarog, 750—850 m, 18. IV., 20. IV., 27—30. IV. 1963, H. M. TORREVILLAS (17 ♂ 11 ♀ BPBM); Sibuyan, Romblon (8 ♂ 3 ♀ MAS).

Verbreitung: Philippinen (Luzon, Sibuyan).

**Promethis oceanica** sp. n.

Holotypus ♂: Andaman islds., SHARP coll. (BMNH).

Paratypen: wie HT (3 ♂ 2 ♀ BMNH); Anda[manen] (2 ♂ ZMUA), id., ROEPSDORFF (2 ♂ 1 ♀ BMNH; 2 ♂ 2 ♀ ZMHU; 2 ♂ 3 ♀ ZMKD).

Patria? (4 ♂ 5 ♀ ZMUA).

Verbreitung: Andamanen.

**Promethis aequatorialis** (BLANCHARD, 1853), comb. n. — *Nyctobates aequatorialis* BLANCHARD, 1853: Voyage de M. Dumont d'Urville. Zool., 4: 30, Pl. 11, Fig. 11 (Locus typicus: Borneo, Banjer-Massin). — *Nyctobates podagra* FAIRMAIRE, 1882: Notes Leyden Mus., 4: 229 (Locus typicus: district Rawa et Koetaen; Boenga). — *Setenis aequatorialis*: GEBIEN, 1913: Philipp. J. Sci., 8 (6): 402 (partim). — *Setenis aequatorialis*: GEBIEN, 1914: Sarawak Mus. J., 2 (5): 39. — *Setenis aequatorialis*: GEBIEN, 1935: Mém. Mus. r. Hist. nat. Belg. Hors texte 4 (11): 63, Figs 4—5.

Neotypus ♂ von *Nyctobates aequatorialis* BLANCHARD: Süd-Borneo, Bandjermassin, v. ROTHENBURG (ZMUA) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Nyctobates podagra* FAIRMAIRE, 1882: Rawas, 5/78 (RMNH). — Paralectotypen: wie LT (1 ♂ 2 ♀ RMNH); Koetaen, 6/78 (2 ♂ 4 ♀ RMNH); Boenga Man Palembang, J. C. VAN HASSELT (1 ♀ RMNH); Soeroelan goen, 4/78, Sum.[atra] Exp.[edition] (1 ♂ 1 ♀ RMNH); ohne Fundort (1 ♂ MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Kambodscha (?), Thailand, Malay Penin., Singapur, Nias, Sumatra, Java, Borneo (Sabah, Sarawak, Brunei, Kalimantan), Banguay, Sulu Arch., Philippinen (Luzon, Sibuyan, Masbate, Negros), Sulawesi, Neuguinea (?).

**Promethis cameronensis** sp. n.

Holotypus ♂: Malay Penin., Pahang, Cameron Highlands, Tanah Ralu, 4800—5000 ft, 16. VII. 1938, H. M. PENDLEBURY (BMNH).

Paratypen: wie HT (2 ♂ 2 ♀ BMNH), id., 4800 ft, »at light«, 24. V. 1931, H. M. PENDLEBURY (1 ♂ 1 ♀ BMNH), id., Ginling Kialbovo, 26. V. 1939, H. M. PENDLEBURY (1 ♀ BMNH), id., G. Tasan, 5500 ft, 15. VII. 1928, H. M. PENDLEBURY (1 ♀ BMNH); Perak, DOHERTY (1 ♂ 2 ♀ BMNH); Perak, Batang Padang, Jor Camp, 1800 ft, 5. III. 1924, H. M. PENDLEBURY (1 ♀ BMNH).

Verbreitung: Malay Penin.

**Promethis sanguinierus** (FAIRMAIRE, 1893), comb. n. — *Nyctobates sanguinierus* FAIRMAIRE, 1893: Notes Leyden Mus., **15**: 25 (Locus typicus: Sumatra). — *Setenis aequatorialis* BLANCH. var. *sanguinierus*: GEBIEN, 1914: Sarawak Mus. J., **2** (5): 39.

Lectotypus ♂: Sumatra, Palembang (MNHN). — Paralectotypus ♀: wie LT (MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (?), Thailand, Malay Penin., Singapur, Nias, Sumatra, Java, Borneo (Sabah, Sarawak, Kalimantan).

**Promethis masumotoi** sp. n.

Holotypus ♂: Borneo, Kinabalu (HNHM).

Paratypen: Borneo (1 ♀ SMTD; 3 ♂ 1 ♀ ZMKD); Borneo, Sabah: Kinabalu (1 ♂ 2 ♀ IFPE; 1 ♂ 1 ♀ HNHM; 1 ♂ MGFT; 1 ♂ ZMHU), id., WHITEHEAD (1 ♂ BMNH); Kinabalu Geb. (1 ♀ ZMHU); Mt. Kinabalu, Kiau, 3000 ft, 25. IV. 1929, H. M. PENDLEBURY (2 ♀ BMNH), id., V—VIII. 1903, J. WATERSTRADT (2 ♂ 1 ♀ MNHN); Sandakan, BAKER (1 ♀ BMNH; 1 ♂ USNM ohne Vorderkörper); Sabah, Tenompok, Jesselton, 30 mi E, 1460 m, 26—31. I. 1959, T. C. MAA (1 ♂ 1 ♀ BPBM); Tawau, Quoin Hill, Cocoa Res. Sta., 7. IX. 1962, Y. HIRASHIMA (2 ♂ BPBM), id., 225 m, 14. IX. 1962, K. I. KUNCHERIA (1 ♀ BPBM), id., 30. VI. 1962, Y. HIRASHIMA (2 ♀ BPBM). — Borneo, Sarawak: Mt. Dulit, 3500 ft, M. MJOBERG (1 ♂ BMNH); Borneo, Kalimantan: Batan Bessi, 1937, M. E. WALSH (1 ♂ 2 ♀ MNHN); Babi djoelon, 1937, M. E. WALSH (1 ♂ MNHN); Pelawan besar, 1937, M. E. WALSH (5 ♂ 5 ♀ MNHN); Riv. Sambeh, VI. 1897, F. BUFFAT (1 ♀ MNHN).

Verbreitung: Borneo (Sabah, Sarawak, Kalimantan).

**Promethis mindanaoensis** sp. n.

Holotypus ♂: Philippinen, Mindanao, Misamis or., Mt. Balatukan, 15 km SW of Gingoog, 1000—2000 m, 27—30. IV. 1960, H. TORREVILLAS (BPBM).

Paratypen: Philippinen: Romblon, VIII. 1979 (1 ♂ BR; 1 ♀ HNHM); Samar, BAKER (1 ♂ MGFT; 1 ♂ 1 ♀ USNM); Leyte, Plains of NE Leyte, XI. 1941—I. 1945, DARLINGTON (1 ♂ MCZC); Leyte, FRY (1 ♀ BMNH); Panaon (1 ♀ ZMHU); Mindanao, Kolambugan, BAKER (1 ♂ USNM); NO Mindanao, Buas I., Sourro (4 ♂ 2 ♀ ZMHU); Surigao (1 ♂ 2 ♀ ZMHU); Misamis or., Mt. Balatukan, 15 km SW of Gingoog, 1000—2000 m, 5. II., 21., 27—30. IV., 1—5. V. 1960, H. TORREVILLAS (25 ♂ 24 ♀ BPBM); Misamis or., Mt. Balofukan (Kalagoosky), 15 km SW of Gingoog, 5. V. 1956, H. M. TORREVILLAS (1 ♂ 1 ♀ BPBM); Misamis or., Mt. Kibungol, 20 km SE of Gingoog, 700—800 m, H. M. TORREVILLAS (1 ♂ BPBM); Iligan, C. BAKER (1 ♀ TMPA); Baracatani, Davao City, 27—29. VI. 1977, Y. KUROSAWA (1 ♂ MAS).

Verbreitung: Philippinen (Romblon, Samar, Leyte, Mindanao).

**Promethis sulcatipennis** sp. n.

Holotypus ♂: Andaman, DE ROEPSTORFF (ZMHU).

Paratypen: wie HT (2 ♂ 1 ♀ ZMHU; 3 ♂ 2 ♀ ZMKD).

Nicobaren, DE ROEPSTORFF (1 ♀ BMNH; 1 ♂ ZMUA).

Verbreitung: Andamanen, Nicobaren.

## X. Gruppe: *producta*

**Promethis producta** (GEBIEN, 1918), comb. n. — *Setenis producta* GEBIEN, 1918: Ent. Mitt., **7** (7—9) [1918]: 123; **8** (1—3) [1919]: 4, Taf. 1, Fig. 6 (Locus typicus: Neu-Guinea und Ceram). — *Setenis producta*: GEBIEN, 1920: Nova Guinea **13**, Zool. 3: 293, 295. — *Setenis producta*: KASZAB, 1939: Nova Guinea (Ser. n.) **3**: 224.

Lectotypus ♂: D. N. Guinea, Lager am Rosensee, 11. II. 1913, BÜRGERS (ZMHU). — Paralectotypen: Neuguinea, Coll. KRAATZ (2 ♀ IFPE); D. N. Guinea, Mäanderberg, 670 m, 19—31. VII. 1913, BÜRGERS (1 ♀ ZMHU); Neu-Pommern (1 ♂ TMPA); Herbertshöhe (1 ♂ 2 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Molukken (Ceram), Neuguinea (Irian, Papua-Neuguinea), Bismarck Arch. (Neuirland, Neubritannien, Neupommern).

**Promethis amplipennis** (GEBIEN, 1918), comb. n. — *Setenis amplipennis* GEBIEN, 1918: Ent. Mitt., **7** (7—9) [1918]: 123; **8** (1—3) [1919]: 5, Taf. I, Abb. 5 (Locus typicus: Neu-Guinea), partim. — *Setenis amplipennis*: GEBIEN, 1920: Nova Guinea, **13**, Zool. 3: 291, Taf. IX, Abb. 14. *Setenis amplipennis*: KASZAB, 1939: Nova Guinea, (Ser. n.) **3**: 224.

Lectotypus ♂: [Papua New Guinea], Sattelberg (IFPE). — Paralectotypen: N. Guinea (1 ♂ IFPE); Deutsch-Neu-Guinea (1 ♀ MGFT); Sattelberg (2 ♂ IFPE; 1 ♂ MGFT; 1 ♀ ZMHU);



Wareo (1 ♂ TMPA); Finschhafen (1 ♂ HNHM): N. Guinea, Wamoro Geb., 750 m (1 ♂ 1 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Neuguinea (Papua-Neuguinea).

**Promethis barbata** (GEBIEN, 1918), comb. n. — *Setenis barbata* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 123; 8 (1–3) [1919]: 6 (Locus typicus: Bismarck Archipel, Neu-Guinea, Neu-Pommern, Solomon Inseln), partim. — *Setenis barbata*: GEBIEN, 1920: Nova Guinea 13, Zool. 3: 292, 296.

Lectotypus ♂: Neu-Pommern, Herbertshöhe, Matupi, XII. 1900—V. 1901, HEINROTH (ZMHU). — Paralectotypen: Bismarck Archipel (1 ♂ MGFT): Salomon Ins., Bougainville, Numa Nu, 20. XI. 1909, H. SCHOEDE (1 ♂ 1 ♀ ZMHU) (Design. Z. KASZAB, 1984).

Verbreitung: Bismarck Arch. (Neubritannien, Neupommern), Salomonen (Bougainville, New Georgia Group, Malaita, Guadalcanal).

**Promethis hiecki** sp. n. — *Setenis amplipennis* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 123; 8 (1–3) [1919]: 5, partim. — *Setenis barbata* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 123; 8 (1–3) [1919]: 6, partim. — *Setenis barbata*: KASZAB, 1939, nec GEBIEN, 1918: Nova Guinea (Ser. n.) 3: 224 (Misidentifikation).

Holotypus ♂: Neuguinea, Irian: Siwi, Arfak, 21. VII. 1928, MAYR (ZMHU).

Paratypen: wie HT (1 ♂ 3 ♀ ZMHU), id., 22. IV. 1928, MAYR (3 ♀ ZMHU), id., 24. IV. 1928, MAYR (5 ♂ 13 ♀ ZMHU); id., 25. IV. 1928, MAYR (1 ♀ ZMHU), id., 27. IV. 1928, MAYR (2 ♂ 4 ♀ ZMHU), id., 29. IV. 1928, MAYR (2 ♂ 15 ♀ ZMHU), id., 25. V. 1928, MAYR (1 ♂ 4 ♀ ZMHU), id., 21. VII. 1928, MAYR (2 ♂ ZMHU); Papua New Guinea: D. N. Guinea (1 ♂ Syntypus von *Setenis barbata* GEBIEN, MGFT); Hauptlager b. Malu, 27. I. 1913, BÜRGERS (2 ♂ Syntypus von *Setenis amplipennis* GEBIEN, ZMHU); Kiunga, Fly River, 24–27. VIII. 1957, W. W. BRANDT (1 ♂ BPBM): Astrolabe Bay, Erima, 1897, L. BIRÓ (1 ♂ HNHM).

Verbreitung: Neuguinea (Irian, Papua-Neuguinea).

## XI. Gruppe: *angulata*

**Promethis sterrha** (OLLIFF, 1889), comb. n. — *Nyctobates sterrha* OLLIFF, 1889: Insect fauna of Lord Howe Island, Sydney, 1: 88, Pl. 6, Fig. 1 (Locus typicus: Lord Howe Island).  
Verbreitung: Lord-Howe-I.

**Promethis opaca** CARTER, 1914 — *Promethis opaca* CARTER, 1914: Trans. R. Soc. S. Aust., 38: 286 [Locus typicus: New South Wales: Craven (Gloucester district)].

Lectotypus ♂: New South Wales, Craven (Gloucester district), T. G. SLOANE (AMSA) (Design. Z. KASZAB, 1984).

Verbreitung: Australien (Queensland, Neusüdwales).

**Promethis nigra** (BLESSIG, 1861), comb. n. — *Iphthinus niger* BLESSIG, 1861: Horae Soc. ent. Ross., 1: 91 (Locus typicus: Neuholland, Colonie Victoria). — *Promethis nigra*: CARTER, 1914: Proc. Linn. Soc. N. S. W., 39 (1): 52. — *Promethis lethalis* PASCOE, 1869: Ann. Mag. nat. Hist., (4) 3: 148 (Locus typicus: Queensland). — *Promethis major* CARTER, 1914: Proc. Linn. Soc. N. S. W., 39 (1): 64 (Locus typicus: Queensland, Gympie), **syn. n.**

Lectotypus ♂ von *Promethis lethalis* PASCOE: Queensland (BMNH). — Paralectotypus ♀: wie Lectotypus (BMNH) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Promethis major* CARTER: Queensland, Gympie, H. J. CARTER (NMVA). — Paralectotypus ♀: Australia (1 Ex. BMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (?), Australien (Queensland, Neusüdwales, A. C. T., Victoria, Süd-, Westaustralien, Nord Territorien), Tasmanien.

**Promethis punctithorax** sp. n.

Holotypus ♂: Australia, Victoria, Beaconsfield, VIII. 1919, J. WILSON (NMVA).

Paratypen: New South Wales, E. F. FERGUSSON (1 ♀ ANIC); Blue Mts., BLACKBURN (1 ♂ SAMA); Ord Riv., E. E. DAVIES (1 ♀ NMVA); Wahroonga, H. J. CARTER (1 ♂ ANIC); Pt. Lookout, NE Nat. Park, 5200 ft, 20. XII. 1960, C. W. FRAZIER (1 ♂ ANIC); A. C. T., Canberra, XI. 1964, BORNEMISSZA (1 ♂ HNHM); Black Mts., 17. XI. 1964, I. F. B. COMMON (1 ♂ ANIC); Victoria (1 ♂ NMVA); Tyres Riv., X. 1969 (1 ♂ ANIC); Monbulk, VIII. 1902, JARVIS (1 ♂ SAMA); Rocky Crk., Uralla, W. W. FRGGATT (1 ♂ ANIC).

Patria? (1 ♂ NMVA).

Verbreitung: Australien (Neusüdwales, A. C. T., Victoria).

**Promethis carteri** sp. n.

Holotypus ♂: Australia, Queensland, Moses Crk., 4 km N by E of Mt. Finnigan (15°47' S—145°17' E), 14—16. I. 1980, T. WEIR (ANIC).

Paratypen: Queensland (1 ♀ F1SF), id., H. PETERS (1 ♂ MCZC), id., E. WEISKE (1 ♂ 1 ♀ MNHN), id., C. FELSCH (2 ♀ SMTD); Mt. Spec., 3000 ft., 4. I. 1967, J. G. BROOKS (1 ♂ ANIC), id., I. 1960, C. V. (1 ♀ ANIC); Tully Falls, 100 m, 31. I. 1962, J. SEDLACEK (3 ♂ HNHM); Cooktown (1 ♀ HNHM; 1 ♀ MCZC; 1 ♂ TMPA), id., STAUDINGER (5 ♂ SAMA); Moses Crk., 4 km N by E of Mt. Finnigan (15°47' S—145°17' E), 14—16. X. 1980, T. WEIR (1 ♂ ANIC); Cedar Crk., MjöBERG (1 ♂ HNHM; 1 ♂ 4 ♀ NRSS); Malanda, MjöBERG (4 ♂ NRSS), id., G. E. HILL (1 ♂ SAMA); Spiptons Flat (15°47' S—145°14' E), 17—19. X. 1980, T. WEIR (1 ♀ ANIC); Boar Pocket Rd., 3 mi N Gillies Highway, 28. II. 1969, J. G. BROOKS (2 ♂ ANIC); Mossman Gorge, via Mossman, 9. VIII. 1966, G. MONTEITH (2 ♂ UQIC); Cap Ck., 5 mi N of Blomfield Riv., 100 m, 8—9. V. 1970, G. B. MONTEITH (1 ♂ 1 ♀ UQIC); Lacey's Ck., Mission Beach, 21. IV. 1970, G. B. MONTEITH (1 ♂ UQIC); Churchill Ck., Mt. Lewis Road, via Julatten, 27. XI. 1965, G. MONTEITH (2 ♀ UQIC); Cairns (1 ♂ MCZC; 1 ♂ NMVA), id., H. HACKER (1 ♂ IFPE), id., 1952, J. SEDLACEK (2 ♂ HNHM), id., X. 1896, W. BANNING (1 ♀ SAMA); Cairns dist., A. M. LEA (3 ♂ 2 ♀ SAMA)- Cairns, 20 km up Whitfield Rd. (16°55' S—145°46' E), 395 m, 9. XI., 2. X. 1971, J. G. & J. A. S. BROOKS (3 ♀ ANIC); Bakers Blue Mt., 17 km W Mt Molloy, 900 m, 11. IX. 1981, G. MONTEITH & D. COOK (3 ♂ 2 ♀ QMBA), id., 12. IX. 1981, G. MONTEITH & D. COOK (1 ♀ QMBA); Windsor Tbl., 35 km NNW Mt Carbine, Bargoo Ck., 850 m, 15—18. IV. 1982, MONTEITH, YEATES & COOK (1 ♂ QMBA); Hinchinbook Is., Gayundah Ck., 7—15. XI. 1984, MONTEITH, COOK, THOMPSON (1 ♂ 2 ♀ QMBA); 11 mi NE of Ravenshoe, 24. V. 1969, NEBOISS (3 ♂ 1 ♀ NMVA), id., VII. 1921, H. J. CARTER (1 ♀ NMVA); Lake Eacham, 7. XI. 1966, E. BRITTON (1 ♀ ANIC); Kuranda (1 ♀ MCZC), id., 21. XI. 1909, G. E. BRYANT (1 ♀ BMNH), id., III. 1950, J. G. BROOKS (1 ♀ BMNH); 2 km N of Kuranda (16°48' S—145°38' E), 20. XI. 1981, J. BALDERSON (1 ♂ 1 ♀ ANIC); Mt. Molley, F. E. WILSON (1 ♂ NMVA); Babinda, IX. 1919, F. MUIR (2 ♂ BPBM); Eungella, 1976, J. SEDLACEK (2 ♀ HNHM); Koombalooomba, 29. XII. 1969, J. G. BROOKS (1 ♂ ANIC), id., 10. I. 1962, E. B. BRITTON (1 ♂ BMNH); Millaa Millaa Falls, via Millaa Millaa, 10—11. XII. 1966, J. GOWARD (1 ♂ UQIC); Millaa Millaa, Atherton Tab., 2500 ft., IV. 1932, DARLINGTON (4 ♂ 4 ♀ MCZC); Mareeba, 1. I. 1939, J. G. BROOKS (2 ♀ ANIC); Kirrama State forest, via Cardwell, 17—18. VIII. 1966, G. MONTEITH (1 ♀ UQIC); Kirrama Range, 17. XII. 1968, A. EY (2 ♀ ANIC); New South Wales, STAUDINGER (1 ♀ SAMA); Sydney, 1952 (1 ♂ NZAK); Greta, 1951, J. SEDLACEK (2 ♂ 1 ♀ BPBM); Cascade, I. 1934, F. E. WILSON (1 ♀ NMVA); Victoria, J. CHATANAY (1 ♀ MNHN); Deer, J. F. ILLINGWORTH (1 ♀ BMNH); Western Australia, Kelmescott, X. 1958, J. BALDUIN (1 ♀ SAMA), N. Holland., STAUDINGER (2 ♂ ZMHU), Australia, JENSEN-HARRUP (1 ♂ 1 ♀ ZMKD); Fairfield, VIII. 1927, M. FULLER (1 ♀ ANIC).

New Guinea, PH. OBERLÄNDER (1 ♂ USNM).

Verbreitung: Neuguinea (?), Australien (Queensland, Neusüdwest, Victoria, Westaustralien), Tasmanien.

**Promethis angulata** (ERICHSON, 1842), comb. n. — *Upis (Iphthinus) angulata* ERICHSON, 1842: Arch. Naturgesch., **8** (1): 174 (Locus typicus: Vandiemensland). — *Promethis angulata*: CARTER, 1914: Proc. Linn. Soc. N. S. W., **39** (1): 52.

Lectotypus ♂: Vandiemensland (ZMHU). — Paralectotypen ♀: wie LT (3 Ex. ZMHU) (Design. Z. KASZAB, 1984).

Verbreitung: Australien (Queensland, Neusüdwest, A. C. T., Victoria, Südaustralien, Westaustralien), Tasmanien, Flinder I., King I., Neuseeland (?), Java (?).

**Promethis quadraticollis** (GEBIEN, 1920), comb. n. — *Setenis quadraticollis* GEBIEN 1920: Nova Guinea, **13**, Zool. 3: 294, 295 (Locus typicus: N. Guinea, Sattelberg). — *Setenis quadraticollis*: KASZAB, 1970: Annl. hist.-nat. Mus. natn. hung., **62**: 258.

Lectotypus ♂: Sattelberg (IFPE). — Paralectotypen: Sattelberg (1 ♀ IFPE; 1 ♂ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Neuguinea (Irian, Papua-Neuguinea).

## XII. Gruppe: tonkinensis

**Promethis nitouana** sp. n.

Holotypus ♂: China, Szetschuan, Nitou Tatsienlu, EM. REITTER (HNHM).

Verbreitung: China (Szetschuan).

**Promethis insomnia** (LEWIS, 1894), comb. n. — *Setenis insomnia* LEWIS, 1894: Ann. Mag. nat. Hist., (6) **13**: 472 (Locus typicus: Japan, Buno; Sapporo). — *Setenis higonius* LEWIS, 1894: Ann. Mag. nat. Hist., (6) **13**: 472 (Locus typicus: Japan, Yuyama). — *Setenis insomnia*, DENISOVA, 1940: Trav. Inst. Zool. Acad. Sci. USSR, Moskva—Leningrad, **6** (1—2): 235—236: — *Setenis insomnia*: NAKANE & al., 1963: Icon. Ins. Japon. Colore nat., ed. 2. (Col.): 229, Pl. 115, Fig. 2. — *Setenis insomnia*: NAKANE & MASUMOTO, 1969: Nat. Ins. Tokyo, **4** (9): [1]. — *Setenis higonius*: NAKANE, 1975: Mém. natn. Sci. Mus. Tokyo, **8**: 165. Lectotypus ♂ von *Setenis insomnia* LEWIS: Japan, Hakodate (Tun Sai), G. LEWIS (BMNH). — Paralectotypen: Japan, G. LEWIS (4 ♂ 4 ♀ BMNH); Hako[date], G. LEWIS (1 ♂ 1 ♀ BMNH); Yezo, G. LEWIS (3 ♂ 2 ♀ BMNH; 1 ♂ MGFT) (Design. Z. KASZAB, 1984).

Holotypus ♂ von *Setenis higonius* LEWIS: Japan, Yuyama, LEWIS (BMNH).

Verbreitung: Japan (Hokkaido, Honshu).

**Promethis formosana** (MASUMOTO, 1981), comb. n. — *Setenis striatipennis* M. T. CHÛJÔ, 1967, nec LEWIS, 1894: Kontyû, **35** (4): 378. — *Setenis formosana* MASUMOTO, 1981: Elytra, **9** (2): 88, Fig. 8 (Locus typicus: Formosa, Meifeng, Nantou Hsien). — *Setenis nitidula* M. T. CHÛJÔ, 1981: Esakia, **17**: 133, Fig. 2 (Locus typicus: Taiwan, Nantou Hsien, Sungkang). — *Setenis formosana*: MASUMOTO, 1982: Elytra, **10** (2): 61.

Holotypus ♂ von *Setenis formosana* MASUMOTO: Taiwan, Meifeng, Nantou Hsien, 14—17. V. 1972, H. YOKOYAMA (MAS).

Holotypus ♂ von *Setenis nitidula* M. T. CHÛJÔ: Taiwan, Sungkang, Nantou Hsien, 31. V. 1955, T. SHIRÔZU (KUFA).

Verbreitung: Taiwan.

**Promethis birmanica** sp. n.

Holotypus ♂: Burma, Mt. Victoria, Chin-Hills, 2200 m, V. 1938, G. HEINRICH (BMNH).

Paratypen: India, Assam, Naga, VIII. 1883, W. DOHERTY (1 ♀ MNHN).

Burma, Mt. Victoria, Chin-Hills, 2200 m, V. 1938, G. HEINRICH (3 ♂ 2 ♀ BMNH); Bhano, THOS, SELKIRK (1 ♂ BMNH); N. Burma, Adung Valley, 6000 ft, 21. III. 1931, Lord CRANBROOK (2 ♀ BMNH), id., 1. V. 1931, F. KINGDON WARD (1 ♀ BMNH).

Verbreitung: Indien (Assam), Burma.

**Promethis tonkinensis** (GEBIEN, 1918), comb. n. — *Setenis tonkinensis* GEBIEN, 1918: Ent. Mitt., **7** (7—9) [1918]: 124; **8** (1—3) [1919]: 8, Taf. 2, Fig. 7 (Locus typicus: Tonkin, Mt. Mauson). — *Setenis striatipennis* GEBIEN, 1913, nec LEWIS, 1894: Arch. Naturgesch., **79A** (9): 31 (partim). — *Setenis striatipennis* KASZAB, 1941, nec LEWIS, 1894: Stettin. ent. Ztg **102**: 57 (partim). — *Setenis pauperula*: KASZAB, 1980, nec GEBIEN, 1918: Annls hist.-nat. Mus. natn. hung., **72**: 177 (Misidentifikation, partim). — *Setenis aritai* M. T. CHÛJÔ, 1981: Esakia, **17**: 131, Fig. 1 (Locus typicus: Formosa, Nantou Hsien, Lienhuachih), syn. n. — *Nyctobates sulcicollis* FAIRMAIRE in litt. — *Setenis minor* FAIRMAIRE in litt. — *Setenis asperifrons* FAIRMAIRE in litt. (partim).

Lectotypus ♂ von *Setenis tonkinensis* GEBIEN: Tonkin, Mt. Mauson, 2—3000 ft IV—V. H. FRUHSTORFER (MGFT). — Paralectotypen: wie LT (1 ♂ HNHM; 1 ♀ MCSM; 4 ♀ MGFT; 1 ♂ 1 ♀ USNM) (Design. Z. KASZAB 1984).

Holotypus ♂ von *Setenis aritai* M. T. CHÛJÔ: Formosa, Nantou Hsien Lienhauchih, 5. III. 1968 Y. ARITA (KUFA).

Verbreitung: Vietnam Taiwan.

### XIII. Gruppe: oshimana

**Promethis oshimana** (MIWA, 1935), comb. n. — *Setenis oshimanus* MIWA, 1935: Trans. Kansai ent. Soc., **6**: 21—22, Pl. 3, Fig. 1 (japanisch) (Locus typicus: Oshima, Gusu), —, *Setenis oshimana*: NAKANE & al., 1963: Icon. Ins. Japon. Colore nat. ed. 2 (Col.): 229, Pl. 115, Fig. 4. — *Setenis oshimanus*: M. T. CHÛJÔ, 1966: J. Fac. Agric. Kyushu Univ., **14** (1): 20. — *Setenis oshimanus*: NAKANE & al., MASUMOTO, 1969: Nat. Ins. Tokyo, **4** (9): [1]. — *Setenis oshimanus*: M. T. CHÛJÔ, 1977: Esakia, **10**: 10, 16.

Verbreitung: Japan (Oshima-Amami Ryukyu I.).

**Promethis okinawana** (M. T. CHÛJÔ, 1978), comb. n. — *Setenis okinawanus* M. T. CHÛJÔ, 1978: Esakia, **11**: 66, Fig. 1 (Locus typicus: Nansei Is., Okinawa, Yona).

Holotypus ♂: Okinawa Nansei Is. Japan Yona 29. VI. 1976 H. MAKIHARA (KUFA).

Verbreitung: Japan (Nansei I. Okinawa).

XIV. Gruppe: *evanescens*

**Promethis evanescens** (GEBIEN, 1918), comb. n. — *Setenis evanescens* GEBIEN, 1918: Ent. Mitt., 7 (7–9) [1918]: 124; 8 (1–3) [1919]: 9, Fig. 7 (Locus typicus: Tonkin, Mt. Mauson; Sd. China, Hainan). — *Nyctobates quadricollis* FAIRMAIRE, 1893: Anns Soc. ent. Belg., 37: 297 (Locus typicus: Tonkin, Lang Song) nom. praeoccup., nec *Promethis quadricollis* PASCOE, 1869, **syn. n.** — *Setenis quadricollis*: KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 177. — *Setenis basicollis* FAIRMAIRE in litt. — *Nyctobates biimpressus* FAIRMAIRE in litt.

Lectotypus ♂ von *Nyctobates quadricollis* FAIRMAIRE 1893: H-Tonkin LAMEY (MNHN) (Design. Z. KASZAB 1984).

Lectotypus ♂ von *Setenis evanescens* GEBIEN 1918: Tonkin, Mt. Mauson, 2–3000 ft, IV–V., H. FRUHSTORFER (MGFT). — Paralectotypen: wie LT (1 ♂ MGFT); Sd. China: Hainan (1 ♂ HNHM; 1 ♂ 1 ♀ USNM) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (Assam), China (Shantung, Fukien), Vietnam, Laos.

**Promethis chinensis** sp. n.

Holotypus ♂: China, Yunnan, Umg. Lunliang, 1800–2100 m, 12. V. 1955, OU PENG-YUN (EIAS).

Paratypen: wie HT (1 ♂ 11 ♀ EIAS); Umg. Kingtung, 1250 m, 13. III. 1957, D. PAN-FILOV (1 ♂ 2 ♀ EIAS), id., Tungkiang, 1200 m, 13. III. 1957, HUN KUANG-CHI (1 ♀ EIAS). Laos: Paksong, 20. III. 1965, J. RONDON (1 ♀ MNHN); Vientiane, Phou Kao Konai, III. 1964, A. RONDON (1 ♀ MNHN); Sayabour, 5. V. 1966, J. RONDON (1 ♀ MNHN).

Vietnam: Dalat, IV. 1966, FR. CYPRIEN (1 ♂ MNHN).

Verbreitung: China (Yunnan), Laos, Vietnam.

**Promethis taiwana** (MASUMOTO, 1981) comb. n. — *Setenis striatipennis* GEBIEN, 1913 nec LEWIS, 1894: Arch. Naturgesch., 79A (9): 31, partim. — *Setenis striatipennis* KASZAB, 1941, nec LEWIS, 1894, Stettin. ent. Ztg 102: 57, partim. — *Setenis taiwana* MASUMOTO, 1981: Elytra, 9 (2): 89, Fig. 9 (Locus typicus: Formosa, Lushan, Nantou Hsien). — *Setenis similis* M. T. CHÛJÔ, 1981: Esakia, 17: 136, Fig. 3 (Locus typicus: Formosa, Nantou Hsien, Lu-shan). — *Setenis taiwana*: MASUMOTO, 1982: Elytra, 10 (2): 61.

Holotypus ♂ von *Setenis taiwana* MASUMOTO, 1981: Formosa, Lushan, Nantou Hsien, 1–2. V. 1973, S. TSUGUKU (MAS).

Holotypus ♂ von *Setenis similis* M. T. CHÛJÔ, 1981: Lushan, Nantou Hsien, 6. VI. 1976, H. MAKIHARA (KUFA).

Verbreitung: Taiwan.

XV. Gruppe: *illaesicollis*

**Promethis illaesicollis** (FAIRMAIRE, 1883), comb. n. — *Nyctobates illaesicollis* FAIRMAIRE, 1883: Anns Soc. ent. Belg., 27 (2): 25 (Locus typicus: I. du Duc d'York). — *Seteni illaesicollis*: GEBIEN, 1920: Nova Guinea 13, Zool. 3: 291. — *Setenis barbata*: KASZAB, 1939, nec GEBIEN, 1918: Nova Guinea (Ser. n.) 3: 224 (Misidentifikation). — *Setenis illaesicollis*: KASZAB, 1964: Tijdschr. Ent., 107 (5): 295.

Lectotypus ♀: »I. du Duc d'York« (MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Java (?), Ternate, Buru, Ceram, Amboina, Aru, Neuguinea (Irian, Papua-Neuguinea), Bismarck Arch. (Duke of York, Neuhannover, Neubritannien, Neulauenburg), Australien (Queensland).

XVI. Gruppe: *subrobusta*

**Promethis subrobusta subrobusta** (MOTSCHULSKY, 1872), comb. n. — *Iphthinus brevicornis* DEJEAN, 1837: Catalogue Col., ed. 3: 225, **nom. nud.** — *Iphthinus coracinus* DEJEAN, 1837: Catalogue Col., ed. 3: 225, **nom. nud.** — *Nyctobates subrobustus* MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., 45 (3): 33 (Locus typicus: Ind. or.). — *Nyctobates coracina* FAIRMAIRE, 1882, nec *Tenebrio coracinus* KNOCH, 1801: Notes Leyden Mus., 4: 230 (Locus typicus: District Rawas), **syn. n.** — *Nyctobates fairmairei* KOLBE, 1900: Ent. Nachr., 26: 74 (**nom. n.** für *Nyctobates coracina* FAIRMAIRE, 1882, nec KNOCH, 1801), **syn. n.** — *Setenis fairmairei*: GEBIEN, 1914: Sarawak Mus. J., 2 (5): 38. — *Upis laevicollis* DEJEAN in litt. — *Nyctobates*

*impressopunctatus* DE HAAN in litt. — *Nyctobates nitidicollis* JEKEL in litt. — *Nyctobates politicollis* FAIRMAIRE in litt. — *Nyctobates convexicollis* FAIRMAIRE in litt.

Lectotypus ♀ von *Nyctobates subrobustus* MOTSCHULSKY: »Ind. or.« (ZMUM) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Nyctobates coracina* FAIRMAIRE: Rawas, 5/78, Sum[atra] Exp. (RMNH). — Paralectotypus ♀: wie LT (RMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Korea, Japan (?), Burma, Thailand, Malaysia, Singapur, Nias, Pini, Sumatra, Java, Borneo, Banguay, Philippinen, Billiton, Sulawesi.

**Promethis subrobusta indochinensis** ssp. n. — *Setenis angulicrus* FAIRMAIRE in litt. — *Nyctobates planistrius* DEJEAN in litt.

Holotypus ♂: Laos, Ban Van Eua b. Vientiane, II—III, 1969, J. RONDON (HNHM).

Paratypen: China: Yunnan (20 ♂ 27 ♀ HNHM), Ganlamba, 540 m, 16. IV. 1957, HUN KUAN-CHI (2 ♀ EIAS); Cheli, 500 m, 8. IV. 1955, KRZYZHANOVSKI (1 ♀ EIAS), id., V. POPOV (1 ♀ EIAS).

Laos: Laos (3 ♂ 3 ♀ HNHM); Vientiane, I, 1964 (1 ♂ 1 ♀ TMPA), id., 15. XI. 1966 (1 ♂ 1 ♀ MHNG); Ban Van Eua b. Vientiane, II—III, 1969, J. RONDON (17 ♂ 14 ♀ HNHM), id., 30. IV. 1967, J. RONDON (2 ♀ MNHN), id., 15. VI. 1966, Native Collector (1 ♂ BPBM), id., X. 1965, RONDON (1 ♀ BPBM), id., 30. X. 1967, Native Collector (2 ♀ BPBM).

Vietnam: Annam, DE HOFFARTS (1 ♀ IRSN); Phuc Son, XI—XII, FRUHSTORFER (2 ♂ IFPE; 1 ♀ IRSN; 1 ♀ MCSM; 5 ♂ 1 ♀ MNHN; 7 ♂ 1 ♀ ZMHU); Pha Rang, H. FRUHSTORFER (1 ♂ MNHN); Dist. Kim Boi, Thuong thien, 60 km SW Hoa Binh, 1—5. XI. 1978, L. MEDVEDEV (1 ♂ HNHM); Rég. de Hoa Binh, 1926, A. DE COOMAN (1 ♂ 1 ♀ MNHN); Quy chau, 300 m, 15. IV. 1963, KOBÁKOV (1 ♂ HNHM).

Cambodja: Cambodja, BOWRING (1 ♂ BMNH), id., Bouc[ard] (1 ♀ ZIUH); Louang-Prabang, A. Theng, 1888, A. PAVIE (1 ♀ MNHN).

Verbreitung: China (Yunnan), Laos, Vietnam, Kambodscha.

## XVII. Gruppe: punctatostrata

**Promethis unidentata** sp. n.

Holotypus ♂: Vietnam, Süd-Annam, Pha-Rang, H. FRUHSTORFER (HNHM).

Paratypen: Laos: Tonkin, PR. DE BORRE (1 ♀ IRSN); Annam, Laos (1 ♀ HNHM); Kheun, 70 km NW Vientiane, III, 1969, J. RONDON (2 ♀ MNHN).

Vietnam: Phuc-Son, XI—XII., H. FRUHSTORFER (2 ♀ MNHN; 1 ♂ RMNH).

Verbreitung: Laos, Vietnam.

**Promethis punctatostrata** (MOTSCHULSKY, 1872), comb. n. — *Setenis punctatostrata* MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., **45** (3): 39 (Locus typicus: Ind. oc. Assam). — *Nyctobates indosinicus* FAIRMAIRE, 1893: Anns Soc. ent. Belg., **37**: 296 (Locus typicus: Tonkin; Lang-Song), **syn. n.** — *Setenis indosinica*: GRAVELY, 1915: Rec. Indian Mus., **8**: 526. — *Setenis foveiceps* PIC, 1929: Mélang. exot.-ent., **53**: 17 (Locus typicus: Tonkin), **syn. n.** — *Setenis pilipes* PIC, 1929: Mélang. exot.-ent., **53**: 17 (Locus typicus: Tonkin). — *Setenis indosinica*: ARDOIN, 1969: Bull. Soc. ent. Fr., **74** (5—6): 125. — *Setenis indosinica*: KASZAB, 1975: Ent. Basiliensia, **1**: 307. — *Setenis indosinica*: KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., **72**: 177.

Lectotypus ♂ von *Setenis punctatostrata* MOTSCHULSKY: Assam (ZMUM) (Design. Z. KASZAB, 1983).

Lectotypus ♂ von *Nyctobates indosinicus* FAIRMAIRE: Tonkin [Lang Song] (MNHN). — Paralectotypen: wie LT (1 ♂ MNHN; 1 ♀ IRSN) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Setenis foveiceps* PIC: Tonkin, Than Moi, 3. XI. 1917, JEAUVOINE (MNHN) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Setenis pilipes* PIC: Huyiang (MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (Assam, Bengal, Sikkim), Nepal, Korea, China (Yunnan, Südchina, Hainan), Burma, Laos, Kambodscha, Vietnam, Thailand, Malay Penin.

**Promethis manillarum** (FAIRMAIRE, 1886), comb. n. — *Nyctobates manillarum* FAIRMAIRE, 1886: Anns Soc. ent. Fr., **6** (6): 187 (Locus typicus: Manilla). — *Setenis manillarum*: GEBIEN, 1913: Phil. J. Sci., **8** (6): 402 (partim). — *Setenis manillarum*: GEBIEN, 1921: Phil. J. Sci., **19** (4): 456, Taf. 1, Fig. 5.

Lectotypus ♂: Manille, BAER (MNHN). — Paralectotypus ♀: Manille (MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Philippinen (Luzon, Remblon, Ticao, Mindoro, Negros, Cebu), Molukken (Halmahera, Batjan).

**Promethis andamanica** sp. n.

Holotypus ♂: Andamans, ROEPSTORFF (BMNH).

Paratypen: wie HT (4 ♂ 6 ♀ BMNH; 1 ♂ MNHN; 5 ♂ RMNH; 1 ♂ 2 ♀ ZMKD); Andaman Is. (1 ♂ 1 ♀ BMNH; 1 ♀ MGFT), id., WIMBERLEY (1 ♂ BMNH); Meldold, G. C. CHAMPION (1 ♀ BMNH).

Nicobars, ROEPSTORFF (2 ♀ BMNH).

India: Süd-India, Walajanagar, 1914 (1 ♂ MNHN).

Patria? [Ayres, P. B. Spei, Transvaal] (1 ♂ BMNH, falsche Fundort).

Verbreitung: Andamanen, Nicobaren.

### XVIII. Gruppe: **puncticollis**

**Promethis penicilligera** (GEBIEN, 1911), comb. n. — *Setenis penicilligera* GEBIEN, 1911: Coleopt. Cat. Paris, **28**: 445, **nom. n.** für *Nyctobates brevicornis* SCHAUFUSS, 1887: Horae Soc. ent. Ross., **21**: 134 (Locus typicus: Süd-Celebes, Macassar), **nom. praeoccup.**, nec *Nyctobates brevicornis* WESTWOOD, 1842.

Lectotypus ♂ von *Nyctobates brevicornis* SCHAUFUSS: Süd-Celebes, Macassar (ZMHU). Paralectotypen: wie LT (2 ♂ 3 ♀ ZMHU) (Design. Z. KASZAB, 1984).

Verbreitung: Sulawesi, Neuguinea (Irian).

**Promethis puncticollis** (MOTSCHULSKY, 1872), comb. n. — *Iphthinus calcaratus* DEJEAN, 1837: Catalogue Col., ed. **3**: 225, **nom. nud.** — *Setenis puncticollis* MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., **45** (3): 29 (Locus typicus: Java). — *Setenis manillarum* GEBIEN, 1913, nec FAIRMAIRE, 1886; Philipp. J. Sci., **8** (5–6) D: 402, partim. — *Setenis penicilligera* GEBIEN, 1914, nec GEBIEN, 1911: Sarawak Mus. J., **2** (5): 38. — *Setenis manillarum*: GEBIEN, 1914, nec FAIRMAIRE, 1886; Suppl. ent., **15**: 36. — *Setenis manillarum*: GEBIEN, 1921, nec FAIRMAIRE, 1886; Philipp. J. Sci., **19** (4): 456, Taf. 1, Abb. 6. — *Nyctobates brevicornis* DEYROLLE in litt. — *Nyctobates anthracina* DEYROLLE in litt. — *Nyctobates unisulcata* FAIRMAIRE in litt. — *Setenis rugulicollis* FAIRMAIRE in litt.

Lectotypus ♂: »Ind. or. Java« (ZMUM) (Design. Z. KASZAB, 1983).

Verbreitung: Indien (?), China, Malay Penin., Singapur, Sri Lanka (?), Nias, Sumatra, Java, Bali, Lombok, Sumbawa, Flores, Karimon, Ceram, Borneo, Banguay, Philippinen (Luzon, Mindoro, Samar, Mindanao, Palawan), Sulu.

**Promethis opacimentum** sp. n. — *Setenis opacimentum* ARDOIN in litt.

Holotypus ♂: Laos, Phou Khao Khouai, Vientiane, 29. X. 1965, J. RONDON (HNHM).

Paratypen: India: Hindostan (1 ♂ ZIPA); Himalaya (1 ♂ IFPE), Assam (2 ♂ BMNH). Laos: Ban Van Eua b. Vientiane, II–III. 1969, J. RONDON (4 ♀ BR; 13 ♂ 12 ♀ HNHM), id., 15. X. 1965, J. RONDON (1 ♀ HNHM); Phou Kow Kouei, Vientiane, 29. X. 1965, J. RONDON (1 ♀ MNHN), id., 18. XI. 1965, J. RONDON (1 ♀ HNHM; 3 ♂ 6 ♀ MNHN).

Patria? (1 ♂ ZMHU).

Verbreitung: Indien, Laos.

### XIX. Gruppe: **setulosa**

**Promethis setulosa** (GEBIEN, 1918), comb. n. — *Setenis setulosa* GEBIEN, 1918: Ent. Mitt., **7** (7–9): 122; (10–12): 219, Fig. 4 (Locus typicus: Insel Nias, Ombolata).

Lectotypus ♂ Nias, Ombolata (MGFT). — Paralectotypen: wie LT (1 ♂ 1 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Malay Penin., Sumatra, Nias, Java (?), Borneo.

XX. Gruppe: *valgipes*

**Promethis valgipes valgipes** (MARSEUL, 1876), comb. n. — *Nyctobates valgipes* MARSEUL, 1876, Annl. Soc. ent. Fr., (5) **6**: 117 (Locus typicus: Japan, Kiu-Siu, Nippon). — *Nyctobates villosipes* MARSEUL, 1876: Annl. Soc. ent. Fr., (5) **6**: 116 (Locus typicus: Mandshourie), **syn. n.** — *Nyctobates Davidis* FAIRMAIRE, 1878: Annl. Soc. ent. Fr., (5) **8**: 119 (Locus typicus: Chine centrale). — *Setenis valgipes*: LEWIS, 1894: Ann. Mag. nat. Hist., (6) **13**: 473. — *Setenis valgipes*: DENISOVA, 1940: Trav. Inst. Zool. Ac. Sci. URSS, Moskva—Leningrad, **6** (1–2): 235, 237. — *Setenis villosipes*: DENISOVA, 1940: Trav. Inst. Zool. Ac. Sci. URSS, Moskva—Leningrad, **6** (1–2): 236–237. — *Setenis valgipes*: M. T. CHÛJÔ & al., 1959: Hikosan Labor. Biol. Univ. Kyushu, **1959**: 38. — *Setenis valgipes*: NAKANE & al., 1963: Icon. Ins. japon. Colore nat. ed. **2**: 229, Pl. 115, Fig. 1. — *Setenis valgipes*: NAKANE & MASUMOTO, 1969: Nat. Ins. Tokyo, **4** (9): [1]. — *Setenis valgipes*: NAKANE, 1975: Mém. natn. Sci. Mus. Tokyo, **8**: 165.

Lectotypus ♂ von *Nyctobates Davidis* FAIRMAIRE: China bor. (MNHN). — Paralectotypen: Chine, Kiang-Si, A. DAVID (2 ♀ MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Korea, Japan (Hokkaido, Honshu, Kiushi, Shihoku, Tshushima), China (Zentral- und Ostzentral-China).

**Promethis valgipes semivalgipes** ssp. n.

Holotypus ♂: Vietnam, Annam, Phuc-Son, XI—XII., H. FRUHSTORFER (HNHM).

Paratypus: Vietnam Tam Dao (1 ♂ MNHN).

Verbreitung: Vietnam.

**Promethis subvalgipes** (M. T. CHÛJÔ, 1981), comb. n. — *Setenis valgipes* KASZAB, 1941, nec MARSEUL, 1876: Stettin. ent. Ztg **102**: 57. — *Setenis subvalgipes* M. T. CHÛJÔ, 1981: Esakia, **17**: 138, Fig. 4 (Locus typicus: Formosa, Nantou Hsien, Nanshanchi). — *Setenis valgipes subvalgipes* MASUMOTO & KONDO, 1984: Spec. Bull. Japan. Soc. Col. Tokyo, **1**: 16.

Holotypus ♂: [Formosa] Nanshanchi, Nantou Hsien, 23. VII. 1968, K. YAMAMOTO (KUFA).

Verbreitung: Taiwan.

XXI. Gruppe: *sulcigera*

**Promethis sulcigera** (BOISDUVAL, 1835), comb. n. — *Upis sulcigera* BOISDUVAL, 1835: Fauna ent. de l'Océan: 256 (Locus typicus: île d'Amboine). — *Nyctobates canaliculatus* (ESCHSCHOLTZ): DEJEAN, 1837: Catalogue des Coléoptères, Paris, ed. **3**: 225, **nom. nud.** — *Pediris longipes* MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., **45** (3): 24, 28 (Locus typicus: De îles de la Sonde, Sumatra). — *Pediris longipes*: WATERHOUSE, 1876: Ann. Mag. nat. Hist., (4) **17**: 288. — *Pediris subopacus* WATERHOUSE, 1884: Proc. zool. Soc. Lond., **1884**: 216 (Locus typicus: Maroe), **syn. n.** — *Nyctobates sulcigera*: БАЕР, 1886: Annl. Soc. ent. Fr., (6) **6**: 136. — *Pediris sulcigera*: GEBIEN, 1913: Philipp. J. Sci., **8** (6): 401. — *Pediris longipes*: GEBIEN, 1913: Philipp. J. Sci., **8** (6): 402. — *Setenis sulcigera*: GEBIEN, 1920: Nova Guinea, **13**, Zool. **3**: 289, 295. — *Setenis sulcigera*: GEBIEN, 1921: Philipp. J. Sci., **19** (4): 456, Taf. 1, Fig. 4. — *Setenis sulcigera*: GEBIEN, 1935: Mém. Mus. r. Hist. nat. Belg. Hors texte **4** (11): 62. — *Setenis sulcigera*: KASZAB, 1939: Nova Guinea (Ser. n.) **3**: 224. — *Setenis sulcigera*: KÛLZER, 1957: Insects of Micronesia, **17** (3): 236. — *Setenis subfoveata*: KASZAB & CHÛJÔ, 1964: Nature and Life in Southeast Asia, III: 236 (Misidentifikation). — *Setenis sulcigera*: KASZAB, 1970: Annl. hist.-nat. Mus. natn. hung., **62**: 258. — *Nyctobates moluccanus* DEYROLLE in litt.

Lectotypus ♂ von *Upis sulcigera* BOISDUVAL: Amboine, DURVILLE (MNHN) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Pediris longipes* MOTSCHULSKY: Des îles de la Sonde, Sumatra (coll. MOTSCHULSKY, ZMUM) (Design. Z. KASZAB, 1984).

Lectotypus ♀ von *Pediris subopacus* WATERHOUSE: Maroe [= Maru, Tanimber I.] (Design. Z. KASZAB, 1984).

Verbreitung: Taiwan, Philippinen, Molukken, Papuanische Inseln, Australien (Queensland).

**Promethis subfoveata** (GEBIEN, 1918), comb. n. — *Setenis subfoveata* GEBIEN, 1918: Ent. Mitt., **7** (7–9) [1918]: 122; **8** (1–3) [1919]: 1, Taf. 1, Abb. 4 (Locus typicus: Neu-Guinea, Salamon-Inseln, Aruinseln). — *Setenis subfoveata*: GEBIEN, 1920: Nova Guinea, **13**,

Zool. 3: 289, 295, Abb. 47—49. — *Setenis subfoveata*: KASZAB, 1939: Nova Guinea, (Ser. n.) 3: 224. — *Chalcobates seriatoporus* FAIRMAIRE in litt.

Lectotypus ♂: N. Guinea, Sattelberg, 1. II. 1910, v. WIEDENFELD (ZMHU). — Paratypen: N. Guinea (1 ♂ MGFT); D. N. Guinea (2 ♂ 1 ♀ IFPE; 1 ♂ 3 ♀ MGFT; 1 ♂ 1 ♀ TPA); Sattelberg (3 ♂ 3 ♀ IFPE; 2 ♂ ZMHU); Sattelberg, NEUHAUF (1 ♂ 1 ♀ ZMHU); Sattelberg, v. BENNIGSEN (2 ♂ 1 ♀ IFPE); [Bismarck Arch.] Neupommern, Herbertshöhe (1 ♀ IFPE) (Design. Z. KASZAB, 1984).

Verbreitung: Neuguinea, Australia.

## XXII. Gruppe: *transversicollis*

### *Promethis haagi* sp. n.

Holotypus ♂: Andamanen, DE ROEPSTORFF (ZMHU).

Paratypen: S. India, Walajanagar, 1914 (2 ♂ 1 ♀ MNHN).

Andamans (1 ♂ BR, 1 ♀ ZSBS), id., DE ROEPSTORFF (2 ♂ 4 ♀ BMNH; 1 ♀ HNHM; 1 ♂ MMUE; 3 ♂ 1 ♀ ZMHU; 3 ♂ 1 ♀ ZMKD; 4 ♂ 2 ♀ ZMUA).

Verbreitung: Südindien, Andamanen.

*Promethis transversicollis* (MOTSCHULSKY, 1872), comb. n. — *Setenis transversicollis* MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., 45 (3): 29 (Locus typicus: Ind. or. Java). — *Nyctobates* (*Setenis*?) *laevis* FAIRMAIRE, 1896: Notes Leyden Mus., 18: 230 (Locus typicus: Sikkim), syn. n. — *Setenis laevis*: GRAVELY, 1915: Rec. Indian Mus. 8 (8): 526. — *Setenis laevis*: KASZAB, 1975: Ent. Basiliensia, 1: 307.

Lectotypus ♀ von *Setenis transversicollis* MOTSCHULSKY: Ind. or. Java (ZMUM) (Design. Z. KASZAB, 1984).

Lectotypus ♀ von *Nyctobates* (*Setenis*?) *laevis* FAIRMAIRE: Sikkim [Villard] (MNHN) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (Nordindien, Assam, Sikkim), Nepal, Bhutan, Korea (?), China (Yunnan), Laos, Vietnam, Burma, Thailand.

### *Promethis harpagon* sp. n.

Holotypus ♂: [Malay Penin.], W. Malaysia, Cameron Highlands, XI. 1970, C. C. CHUA (MNHN).

Paratypen: Malay Penin., Selangor, Bukit Kutu, 3500 ft, 19. I. 1931, H. M. PENDLEBURY (1 ♀ BMNH).

India: Jahore, Motiram (1 ♀ HNHM).

Verbreitung: Indien (?), Malay Penin.

### *Promethis xantusi* sp. n.

Holotypus ♂: Borneo, Sarawak, Matang, J. XANTUS (HNHM).

Paratypen: Borneo, Sarawak, Matang, J. XANTUS (2 ♀ HNHM).

Sumatra: Deli, v. SCHÖNFELDT (1 ♂ FISF).

Verbreitung: Borneo (Sarawak), Sumatra.

### *Promethis setipes* sp. n. — *Setenis setipes* ARDOIN in litt.

Holotypus ♂: Laos, Wapi, 31. V. 1967, J. RONDON (HNHM).

Paratypen: Laos, Barikhane Prov. Pakkading, 17. V. 1965, Native Collect. (1 ♂ BPBM).

India: Malabar (1 ♂ MHNG).

Verbreitung: Indien, Laos.

### *Promethis laosensis* sp. n. — *Setenis laosensis* ARDOIN in litt.

Holotypus ♂: Laos, Vientiane, VIII. 1964, A. BAUDON (HNHM).

Paratypen: Laos (1 ♀ MNHN); Pakkadine, 15. III. 1965, J. RONDON (1 ♀ BR; 2 ♂ HNHM); Paksé, 21. III. 1965, J. RONDON (1 ♂ 1 ♀ HNHM); Ban Kheun, 15. VII. 1969, J. RONDON (1 ♀ MNHN); Sedone Prov., Paksong, 17. VI. 1965, Native Collect. (1 ♂ BPBM); Vientiane, 15. XI. 1965 (1 ♂ MHNG), id., VII. 1963, A. BAUDON (1 ♀ MNHN), id., Phou Kao Kouai, IV. 1964, A. BAUDON (1 ♂ MNHN).

Vietnam: Reu Hai, 1900, R. P. GUERLACH (1 ♂ MNHN).

Patria?, NEVINSON (1 ♂ BMNH).

Verbreitung: Laos, Vietnam.



**Promethis proteus** sp. n.

Holotypus ♂: Borneo, HEYNE (ZMUA).

Paratypen: Borneo (1 ♀ MGFT; 1 ♂ 4 ♀ ZMUA), id., BOUCARD (1 ♀ ZIUH), id., SHELFORD (1 ♀ BMNH); Sabah, Kinabalu (1 ♀ MGFT); Sarawak, Batu Song Mt. & Apoh Riv., 10. IX. 1899, HOSE (1 ♂ BMNH); Baramfluss, 1894, KÜKENTHAL (1 ♀ FISF); SO. Borneo, HEYNE (1 ♀ ZMUA); Kalimantan, Mahakam (1 ♂ ZMHU), id., Long Aboe-oe, 1898, NIEUWENTHUIS (1 ♀ RMNH); Sintang, V. MARTENS (1 ♂ ZMHU); Lohaban, 1897, J. B. LEDRU (1 ♀ MNHN).

Verbreitung: Borneo (Sabah, Sarawak, Kalimantan).

XXIII. Gruppe: *rectangula*

**Promethis rectangula** (MOTSCHULSKY, 1872), comb. n. — *Setenis rectangulus* MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., 45 (3): 28 (Locus typicus: Ind. or.). — *Nyctobates semisulcata* FAIRMAIRE, 1882: Notes Leyden Mus., 4: 228 [Locus typicus: District Rawas et Boenga (Palembang)], syn. n. — *Setenis biangulata* GEBIEN, 1918: Ent. Mitt., 7 (7–9): 122; (10–12): 217, Taf. 1, Fig. 3 (Locus typicus: Südchina: Nyenhangli), syn. n. — *Setenis semisulcata*: KASZAB & M. CHÛJÔ, 1964: Nature and Life in Southeast Asia, III: 236. — *Setenis rectangulus*: KASZAB, 1979: Acta zool. hung., 25 (3–4): 263. — *Setenis semisulcata*: KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 177. — *Setenis biangulata*: KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 177. — *Nyctobates oertzeni* FRUHSTORFER in litt.

Lectotypus ♀ von *Setenis rectangulus* MOTSCHULSKY: Ind. or. (ZMUM) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Nyctobates semisulcata* FAIRMAIRE: Soeroelangoen, IV. 1878, Sumatra Exp. (RMNH). — Paralectotypen: wie LT (1 ♂ 1 ♀ RMNH), id., V. 1878 (3 ♂ 1 ♀ RMNH); Rawas, V. 1878 (6 ♂ RMNH) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Setenis biangulata* GEBIEN: Süd-China, Nyenhangli, NONFRIED (MGFT). — Paralectotypus: wie LT (1 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Korea (Quellpart), Indien (?), China (Yunnan, Hainan, Südchina), Burma, Laos, Vietnam, Kambodscha, Thailand, Salanga, Malay Penin., Singapur, Sumatra, Banka, Java, Borneo, Philippinen (?).

**Promethis angulicollis** sp. n.

Holotypus ♂: China, Yunnan, Ganlanba, 30 km SO Cheli, 650 m, 22. III. 1957, LIU TA-HWA (EIAS).

Paratypus: wie HT, 540 m, 18. IV. 1957, HUAN-KUAN-CHI (1 ♀ EIAS).

Verbreitung: China (Yunnan).

XXIV. Gruppe: *vietnamica*

**Promethis vietnamica** (KASZAB, 1980), stat. n., comb. n. — *Setenis laevis vietnamica* KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 198, Abb. 63, 69 (Locus typicus: Vietnam, An phu).

Holotypus ♂: Vietnam, »An phu«, 3. XI. 1971. Gy. TOPÁL (HNHM). — Paratypen: Vin phu, Umgebung Tam dao, Dao chu, 18. XI. 1971, KABAKOV (1 ♂ HNHM; 2 Ex. ZIAL); Gebirge Tam Dao, 900 m, 14. V. 1962, KABAKOV (1 Ex. ZIAL); Ha tuyen, NW der Umgebung Tam dao, Son duong, 26. II. 1962, KABAKOV (1 ♂ HNHM); Son duong, 22. XI. 1962, KABAKOV (1 ♀ HNHM); Ha son binh, Thuong-tien, Kim boi, 60 km SW Hoa binh, 1–5. XI. 1978, L. MEDVEDEV (1 Ex. ZIAL).

Verbreitung: Japan (?), China (Yunnan, Hainan), Laos, Vietnam.

XXV. Gruppe: *cupripennis*

**Promethis cupripennis cupripennis** (BOHEMAN, 1858), comb. n. — *Iphthinus cupripennis* BOHEMAN, 1858: Fregatt. Eugenie Res, Zool.: 96 (Locus typicus: Insulae Keelings). — *Nyctobates aereipennis* FAIRMAIRE, 1882: Notes Leyden Mus., 4: 228 (Locus typicus: Sumatra, Pris à Solde, Soepajang, Rengkiang, Loeloes, Silago, dans le district Rawas et à Koetoer). —

*Setenis coracina* KOLBE, 1900, nec *Tenebrio coracinus* KNOCH, 1801: Ent. Nachr., **26**: 73. — *Setenis coracina*: GEBIEN, 1914: Sarawak Mus. J., **2** (3): 359. — *Setenis coracina*: GEBIEN, 1935: Mém. Mus. r. Hist. nat. Belg. Hors texte **4** (11): 61, Abb. 2, 3. — *Tenebrio cupreus* DE HAAN in litt. — *Setenis mitallica* GORY in litt., partim.

Holotypus ♀ von *Iphthinius cupripennis* BOHEMAN: »I. Keeling. Kinb.« (NRSS).

Lectotypus ♂ von *Nyctobates aereipennis* FAIRMAIRE: [Sumatra] Silago, 7. [18]77 (MNHN). — Paralectotypen: Solok, IV. 1877, Sum.[atra] Exp. (1 ♀ RMNH); Rawas, V. 1878 (1 ♂ 1 ♀ RMNH); Koetoen, VI. 1878 (1 ♂ RMNH); Renkiang, V. 1877 (1 ♀ RMNH); Silago, 7. 1877 (1 ♂ RMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (?), Sri Lanka (?), China (?), Kambodscha (?), Malaysia, Singapur, Sumatra, Keeling I., Nias, Java, Borneo, Banguey, Philippinen (?), Bismarck-Arch. (?).

***Promethis cupripennis splendidula* ssp. n.**

Holotypus ♂: Nias, Lahago, 4. II.—10. III. 1896, I. Z. KANNEGIETER (MNHN).

Paratypen: Nias (1 ♂ 1 ♀ ZMUA); Insula Nias, J. D. PASTEUR (1 ♂ RMNH); wie HT (1 ♀ MNHN); Madujag, X. 1917, W. KAUDARMI (1 ♂ RMNH); Gng. Sitoli, 189[?], R. MITSCHKE (1 ♀ MGFT; 1 ♂ 2 ♀ MNHN).

Verbreitung: Nias.

***Promethis sulawesiae sulawesiae* sp. n.**

Holotypus ♂: [Sulawesi] W. Celebes, Sidaonta Paloe, 4500 ft, 1937, J. P. CH. KALIS (MNHN).

Paratypen: Celebes (1 ♂ HNHM; 1 ♀ MNHN), id., KUHR (1 ♂ 1 ♀ ZMKD); wie HT (2 ♂ 3 ♀ MNHN); Monado, van BRACKEL (5 ♂ 7 ♀ IRSN); Koleawi Paloe, 3100 ft, 1937, J. P. CH. KALIS (1 ♂ 1 ♀ MNHN); G. Tompoe Paloe, 2700 ft, 1937, J. P. CH. KALIS (1 ♂ MNHN); Loda Paloe, 4000 ft, J. P. CH. KALIS (3 ♀ MNHN); Palolo Palu, III. 1983, H. DETANI (1 ♂ NI); Pendolo, 28. II. 1985, N. NISHIKAWA (1 ♂ MAS); Tengah, Nr. Morowali, Ranu River Area, 27. I.—20. IV. 1980, M. J. D. BRENDLELL (2 ♂ 1 ♀ BMNH); Süd-Celebes (1 ♂ ZMHU); Bantimurang, 1882, C. RIBBE (1 ♂ 1 ♀ ZMHU); Bonthain, 1883, C. RIBBE (3 ♂ SMTD); SO. Celebes, Towuti See, SARASIN (1 ♂ 1 ♀ NHMB).

Borneo: BETTINGER (1 ♀ IRSN); Sabah, Kinabalu (1 ♀ BR).

Japan (1 ♂ ZMUA).

Verbreitung: Sulawesi, Borneo (?), Japan (?).

***Promethis sulawesiae nigerrima* ssp. n.**

Holotypus ♂: [Philippines] Mindanao Is., Castillo S. Miguel, Surigao pel Sur, 12—15. IV. 1983, N. NISHIKAWA (NIS).

Paratypus: Philippines, Mindanao Pangil, Laguna, 1000 ft, 1. VI. 1931, F. C. HADDEN (1 ♀ BPBM).

Verbreitung: Philippinen (Mindanao).

***Promethis rufofemorata* sp. n.**

Holotypus ♂: [Vietnam] Annam, Dalat, 30. III. 1924, R. VITALIS DE SALVAZA (HNHM).

Verbreitung: Vietnam.

***Promethis heros*** (GEBIEN, 1918), comb. n. — *Setenis heros* GEBIEN, 1918: Ent. Mitt., **7** (7—9): 122, 125, Taf. 1, Abb. 1 (Locus typicus: Annam, Phuc Son). — *Setenis heros*: KASZAB, 1980: Annl. hist.-nat. Mus. natn. hung., **72**: 177. — *Nyctobates phucsonensis* FRUHSTORFER in litt.

Lectotypus ♂: [Vietnam] Annam, Phuc-Son, XI—XII., H. FRUHSTORFER (MGFT). — Paralectotypen: wie LT (1 ♀ TMPA); Laos, Tonkin (1 ♂ HNHM; 2 ♂ 1 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: China (Yunnan, Südchina), Laos, Vietnam.

***Promethis valga*** (WIEDEMANN, 1823), comb. n. — *Tenebrio valgus* WIEDEMANN, 1823: Zool. Mag., **2** (1): 42 (Locus typicus: Java). — *Nyctobates orientalis* DEJEAN, 1837: Catalogue des Coleoptères, Paris, ed. **3**: 225, nom. nud. — *Setenis valga*: MOTSCHULSKY, 1872: Bull. Soc. Imp. nat. Mosc., **45** (3): 24. — *Setenis valgus*: WATERHOUSE, 1876: Ann. Mag. nat. Hist., (4) **17**: 288. — *Setenis valga*: GEBIEN, 1914: Sarawak Mus. J., **2** (5): 35, 39. — *Setenis valga*: GEBIEN, 1935: Mém. Mus. r. Hist. nat. Belg. Hors texte **4** (11): 62.

Verbreitung: Sumatra, Java, Borneo, Philippinen, Bali, Sumbawa, Flores, Ceram, Neuguinea (?), Bismarck Arch. (?).

**Promethis coracina coracina** (KNOCH, 1801), comb. n. — *Tenebrio coracinus* KNOCH, 1801: Neue Beiträge zur Insectenkunde, Leipzig, **1**: 172 (Locus typicus: Sumatra). — *Setenis rugulicollis* FAIRMAIRE in litt. — *Nyctobates metallica* GORY in litt., partim.

Verbreitung: Malay Penin., Singapur, Sumatra, Java (?), Borneo, Philippinen (?).

**Promethis coracina kalimantana** ssp. n.

Holotypus ♂: Borneo Occ., Goemong Ampar, 1897, MULOT (MNHN).

Paratypen: wie HT (1 ♂ 1 ♀ MNHN).

Verbreitung: Borneo (Kalimantan).

## XXVI. Gruppe: *confusa*

**Promethis confusa** (FAIRMAIRE, 1896), comb. n. — *Nyctobates confusus* FAIRMAIRE, 1896: Anns Soc. ent. belg., **40**: 27 (Locus typicus: Kanara). — *Setenis semivalga* BLAIR, 1913: Ann. Mag. nat. Hist., (8) **12**: 57 (Locus typicus: Ceylon, Kudrai, Central Prov.), **syn. n.** — *Setenis semivalga*: KULZER, 1954: Ent. Arb. Mus. Georg Frey, **5** (1): 20. — *Setenis semivalga*: KASZAB, 1979: Folia ent. hung., **32** (2): 94.

Lectotypus ♂ von *Nyctobates confusus* FAIRMAIRE: Kanara (MNHN). — Paralectotypus ♂: Kanara (BMNH) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Setenis semivalga* BLAIR: Ceylon, coll. F. BATES (BMNH). — Paralectotypen: Ceylon, coll. F. BATES (2 ♂ 2 ♀ BMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Nepal, Indien, Sri Lanka, China (?), Laos (?), Java (?), Cocos-Keeling-I.

## XXVII. Gruppe: *dentipes*

**Promethis kempii kempii** (GRAVELY, 1915), comb. n. — *Setenis kempii* GRAVELY, 1915: Rec. ind. Mus., **8**: 526, Pl. 43, Fig. 6 (Locus typicus: Abor country, Janakmukh; Assam, Sibsagar). — *Setenis kempii*: KASZAB, 1980: Anns hist.-nat. Mus. natn. Hung., **72**: 177.

Syntypus ♀: Assam, Sibsagar, S. E. PEAL (MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Indien (Assam, Himalaya), China (Yunnan), Vietnam.

**Promethis kempii vientiane** ssp. n.

Holotypus ♂: Laos, Ban Van Eua, Vientiane, 15. VII. 1966, J. RONDON (MNHN).

Paratypen: wie HT (1 ♂ MNHN), id., 15. V. 1965, leg. RONDON (1 ♀ MNHN), id., 29. III. 1966, leg. RONDON (1 ♀ MNHN); Vientiane, III. 1963, leg. RONDON (1 ♂ MNHN).

Verbreitung: Laos.

**Promethis dentipes** (GEBIEN, 1914), comb. n. — *Setenis dentipes* GEBIEN, 1914: Sarawak Mus. J., **2** (5): 35, Taf. 1, Abb. 9 (Locus typicus: Borneo: Kinabalu; Singapur; Sumatra: Medan; Sumatra: Deli-Dolok, Baros).

Lectotypus ♀: Singapur (MGFT). — Paralectotypen: wie LT (1 ♀ MGFT): Sumatra: Deli-Dolok, Baros, 1000 m (1 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Malay Penin., Sumatra, Java, Borneo (Sabah, Brunei, Kalimantan), Neuguinea (Irian?).

## XXVIII. Gruppe: *matanga*

**Promethis matanga** sp. n.

Holotypus ♂: Borneo: Sarawak, Matang, J. XANTUS (HNHM).

Paratypen: wie HT (1 ♂ 1 ♀ HNHM).

Verbreitung: Borneo (Sarawak).

**Promethis furcaticollis** sp. n.

Holotypus ♂: Sumatra, Mt. Pairi, 1500 m, 22. VIII. 1981, J. WIESNER (HNHM).

Paratypus: Malay Penin., Selangor, Bukit Kutu, 3300—3500 ft, 15. III. 1931, H. M. PENDLEBURY (1 ♂ BMNH).

Verbreitung: Malay Penin., Sumatra.

**Promethis hangayi** sp. n.

Holotypus ♂: Sumatra, Dolok Merangik, 19—26. III. 1984, G. HANGAY (HNHM).  
 Paratypen: wie HT (2 ♀ HNHM); Tele, 23—24. III. 1984, G. HANGAY (1 ♂ 1 ♀ HNHM).  
 Verbreitung: Sumatra.

XXIX. Gruppe: **mandibularis**

**Promethis mandibularis** (GEBIEN, 1918), comb. n. — *Iphthinus melanarius* DEJEAN, 1837: Catalogue des Coleoptères, Paris, ed. 3: 225, **nom. nud.** — *Setenis mandibularis* GEBIEN, 1918: Ent. Mitt., 7 (7—9) [1918]: 123; 8 (1—3) [1919]: 2, Abb. 5 (Locus typicus: Indien: Dindigul und Ceylon: Kandy). — *Setenis mandibularis*: KASZAB, 1979: Folia ent. hung., 32 (2): 95.

Lectotypus ♂: S. India, Dindigul (MGFT). — Paralectotypen: Ind. or. (1 ♂ MGFT); Ceylon, Kandy (1 ♂ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Indien, Sri Lanka, China (?), Sumatra (?), Java (?).

XXX. Gruppe: **fruhstorferi**

**Promethis fruhstorferi** sp. n. — *Setenis multicostata* GEBIEN in litt.

Holotypus ♂: [Sulawesi], Süd-Celebes, Bua Kraeng, 5000 ft, II. 1896, H. FRUHSTORFER (HNHM).

Paratypen: wie HT (1 ♂ 1 ♀ MNHN; 1 ♀ ZMHU; 1 ♂ ZMUA); Lompa-Battan, 3000 ft, III. 1896, H. FRUHSTORFER (5 ♂ 6 ♀ MNHN).

Verbreitung: Sulawesi.

**Promethis conicollis** sp. n.

Holotypus ♂: [Sulawesi], C. Celebes, Pulupulu, 28. III. 1981, H. DETANI (NI).

Paratypen: wie HT (3 ♂ 4 ♀ NI).

Verbreitung: Sulawesi.

XXXI. Gruppe: **excisa**

**Promethis plicifrons** (GEBIEN, 1918), comb. n. — *Setenis plicifrons* GEBIEN, 1918: Ent. Mitt., 7 (7—9): 122, 124, Fig. 1 (Locus typicus: Singapur).

Holotypus ♂: Singapur (MGFT).

Verbreitung: Malaysia (Perak), Singapur.

**Promethis excisa** (GEBIEN, 1914), comb. n. — *Setenis excisa* GEBIEN, 1914: Sarawak Mus. J., 2 (5): 37, Taf. 1, Abb. 12 (Locus typicus: Borneo, Singapur).

Lectotypus ♀: Borneo (MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Malaysia (Malay Penin.), Singapur, Sumatra, Borneo, Sulawesi, Philippinen (Mindanao).

**Promethis rondoni** sp. n. — *Setenis rondoni* ARDOIN in litt.

Holotypus ♂: Laos, Vientiane, III. 1964, A. BAUDON (HNHM).

Verbreitung: Laos.

**Promethis selangorana** sp. n.

Holotypus ♂: Malay Penin., Selangor, Bukit Kutu, 3457 ft, IV. 1915 (BMNH).

Verbreitung: Malay Penin.

XXXII. Gruppe: **depressa**

**Promethis depressa** (GEBIEN, 1918), comb. n. — *Setenis depressa* GEBIEN, 1918: Ent. Mitt., 7 (7—9): 122; (10—11): 215, Fig. 2 (Locus typicus: Ceylon). — *Setenis depressa*: KASZAB, 1979: Folia ent. hung., 32 (2): 94.

Lectotypus ♂: Ceylon (MGFT). — Paralectotypus: wie LT (1 ♀ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Sri Lanka.

### XXXIII. Gruppe: *impressa*

#### *Promethis fortepunctaticeps* sp. n.

Holotypus ♂: Java (HNHM).

Verbreitung: Java.

*Promethis javanica* (GEBIEN, 1918), comb. n. — *Setenis javanica* GEBIEN, 1918: Ent. Mitt., 7 (7—9): 122, 129, Taf. 2, Fig. 2 (Locus typicus: Java, Borangroeng und Gebirge bei Batavia).

Lectotypus ♂: Java, Borangroeng (MGFT). — Paralectotypus: Java, Gebirge bei Batavia, X—XI. (1 ♂ MGFT) (Design. Z. KASZAB, 1984).

Verbreitung: Malay Penin., Sumatra, Linga, Java, Borneo (Sarawak, Kalimantan).

#### *Promethis philippinensis* sp. n.

Holotypus ♂: Philippinen, Luzon, Camarines Sur, Mt. Isarog, 500—600 m, 11. IV. 1963, H. M. TORREVILLAS (BPBM).

Paratypen: wie HT (1 ♂ BPBM), id., 20. IV. 1963, H. M. TORREVILLAS (1 ♂ BPBM); [Philippines] (1 ♂ BMNH); Philippinen (2 ♂ FISF); [Luzon] Manille (1 ♂ MNHN); Camarines Sur, Mt. Iriga, 500—600 m, 19. IV. 1962, H. M. TORREVILLAS (1 ♂ BPBM); Camarines Sur, Mt. Isarog, 500 m, 4. IV. 1963, H. M. TORREVILLAS (1 ♂ BPBM), id., 500—600 m, 9. IV. 1963, H. M. TORREVILLAS (1 ♀ BPBM), id., 11. IV. 1963, H. M. TORREVILLAS (1 ♀ BPBM), id., 750—800 m, 20. IV. 1963, H. M. TORREVILLAS (1 ♂ BPBM); Ifugao Prov., Jacmal Bunhian, 24 km E Mayoyao, 800—1000 m, 25—27. IV. 1967, H. M. TORREVILLAS (1 ♂ 1 ♀ BPBM); Mt. Makiling, C. F. BAKER (1 ♂ MCZC); Samar, Borongan, W. SCHULTZE (1 ♀ SMTD); Mindanao, 1903—1904, J. WATERSTRADT (1 ♀ IRSN); Misamis or., Minalwang, 1050 m, 24. III.—4. IV. 1961, W. TORREVILLAS (1 ♀ BPBM), id., Mt. Pomalihi, 21 km W Gingoog City, 800—1000 m, 19. IX. 1965, H. M. TORREVILLAS (1 ♂ BPBM); Surigao (1 ♀ ZMHU).

Verbreitung: Philippinen (Luzon, Samar, Mindanao).

#### *Promethis pseudoimpressa* sp. n.

Holotypus ♂: [Philippines], Romblon Is., VIII. 1979 (BR).

Paratypen: wie HT (1 ♂ HNHM); Basilan, 18. VI. 1922 (1 ♀ IRSN); Dinagat Is., Balinao, 20. IV. 1983, N. NISHIKAWA (1 ♂ NI); Mindanao (1 ♂ ZMUA), id., 1903—1904, J. WATERSTRADT (1 ♂ IRSN); Agusan, Los Arcos, 19—23. XI. 1959, L. W. QUATE (1 ♂ 1 ♀ BPBM); Misamis or., Mt. Balofukan (Kalagoosy), 15 km SW of Gingoog, 5. V. 1960, H. TORREVILLAS (1 ♂ BPBM); Pangil, Laguna, 1100 ft, 1. VI. 1931, F. C. HADDEN (1 ♀ BPBM).

Verbreitung: Philippinen (Romblon, Dinagat, Mindanao).

#### *Promethis buruensis* sp. n. — *Setenis cribratostrata* FAIRMAIRE in litt.

Holotypus ♂: Buru Is. (ZMHU).

Paratypen: wie HT (2 ♂ 1 ♀ ZMHU); Insel Buru W. (6 ♀ ZMHU); Ludeking (1 ♀ ZSBS); Buru, Station 1, III—VIII. 1921, L. J. TOXOPEUS (1 ♀ MGFT; 6 Ex. MGFT), id., VIII.—X. 1921, L. J. TOXOPEUS (1 ♂ HNHM; 1 ♀ TMPA), id., IV.—IX. 1921, L. J. TOXOPEUS (1 ♀ TMPA), id., 1. III. 1922, L. J. TOXOPEUS (1 ♂ HNHM).

Amboina, H. DONCKIER (2 ♂ RMNH).

Ceram: Piroe (1 ♀ MCSM; 1 ♂ USNM).

Patria? (1 ♂ MNHN).

Verbreitung: Buru, Amboina, Ceram.

#### *Promethis sulcicollis* sp. n. — *Setenis sulcicollis* ARDOIN in litt.

Holotypus ♂: Laos, Ban Van Eua b. Vientiane, II—III. 1969, J. RONDON (HNHM).

Paratypen: China: Yunnan (1 ♀ HNHM); 30 km SW Kinping, 400 m, 3. V. 1956, HWANG KE-YEN & (1 ♂ 1 ♀ EIAS).

Laos: wie HT (3 ♂ 2 ♀ BR; 23 ♂ 16 ♀ HNHM); Kham Kent, I. 1917, R. VITALIS DE SALVAZA (1 ♂ IRSN); Vientiane, III. 1961, A. BAUDON (1 ♂ 1 ♀ MNHN); Vientiane, Phou Kow Kouei, 4. XII. 1965, J. RONDON (1 ♂ HNHM), id., 29. X. 1965, J. RONDON (1 ♂ 1 ♀ HNHM); Giranville, 3—24. XI. 1919, R. V. DE SALVAZA (1 ♀ BMNH); Ban Van Eua, 15. X.

1965, J. RONDON (1 ♂ HNHM), id., 30. X. 1965, J. RONDON (1 ♀ HNHM), id., 15. VII. 1966, Native Collector (1 ♂ BPBM).

Verbreitung: China (Yunnan), Laos.

**Promethis tenasserimica** sp. n.

Holotypus ♂: Burma: Tenasserim, Thagatà, IV. 1887, FEA (HNHM).

Paratypus: wie HT (1 ♂ MNHN).

Verbreitung: Burma (Südburma, Tenasserim).

**Promethis carbonaria** (ARROW, 1900), comb. n. — *Nyctobates carbonaria* ARROW, 1900: Mon. Christmas Isl.: 106 (Locus typicus: Christmas Is.).

Lectotypus ♀: Christmas I., 1898, C. W. ANDREWES (BMNH). — Paralectotypen: wie LT (2 ♀ BMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Christmas I.

**Promethis silvestris** sp. n.

Holotypus ♂: Malay Penin., Pahang, Cameron's Highlands, 5000—6000 ft, 9. VI. 1935, H. M. PENDLEBURY (BMNH).

Paratypen: wie HT (3 ♂ 1 ♀ BMNH), id., 4800 ft, 22. VI. 1933, H. M. PENDLEBURY (1 ♂ BMNH), id., 4800—5000 ft, 8. VI. 1935, H. M. PENDLEBURY (2 ♂ BMNH), id., 11. X. 1973, C. C. CHUA (1 ♂ MNHN); Pahang, Janah Ralá, 4800—5000 ft, 16. VII. 1938, H. M. PENDLEBURY (10 ♂ 1 ♀ BMNH), id., 14. V. 1939, H. M. PENDLEBURY (1 ♀ BMNH), id., 4800 ft, 24. V. 1931, H. M. PENDLEBURY (1 ♂ BMNH); Pahang, Bukit, 5000 ft, 23. V. 1931, H. M. PENDLEBURY (1 ♂ 1 ♀ BMNH); Pahang, Ginting Kial, 5000 ft, 25. V. 1939, H. M. PENDLEBURY (1 ♂ BMNH), id., 3500 ft, 27. V. 1939, H. M. PENDLEBURY (1 ♀ BMNH); Pahang, Tanah Rata, 19. III. 1976, KAORU SAKAI (2 ♂ 1 ♀ MAS); Pahang, Tanak Rali, Chulow b. Kedut, 4500 ft, 11. XI. 1923 (1 ♀ BMNH); Pahang, Fraser Hill, 4200 ft, 11. VII. 1936, H. M. PENDLEBURY (1 ♂ BMNH); Perak, Larut Hills, 3700 ft, 10. II. 1932, H. M. PENDLEBURY (1 ♂ BMNH); Taiping, 3. 1978 (3 ♀ BR); Tai Ping Hills, 3000 ft, C. HOLMAN HUNT (1 ♂ BMNH).

Verbreitung: Malay Penin.

**Promethis impressa** (FABRICIUS, 1801), comb. n. — *Tenebrio impressus* FABRICIUS, 1801: Syst. Eleuth., 1: 146 (Locus typicus: in Oceani australis Insulis). — *Tenebrio sulcator* KNOCH, 1801: Neue Beyträge zur Insectenkunde, Leipzig, 1: 174 (Locus typicus: Sumatra). — *Tenebrio sulcator*: KLUG, 1833: Ins. Madag. Berlin: 91. — *Iphthinus impressus*: DEJEAN, 1837: Catalogue des Coléoptères, Paris, ed. 3: 225. — *Iphthinus impressicollis* DEJEAN, 1837: Catalogue des Coléoptères, Paris, ed. 3: 225, nom. nud. — *Setenis impressa*: GEBIEN, 1906: Dt. ent. Z. 1906 (1): 231. — *Setenis impressa*: GEBIEN, 1927: Suppl. ent., 15: 36. — *Nyctobates sulcithorax* DEYROLLE in litt. — *Nyctobates sulcicollis* CHEVROLET in litt.

Lectotypus ♂ von *Tenebrio impressus* FABRICIUS: Habitat in Oceani australis, Insula (ZMKD). — Paralectotypus: wie LT (1 ♀ ZMKD) (Design. Z. KASZAB, 1984).

Lectotypus ♂ von *Tenebrio sulcator* KNOCH: Sumatra, Dalldorf (ZMHU). — Paralectotypus: wie LT (1 ♂ ZMHU) (Design. Z. KASZAB, 1984).

Verbreitung: Madagaskar, Sri Lanka, Thailand, Malay Penin., Singapur, Karimon, Riouw, Sumatra, Banka, Nias, Java, Borneo, Banguey, Sulawesi, Philippinen.

**Promethis punctulator** (FAIRMAIRE, 1883), comb. n. — *Nyctobates punctulator* FAIRMAIRE, 1883: Anns Soc. ent. Belg., 27 (2): 26 (Locus typicus: I. du Duc d'York). — *Setenis punctulator*: GEBIEN, 1920: Nova Guinea, 13, Zool. 3: 294, 295. — *Setenis punctulator*: GEBIEN, 1935: Mém. Mus. r. Hist. nat. Belg. Hors texte 4 (11): 62. — *Setenis punctulator*: KASZAB, 1939: Nova Guinea, (Ser. n.) 3: 224. — *Setenis punctulator*: KASZAB, 1970: Anns hist.-nat. Mus. natn. hung., 62: 258. — *Nyctobates bifoveolatus* FAIRMAIRE in litt.

Neotypus: Neu-Pommern, Matupi, XII. 1900—V. 1901, HEINROTH (ZMHU) (Design. Z. KASZAB, 1984).

Verbreitung: Aru, Biak, Korido, Neuguinea (Irian, Papua-Neuguinea), Normanby, Bismarck Arch. (Neubritannien, Neuirland), Australien (Queensland), Philippinen (Luzon).

### XXXIV. Gruppe: pedestris

**Promethis pedestris** (GEBIEN, 1918), comb. n. — *Setenis pedestris* GEBIEN, 1918: Ent. Mitt., 7 (7—9): 123; (10—12): 218, Fig. 3 (Locus typicus: Tonkin, Mt. Mauson). — *Setenis pedestris*: KASZAB, 1980: Anns hist.-nat. Mus. natn. hung., 72: 177.

Lectotypus ♂: Tonkin, Montes Mauson, IV—V., 2—3000 ft, H. FRUHSTORFER (MGFT).  
— Paralectotypus: wie LT (1 ♀ MGFT) (Design. Z. KASZAB, 1984).  
Verbreitung: Vietnam.

**Promethis microcephala** (FAIRMAIRE, 1899), comb. n. — *Nyctobates microcephalus* FAIRMAIRE, 1899: Annl. Soc. ent. Fr., **68**: 629 (Locus typicus: Szé-Tehouan, Koua-Toun).

Lectotypus ♀: [China], Koua-Toun, LATOUCHE (MNHN) (Design. Z. KASZAB, 1984).  
Verbreitung: China (Szetschuan), Taiwan.

**Promethis subbiangulata subbiangulata** (M. T. CHÛJÔ, 1978), comb. n. — *Setenis subbiangulata* M. T. CHÛJÔ, 1978: Esakia, **11**: 68, Fig. 2—5 (Locus typicus: Japan, Nansei I., Okinawa I.: Kunigamison).

Holotypus ♂: Japan, Nansei Is., Okinawa, Kuginami-son, 4. IV. 1975, H. IRIE (KUFA).  
Verbreitung: Japan (Nansei I., Okinawa).

**Promethis subbiangulata mausona** ssp. n.

Holotypus ♂: [Vietnam] Tonkin, Montes Mauson, 2000—3000 ft, IV—V., H. FRUHSTORFER (HNHM).

Paratypen: wie HT (1 ♀ ZMHU); Montes Mauson (1 ♂ MNHN).  
Verbreitung: Vietnam.

**Promethis cordicollis** sp. n.

Holotypus ♂: China, Fukien, Kuatun, J. KLAPPERICH (HNHM).

Paratypen: Vietnam: Montes Mauson, 2000—3000 ft, IV—V., H. FRUHSTORFER (1 ♂ 1 ♀ MNHN; 1 ♂ ZMHU).

Verbreitung: China (Fukien), Vietnam.

**Promethis noctivigila** (LEWIS, 1894), comb. n. — *Setenis noctivigilus* LEWIS, 1894: Ann. Mag. nat. Hist., (6) **13**: 473 (Locus typicus: Japan, Oyama; Kashiwagi). — *Setenis noctivigilus*: DENISOVA, 1940: Trav. Inst. Zool. Ac. Sci. URSS, Moskva—Leningrad, **6** (1—2): 235, 236. — *Setenis noctivigilus*: NAKANE & al., 1963: Icon. Ins. Japon. Colore nat. ed. **2** (Col.): 229, Pl. 115, Fig. 5. — *Setenis noctivigilus*: NAKANE & MASUMOTO, 1969: Nat. Ins., **4** (9): [1], — *Setenis niponicus* LEWIS in litt.

Lectotypus ♀: Japan, Oyama, Spring of 1880, G. LEWIS (BMNH). — Paralectotypus: Japan, Kashiwagi, 16. VIII. 1881, G. LEWIS (1 ♀ BMNH) (Design. Z. KASZAB, 1984).

Verbreitung: Japan (Honshu).

**Promethis parallela parallela** (FAIRMAIRE, 1897), comb. n. — *Nyctobates parallela* FAIRMAIRE, 1897: Notes Leyden Mus., **19**: 251 (Locus typicus: Szetchouan). — *Setenis Gebieni* KASZAB, 1941: Arb. morph. taxon. Ent. Berl., **8** (2): 124, Abb. 8 (Locus typicus: Szetschuan, Nitou, Tatsienlua), syn. n. — *Setenis Emmerichi* SCHUSTER in litt.

Lectotypus ♂ von *Nyctobates parallela* FAIRMAIRE: Kouei-Tchéou (MNHN). — Paralectotypus: wie LT (1 ♀ MNHN) (Design. Z. KASZAB, 1984).

Holotypus ♂ von *Setenis Gebieni* KASZAB: Szetchuan, Nitou, Tatsienlu, EM. REITTER (IFPE). — Paratypus: wie HT (1 ♀ HNHM).

Verbreitung: China (Tschiang, Kanton ?, Szetschuan, Yunnan), Laos.

**Promethis parallela cheni** ssp. n.

Holotypus ♂: [China], Tsékou, 1902, R. P. J. DUBERNARD (MNHN).

Paratypen: wie HT (2 ♂ 1 ♀ MNHN); Thibet, Tsekou, R. P. DUBERNARD (1 ♂ 1 ♀ MNHN); Yun-nan Tsékou et Se-Tchouen, Principauté de Batang Yargong, 1907, J. A. SOULIÉ (1 ♂ MNHN); Su-Tshuen, 1897, Chass. Thibetains (1 ♂ MNHN); Siao-Lou, 1904, Chasseurs du P. DEJEAN (1 ♀ MNHN); Yunnan, 1918, G. FORREST (1 ♂ MNHN).

Verbreitung: China (Szetschuan, Yunnan).

**Promethis persimilis** (M. T. CHÛJÔ, 1980), comb. n. — *Setenis striatipennis* M. T. CHÛJÔ, 1975: Esakia, **9**: 19, nec LEWIS, 1894. — *Setenis persimilis* M. T. CHÛJÔ, 1980: Esakia, **15**: 3, Fig. 2 (Locus typicus: Nansei Is., Jakushima, Mt. Miyanoura).

Holotypus ♂: Japan, Nansei Is., Miyanoura, 11. IX. 1973, H. IRIE (KUFA).

Verbreitung: Japan (Nansei I., Yakushima).

**Promethis yunnanica** sp. n.

Holotypus ♂: Yunnan, SO 24° N Pe Yen Tsin (Mines de Sel) (Père Simeon Ten), 1924, P. GUERRY (MNHN).

Verbreitung: China (Yunnan).

**Promethis kurosawai** (MASUMOTO, 1982), comb. n. — *Setenis kurosawai* MASUMOTO 1982: Elytra, 10 (2): 58, Fig. 4 (Locus typicus: Central Formosa).

Holotypus ♂: Central Formosa (no detailed data), Capt. native collector (MAS). — Paratypus: Taiwan, Sung kang, 11. VI. 1974, H. YOKOHAMA (1 ♀ MAS).

Verbreitung: Taiwan.

## SPECIES INCERTAE

**Promethis barbereti** (FAIRMAIRE, 1888), comb. n. — *Nyctobates Barbereti* FAIRMAIRE, 1888: Anns Soc. ent. Belg., 32: 27 (Typus: Ile de Tchouan).

**Promethis lottinii** (BOISDUVAL, 1835), comb. n. — *Upis Lottinii* BOISDUVAL, 1835: Voy. Astrolabe, Col., 2: 257 (Typus: Nouvelle-Guinée).

## BESTIMMUNGSTABELLE

## DER MANNCHEN DER ARTEN DER GATTUNG PROMETHIS PASCOE, 1869\*

- 1 (22) Hinterschienen des ♂ innen vor dem Ende tief ausgerandet, endet vor dem Ausschnitt in einem scharfen Zahn oder einer Ecke. Analsegment am Ende scharf gerandet oder nur der Quere nach eingedrückt: XXXIV. Gruppe: **pedestris**
- 2 (3) Analsegment am Ende nicht gefurcht, nur breit quer verflacht, Mittelschenkel unten dicht abstehend gelb behaart, Vorder- und Mittelschenkel unten nackt. Vorderschienen dünn, am Endviertel stark gekrümmt, Innenrand unbehaart, das Ende innen im Endviertel ausgebogen und am Ende des Ausschnittes etwa um ein Drittel der Länge vor dem Ende mit stumpfem Winkel. Mittelschienen dünn, das Ende innen ausgerandet und vor dem Ende mit scharfem Zahn. Hinterschienen am Ende verdickt, der Ausschnitt vor dem Ende tief und schmal, unten ist der Zahn behaart. Kopf und Halsschild ganz erloschen kaum punktiert und fettglänzend, glatt, Flügeldecken mit sehr feinen Punktreihen und feinen, aber scharf vertieften Längsstreifen, die Zwischenräume leicht gewölbt und matt chagriniert. (Abb. 1—8; Tafel I: A.) — Länge: 19—25 mm. Vietnam **pedestris** (GEBIEN, 1918)
- 3 (2) Analsegment scharf gerandet, bzw. gefurcht.
- 4 (9) Mittelschenkel unten dicht gelb abstehend behaart. Mittelschienen einfach gebogen.
- 5 (6) Zwischenräume der Flügeldecken auch vorn ganz abgeflacht, die Längsstreifen und Punktreihen sind sehr fein, die Oberfläche grob chagriniert und matt. Vorderschienen dünn und gebogen, Innenrand im basalen Drittel mit einer winkligen Erweiterung. Halsschild ziemlich flach, die Vorderecken sehr breit abgerundet, die Oberfläche spärlich und erloschen punktiert, der Grund chagriniert. (Tafel I: B—C.) — Länge: 22—24 mm. China (Szetschuan), Taiwan **microcephala** (FAIRMAIRE, 1899)
- 6 (5) Zwischenräume der Flügeldecken wenigstens im vorderen Drittel, vor allem an der Basis leicht gewölbt, gegen die Mitte und am Ende flach oder überall leicht gewölbt, mit feinen Längsstreifen und Punktreihen, in welchen die Punkte die Streifen wenigstens vorn übergreifen. Vorderschienen dünn, am Enddrittel gebogen, Innenrand vor der Basis nur ganz leicht erweitert, ohne Ecke oder Zahn.
- 7 (8) Flügeldeckenzwischenräume am vorderen Drittel, vor allem an der Basis leicht gewölbt, gegen die Mitte und am Ende flach, mit feinen Längsstreifen, in welchen die Reihpunkte nur vorn die Streifen übergreifen. Oberfläche grob chagriniert und matt. Halsschildseiten gebogen, zur Basis verengt, vor den Hinterecken nicht ausgeschweift. Oberfläche gröber und dichter, ungleich punktiert. Mittelschienen an der apikalen Hälfte etwas ausgebuchtet. (Abb. 9—13; Tafel I: D.) — Länge: 24 mm. Japan (Nansei I., Okinawa) **subbiangulata subbiangulata** (M. T. CHŪJŌ, 1978)

\* Der Bestimmungsschlüssel wird in dem unabgeschlossenen Zustand veröffentlicht, wie er vom Autor hinterlassen wurde.



- 8 (7) Zwischenräume der Flügeldecken von der Basis an bis zum Ende einfach gewölbt, auch hinten nicht abgeflacht, mit scharfen Längsstreifen, die feinen Punkte der Streifen hinten gar nicht übergreifend. Mittelschienen innen der ganzen Länge nach einfach leicht gebogen, an der apikalen Hälfte nicht stärker ausgebuchtet. Halsschild breit, Seitenrand vor der Basis leicht ausgebuchtet. (Abb. 14–19; Tafel I: E.) — Länge: 21–24,5 mm. Vietnam **subbiangulata mausona** ssp. n.
- 9 (4) Mittelschenkel unten nackt.
- 10 (11) Halsschild auffallend flach und herzförmig, Vorderrand tief im Bogen ausgeschnitten, alle Ränder sind sehr dick, die Vorderecken gehen in einen sehr breiten Bogen in den Vorderrand über; Oberfläche nur in der Mitte im basalen Zweidrittel erloschen grob punktiert, die Seiten, mehr als ein Drittel der Breite und vorn unpunktet, chagriniert und matt. Kopf grob und dicht punktiert. Augen stark gewölbt, aus der Wölbung des Kopfes hervorragend. Vorderschienen außen fast gerade, innen vor der Mitte leicht ausgeschweift, ohne Zahn. Mittelschienen gerade, innen in der Mitte leicht erweitert und unten scharfkantig. Unterkopf vor der Gularfurche sehr grob punktiert. Prosternum am Ende der Quere nach gewölbt, endet in einer Ecke. Mittelbrust tief V-förmig eingedrückt und seitlich eckig vortretend. (Abb. 20–27; Tafel I: F.) — Länge: 20–21,5 mm. China, Vietnam **cordicollis** sp. n.
- 11 (10) Halsschild höchstens leicht herzförmig, Vorderrand nicht oder kaum ausgerandet. Prosternum hinter den Hüften abgeflacht, gerade abgestutzt und leicht gebogen. Mittelbrust zwar vor den Hüften eingedrückt, dieser Eindruck ist aber nicht tief V-förmig und seitlich ohne Ecke begrenzt.
- 12 (13) Vorder- und Mittelschienen innen etwa in der Mitte mit einem scharfen Zahn, bzw. einer scharfwinkligen Ecke. Vorderschienen fast gerade, Mittelschienen gerade, Hinterschienen gegen das Ende nur leicht und allmählich verdickt, der Ausschnitt vor dem Ende schmal und das Zähnchen kurz, aus der Wölbung der Schienen nicht vortretend. Halsschild etwas herzförmig, von der Mitte an zur Basis verengt, die Vorderecken abgerundet, Vorderrand gerade, Oberfläche der Quere nach gewölbt, gleichmäßig punktiert, die Punktierung gegen die Seiten feiner, erloschen, der Grund chagriniert. Flügeldecken punktiert-gestreift, die Zwischenräume gewölbt, chagriniert und fettglänzend. (Abb. 28–34; Tafel I: G–H.) — Länge: 14–17 mm. Japan (Honshu) **noctivigila** (LEWIS, 1894)
- 13 (12) Entweder die Vorderschienen oder die Mittelschienen mit Zähnchen versehen, auf keinen Fall beide.
- 14 (17) Nur die Mittelschienen innen etwas vor der Mitte mit einer zahnförmigen Erweiterung. Vorderschienen dünn und lang, das Ende gebogen, Innenrand ohne Zahn. Hinterschienen am Ende verdickt, der Ausschnitt vor dem Ende tief und der Zahn lang, nach hinten gerichtet.
- 15 (16) Flügeldecken scharf gestreift mit äußerst feinen Reihenpunkten, welche die Streifen nicht übergreifen; die Zwischenräume sind gleichmäßig leicht gewölbt und sehr grob chagriniert, matt. (Abb. 35–42; Tafel I: I.) — Länge: 18,5–24 mm. China, Laos [= *gebieni* (KASZAB, 1941)] **parallela parallela** (FAIRMAIRE, 1897)
- 16 (15) Zwischenräume der Flügeldecken vollkommen abgeflacht, mit äußerst feinen Längsstreifen und mit sehr feinen Punktreihen; die sehr feinen Punkte der Reihen übergreifen die äußerst schmalen Streifen. Der Grund grob chagriniert, matt. (Abb. 43–47; Tafel II: A.) — Länge: 18–23 mm. China **parallela cheni** ssp. n.
- 17 (14) Vorderschienen innen mit Zahn, Mittelschienen innen ohne Zahn.
- 18 (19) Vorderschenkel unten in der Mitte der Trochanteren mit stumpfer Erweiterung. Flügeldecken gestreift punktiert, die Punkte übergreifen die feinen Streifen. Die Zwischenräume sind leicht gewölbt, ganz erloschen chagriniert, deshalb fettglänzend. Kopf ausgesprochen glänzend. Halsschild quadratisch, mit etwas lappenartig vorgezogenen Vorderecken, welche abgerundet sind; Oberfläche ziemlich flach erloschen und spärlich punktiert, der Grund chagriniert. Vorderschienen dünn, der zahnförmige Winkel befindet sich innen weit über dem basalen Drittel. Der Ausschnitt der Hinterschienen innen vor dem Ende tief, der innere Zahn lang ausgezogen. (Abb. 48–51; Tafel II: B.) — Länge: 20–22 mm. Japan (Nansei I.: Yakushima) **persimilis** (M. T. CHŪJŌ, 1980)
- 19 (18) Vorderschenkel unten an der Basis einfach, ohne Spur einer Erweiterung. Kopf nicht glänzender als der Halsschild.
- 20 (21) Flügeldecken mit stark gewölbten Zwischenräumen, die Längsstreifen sind schmal und tief, die Punkte in den Streifen äußerst fein, übergreifen die Streifen nicht, Oberseite erloschen chagriniert. Köpfe erloschen dicht punktiert. Halsschild ziemlich

- flach mit sehr dicker Randung, die Vorderecken sind breit abgerundet, Seiten vor der Basis ausgeschweift, Oberseite ganz erloschen punktiert, der Grund chagriniert und matt. Vorderschienen innen von dem Ende bis zum inneren Zahn mit einem schmalen Haarstreifen, der untere Haarstreifen ist kürzer. Mittel- und Hinterschienen am Ende mit denselben feinen Haarstreifen. (Abb. 52–58; Tafel II: C.) — Länge: 19 mm. China  
**yunnanica** sp. n.
- 21 (20) Zwischenräume der Flügeldecken vollkommen flach, mit äußerst feinen Punkt-reihen, die Punkte der Reihen stehen meist frei und dicht hintereinander, ohne Streifen. Der Grund erloschen chagriniert und seidenglänzend. Halsschild mehr herzförmig, vor der Basis ausgeschweift, Vorderecken breit abgerundet, der Rand dick und die Außenseite manchmal etwas gewellt; Oberfläche ziemlich flach, spärlich und erloschen punktiert, der Grund matt. Kopf fein und spärlich punktiert. Vorderschienen innen am Ende mit feinen Haarstreifen, welche aber die Mitte nicht erreichen. Die Haarstreifen der Mittel- und Hinterschienen beschränken sich auch nur auf das apikale Viertel. (Abb. 59–66; Tafel II: D.) — Länge: 18–21 mm. Taiwan  
**kurosawai** (MASUMOTO, 1982)
- 22 (1) Hinterschienen des ♂ am Ende ohne scharfen Ausschnitt.  
23 (196) Analsegment am Ende ungerandet.  
24 (187) Vorderschenkel des ♂ in der Unterseite unbehaart.  
25 (168) Vorderschenkel am Innenrand höchstens mit einer scharfen Leiste, jedoch ohne Spur einer scharfen Ecke oder Zahn in der Nähe der Mitte.  
26 (135) Mentum beim ♂ ohne Bart, höchstens fein und spärlich behaart.  
27 (28) Der ganze Körper dicht, abstehend mit gekrümmten Haaren besetzt. Vorderschienen des ♂ innen nahe der Mitte breit und mit einem großen stumpfen Zahn:
- XIX. Gruppe: **setulosa**
- — Mentum mit langen abstehenden Haaren besetzt. Vorderschenkel innen gebogen, ohne inneren Oberrand. Kopf mit Augenfalten. (Abb. 67–71; Tafel II: E.) — Länge: 21–24 mm. Malay Penin. (Perak), Sumatra, Nias, Java (?), Borneo  
**setulosa** (GEBIEN, 1918)
- 28 (27) Oberseite nackt, höchstens mit äußerst feiner und kurzer oder spärlicher Behaarung, unten meist ebenfalls fast oder vollkommen nackt, häufig ist das Metasternum dicht behaart. Vorderschienen innen in der Mitte ohne zahnförmige Erweiterung.  
29 (128) Flügeldecken zwischen dem 9. Zwischenraum und Seitenrand schmal, bedeutend schmaler als ein Zwischenraum. Körper meist schmal.  
30 (67) Vorderschienen bei der Ansicht von außen vor dem Ende an der Unterseite ausgerandet und der Endteil stärker erweitert, das Endviertel oder -drittel stark gekrümmt, Unterseite am Außenrand mit kurzer, am Innenrand mit längerer scharfer Randung. Mittel- und Hinterschienen außen mehr oder weniger abgeflacht und das Ende meist gefurcht. Hinterbrust vor den Hüften neben der Mittellinie mit je einem kleinen Körnchen, meist aber noch weitere Körnchen, bzw. Querrunzeln vorhanden, Hinterbrust nackt, fein oder dicht punktiert:
- IX. Gruppe: **aequatorialis**
- 31 (32) Hinterschienen des ♂ an der Innenseite etwas mehr apikal als die Mitte, mit einem scharfen Winkel. Körper schwarz. Flügeldecken aber meist bräunlich, Halsschild und Flügeldecken behaart, die Härchen der Flügeldecken kurz, aber abstehend und gekrümmt. Halsschild grob und dicht punktiert, die Mitte eingedrückt, Oberfläche behaart. Propleuren dicht punktiert. Hinterbrust neben der kahlen Mittellinie mit erloschenen Runzeln. 1. Abdominalsegment vorn zwischen den Hinterhüften flach. (Abb. 72–77; Tafel II: F.) — Länge: 12,5–16 mm. Laos, Vietnam  
**rufipennis** (KASZAB, 1980)
- 32 (31) Hinterschienen des ♂ einfach, Innenseite gerade, ohne Spur eines scharfen Winkels.  
33 (34) Seiten des Halsschildes äußerst grob gerunzelt, die Mitte sehr grob und dicht punktiert, mit durchziehendem Längsmittleindruck. Flügeldecken fein punktiert-gestreift, die Zwischenräume gewölbt, erscheinen kahl, matt. Propleuren erloschen gerunzelt. Hinterbrust ungleich gekörnt. 1. Abdominalsegment zwischen den Hinterhüften der Quere nach gewölbt. (Abb. 78–82; Tafel II: G.) — Länge: 17,5–19 mm. Sumatra, Lombok, Sumbawa, Flores  
**rugosa** sp. n.
- 34 (33) Halsschild sehr verschiedenartig skulptiert, glatt oder punktiert, die Punktierung fein, grob oder erloschen, dicht oder spärlich, jedoch ist die Punktierung seitlich niemals grob gerunzelt.  
35 (38) Halsschild sehr grob und dicht punktiert, die Abstände der Punkte schmaler als die Punkte selbst, die Punkte sind groß, scharf umrandet und der Grund jedes Punktes flach.

- 36 (37) Halsschild quadratisch, Seitenrand nach vorn und hinten nur wenig verengt, mit tiefer und breiter Längsmittellinie, beide Teile bis zum Rand mehr gewölbt. Flügeldecken mit scharfen und tiefen Punktreihen, die Zwischenräume sind leicht gewölbt, mit feinen weißlichen Härchen spärlich behaart, neben der Mittellinie hinten mit 4 ganz kleinen, erloschenen Körnchen und gerunzelt. 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. (Abb. 83–86; Tafel II: H.) — Länge: 11–16 mm. Indien (Assam), China (Yunnan, Hainan), Burma, Thailand, Kambodscha, Laos, Vietnam [= *foveicollis* (FAIRMAIRE, 1893); *sinuatipes* (PIC, 1928)]  
**crenatostriata** (MOTSCHULSKY, 1872)
- 37 (36) Halschild breit, Seitenrand in der Mitte winkelig, nach vorn und hinten stark verengt, die Längsmittellinie ist flach und die Scheibe beider Teile wenig gewölbt. Flügeldecken mit feineren Punktreihen, die Zwischenräume gewölbt, vollkommen erloschen punktiert, erscheinen kahl. Propleuren mit spärlich stehenden, erloschenen Punkten. Hinterbrust fein und spärlich, kurz abstehend behaart, neben der Mittellinie hinten mit einigen Körnchen, von welchen die vor den Hinterhüften stehenden grob sind. 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. (Abb. 87–90; Tafel II: I.) — Länge: 15–18 mm. Timor **timorensis** sp. n.
- 38 (35) Halsschild glatt oder fein punktiert, manchmal sind die Punkte dichter, gröber, die Abstände der Punkte sind meist viel größer als die Punkte; die Punkte selbst kleiner.
- 39 (42) Hinterbrust beiderseits der Mittellinie hinten mit lang abstehender, dichter, gelber Behaarung.
- 40 (41) Halsschild scharf, aber spärlich punktiert, scheinbar kahl. Flügeldecken mit scharfen Punktreihen, die Innenreihen sind feiner. Die Zwischenräume der Flügeldecken fast ganz abgeflacht, scheinbar kahl und matt. Propleuren ziemlich glatt, nur mit erloschenen Punkten. Hinterbrust neben der Mittellinie hinten mit 4 scharferen Körnchen. Fühler dünn, das 3. Glied mehr als doppelt so lang wie breit, das 4. Glied auch verhältnismäßig lang, fast anderthalbmal so lang wie breit. (Abb. 91–94; Tafel III: A.) — Länge: 15–19,5 mm. Indien (?), Sumatra, Java, Borneo (?), Sumbawa, Ceram (?) **villososternalis** sp. n.
- 41 (40) Halsschild dicht punktiert und behaart, der Längsmitteldruck seicht und breit, Seiten mehr gerundet. Flügeldecken mit feinen Punktreihen, die Zwischenräume leicht gewölbt, fein und spärlich, aber gut erkennbar behaart. Propleuren fein behaart. Hinterbrust vor den Hinterhüften neben der Mittellinie mit je einem kleinen Körnchen, sonst gerunzelt. Fühler kurz, das 3. Glied mehr als 1,4mal so lang wie breit, das 4. Glied etwa 1,2mal so lang wie breit. (Abb. 95–98; Tafel III: B.) — Länge: 16,5–18 mm. Bali, Sumba **insularis** sp. n.
- 42 (39) Hinterbrust meist kahl oder ganz fein und kurz behaart, mit 4 scharfen Körnchen neben der Mittellinie oder grob quergeschnitten oder erloschen gekörnt.
- 43 (44) Die Behaarung der Flügeldecken kurz, gekrümmt und etwas abstehend, nicht anliegend und nicht gerade nach hinten gerichtet. Die Punktreihen sind fein, die Zwischenräume leicht gewölbt und matt, sehr fein erloschen punktiert. Propleuren ziemlich glatt. Halsschild breit, Seitenrand gebogen, die Längsmittellinie nicht tief, aber schmal, Oberseite fein und dicht, ziemlich erloschen punktiert, äußerst fein behaart. Hinterbrust fast kahl, neben der Mittellinie hinten gerunzelt erloschen gekörnt, die beiden Körnchen vor den Hinterhüften klein. Fühler dünn, Parameren des Aedoeagus vor der Basis deutlich eingeschnürt. (Abb. 99–102; Tafel III: C.) — Länge: 16,5–17,5 mm. Sumatra **sumatrana** sp. n.
- 44 (43) Flügeldecken erscheinen kahl oder die feine, oft mikroskopischen Haare sind anliegend, gerade. Parameren des Aedoeagus vor der Basis nicht eingeschnürt.
- 45 (58) Flügeldecken fein, staubartig, gut erkennbar, anliegend und spärlich behaart; die Behaarung ist vor allem am Absturz und in den inneren Zwischenräumen gut erkennbar.
- 46 (49) Zwischenräume der Flügeldecken, auch die äußeren Interstitien ganz abgeflacht und gut erkennbar punktiert. Parameren des Aedoeagus deutlich länger als die Basalplatte.
- 47 (48) 1. Abdominalsegment zwischen den Hinterhüften merklich abgeflacht, deshalb ist es bei seitlicher Ansicht vorn ein wenig aufgebogen, nicht gerade. Halsschild gleichmäßig fein punktiert, kaum erkennbar, mikroskopisch behaart. Propleuren fein, erloschen raspelartig punktiert. Hinterbrust neben der kahlen Mittellinie mit je 2 gleichgroßen, rundlichen Körnchen. Punktreihen der Flügeldecken fein, die inneren Reihen am Ende sogar erloschen. Die Basis der Basalplatte des Aedoeagus stark gebogen, die Parameren 1,5mal so lang wie die Basalplatte. (Abb. 103–106; Tafel III: D.) — Länge: 14,5–18,5 mm. Sumatra **walshae** sp. n.

- 48 (47) 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht, bei seitlicher Ansicht gerade. Halsschild erscheint kahl, die Mittellinie kaum eingedrückt, die Scheibe mäßig gewölbt, fein und spärlich punktiert. Propleuren erloschen, sehr spärlich punktiert. Hinterbrust neben der Mittellinie hinten mit je zwei Körnchen und vor den Körnchen querverzweigt. Punktreihen der Flügeldecken etwas gröber, die inneren Reihen in feinen Längsstreifen, die Punkte aber die Streifen nicht übergreifend. Die Basis der Basalplatte des Aedoeagus kaum gebogen, die Parameren nur um 1,2mal so lang wie die Basalplatte. (Abb. 107—110; Tafel III: E.) — Länge: 15—16 mm. Philippinen (Luzon, Mindanao, Palawan) **laevicollis** sp. n.
- 49 (46) Wenigstens die seitlichen Zwischenräume der Flügeldecken mehr oder weniger gewölbt, meist alle Zwischenräume leicht oder stärker gewölbt. Parameren des Aedoeagus nicht länger als die Basalplatte.
- 50 (51) Die Punktierung des Halsschildes sehr seicht, erloschen und spärlich, matt, Vorderkörper mikroskopisch behaart. Flügeldecken mit sehr feinen Punktreihen, die Punkte sind vorn und außen schärfer, hinten sehr fein, miteinander nicht verbunden; die Zwischenräume sehr wenig gewölbt, wenigstens innen und am Ende sehr fein und spärlich behaart, kaum erkennbar punktiert, der Grund wegen der Mikroskulptur auffallend matt. Propleuren fast glatt. Hinterbrust fein behaart, neben der Mittellinie mit groben Querrunzeln. 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. Fühler dünn. (Abb. 111—114; Tafel III: F.) — Länge: 14—19,5 mm. Indien (?), China (?), Japan (?), Malay Penin., Sumatra, Java [= *impressa* (MOTSCHULSKY, 1872) nec FABRICIUS, 1801] **tibialis** (GUÉRIN-MÉNEVILLE, 1834)
- 51 (50) Punktierung des Halsschildes spärlich oder dicht, einzeln oder dicht einander gedrückt, in diesem Fall fein, die Punkte meist erloschen, der Grund weniger matt, die Flügeldecken meist behaart.
- 52 (53) Hinterbrust neben der Mittellinie in der hinteren Hälfte sehr grob querverzweigt, mit kaum herausragenden Körnchen vor den Hinterhüften. Halsschild gleichmäßig fein punktiert, die Mittellinie ist seicht, Oberseite erscheint fettglänzend und kahl. Flügeldecken mit gewölbt und fein punktierten Zwischenräumen, die Behaarung ist nur staubartig und schwer erkennbar, der Grund fettglänzend. Propleuren erloschen fein punktiert. 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. Fühler dünn. Körper robust. (Abb. 115—118; Tafel III: G.) — Länge: 13,5—16,5 mm. Philippinen (Luzon, Sibuyan) **luzonica** sp. n.
- 53 (52) Hinterbrust neben der Mittellinie in der hinteren Hälfte kaum oder erloschen querverzweigt, meist mit 4 größeren Körnchen.
- 54 (55) Halsschild dicht, fein und gleichmäßig punktiert, die Abstände der Punkte schmaler als die Punkte; Längsmitteldruck seicht eingedrückt. Die Zwischenräume der Flügeldecken gewölbt, äußerst fein und erloschen punktiert, ganz matt, die Behaarung mikroskopisch fein, staubartig. Propleuren erloschen dicht punktiert. Hinterbrust fast kahl, mit 4 kleinen Körnchen in der hinteren Hälfte und erloschen querverzweigt. 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. (Abb. 119—122; Tafel III: H.) — Länge: 13—15 mm. Andamanen **oceanica** sp. n.
- 55 (54) Halsschild spärlicher punktiert bzw. die Punktierung höchstens seitlich dichter.
- 56 (57) Die Behaarung der Flügeldecken kaum erkennbar, die Zwischenräume gewölbt, erloschen sehr fein punktiert, die Oberfläche fettglänzend. Die Punktierung des Halsschildes gleichmäßig, fein und spärlich, der Grund fettglänzend, die Längsmittellinie ist seicht. Propleuren erloschen mikroskopisch spärlich punktiert. Hinterbrust fein behaart, neben der Mittellinie in der hinteren Hälfte mit erloschenen Körnchen und Querrunzeln. 1. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. (Abb. 123—126; Tafel III: I.) — Länge: 11—15 mm. Kambodscha (?), Thailand, Malay Penin., Singapur, Nias, Sumatra, Java, Borneo (Sabah, Brunei, Sarawak, Kalimantan), Banguay, Sulu Arch., Philippinen (Luzon, Sibuyan, Masbate, Negros), Sulawesi, Neuguinea (?) [= *podagra* (FAIRMAIRE, 1882)] **aequatorialis** (BLANCHARD, 1853)
- 57 (56) Die Behaarung der Flügeldecken auffallend, ziemlich dicht, sehr fein, anliegend, rötlichgelb. Die Punktreihen sind innen und am Ende fein, vorn außen gröber, die Zwischenräume leicht gewölbt, vollkommen erloschen und äußerst fein, mikroskopisch punktiert, der Grund matt. Halsschild gegen die Seiten gröber und dichter punktiert, die Seiten abgeflacht, der Längsmitteldruck seicht. Propleuren fein und dicht punktiert, der Grund matt, Hinterbrust in der hinteren Hälfte mit 4

größeren Körnchen. I. Abdominalsegment zwischen den Hinterhüften etwas abgeflacht. (Abb. 127—130; Tafel IV: A.) — Länge: 13—17 mm. Malay Penin.

**cameronensis** sp. n.

- 58 (45) Flügeldecken scheinbar kahl (bei starker Vergrößerung sind äußerst feine, spärliche, mikroskopische Härchen zu sehen).
- 59 (60) Alle Schenkel der Beine, ausgenommen die Knie, ziegelrot, sonst sind die Beine schwarz, Körper braunschwarz bis schwarz. Halsschild scheibenförmig, ziemlich flach mit seichter Mittellinie, fein und spärlich punktiert, der Grund ziemlich glänzend oder fettglänzend. Flügeldecken mit scharfen, einzeln stehenden Punkten in den Längsstreifen, welche innen und am Ende feiner sind. Die Zwischenräume entweder vollkommen flach und fettglänzend oder kaum gewölbt. Propleuren glatt, fettglänzend. Hinterbrust ganz kurz behaart, in der hinteren Hälfte neben der Mittellinie mit erloschener Körnelung. I. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. (Abb. 131—135; Tafel IV: B.) — Länge: 14,5—18 mm. Indien (?), Thailand, Malay Penin., Singapur, Nias, Sumatra, Java, Borneo (Sabah, Sarawak, Kalimantan) **sanguinicrus** (FAIRMAIRE, 1893)
- 60 (59) Alle Beine mit den Schenkeln schwarz.
- 61 (64) Halsschild fast ganz glatt, fettglänzend, nicht oder sehr spärlich und erloschen punktiert. Propleuren glatt.
- 62 (63) Zwischenräume der Flügeldecken fast ganz flach, matt, unpunktirt, die Punkte in den Längsreihen fein, scharf eingeschnitten, die inneren Reihen und die übrigen am Ende fein punktiert. Hinterbrust ganz kurz, absteigend gelb behaart, hinten mit 4 kleinen Körnchen. I. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. (Abb. 136—139; Tafel IV: C.) — Länge: 13,5—18 mm. Borneo (Sabah, Sarawak, Kalimantan) **masumotoi** sp. n.
- 63 (62) Zwischenräume der Flügeldecken gewölbt, kaum erkennbar punktiert, ziemlich glänzend, tiefschwarz. Die Punkte in den Längsreihen sind fein und kettenartig. Halsschild scheibenförmig, die Längsmittellinie ist scharf. Hinterbrust nackt, neben der Mittellinie mit einer Reihe dicht aneinander gestellter, querer, glänzender Körnchen, vor den Hinterhüften mit je einem rundlichen Körnchen. Das I. Segment des Abdomens zwischen den Hinterhüften nicht abgeflacht. (Abb. 140—143; Tafel IV: D.) — Länge: 13—19,5 mm. Philippinen (Sibujan, Romblon, Samar, Leyte, Mindanao) **mindanacensis** sp. n.
- 64 (61) Halsschild fein und spärlich, aber gut erkennbar punktiert.
- 65 (66) Körper fettglänzend, dunkelbraun bis braunschwarz. Halsschild breit, kaum schmaler als die parallelen Flügeldecken, einzeln fein punktiert, mit tiefem Längsmitteldruck, an den Seiten abfallend. Flügeldecken mit scharfen, kettenartigen Punktreihen, die Zwischenräume gewölbt, fein, aber gut erkennbar punktiert, der Grund fettglänzend. Propleuren fein und spärlich punktiert. Hinterbrust staubartig behaart, in der hinteren Hälfte neben der Mittellinie mit quergestellten erloschenen Körnchen, vor den Hinterhüften, nur mit je einem ganz kleinen unauffälligen Körnchen. I. Segment des Abdomens zwischen den Hinterhüften nicht abgeflacht. (Abb. 144—147; Tafel IV: E.) — Länge: 15,5—18 mm. Andamanen, Nicobaren **sulcatipennis** sp. n.
- 66 (65) Körper matt, schwarz, manchmal die Flügeldecken ganz oder teilweise braun bis braun-ziegelrot, selten auch der Halsschild hell. Halsschild im Vergleich mit den nach hinten leicht erweiterten Flügeldecken deutlich schmaler, die Mittellinie meist kaum eingedrückt. Flügeldecken mit flachen, fein und erloschen punktierten Zwischenräumen. Propleuren mit spärlich stehenden, mikroskopischen Härchen. Hinterbrust fast kahl, neben der Mittellinie mit quergestellten, dicht stehenden Runzeln. I. Abdominalsegment zwischen den Hinterhüften nicht abgeflacht. — Länge: 12,5—17,5 mm. Philippinen. (Hierher gehört auch *P. laevicollis* sp. n., wenn die Flügeldecken kahl erscheinen; siehe Laufnummer 48/47.)
- 67 (30) Vorderschienen einfach gebogen, das Ende nicht verdickt und am Außenrand das Ende ohne scharfe Leiste.
- 68 (91) Scheibe des Mentums mit einer mehr oder weniger scharfen Längsmittelfurche, oder wenigstens ist es vorn geteilt und der Vorderrand in der Mitte ausgebuchtet.
- 69 (70) Mentum mit scharfer Längsmittelfurche und vorn mit einer scharfen Querleiste. Vorderrand des Clypeus breit ausgerandet. II. Gruppe: **queenslandica**
- — Augen aus der Wölbung des Kopfes herausragend. Vorderschenkel unten der Quere nach rundlich, ohne Oberkante am Innenrand. Vorderschienen kurz, einfach leicht gebogen, das Ende innen nur an der Spitze behaart. Brust fein behaart. Kopf ohne Augenfurchen und nur mit ganz niedrigen Augenfalten. Halsschild quadratisch,

- fein punktiert, die Punktierung an den Seiten erloschen. Flügeldecken grob punktiert-gestreift, die Punkte stehen in den Streifen sehr spärlich, Zwischenräume einfach gewölbt, fettglänzend, ohne Körnelung. Kopf unten am Hals mit durchziehenden Querwülsten. (Abb. 148–153; Tafel IV: F.) — Länge: 24–24,5 mm. Australien (Queensland) **queenslandica** sp. n.
- 70 (69) Mentum mit oder ohne durchziehende Längsmittelfurche, vorn ohne gebogene Querleiste. Clypeus der Quere nach nicht oder nur kaum ausgerandet.  
I. Gruppe: **glabra**
- 71 (76) Zwischenräume der Flügeldecken vollkommen flach, sehr fein und dicht mit mikroskopischen Körnchen besetzt, deshalb matt. Die Reihenpunkte sehr fein, am Absturz meist ganz erloschen. Augen flach, Hals dick, die Schläfen hinter den Augen kaum verschmälert.
- 72 (73) Die Punktierung des Halsschildes ist sehr fein, gegen die Seiten breit grob chagriniert und erloschen. Halsschild quadratisch, Seitenrand wenig gebogen, der Rand vorn breiter und die Vorderecken wenig abgerundet. Kopf mit breiten Augenfalten. Augen ziemlich groß und gewölbt. Die Körnelung der Flügeldecken äußerst dicht und sehr fein, die Punktreihen sind sehr fein, die Punkte stehen spärlich und hinter der Mitte, wenigstens aber am Absturz erloschen. (Abb. 154–159; Tafel IV: G.) — Länge: 22–28 mm. Indien, Nepal, Bhutan, Burma [= *parvicollis* (FAIRMAIRE, 1894)] **glabra** (HOPE, 1831)
- 73 (72) Die Punktierung des Halsschildes ist sehr grob, bis zum Rand gleichmäßig. Augen flach.
- 74 (75) Halsschild herzförmig, vor der Mitte am breitesten, nach vorn gebogen und zur Basis gerade verengt, vor den Hinterecken leicht ausgeschweift; Oberseite dicht und bis zum Rand gleichmäßig grob punktiert, seitlich sind die Abstände zwischen den Punkten weit schmäler als die Punkte selbst, der Grund ziemlich glänzend. Flügeldecken mit sehr feinen Punktreihen, die am Absturz erloschen sind. Die mikroskopische Körnelung der Zwischenräume ziemlich grob, die Punktreihen stehen voneinander etwa so weit wie die Körnchen selbst, die vorn glänzend und am Absturz matt sind, der Grund matt. Kopf mit groben und dichter Punktierung, Augenfalten wenig hoch, die Stirn ist flach. Fühler dick, die Glieder vom 4. an breit und deutlich kürzer als das 3., eine Keule ist nicht abgesondert. (Abb. 160–165; Tafel IV: H.) — Länge: 18,5–26 mm. Indien (Nordwest-Indien, Almora, »Thibet«), Nepal [= *cribrifrons* (FAIRMAIRE, 1894); *semipapaca* (BLAIR, 1913)] **glabricula** (MOTSCHULSKY, 1872)
- 75 (74) Halsschild quadratisch, grob punktiert, die Abstände der Punkte meist größer als die groben Punkte; Seiten meist nur wenig gebogen, fast gerade, vor den Hinterecken leicht ausgeschweift. Die Scheibe mit schwachem Längsmittleindruck. Flügeldecken mit feinen Punktreihen, welche bis zur Spitze entwickelt sind, nur hinter der Mitte feiner und die Punkte stehen spärlich. Die Körnelung der Zwischenräume fein und sehr dicht. Kopf feiner punktiert als der Halsschild, Augenfalten niedrig, Stirn der Quere nach leicht gebogen. Fühlerbasis dünner, die Glieder vom 6. an merklich breiter als die vorangehenden. (Abb. 166–170; Tafel IV: I.) — Länge: 18–20,5 mm. Burma **granulata** sp. n.
- 76 (71) Zwischenräume der Flügeldecken mehr oder weniger gewölbt, die Punktreihen sind vollständig, meist auch Längsstreifen vorhanden.
- 77 (80) Die Augen sind flach, aus der Wölbung des Kopfes nicht herausragend, Hals dick, hinter den Augen sind die Schläfen kaum verengt.
- 78 (79) Stirn zwischen den Augen etwas gewölbt, ohne Augenfalten, grob punktiert. Halsschild quer, seitlich gebogen, nach vorn stärker verengt, vor den Hinterecken leicht ausgeschweift, Vorderecken leicht abgerundet stumpfwinklig, Scheibe ungleich grob punktiert, ohne Längsmittleindruck. Zwischenräume der Flügeldecken leicht gewölbt, der Grund einfach chagriniert und matt. Vorderschiene kaum gebogen. Abdominalsegmente in der Mitte nicht abgeflacht und nicht eingedrückt, Segmente 1–3 gut erkennbar einzeln punktiert, gegen die Seiten und die übrigen Segmente spärlich punktiert. (Abb. 171–173; Tafel V: A.) — Länge: 17–17,8 mm. Japan (Yakushima) **exigua** (M. T. ČUČO, 1980)
- 79 (78) Augenfalten deutlich, dazwischen ist die Stirn flach. Flügeldeckenzwischenräume mit mikroskopisch feinen Körnchen erloschen bedeckt, deshalb matt. Körper meist größer. Halsschild quadratisch, grob punktiert, die Abstände der Punkte sind größer als die Punkte selbst. Die Scheibe mit flachem Längsmittleindruck. Kopf so grob punktiert wie der Halsschild. Die Punktreihen der Flügeldecken fein und scharf eingeschnitten, die Punkte der seitlichen Reihen stehen separiert und sind

- nicht in Streifen eingegraben. Die Zwischenräume sind leicht gewölbt, am Absturz flacher. I. Abdominalsegment in der Mitte abgeflacht und sehr leicht eingedrückt, die zwei ersten Segmente in der Mitte dicht punktiert. (Abb. 174–178; Tafel V: B.) — Länge: 18–24 mm. Indien (Nordindien, Himalaya), Nepal, China (Yunnan, SW Tibet), Burma, Thailand, Pakistan, Bhutan **harmandi** ALLARD, 1896
- 80 (77) Die Augen ragen aus der Wölbung des Kopfes heraus, gewölbt. Hals hinter den Augen stärker verengt.
- 81 (84) Grund der Flügeldecken nur chagriniert und fettglänzend, ohne Spur von mikroskopischer Körnelung.
- 82 (83) Augenfallen unbedeutend. Seiten des Halsschildes stark gebogen, Vorderecken breit abgerundet, der Rand bei Seitenansicht leicht gebogen, nicht gewinkelt und nicht gerade. Die Scheibe ohne Längsmittleindruck, nur abgeflacht; grob und dicht punktiert, die Mitte der Punkte in der Mitte größer, an den Seiten höchstens so groß wie die Punkte selbst. Die leicht gewölbten Zwischenräume der Flügeldecken erloschen punktiert, der Grund chagriniert. Mitte des Abdomens nicht abgeflacht und nicht eingedrückt. Abdominalsegmente I–4 grob punktiert, nur an den Seiten erloschener. (Abb. 179–181; Tafel V: C.) — Länge: 18,5–19,5 mm. Taiwan **kaoshana** (MASUMOTO, 1982)
- 83 (82) Augenfallen deutlich erhaben, Stirn flach und spärlich punktiert. Halsschild quadratisch, mit ziemlich tiefen Längsmittleindruck, Seitenrand leicht gebogen, die Vorderecken abgerundet, Seitenrand bei Seitenansicht S-förmig oder hinter der Mitte etwas winklig gebogen, bei Ansicht von oben zur Basis gerade verengt. Die leicht gewölbten Zwischenräume grob chagriniert und matt, unpunktiert. Die Reihenpunkte sind außen und vorn größer, innen und am Absturz allmählich feiner. Die zwei ersten Abdominalsegmente in der Mitte abgeflacht, die Punktierung dicht, aber nicht grob, seitlich und die letzten Segmente fein punktiert. Hinterbrust ziemlich lang und spärlich behaart. (Abb. 182–186; Tafel V: D.) — Länge: 19–23 mm. Laos, Kambodscha, Vietnam **vitalisi** (PIC, 1929)
- 84 (81) Grund der Flügeldecken mit scharfer oder erloschener, sehr feiner oder größer mikroskopischer Körnelung.
- 85 (86) Halsschild ohne Spur eines Längsmittleindrucks, einfach quergewölbt. Augen auffallend hochgewölbt. Stirn ganz flach, ohne Spur von Augenfallen und Augenfurchen. Halsschild mit feiner Randlinie, in der Mitte am breitesten, nach vorn und hinten gleichmäßig gebogen, vor den Hinterecken nicht ausgeschweift, Vorderecken abgerundet. Die Scheibe gleichmäßig dicht punktiert, die Abstände der Punkte aber weit größer als die Punkte selbst. Flügeldecken mit feinen Punktzeilen und schwach eingeschnittenen Längsstreifen, die Zwischenräume innen vorn wenig, außen und am Absturz stärker gewölbt, fein granuliert. Die zwei ersten Abdominalsegmente abgeflacht, das Abdomen grob und einzeln, dicht punktiert. (Abb. 187–191; Tafel V: E.) — Länge: 17,5–20,5 mm. China (Szetschuan) **microthorax** sp. n.
- 86 (85) Halsschild mit mehr oder weniger tiefem Längsmittleindruck, wenigstens ist die Mitte abgeflacht. Augen nicht auffallend gewölbt, Kopf mit gut erkennbaren Augenfallen.
- 87 (88) Halsschild ohne tiefen Längsmittleindruck, nur abgeflacht; quadratisch, deutlich schmaler als die Flügeldecken, die Seiten leicht gebogen, Oberseite sehr grob und dicht punktiert, die Abstände der Punkte meist kaum größer als die Punkte selbst, der Grund ziemlich glänzend. Die leicht gewölbten Zwischenräume mit erloschener feiner Körnelung, fettglänzend. Die Punktzeilen sind grob und gleichmäßig. Die ersten Abdominalsegmente nicht abgeflacht und nicht eingedrückt, gleichmäßig dicht punktiert, die drei letzten Segmente fein und spärlich punktiert. (Abb. 192–195; Tafel V: F.) — Länge: 18–21 mm. Indien (Panjab) **almorensis** sp. n.
- 88 (87) Halsschild mit tiefem Längsmittleindruck. Die Zwischenräume der Flügeldecken stärker gewölbt, die Punktzeilen sind feiner und die mikroskopische Körnelung schärfer.
- 89 (90) Vorderschenkel am Innenrand oben mit einer stumpfen Keule, Unterseite an der apikalen Hälfte etwas ausgehöhlt. Halsschild quer, Seitenrand breit gebogen, vor der Basis aber ausgeschweift, Vorderecken sehr stumpf, fast abgerundet, mit Längsmittleindruck; die Punktierung dicht und fein. Flügeldecken mit mehr feinem Streifen und mit erloschenen Punktzeilen, die Zwischenräume sind am Absturz ebenso gewölbt wie vorne. (Abb. 196–199; Tafel V: G.) — Länge: 19–23 mm. China (Szetschuan) **tatsienlua** sp. n.
- 90 (89) Vorderschenkel am Innenrand ohne Keule und die Unterseite der Schenkel in der apikalen Hälfte höchstens leicht abgeflacht, nicht konkav. Halsschild quadratisch,

- Seitenrand fast gerade, die Scheibe mit Längsmittleindruck die Punktierung ziemlich grob, aber spärlich. Flügeldecken mit feinen Längsstreifen und Punktreihen, die Zwischenräume auch am Absturz stark gewölbt. (Abb. 200–203; Tafel V: H.) — Länge: 21 mm. Nordvietnam **tonkinae** sp. n.
- 91 (68) Mentum flach, meist die Mitte leicht gekielt und die Scheibe eingedrückt, Vorderrand in der Mitte nicht ausgebuchtet.
- 92 (97) Vorderrand des Clypeus leicht ausgerandet.
- 93 (94) Zwischen Clypeus und Wangen, wo die Stirnlinie einmündet, leicht, aber gut erkennbar ausgebuchtet. Halsschild quadratisch, flach. Beine lang und dünn:
- III. Gruppe: **darlingtoni**
- — Kopf und Halsschild sehr dicht punktiert, der Grund glänzend. Seiten des Halsschildes parallel, Vorderrand gerade abgestutzt, Vorderecken abgerundet rechtwinklig, Scheibe mit sehr schwachem Längsmittleindruck. Flügeldecken fein punktiert-gestreift, die Zwischenräume sind leicht gewölbt und fein punktiert, der Grund erloschen chagriniert, fettglänzend. Vorderschienen sehr leicht S-förmig gebogen und das apikale Drittel etwas gebogen, nur die Spitze behaart. Vorderschenkel schmal und leicht gebogen. (Abb. 204–209; Tafel V: I.) — Länge: 18–20 mm. Neuguinea (Papua-Neuguinea) **darlingtoni** sp. n.
- 94 (93) Zwischen Clypeus und Wangen ist kein Ausschnitt. Halsschild weniger quadratisch, der Quere nach gewölbt. Beine kürzer:
- IV. Gruppe: **quadricollis**
- 95 (96) Halsschild quadratisch, Seiten gebogen oder gerade, vor der Basis kaum oder nicht eingeschnürt, an den Vorderecken abgerundet; Seitenrand dick, bei Seitenansicht ist der Rand fast gerade. Vorderschenkel innen gerade, unten leicht verflacht, Abdominalsegmente 1–3 erloschen spärlich punktiert. Flügeldecken mit groben Punktreihen und mit erloschenen Längsstreifen, die Zwischenräume sind gleichmäßig gewölbt, fein chagriniert, fettglänzend (Abb. 210–215, Tafel VI: A.) — Länge: 18–24,5 mm. Fidschiinseln (?), Neuguinea (?), Australien (Queensland, Neusüdwales, A. C. T., Westaustralien), Tasmanien [= *pascoei* (MACLEAY, 1872)]
- quadricollis** PASCOE, 1869
- 96 (95) Halsschild quadratisch, Seiten stark gerundet, etwa in der Mitte am breitesten, die Vorderecken sind sehr breit abgerundet, der Seitenrand ist vor der Basis nicht eingeschnürt, bei Seitenansicht ist der Rand nach unten gebogen bzw. S-förmig, der Rand vorn dicker. Oberfläche erloschen spärlich punktiert, Seiten breit abgesetzt, grob chagriniert und matt. Vorderschenkel dick, unten kaum abgeflacht, vor dem Knie etwas eingeschweift. Abdominalsegmente 1–3 erloschen längsgerunzelt. Flügeldecken mit groben Punktreihen, die Längsstreifen sind leicht eingeschnitten und die Zwischenräume, besonders innen am Absturz weniger gewölbt, grob chagriniert und matt. (Abb. 216–219; Tafel VI: B.) — Länge: 14,5–18 mm. Australien (Queensland, Neusüdwales) **minor** CARTER, 1914
- 97 (92) Vorderrand des Clypeus gerade.
- 98 (101) Augen auffallend groß, Augenfalten stark entwickelt. Fühler kurz.
- 99 (100) Schläfen sehr kurz und mit der gleichen Wölbung zum Hals verengt. Halsschild quadratisch:
- V. Gruppe: **aberrans**
- — Schläfen sehr kurz und der starken Wölbung der Augen folgend sehr stark zum Hals verengt. Halsschild quadratisch, mit vollkommen abgerundeten Vorderecken, Seitenrand dick abgesetzt. Kopf und Halsschild dicht und fein punktiert. Stirn neben den Augenfalten und auch in der Mitte eingedrückt, Scheibe des Halsschildes mit sehr schwacher Längsmittellinie, der Grund ziemlich glänzend. Flügeldecken punktiert-gestreift, die Punkte der Streifen sind vorn etwas größer, innen und am Absturz feiner. Die Zwischenräume sind leicht gewölbt, mit kaum erkennbarer spärlicher Punktierung, der Grund ganz erloschen chagriniert und fast glatt. Beine kurz. Vorderschenkel innen am Oberrand mit scharfem Kiel. Mentum trapezförmig, flach und absteigend spärlich behaart. (Abb. 220–222; Tafel: VI C.) — Länge: 19 mm. Borneo **aberrans** sp. n. ♀\*
- 100 (99) Schläfen breit und stark zum Hals verengt. Halsschild von der Mitte an verengt, mit scharfen Vorderecken:
- VI. Gruppe: **borneensis**
- — Schläfen hinter den großen und gewölbten Augen ebenfalls plötzlich eingeschnürt. Halsschild in der hinteren Hälfte parallel, nach vorn verengt, die fast rechtwinkli-

\* Die systematische Stelle dieser Art ist unsicher, weil nur das weibliche Geschlecht bekannt ist. Die Art ist aber wegen der sehr großen und gewölbten Augen, weiters durch die plötzlich eingeschnürten Schläfen, den parallelen Körper und die kurzen Beinen sehr charakteristisch.



gen Vorderecken ragen etwas vor, Vorderrand leicht ausgerandet. Seitenrand scharf, aber nicht abgesetzt. Kopf und Halsschild äußerst fein, sehr spärlich und erloschen punktiert, der Grund glänzend, die Scheibe des Halsschildes mit schmaler, vollständiger Längsmittellinie. Flügeldecken mit feinen Punktreihen und leicht gewölbten Zwischenräumen, der Grund erloschen chagriniert, fettglänzend. Beine länger, Vorderschenkel an der Innenseite ohne scharfen Kiel. Mentum trapezförmig, ziemlich flach, dicht punktiert und nackt. (Abb. 223–225; Tafel VI: D.) — Länge: 20 mm. Borneo

**borneensis** sp. n. ♀\*

101 (98) Augen normal, Schläfen hinter den Augen nicht plötzlich verengt. Fühler länger.  
102 (121) Vorderschienen höchstens an der Spitze anliegend kurz behaart.

103 (116) Mittelschienen des ♂ einfach, am Innenrand in der Mitte ohne erweiterte stumpfe Ecke:

VII. Gruppe: **striatipennis**

104 (111) Flügeldecken punktiert-gestreift, die Zwischenräume gewölbt, hinten am Absturz ist die Wölbung der Zwischenräume sogar noch stärker als in der Mitte, die Punkte vorn und seitlich die Streifen übergreifend.

105 (106) Mittel- und Hinterbrust dicht abstehend gelb behaart. Hinterbrust vor den Hinterhöften und auch hinter der Mitte neben der Mittellinie mit je einem ganz feinen, aber scharfen Körnchen. 1. Abdominalsegment in der Mitte breit abgeflacht. Vorderkörper matt, der Grund chagriniert, ganz fein und erloschen punktiert. Kopf ohne Augenfalten und Augenfurchen. Endglieder der Fühler gestreckt. Halsschild der Quere nach stark gewölbt, Seitenrand fein, bei Seitenansicht stark gebogen, die Mitte der Länge nach leicht eingedrückt, Vorderrand gerade. Flügeldecken punktiert-gestreift, die Zwischenräume gleichmäßig gewölbt, der Grund grob chagriniert und matt. Schenkel dünn, Vorderschenkel gebogen, Vorderschienen am Ende gekrümmt, nur das Ende mit gewöhnlicher Behaarung, sonst sind alle Schienen einfach. Mentum trapezisch, flach, punktiert, sehr spärlich behaart. (Abb. 226–228; Tafel VI: E.) — Länge: 21 mm (mit geneigtem Kopf). Sumatra

**pubiventris** (BLAIR, 1919)

106 (105) Mittel- und Hinterbrust scheinbar nackt, Hinterbrust weder vor den Hinterhöften noch neben der Mittellinie ohne Körnchen. 1. Abdominalsegment nicht abgeflacht. Kopf höchstens mit schwachen Augenfalten. Vorletzte Glieder der Fühler nicht länger als breit. Halsschild mit dickem Seitenrand, Oberseite flacher, bei Seitenansicht ist der Rand kaum gebogen, der Grund ziemlich glänzend und grob punktiert. Flügeldecken ebenfalls fettglänzend und nicht matt, die Punktreihen sind größer. Vorderschenkel nicht oder wenig gebogen, Schenkel dick, Vorderschienen am Ende nicht gekrümmt, nur leicht gebogen, Mentum mit dichter Behaarung.

107 (108) Zwischenräume der Flügeldecken sind dachförmig, fast gekielt, die eingestochenen Punkte der Längsstreifen fein und spärlich, am Ende fast erloschen. Augen flach. Stirn und Clypeus fast gleichmäßig dicht punktiert. Halsschild herzförmig, Vorderecken stumpfwinklig, vor der Basis breit ausgeschweift, die Mitte breit und flach eingedrückt, statt einer Punktierung ist der Grund ungleich matt. Vorderschenkel gebogen, Vorderschienen sehr leicht gebogen. (Abb. 229–233; Tafel VI: F.) — Länge: 22–22,5 mm. Borneo (Sabah)

**kinabaluensis** sp. n.

108 (107) Zwischenräume der Flügeldecken einfach gewölbt, nicht dachförmig.

109 (110) Fühler dick, das 3. Fühlerglied etwa doppelt so lang wie breit. Halsschild sehr grob und dicht punktiert, stellenweise stoßen die Punkte eng aneinander. Zwischenräume der Flügeldecken deutlicher gewölbt, größer punktiert, erloschener chagriniert, deshalb glänzender. Parameren vor dem Ende ausgeschweift, die Spitze abgerundet. (Abb. 234–237; Tafel VI: G.) — Länge: 18–23 mm. Japan (?), China (Yunnan), Laos, Nordvietnam

**pauperula** (GEBIEN, 1918)

110 (109) Fühler lang und dünn, das 3. Fühlerglied fast dreimal so lang wie breit. Halsschild fein und spärlich punktiert, gegen die Seiten erloschen, nirgends eng aneinanderstoßend. Zwischenräume der Flügeldecken leicht gewölbt, fein punktiert, deutlicher chagriniert, deshalb fettglänzend. Die Spitze der Parameren gerade spitzwinklig ausgezogen. (Abb. 238–241; Tafel VI: H.) — Länge: 16–21 mm. Indien (Assam), China (Szetschuan, Yunnan, Südchina, Hainan), Laos, Vietnam [= *pauperula* (GEBIEN, 1918) partim]

**sinuatocollis** sp. n.

111 (104) Flügeldecken äußerst fein oder stärker in den Längsstreifen oder -reihen punktiert,

\* Die systematische Stelle ist auch bei dieser sehr charakteristischen Art unsicher, weil nur das Weibchen bekannt ist. Wegen des glänzenden Vorderkörpers, der scharfen Augenfalten, des ausgerandeten Vorderrandes und der rechtwinkligen Vorderecken des Halsschildes erkennbar.

- die Punktreihen sind am Ende feiner, manchmal vollkommen erloschen; die Zwischenräume entweder vollkommen flach oder höchstens vorn etwas gewölbt, meist sind keine Längsstreifen vorhanden, oder die Punkte verbinden sich nur in den inneren Reihen.
- 112 (113) Die Fühlrglieder 3—4, vor allem das 3. Glied sehr dünn, Kopf ohne Augenfalteln. Stirn wie der Halsschild dicht punktiert, der Grund ziemlich glänzend. Flügeldecken mit Punktreihen, welche bis zur Spitze gut ausgebildet sind, die Punkte gegen die Basis zu allmählich gröber, die inneren feinen Punktreihen durch feine Streifen verbunden. Die Zwischenräume sind vorn außen leicht gewölbt, hinten fast ganz flach, in der hinteren Hälfte der Decken äußerst fein und spärlich punktiert, der Grund erloschen chagriniert und fettglänzend. Prosternalfurche beiderseits neben den Hüften bis zum Ende entwickelt, flach. (Abb. 242—245; Tafel VI: I.) — Länge: 17 mm. Japan (Nansei I.) **iriomotensis** (M. T. CHŪJŌ, 1979)
- 113 (112) Fühlrglieder 3—5 kurz, auch das 3. Glied nicht dünn.
- 114 (115) Augen ziemlich flach, aus der Wölbung des Kopfes kaum vortretend. Hals sehr dick. Schläfen hinter den Augen nur schwach verengt. Kopf ohne oder mit schwachen Augenfalteln. Halsschild quadratisch, Seiten gebogen. Zwischenräume der Flügeldecken auch seitlich und vor allem am Absturz nicht abgeflacht. In den feinen Längsstreifen befinden sich äußerst feine, erloschene Reihenpunkte, vor allem am Absturz. Halsschild quer, fein punktiert, ohne Längsmittleindruck. Mentum spärlich behaart. Hinterbrust kahl. (Abb. 246—250; Tafel VII: A.) — Länge: 24,6—25,2 mm. China (Yunnan, Szetschuan), Burma, Vietnam **szetchuanica** sp. n.
- 115 (114) Augen aus der Wölbung des Kopfes vortretend. Schläfen hinter den Augen stark zum Hals verengt, der Hals ist bedeutend schmäler als der Kopf an den Augen. Stirn flach, dicht punktiert, Halsschild quadratisch, Seiten gebogen, der Rand dick, die Vorderecken sind vollkommen abgerundet, Vorderrand gerade, die Scheibe mit schwachem Längsmittleindruck, in der Mitte stärker, seitlich feiner und spärlicher punktiert. Flügeldecken mit Punktreihen, die inneren Reihen sind durch feine Längsstreife verbunden; die Zwischenräume vorn sehr leicht gewölbt, gegen das Ende ganz flach und an der Spitze sind die inneren 3 Zwischenräume wieder etwas gewölbt. Der Grund mit erloschen, mikroskopischen, spärlich stehenden Punkten und chagriniert, matt. Mittelbrust vor den Hüften der Quere nach eingedrückt. Die ersten Segmente des Abdomens leicht eingedrückt. (Abb. 251—255; Tafel VII: B.) Länge: 20—23 mm. Korea (Südkorea, Quellpart I.), Japan (Honshu, Nansei) **striatipennis** (LEWIS, 1894)
- 116 (103) Mittelschienen des ♂ am Innenrand in der Mitte mit einer stumpfen Ecke:  
XX. Gruppe: **valgipes**
- 117 (120) Flügeldecken mit äußerst feinen Punktreihen, welche am Absturz erloschen sind, ohne Längsstreifen; die Zwischenräume vollkommen flach, mikroskopisch sehr dicht gekörnelt und matt.
- 118 (119) Halsschild grob, in der Mitte spärlich, gegen die Seiten dicht und auch stärker punktiert, mit schmaler Längsmittellinie; die Punkte sind seitlich größer als die Abstände zwischen den Punkten. Zwischenräume der Flügeldecken vollkommen flach, der Grund mikroskopisch fein und dicht chagriniert, matt. Die Punktreihen sind äußerst fein, am Absturz fast erloschen. (Abb. 256—264; Tafel VII: C.) — Länge: 23,5—28 mm. Korea, Japan (Hokkaido, Honshu, Shihoku, Kiushu, Tshushima), China (Zentralchina) [= *villosipes* (MARSEUL, 1876); *davidis* (FAIRMAIRE, 1878)] **valgipes valgipes** (MARSEUL, 1876)
- 119 (118) Halsschild in der Mitte der Scheibe erloschen, sehr fein und gegen die Seiten auch kaum punktiert, die Punkte sind ganz klein und stehen spärlich. Der Längsmittleindruck ist breit, der Grund chagriniert. Zwischenräume der Flügeldecken ebenfalls ganz flach, der Grund aber erloschen chagriniert und fettglänzend, die Punktreihen sind noch feiner. (Abb. 265—268; Tafel VII: D.) — Länge: 26—27 mm. Vietnam **valgipes semivalgipes** ssp. n.
- 120 (117) Flügeldecken mit feinen Punktreihen und Punktreifen, die Streifen sind meist tief, und die Punkte übergreifen die Streifen kaum; in den inneren Streifen und am Absturz sind die Punkte nicht breiter als die Streifen. Die Zwischenräume flach, wegen der Streifen aber jeder Zwischenraum an beiden Seiten etwas geneigt, erscheint deshalb nicht absolut flach. Der Grund der Flügeldecken erloschen dicht punktiert und sehr grob dicht mikroskopisch gekörnelt, erscheint deshalb runzelig und matt. Die Erweiterung der Mittelschienen vor der Mitte am Innenrand und der Hinterschienen am basalen Drittel innen schwächer. — (Abb. 269—275; Tafel VII: E.) — Länge: 23—30 mm. Taiwan **subvalgipes** (M. T. CHŪJŌ, 1981)

- 121 (102) Vorderschienen des ♂ am Innenrand oder an der apikalen Hälfte abstehend lang gelb behaart: VIII. Gruppe: **brevicornis**
- 122 (123) Clypeus vorn gerade abgestutzt. Vorderschienen leicht gebogen und innen bis weit über die Mitte abstehend dicht, gelb behaart. Flügeldecken mit scharfen Punktreihen und Längsstreifen, die Zwischenräume sind hochgewölbt. Halsschild mit Längsmittelfurche, Vorderrand gerade. Mentum vorn in der Mitte konisch vorgezogen, die Vorderecken sind eingedrückt, die Mittellinie sehr schmal gefurcht, beiderseits mit tiefen Eindruck, welche einen schräg zur Mitte laufenden Kiel begrenzt. Oberlippe mit nach vorn gebogenen Kiel. Kleine Art. (Abb. 276—277; Tafel VII: F.) — Länge: 14—15 mm. Laos, Vietnam **temporalis** sp. n.
- 123 (122) Clypeus vorn beträchtlich ausgerandet, Vorderecken am Ende innen höchstens bis zur Mitte oder in dem apikalen Drittel abstehend gelb behaart.
- 124 (125) Vorderschenkel kurz und dick, Innenrand nicht ausgebogen und das Ende nur vor dem Knie ausgeschweift verengt. Vorderschienen kurz, einfach gebogen, nur das apikale Drittel fein abstehend behaart. Mentum flach, die Scheibe vorn breit abgerundet, die Mitte ohne Längsfurche und die Scheibe ohne Längseindrücke, abstehend spärlich behaart. Halsschild quadratisch, von der Mitte an nach vorn verengt und mit breit abgerundeten Vorderecken, Seite vor der Basis ausgeschweift, der Rand dick, innen leicht abgesetzt, die Längsmittelfurche vertieft, die Scheibe erloschen punktiert, besonders seitlich, der Grund fettglänzend. Flügeldecken mit groben Punktreihen, die Punkte stehen in den Reihen sehr spärlich, die Zwischenräume sind gewölbt, unpunktiert, der Grund chagriniert und fettglänzend. Abdominalsegmente 1—3 fein punktiert. (Abb. 278—282; Tafel VII: G.) — Länge: 15—21,5 mm. Neuguinea (Papua-Neuguinea), Australien (Queensland, Neusüdwales, Victoria) **albertisi** sp. n.
- 125 (124) Vorderschenkel lang und ziemlich dünn, gebogen, Innenrand ausgerandet, apikal weit vor dem Ende verjüngt. Vorderschienen lang. Innen am Ende sehr dicht gelb behaart. Mentum in der Mitte wenigstens vorn der Länge nach gefurcht, die Scheibe beiderseits eingedrückt. Zwischenräume der Flügeldecken nicht oder wenig gefurcht.
- 126 (127) Vorderschienen wenig gebogen, fast gerade, innen am Ende fast bis zur Mitte abstehend gelb behaart. Kopf ohne Augenleisten. Halsschild quadratisch, grob und ungleich punktiert, der Grund chagriniert und matt. Vorderrand gerade, Seitenrand vor der Mitte verdickt, die Vorderecken sind abgerundet, die Hinterecken rechtwinklig, die Basis sehr dick gerandet. Flügeldecken mit scharfen und groben Punktreihen, nur mit Spuren von Streifen, die Zwischenräume fast ganz flach und der Grund fein chagriniert, matt. (Abb. 283—287; Tafel VII: H.) — Länge: 22,5—29 mm. Indien [= *indosinica* (FAIRMAIRE, 1896) nec FAIRMAIRE, 1893; *opaca* (GEBIEN, 1918)] **brevicornis** (WESTWOOD, 1842)
- 127 (126) Vorderschienen gegen das Ende stark gebogen, Innenseite im apikalen Teil bis zur Mitte sehr lang und abstehend, gelb behaart. Kopf mit flachen Augenleisten. Stirn grob punktiert und glänzend. Halsschild quadratisch. Vorderecken abgerundet rechtwinklig, etwas mehr vorgezogen, Oberseite sehr spärlich und ungleich, aber grob punktiert, wie die Stirn. Flügeldecken mit groben Punktreihen, die Punkte sind tief eingedrückt und scharf umrandet, ohne Längsstreifen, die Zwischenräume sind vorn, besonders seitlich merklich gewölbt, sonst flach, der Grund erloschen chagriniert und fettglänzend. (Abb. 288—292; Tafel VII: I.) — Länge: 18—30 mm. Südindien, Sri Lanka **furva** (GEBIEN, 1918)
- 128 (29) Flügeldecken zwischen der 9. Punktreihe und dem dicken Seitenrand breit abgeflacht und gegenüber, der Hinterbrust zu noch breiter, etwa halb so breit, sogar noch breiter als die halbe Breite des 9. Zwischenraumes. Körper breit, Flügeldecken erweitert: X. Gruppe: **producta**
- 129 (130) Vorderecken des Halsschildes abgerundet lang vorgezogen, Vorderrand ziemlich tief ausgebuchtet, der dicke Seitenrand vor der Mitte wellenartig und innen der ganzen Länge nach leicht abgesetzt; Oberseite flach, spärlich und grob, fast wie die Reihpunkte der Flügeldecken punktiert. Vorderschienen am Ende wenig gebogen, innen weit vor dem Ende leicht ausgebuchtet, das äußerste Ende an der Oberseite sowie die Innenseite vor dem Ende mit einem kleinen Haarfleck oder das innere Endviertel abstehend und lang behaart, Unterseite am Ende innen mit einer unbehaarten Leiste. Hinterbrust unbehaart. Die Zwischenräume der Flügeldecken sind leicht gewölbt, manchmal mit gut erkennbarer Punktierung, der Grund mehr oder minder glänzend oder chagriniert. (Abb. 293—298; Tafel VIII: A.) — Länge: 24—30 mm. Molukken (Ceram), Neuguinea (Irian, Papua-Neuguinea), Bismarck Arch. (Neuirland, Neubritannien, Neupommern) **producta** (GEBIEN, 1918)

- 130 (129) Vorderecken des Halsschildes stumpfwinklig oder abgerundet, Vorderrand kaum oder gar nicht ausgebuchtet, Seitenrand vor der Mitte nicht wellenartig. Oberseite fein und erloschen, manchmal dicht punktiert.
- 131 (132) Zwischenräume der Flügeldecken mit sehr feiner, mikroskopischer Körnelung dicht besetzt, matt, die Zwischenräume nur leicht gewölbt, mit scharfen Längsstreifen und vorn größeren, hinten allmählich feineren Punkten in den Streifen, welche die Streifen weit übergreifen. Seiten des Halsschildes breit gebogen, zur Basis gerade verengt und nicht ausgeschweift, die Scheibe erloschen punktiert, seitlich unpunktiert und matt, der Rand ist dick. Beine lang, Vorderschienen in apikalen Viertel gekrümmt, dünn, das Ende innen spärlich behaart. Fühler sehr dünn und lang, das 3. Glied 2,75mal, das 4. Glied 2mal so lang wie breit. Hinterbrust in der Mitte behaart. (Abb. 299—303; Tafel VIII: B.) — Länge: 26—31,5 mm. Neuguinea (Papua-Neuguinea) **amplipennis** (GEBIEN, 1918)
- 132 (131) Zwischenräume der Flügeldecken nicht gekörnt, nur fein erloschen chagriniert und matt. Fühler viel kürzer, das 3. Glied weniger als doppelt so lang wie die Breite.
- 133 (134) Körper groß, Flügeldecken nach hinten mehr erweitert, die Zwischenräume der Decken sehr leicht gewölbt und der Grund chagriniert, deshalb matt, ohne erkennbare Punktierung. Halsschildscheibe erloschen dicht punktiert, Seiten beiderseits sehr breit ohne Punktierung, nur matt chagriniert. Vorderschiene weit über dem Enddrittel gerade und fast nur am Endviertel gebogen. (Abb. 304—307; Tafel VIII: C.) — Länge: 26,5—29,5 mm. Bismarck Arch. (Neupommern, Neubritannien), Salomonen (Bougainville, Neugeorgien, Acki, Savo, Gizo, Guadalcanal) **barbata** (GEBIEN, 1918)
- 134 (133) Körper kleiner, Flügeldecken kaum bzw. nicht auffallend erweitert, die leicht gewölbten Zwischenräume fein und spärlich punktiert, erloschen und der Grund chagriniert, matt. Halsschildscheibe fast bis zu den Seiten glatt, punktiert, nur ein schmaler Streifen neben dem dicken Seitenrand matt chagriniert und unpunktiert. Vorderschiene stärker gewölbt, die größte Ausrandung liegt innen im apikalen Drittel; das Ende meist bis zur Mitte dicht abstehend behaart. (Abb. 308—311; Tafel VIII: D.) — Länge: 23—26 mm. Neuguinea (Irian, Papua-Neuguinea) **hieki** sp. n.
- 135 (26) Mentum mit einem ausgesprochenen Bart aus dicht stehenden, langen, gelben Haaren.
- 136 (141) Parameren des Aedoeagus etwa bis zur Mitte fast parallel, nachher plötzlich eingeschnürt und das apikale Drittel ebenfalls fast parallel, das Ende gemeinsam abgerundet, nicht zugespitzt: XIV. Gruppe: **evanescens**
- 137 (138) Hinterschienen innen in der Nähe der Mitte mit einer auffallenden stumpfen Erweiterung. Zwischenräume der Flügeldecken abgeflacht und mit gut erkennbaren, borstenartigen Härchen besetzt, welche nicht ganz anliegend sind, die Börstchen sitzen in je einem feinen Punkt; vor der Mitte der Flügeldecken sind die Zwischenräume ein wenig gewölbt, auch die Punkte sind größer, Streifen sind aber keine vorhanden. Halsschild quadratisch, Seitenrand bei Seitenansicht gerade, Vorderecken abgerundet stumpfwinklig. (Abb. 312—315; Tafel VIII: E.) — Länge: 18—23,5 mm. Indien (Assam), China (Shantung, Fukien), Vietnam, Laos [= *quadricollis* (FAIRMAIRE, 1893) nom. praecoccup. nec PASCOE, 1869] **evanescens** (GEBIEN, 1918)
- 138 (137) Hinterschienen innen ohne Spur einer Erweiterung bzw. einer Ecke.
- 139 (140) Flügeldecken mit kurzer, anliegender, feiner, borstenartiger Behaarung, welche gut erkennbar ist. Die Zwischenräume sind vollkommen flach, die Reihenpunkte sind vorn fein, nach hinten allmählich feiner, jedoch bis zur Spitze gut erkennbar. Der Grund mit erloschener Punktierung und mit grober Chagriniierung, deshalb matt. Halsschild quadratisch, ziemlich grob punktiert, Seitenrand wenig gebogen. Augen vorragend, Augenfurchen ziemlich tief und die Augenfalten gerade. Vorderschienen einfach gebogen. (Abb. 316—319; Tafel VIII: F.) — Länge: 19—23,5 mm. China (Yunnan), Laos, Vietnam **chinensis** sp. n.
- 140 (139) Flügeldecken kahl oder nur das Ende hinten am Absturz staubartig fein behaart; der Grund sehr dicht und fein gekörnt oder chagriniert. Vorderschienen einfach gebogen. Fühler sehr dünn, das 3. Glied mehr als dreimal so lang wie die Breite und das 4. Glied mehr als doppelt so lang wie breit, auch die vorletzten Glieder der Fühler schlank. Augen groß, Augenfurche schmal und seicht, Augenbalken wenig erhaben. Halsschild quer, Seitenrand gebogen, vor den Hinterecken ausgeschweift, ohne Längsmittleindruck, ziemlich grob punktiert, besonders seitlich. Flügeldecken mit ziemlich scharfen Punktreihen, die inneren Reihen und die Reihen

am Absturz feiner. Die Zwischenräume sehr wenig gewölbt, erloschen spärlich punktiert und der Grund grob chagriniert, matt. (Abb. 320–323; Tafel VIII: G.) — Länge: 18–23 mm. Taiwan [= *similis* (M. T. CHÛJÔ, 1981)]

**taiwana** (MASUMOTO, 1981)

- 141 (136) Parameren des Aedocagus gegen das Ende von der Basis an einfach zugespitzt.  
142 (145) Flügeldecken lang eiförmig, weit hinter der Mitte am breitesten, mit grober Punktierung des Vorderkörpers und scharfen Flügeldecken-Längsstreifen. Hinterbrust lang:

XIII. Gruppe: **oshimana**

- 143 (144) Zwischenräume der Flügeldecken mit ganz erloschener Punktierung, der Grund mikroskopisch fein und sehr dicht gekörnt, grob chagriniert und matt. Die Punktreihen sind ziemlich kräftig, die inneren Reihen stehen in feinen Längsstreifen, die Punkte übergreifen aber die Streifen. Halsschildseiten auffallend grob punktiert, die Abstände der Punkte sind kleiner als die Punkte selbst. Mittelbrust vor den Hüften der Quere nach stärker eingedrückt. Vorderschienen am apikalen Viertel gebogen, Mittel- und Hinterschienen fast gerade, am Ende nur ganz leicht gebogen, alle Schienen sind dünn. (Abb. 324–328; Tafel VIII: H.) — Länge: 24–28 mm. Japan (Oshima-Amami, Ryukyu I.)

**oshimana** (MIWA, 1935)

- 144 (143) Zwischenräume der Flügeldecken fast ganz flach, ohne erloschene Punktierung, gröber gekörnt und matt; die Reihenpunkte sind feiner, mit sehr feinen und erloschenen Streifen, welche die Reihenpunkte übergreifen. Seiten des Halsschildes weniger dicht punktiert, die Abstände der Punkte meist so breit wie die Punkte selbst. Mittelbrust der Quere nach weniger tief eingedrückt. Vorderschienen gegen das Ende gebogen, Mittel- und Hinterschienen gerade, alle Schienen sind dünn. (Abb. 329–333; Tafel VIII: I.) — Länge: 22–26 mm. Japan (Nansei I., Okinawa I.)

**okinawana** (M. T. CHÛJÔ, 1978)

- 145 (142) Flügeldecken parallel (ausgenommen *P. sterrha* OLL., bei welcher die Hinterbrust verkürzt ist).

- 146 (159) Papuanisch-australische Arten. Halsschild quadratisch oder verkehrt trapezisch:

XI. Gruppe: **angulata**

- 147 (148) Hinterbrust verkürzt, zwischen Mittel- und Hinterhüften nicht breiter als die Länge einer Mittelhüfte, Hinterkörper etwas bauchig. Schultern kaum entwickelt, Körper flugunfähig, die Hinterflügel sind reduziert. Flügeldecken hinter der Mitte am breitesten, mit feinen Längsstreifen und Punktreihen, welche den Seiten zu feiner und erloschen sind. Die Zwischenräume sind leicht gewölbt, chagriniert und fettglänzend, der Seitenrand dick. Kopf und Halsschild fein und erloschen, spärlich punktiert, ohne Augenfalten und mit kurzen Augenfurchen. Clypeus vorn gerade, Mentum mit dichtem, gelben Bart. (Abb. 334–337; Tafel IX: A.) — Länge: 22,5–27 mm. Lord-Howe-I.

**sterrha** (OLLIFF, 1889)

- 148 (147) Hinterbrust stets deutlich länger als die Länge einer Mittelhüfte; die Schulterbeulen sind immer gut entwickelt, Hinterflügel voll entwickelt. Körper nicht bauchig.

- 149 (150) Halsschild verkehrt trapezförmig, an den breit abgerundeten Vordercken am breitesten, nach hinten fast gerade verengt, scharf gerandet, die Randung vorn innen breit abgeflacht, mit scharfer Längsmittelfurche, die Scheibe erloschen grob punktiert, der Grund chagriniert und matt. Kopf mit sehr schwachen Augenfalten und schmalen Augenfurchen. Vorderrand des Clypeus in einem breiten Bogen ausgerandet. Flügeldecken punktiert-gestreift, die Reihenpunkte sind überall gut ausgebildet, die Zwischenräume sind gleichmäßig gewölbt, grob chagriniert und matt. Vorderbeine lang, Vorderschenkel innen ausgerandet, ohne scharfen Oberrand, Vorderschienen leicht gebogen und innen apikal bis weit über die Mitte abstechend behaart. (Abb. 338–341; Tafel IX: B.) — Länge: 19,5–23 mm. Australien (Queensland, Neusüdwaes)

**opaca** CARTER, 1914

- 150 (149) Halsschild quadratisch, meist in der Mitte am breitesten und nach vorn verengt. Vorderschienen innen nur an der Spitze anliegend behaart.

- 151 (158) Vorderrand des Clypeus der ganzen Breite nach leicht ausgerandet.

- 152 (155) Vorderschenkel stark gekrümmt, Innenrand auffallend ausgebogen, unten ist die distale Hälfte meist abgeflacht. Vorderschienen lang und dünn, das Ende gekrümmt, Außenseite am Ende abgeflacht, Innenseite nur an der äußersten Spitze kurz anliegend behaart. Die Abdominalsegmente 1–3 grob punktiert. Kopf eine Augenleiste und mit schmalen Augenfurchen.

- 153 (154) Die Punkte der Nahtstreifen der Flügeldecken am Ende erloschen, die inneren Zwischenräume am Absturz deutlich gewölbt und glänzend. Halsschild und Kopf meist nur erloschen sehr fein punktiert, ziemlich matt. Flügeldecken fettglänzend. Vorderschienen und Schenkel auffallend lang, der letztere sehr stark gebogen. Die

- Vorderschienen am apikalen Drittel stark gebogen. (Abb. 342–345; Tafel IX: C.) — Länge: 19–28 mm. Indien (?), Australien (Queensland, Neusüdwesten, A. C. T., Victoria, Süd- und Westaustralien), Tasmanien (= *lethalis* PASCOE, 1869; *major* CARTER, 1914) **nigra** (BLESSIG, 1861)
- 154 (153) Die Punktierung der Streifen der Flügeldecken zwar gegen das Ende feiner, aber auch am Ende die Streifen übergreifend; die Zwischenräume bedeutend weniger gewölbt als bei der vorigen Art. Kopf und Halsschild mehr oder weniger grob und spärlich oder die Stirn sogar dicht punktiert, der Grund chagriniert. Vorderschienen und Schenkel kürzer oder die letzteren weniger gebogen; die Schienen sind der ganzen Länge nach leicht gebogen. (Abb. 346–349; Tafel IX: D.) — Länge: 18–21 mm. Australien (Neusüdwesten, A. C. T., Victoria) **punctithorax** sp. n.
- 155 (152) Vorderschenkel dick, aber nicht stark gebogen und der Innenrand nicht ausgebogen, innen ist der obere Rand scharfkantig.
- 156 (157) Flügeldecken tief gestreift, am Absturz sind die Streifen schmal und tief, die am Ende feiner werdenden Reihenpunkte die Streifen nicht übergreifend und die Zwischenräume hochgewölbt, die Punktierung der Streifen sehr spärlich. Kopf ohne Augenfalten, und die Augenfurchen sind flach und schmal. Stirn und Clypeus ganz erloschen sehr fein punktiert, der Grund fettglänzend. Halsschild meist trapezförmig, die Mitte seitlich leicht gewinkelt, der dicke Rand gegen die abgerundeten Vorderecken breiter und abgestutzt, gegen die Basis leicht ausgeschweift, stark verengt. Vorderschienen nur wenig gebogen, am Ende innen mit spärlicher, feiner, anliegender, kurzer Behaarung. Abdominalsegmente 1–3 ganz erloschen punktiert, erloschen längsgerunzelt. (Abb. 350–353; Tafel IX: E.) — Länge: 18–25 mm. Neuguinea (?), Australien (Queensland, Neusüdwesten, Victoria, Westaustralien), Tasmanien **carteri** sp. n.
- 157 (156) Flügeldecken gestreift punktiert, die Punkte auch am Ende die Streifen weit übergreifend, die Zwischenräume weniger und mehr gleichmäßig gewölbt, grob chagriniert und matt, die Punkte der Längsreihen stehen dicht, Augenfalten und Augenfurchen sind schmal und tief, Stirn meist erloschen punktiert, der Grund chagriniert und matt, Halsschild meist mit scharfer Längsmittelfurche, welche vorn verkürzt ist; die Scheibe in der Mitte ganz erloschen punktiert, das seitliche Drittel beiderseits unpunktiert, grob chagriniert und matt. Vorderschienen fast gerade, nur das Ende leicht gebogen, Innenrand am Ende mit kurzer, anliegender, gelber und dichter Behaarung. Mittel- und Hinterschienen innen am Ende ebenfalls kurz behaart. Abdominalsegmente 1–3 grob punktiert. (Abb. 354–357; Tafel IX: F.) — Länge: 17–23 mm. Australien (Queensland, Neusüdwesten, A. C. T., Victoria, Süd- und Westaustralien), Tasmanien, Flinder I., King I. **angulata** (ERICHSON, 1842)
- 158 (151) Vorderrand des Clypeus gerade abgestutzt. Flügeldecken zwischen der 9. Punktreihe und dem dicken Seitenrand breit abgeflacht, gegenüber den Hinterhöften breiter als die halbe Breite des 9. Zwischenraumes. Vorderschienen dünn, fast gerade, nur die äußerste Spitze kaum merklich gebogen, Innenrand am Ende nur mit anliegenden, kurzen Haaren. Halsschild quadratisch und flach, der Rand vor der Basis ausgeschweift, die Vorderecken sind breit verrundet. Kopf und Halsschild erloschen punktiert. Bei reinen Exemplaren ist die Oberseite spärlich und fein, lang, am Vorderkörper mehr anliegend, an den Flügeldecken steil absteigend gelblich behaart. Unterseite anliegend fein und spärlich behaart. (Abb. 358–361; Tafel IX: G.) — Länge: 22–28,5 mm. Neuguinea (Irian, Papua-Neuguinea) **quadraticollis** (GEBIEN, 1920)
- 159 (146) Arten aus China, Japan, Indochina bis Malay Penin., und Taiwan. Halsschildseiten gebogen und vorn verengt, niemals trapezisch: XII. Gruppe: **tonkinensis**
- 160 (167) Vorderschienen am Ende einfach leicht gebogen, Innenrand vor dem Ende am apikalen Drittel nicht ausgeschweift. Zwischenräume der Flügeldecken flach oder mehr oder weniger gewölbt.
- 161 (162) Unterseite der Vorderschenkel abgeflacht, innen am Oberrand ziemlich scharf. Vorderschienen am Enddrittel gebogen, innen kurz und gelb, etwas absteigend behaart. Mittelschienen am apikalen Drittel leicht gebogen und etwas dicker. Kopf ohne Augenfurchen und Augenbalken. Halsschild quadratisch, Seiten gebogen, Vorderecken breit abgerundet, Oberseite fein und spärlich punktiert, ohne Längsmittelfurche. Flügeldecken mit äußerster feinen Punktreihen und kaum angedeuteten Längsstreifen. Die Zwischenräume sind nur sehr wenig gewölbt, am Absturz ganz flach. 1. Abdominalsegment in der Mitte abgeflacht. (Abb. 362–365; Tafel IX: H.) — Länge: 21 mm. China (Szetschuan) **nitouana** sp. n.
- 162 (161) Unterseite der Vorderschenkel nicht abgeflacht und der Oberrand innen nicht scharf.

- 163 (164) Vorderschenkel lang und stark gebogen, auch der Innenrand ziemlich tief gebogen. Halsschild breit, quer, Vorderecken abgerundet, Seiten ziemlich gerade und vor den Hinterecken leicht ausgeschweift, die Scheibe flach, ohne Längsmittleindruck. Kopf und Halsschild fein punktiert. Flügeldecken mit vollkommen flachen Zwischenräumen. Die Reihenpunkte sind voneinander ganz separiert, seitlich und am Absturz sehr fein und spärlich stehend, ohne Spur von Längsstreifen. Hinterbrust neben der Mittellinie weit vor den Hinterhöften mit je einem scharfen, kleinen Tuberkel. (Abb. 366—369; Tafel IX: I.) — Länge: 22—30 mm. Japan (Hokkaido, Honshu) [= *higonia* (LEWIS, 1894)] **insomnis** (LEWIS, 1894)
- 164 (163) Vorderschenkel normal, Innenrand gerade, nicht ausgebogen. Flügeldecken mit feinen Punktzeilen, in welchen die Punkte sehr dicht stehen, und es gibt teilweise auch feine Längsstreifen. Hinterbrust ohne Körnchen.
- 165 (166) Halsschild quer, Seiten gebogen, vor den Hinterecken ausgeschweift, die Vorderecken sind abgerundet stumpfwinklig, ohne Längsmittleindruck, fein und spärlich punktiert. Flügeldeckenzwischenräume flach, die Punktzeilen sind alle gut entwickelt, innen und am Ende feiner, mit Spuren von Längsstreifen. Ende der Vorderschienen etwas schräg abstehend gelb behaart. (Abb. 370—374; Tafel X: A.) — Länge: 20—23,5 mm. Taiwan [= *nitidula* (M. T. CHÛJÔ, 1981)] **formosana** (MASUMOTO, 1981)
- 166 (165) Halsschild quer, schmal, Seiten gerade, vor der Basis nicht ausgeschweift, die Scheibe mit schwachem Längsmittleindruck, dicht punktiert. Kopf ohne Augenfurchen und ohne Augenfalten. Flügeldecken mit sehr feinen Punktzeilen und sehr schmalen und kaum vertieften Längsstreifen. Die Zwischenräume leicht gewölbt, gegen die Seiten und am Absturz fast flach oder flach. Vorderschienen kaum gebogen, das Ende innen nur an der äußersten Spitze kurz gelb behaart. (Abb. 375—378; Tafel X: B.) — Länge: 22,5—24 mm. Indien (Assam), Burma **birmanica** sp. n.
- 167 (160) Vorderschienen am Ende gebogen, Innenrand im apikalen Drittel ausgeschweift, deshalb ist die Schiene vor der Ausbuchtung am breitesten. Halsschild mit Längsmittleindruck, Seitenrand hinter der Mitte meist etwas winkelig, vor der Basis leicht ausgeschweift und stark verengt. Kopf mit Augenfurchen und Augenfalten. Flügeldecken punktiert-gestreift, die Zwischenräume gewölbt, erloschen chagriniert und fettglänzend. (Abb. 379—383; Tafel X: C.) — Länge: 16,5—23 mm. Vietnam, Taiwan [= *aritari* (M. T. CHÛJÔ, 1981)] **tonkinensis** (GEBIEN, 1918)
- 168 (25) Vorderschenkel am Innenrand mit scharfer Leiste, von der Basis bis über die Mitte; endet in einer scharfen Ecke sogar in einem Zahn.
- 169 (172) Analsegment beim ♀ am äußersten Rand scharf gefurcht, beim ♂ ohne Spur einer Randung. Vorderschenkel mit scharfem Zahn. Vorderrand des Clypeus gerade: **XVI. Gruppe: subrobusta**
- 170 (171) Zwischenräume der Flügeldecken vorn stärker, hinten weniger, am Absturz manchmal kaum gewölbt, mikroskopisch fein und sehr spärlich erloschen punktiert, der Grund erloschen chagriniert und fettglänzend. (Abb. 384—387; Tafel X: D.) — Länge: 16,5—24 mm. Korea, Japan (?), Burma, Thailand, Malaysia, Singapur, Nias, Pini, Sumatra, Java, Borneo, Banguay, Philippinen, Billiton, Sulawesi [= *coracina* (FAIRMAIRE, 1882) nec KNOCH, 1801; *fairmairei* (KOLBE, 1900)] **subrobusta subrobusta** (MOTSCHULSKY, 1872)
- 171 (170) Zwischenräume der Flügeldecken vorn sehr leicht gewölbt, von der Mitte an ganz flach; die Punktierung stärker, spärlich und erloschen, die Punktzeilen sind am Absturz erloschen, die Punkte der Reihen stehen frei. Vorderkörper sehr fein punktiert, glänzender. (Abb. 388—391; Tafel X: E.) — Länge: 17—24 mm. China (Yunnan), Laos, Vietnam, Kambodscha **subrobusta indochinensis** ssp. n.
- 172 (169) Analsegment bei beiden Geschlechtern ungerandet. Vorderrand des Clypeus breit ausgebuchtet.
- 173 (174) Vorderschienen des ♂ innen, etwas vor der Mitte abgerundet erweitert, Innenrand ohne lang abstehende Behaarung. Halsschild flach mit scharfer Längsmittelfurche, neben dem Seitenrand breit abgeflacht: **XV. Gruppe: illaescollis**
- — Prosternum und Mittelbrust gerade, Mittelbrust in der Mitte nicht eingedrückt. Hinterbrust in der Mitte vor der Basis mit einer dreieckigen, breiten und dicht abstehend behaarten Stelle. Vorderschienen innen vor der Mitte mit einer breit erweiterten, gerundeten Ecke, das Ende der Schienen stark gebogen und die Spitze lang abstehend gelb behaart. Mentum spärlich abstehend behaart. Halsschild quadratisch, von der Mitte an nach vorn stark gebogen verengt, der Seitenrand dick, innen abgesetzt und der Basis zu tief eingedrückt, Vorderecken breit abgerundet; Längsmittelfurche vorhanden, die Scheibe sonst einfach gewölbt, Oberseite fein

- chagriniert und fettglänzend, die sehr feine Punktierung erloschen. Flügeldecken fein und spärlich punktiert-gestreift, die Zwischenräume sind leicht gewölbt, gegen die Seiten sind sie stärker matt. (Abb. 392–397; Tafel X: F.) — Länge: 18–29 mm. Ternate, Buru, Ceram, Amboina, Aru, Neuguinea (Irian, Papua-Neuguinea), Bismarck Arch. (Neulaubenburg, Neuhannover, Neubritannien), Australien (Queensland)
- illaesicollis** (FAIRMAIRE 1883)
- 174 (173) Vorderschienen am Innenrand ohne Erweiterung, dagegen wenigstens die apikale Hälfte mit sehr dichten, abstehenden, gelben Haaren besetzt.
- 175 (182) Das Mentum trapezförmig, die Scheibe nicht rundlich vortretend, die Mitte mit feinem Längskiel und vorn etwas ausgebuchtet, die Scheibe beiderseits flach eingedrückt:
- XVII. Gruppe: **punctatostrata**
- 176 (177) Vorderecken des Halsschildes scharf rechtwinklig vorgezogen, Vorderrand leicht ausgerandet. Vorderschenkel innen am Oberrand etwas vor der Mitte mit einem stark vorstehenden, rechtwinkligen oder stumpfen Zahn, von welchen gegen die Basis eine scharfe Leiste verläuft. Mentum mit stumpfem Längskiel, beiderseits eingedrückt; von der Basis an zieht sich beiderseits eine in der Mitte vorn zusammenlaufende Leiste, die Oberfläche runzlig punktiert. Halsschild quadratisch, Seiten bei Draufsicht leicht gebogen, bei Seitenansicht ist der Rand stark und einfach gebogen, die Scheibe kaum, gegen die Seiten gröber, aber sehr spärlich punktiert, der Grund chagriniert und matt. Flügeldecken mit sehr feinen Punktreihen, welche gegen das Ende noch feiner sind, aber nicht erloschen, ohne Streifen, die Zwischenräume sind vollkommen flach und chagriniert, matt. (Abb. 398–401; Tafel X: G — Länge: 20–27 mm. Laos, Vietnam
- unidentata** sp. n.
- 177 (176) Vorderecken des Halsschildes breit stumpfwinklig oder abgerundet. Vorderschenkel unten am Oberrand, am Ende der Randleiste mit einer kurzen, stumpfen oder scharfen Ecke.
- 178 (179) Zwischenräume der Flügeldecken vollkommen abgeflacht, mit sehr feinen Punktreihen, ohne Längsstreifen, die Reihenpunkte sind gegen das Ende viel feiner oder erloschen, der Grund einfach grob chagriniert und matt. Kopf dicht und glänzend, Halsschild ziemlich gleichmäßig punktiert. Augenleisten sind gut entwickelt. Vorderschienen innen vom Ende fast bis zur Mitte dicht, abstechend behaart. (Abb. 402–406; Tafel X: H.) — Länge: 20–30 mm. Indien, Nepal, Korea, China, Burma, Laos, Kambodscha, Vietnam, Thailand, Malay Penin. [= *indosinica* (FAIRMAIRE, 1893); *foveiceps* (PIC, 1929); *pilipes* (PIC, 1929)]
- punctatostrata** (MOTSCHULSKY, 1872)
- 179 (178) Alle Zwischenräume der Flügeldecken sind gleichmäßig gewölbt, der Grund chagriniert und matt. Oberseite mit Punktreihen und Längsstreifen.
- 180 (181) Kopf und Halsschild fein und erloschen punktiert, die Scheibe des Halsschildes manchmal erloschen schwach gerunzelt, beide fettglänzend. Die Reihenpunkte der Flügeldecken sind scharf, sie stehen aber spärlicher, in der 6. Reihe befinden sich etwa 40 Punkte. Die Zwischenräume sind gleichmäßig gewölbt, sehr fein und erloschen chagriniert. Abdominalsegmente 1–3 fein punktiert, der Grund glänzend. Mentum trapezförmig, vorn seitlich tief eingedrückt, die Mitte ausgerandet und die Scheibe beiderseits verflacht, vorn doppelt vorgebogen. Kopf mit schräg nach vorn laufenden, ziemlich hohen Augenbalken. Mittelbrust der Quere nach vor den Hüften leicht eingedrückt. (Abb. 407–410; Tafel X: I.) — Länge: 19–27 mm. Philippinen (Luzon, Remblon, Ticao, Mindoro, Negros, Cebu), Molukken (Halmahara, Batjan)
- manillarum** (FAIRMAIRE, 1886)
- 181 (180) Kopf und Halsschild dicht und grob punktiert, die Scheibe des Halsschildes gröber und dichter, manchmal etwas runzlig punktiert, aber die Punktierung ist nicht erloschen. Flügeldecken mit sehr feinen Reihenpunkte und schmalen Längsstreifen; in der 6. Punktreihe befinden sich etwa 60 Punkte. Die Zwischenräume sind gleichmäßig gewölbt, der Grund sehr grob chagriniert und vollkommen matt. Mentum trapezförmig, die Vorderecken und die Seitenränder eingedrückt, die Scheibe von der Basis an nur verflacht, kaum eingedrückt, einfach fein punktiert. Kopf mit schwach vortretenden Augenbalken. Mittelbrust der Quere nach weniger eingedrückt. Abdominalsegmente 1–2 dicht und fein punktiert. (Abb. 411–414; Tafel XI: A.) — Länge: 23,5–27 mm. Andamanen, Nicobaren
- andamanica** sp. n.
- 182 (175) Die Scheibe des Mentums rundlich vortretend, entweder vollkommen abgeflacht oder manchmal in der Mitte mit Spuren einer Längsmittellinie; meist ist das Mentum sehr fein chagriniert und matt oder ganz erloschen punktiert und der Grund matt:
- XVIII. Gruppe: **puncticollis**
- 183 (184) Vorderschienen innen von dem Ende bis weit über die Mitte dicht, abstehend gelb



- und lang behaart, nur das basale Drittel ist unbehaart. Oberseite ziemlich glänzend. Kopf und Halsschild dicht punktiert, Halsschild mit Längsmittelfurche, Seiten gebogen, Vorderecken abgerundet, Flügeldecken scharf punktiert-gestreift, die Streifen sind gegen die Basis stärker vertieft und die Punkte feiner, hinter der Mitte sind die Streifen flacher, und die Punkte übergreifen weit die Breite der feinen Streifen. Die Zwischenräume sind vorn etwas stärker gewölbt als hinten. Mentum auffallend flach, die rundliche Scheibe vorn und seitlich bis zur Mitte scharf, chagriniert und matt. Das schräg abgestutzte Endglied der Maxillarpalpen lang, das Ende der Quere nach kürzer als die untere Seite der Länge. (Abb. 415–418; Tafel XI: B.) — Länge: 20–29 mm. Sulawesi, Neuguinea (Irian) [= *brevicornis* (SCHAUFUSS, 1887) nec WESTWOOD, 1842] **penicilligera** (GEBIEN, 1911)
- 184 (183) Vorderschienen innen bis zur Mitte lang und abstechend behaart, die basale Hälfte innen kahl. Endglied der Maxillarpalpen kürzer, das schräg abgestutzte Ende breiter als die Länge der Unterseite des Endgliedes.
- 185 (186) Die Zwischenräume der Flügeldecken leicht gewölbt, punktiert-gestreift. Die Scheibe des Mentums flach und chagriniert, matt, manchmal die Mitte vorn etwas eingedrückt und die Scheibe punktiert, der Grund matt. Kopf und Halsschild dicht punktiert, Halsschild mit schwacher Längsmittelfurche, Seitenrand leicht gebogen, die Vorderecken abgerundet, der Rand dick, Propleuren fein punktiert, das Abdomen dichter und gröber, die Punktierung ist gegen das Segment 3 allmählich feiner. Die Zwischenräume der Flügeldecken fein und erloschen punktiert, der Grund chagriniert, fettglänzend. (Abb. 419–424; Tafel XI: C.) — Länge: 20–30 mm. Indien (?), China, Malay Penin., Singapur, Sri Lanka (?), Nias, Sumatra, Java, Bali, Lombok, Sumbawa, Flores, Karimon, Ceram, Borneo, Banguay, Philippinen, Sula [= *manillarum* (GEBIEN, 1913, 1921) nec FAIRMAIRE, 1886] **puncticollis** (MOTSCHULSKY, 1872)
- 186 (185) Die Zwischenräume der Flügeldecken nur ganz vorn und kaum etwas gewölbt, nachher vollkommen flach, vorn gröber, hinten feiner gereiht-punktiert. Die Scheibe des Mentums grob chagriniert, sogar bis zur Basis und nur die geeigneten Seiten punktiert, vorn ist die Mitte nicht eingedrückt, die Scheibe rundherum (ausgenommen die Basis) stumpfkantig. Die Halsschildscheibe ist grob und dicht punktiert, mit Längsmittelfurchen, seitlich ist die Punktierung feiner und der Grund mehr chagriniert. Seitenrand vorn dick, Vorderecken abgerundet, Pleuren sehr fein punktiert, die Punktierung der Abdominalsegmente 2–3 spärlich und fein. Zwischenräume der Flügeldecken erloschen fein punktiert, der Grund chagriniert und matt, die Reihenpunkte sind ziemlich scharf, obwohl sie klein sind. (Abb. 425–428; Tafel XI: D.) — Länge: 20–31 mm. Indien, Laos **opacimentum** sp. n.
- 187 (24) Vorderschenkel unten dicht behaart.
- 188 (191) Prosternum an der Basis in der Mitte tief ausgeschnitten. Hinterschienen innen an der Basis erweitert und vor dem Knie mit einer scharfen Ecke bzw. einer Leiste. Halsschild flach mit Längsmittelfurche und mit je einem Scheibeneindruck: **XXI. Gruppe: sulcigera**
- 189 (190) Die Reihenpunkte der Flügeldecken gleichmäßig und fein, in der 6. Reihe befinden sich etwa 40 Punkte. Die Zwischenräume der Flügeldecken sind einfach gewölbt, der Grund erloschen chagriniert, die Längsstreifen sind fein eingeschnitten und auch die inneren Punktreihen übergreifen die Streifen. Halsschild quadratisch, flach, mit Längsmittelfurche und beiderseits mit Scheibeneindrücken, der Grund meist erloschen spärlich punktiert, die Vorderecken abgerundet, Vorderrand etwas ausgebuchtet. (Abb. 429–438; Tafel XI: E.) — Länge: 22–36,5 mm. Taiwan, Philippinen, Molukken, Papuanische Inseln, Australien (Queensland) [= *longipes* (MOTSCHULSKY, 1872); *subopaca* (WATERHOUSE, 1884)] **sulcigera** (BOISDUVAL, 1835)
- 190 (189) Die Reihenpunkte der Flügeldecken gegen die Seiten deutlich gröber und spärlicher, in der 6. Reihen finden sich etwa 20–30 Punkte, der Grund der Flügeldecken mehr glänzend. Halsschild fein, erloschen, spärlich punktiert, mit Längsmittelfurche und beiderseits mit flachen Scheibeneindrücken. (Abb. 439–445; Tafel XI: F.) — Länge: 22–31 mm. Neuguinea, Australien **subfoveata** (GEBIEN, 1918)
- 191 (188) Prosternum am Ende zwischen den Vorderhüften ohne Ausschnitt, Hinterschienen einfach, innen an der Basis ohne Ausschnitt, ohne leistenartige Erweiterung mit Ecke.
- 192 (193) Parameren des Aedoeagus gegen die Spitze allmählich verengt zugespitzt, ohne Widerhaken. Vorderschienen stark gebogen, Innenrand im basalen Drittel stumpfwinklig erweitert: **XXIV. Gruppe: vietnamica**

- — Die Punktreihen der Flügeldecken sind äußerst fein, in der Mitte und am Absturz ganz erloschen, auch seitlich sind die Punkte schwer erkennbar. Die Zwischenräume mit spärlich stehenden größeren und dazwischen mit sehr dicht stehenden feinen Körnchen, matt. Vorderschienen stark gebogen, Innenrand im basalen Drittel mit einer mehr oder weniger scharf vortretenden Ecke oder einem Zahn. (Abb. 446—449; Tafel XI: G.) — Länge: 28—36 mm. Japan (?), Nordvietnam, Laos, China  
**vietnamica** (KASZAB, 1980)
- 193 (192) Parameren des Aedoeagus vor dem Ende plötzlich verengt und das schmale, zugespitzte Ende mit scharfem Widerhaken. Vorderschienen des ♂ stark gebogen, Innenrand im basalen Drittel stumpf erweitert: XXII. Gruppe: **transversicollis**, partim
- 194 (195) Die Zwischenräume der Flügeldecken mehr oder weniger gewölbt, die Längsstreifen sind bis zum Ende gut entwickelt, die Punkte der Längsstreifen gegen die Seiten und vorn etwas größer, am Absturz die Streifen nicht übergreifend. Innenseite der Vorderschienen in der Nähe des basalen Drittels mit einem stumpfen Zahn; das Enddrittel ist stark gebogen, das Ende unten kurz gelb behaart. Hinterschienen auch an der Basis der Quere nach ohne Leiste. Flügeldecken gröber chagriniert und matt. (Abb. 450—454; Tafel XI: H.) — Länge: 22—30 mm. Andamanen, Südindien  
**haagi** sp. n.
- 195 (194) Die Zwischenräume der Flügeldecken vollkommen abgeflacht, mit äußerst feinen Punktreihen, ohne Spur von Längsstreifen, der Grund mikroskopisch gekörnt oder grob chagriniert, matt. Vorderschienen stark gebogen, Innenrand mit einem oder zwei stumpfen oder stärkeren Winkeln. Flügeldecken mit äußerst feinen Punktreihen, welche wenigstens bis zum Absturz und besonders seitlich gut erkennbar sind. Die Zwischenräume mit gleichmäßig feinen, mikroskopischen Körnchen dicht bedeckt, der Grund ganz matt. Innenrand der Vorderschienen im basalen Teil meist mit zwei kleinen stumpfen Ecken oder nur mit einer Ecke im basalen Drittel. (Abb. 455—460; Tafel XI: I.) — Länge: 22—30 mm. Indien, Nepal, Bhutan, Korea (?), China (Yunnan), Laos, Vietnam, Burma, Thailand [= *laevis* (FAIRMAIRE, 1896)]  
**transversicollis** (MOTSCHULSKY, 1872)
- 196 (23) Analsegment am Ende scharf gerandet bzw. gefurcht; manchmal ist die Randung in der Mitte kurz erloschen.
- 197 (210) Parameren des Aedoeagus vor dem Ende plötzlich verengt und das zugespitzte Ende mit scharfem Widerhaken. Vorderschienen des ♂ stark gebogen, innen mit 1—2 scharfen Zähnen oder stumpfer Erweiterung. Mittelbrust nicht eingedrückt.
- 198 (207) Clypealsutur der Quere nach nicht gefurcht. Vorderschienen des ♂ innen mit 1—2 scharfen Zähnen oder mit einer stumpfen Erweiterung:  
XXII. Gruppe: **transversicollis**, partim
- 199 (200) Hinterschienen hinter der Basis innen scharfkantig erweitert, enden etwas vor dem basalen Drittel in einer scharfen, spitzigen Ecke; nachher ist die Innenseite leicht ausgebogen und sehr spärlich, abstehend behaart. Vorderschienen am Ende stark gebogen, nur die äußerste Spitze behaart, Innenrand etwa in der Mitte mit einem stumpfen doppelten Winkel. Mittelschienen leicht gebogen, innen am Ende bis über die Mitte behaart, Flügeldecken in den Reihen vorn gröber, hinten feiner punktiert, ohne Streifen, die Zwischenräume leicht gewölbt, mikroskopisch fein und dicht gekörnt, ziemlich matt. (Abb. 461—467; Tafel XII: A.) — Länge: 30—32 mm. Malay Penin., Indien  
**harpagon** sp. n.
- 200 (199) Hinterschienen innen an der Basis höchstens sehr leicht dicker, ohne scharfe Erweiterung und ohne Zahn.
- 201 (206) Vorderschienen am Innenrand mit zwei senkrecht der Achse der Schinen liegenden scharfen, spitzigen Zähnen, von welchen der vordere immer stärker ausgebildet ist. Vorderschenkel unten sehr dicht und breit behaart. Mittelbrust zwischen den Hüften abgeflacht.
- 202 (203) Der vordere Innenzahn der Vorderschienen steht sehr deutlich vor der Mitte, sehr scharf dornförmig und schräg nach vorn gerichtet, Innenrand zur Basis scharfkantig und mit Spuren einer schwachen Ecke. Bei seitlicher Ansicht sind die Vorderschienen etwas vor der Mitte schwach gebogen und leicht erweitert. Halsschild mit Längsmittelfurche, Oberseite fein und spärlich, erloschen punktiert, der Grund besonders seitlich chagriniert, Flügeldecken mit feinen Punktreihen und schwachen Längsstreifen, die Zwischenräume sind leicht gewölbt, der Grund erloschen granuliert-chagriniert und fettglänzend. Hinterschienen am Innenrand nahe der Basis innen kurz scharfkantig und etwas erweitert. Innenseite der Mittelschienen leicht gebogen und abstehend behaart, ohne glänzende kahle Streifen. (Abb. 468—473; Tafel XII: B.) — Länge: 23—23,4 mm. Borneo, Sumatra  
**xantusi** sp. n.

- 203 (202) Der vordere Innenzahn der Vorderschienen steht etwa in der Mitte, auffallend groß und spitzig, steht senkrecht, daneben etwas vor dem basalen Drittel befindet sich eine stumpfe Ecke, nachher ist der Innenrand der Basis zu nicht scharfkantig. Hinterschienen am Innenrand basal ohne scharfe Leiste. Mittelschienen am Ende innen mit einen glänzenden, unbehaarten Streifen. Flügeldecken grob granuliert-chagriniert und matt, vorn sind die Streifen tief eingedrückt.
- 204 (205) Vorderschienen bei Ansicht von außen vor der Mitte unten deutlich ausgerandet, nachher ist das Ende plötzlich erweitert und parallel, dem Ausschnitt zu stumpf abgerundet. Mittelschienen innen an der Außenseite mit einer Haarreihe und nur unten dicht und breit, abstehend lang gelb behaart. Die Punktierung des Halsschildes gleichmäßig und dicht, der Grund ist gegen die Seiten allmählich gröber chagriniert. Hinterbrust lang behaart. Flügeldecken äußerst fein anliegend weißgelb behaart, was vor allem am Absturz in den Streifen sichtbar ist. (Abb. 474—478; Tafel XII: C.) — Länge: 25—28 mm. Indien, Laos **setipes** sp. n.
- 205 (204) Vorderschienen bei Ansicht von außen in der Mitte weniger, aber länger ausgeschnitten, vor der Ausrandung bildet der Endteil keine stumpfe Ecke. Mittelschienen am Ende innen oben und unten mit einer Haarreihe, nur die untere Reihe ist länger, aber die ganze Innenseite am Ende nicht breit abstehend behaart. Die Punktierung des Halsschildes spärlicher, seitlich ist die Grundskulptur gröber chagriniert. Hinterbrust gleichmäßig dicht behaart. (Abb. 479—484; Tafel XII: D.) — Länge: 25—32 mm. Laos, Vietnam **laosensis** sp. n.
- 206 (201) Vorderschienen stark gebogen, Innenseite entweder etwa in der Mitte leicht stumpf erweitert, manchmal kaum merklich erweitert, oder mit einem stärkeren Zahn. Vorderrand des Clypeus merklich ausgebuchtet, Mittelbrust zwischen den Hüften abgeflacht. Flügeldecken mit Punktreihen und Längsstreifen. Hinterbrust dicht behaart, die Mitte breit flach eingedrückt. Halsschild etwas trapezförmig, nach vorn verengt, die Vorderecken sind scharfwinklig. Scheibe des Halsschildes fein und dicht punktiert, der Grund glänzend. Flügeldecken dunkel kastanienbraun, mit erloschenen Punktreihen und Längsstreifen, die Zwischenräume sind leicht gewölbt und fettglänzend. Vorderschienen stark gekrümmt, Innenrand etwas hinter der Mitte mit einer scharfen stumpfwinkligen Ecke. Ende der Vorderschienen innen gelb behaart. Mittelschienen leicht gebogen, Innenrand ausgeschnitten, an der Unterseite mit einer schmalen, an der Oberseite mit dichter Behaarung, diese Haarstreifen reichen bis über die Mitte. (Abb. 485—489; Tafel XII: E.) — Länge: 21—23,5 mm. Borneo **proteus** sp. n.
- 207 (198) Clypealsutur der Quere nach tief gefurcht. Vorderschienen des ♂ innen mit einem stumpfwinkligen Zahn oder einer stumpfen Ecke **XXIII. Gruppe: *rectangula***
- 208 (209) Vorderschienen gebogen, am Innenrand in der Nähe der Mitte mit einem großen scharfen, winkligen Zahn, welche manchmal mehr oder weniger reduziert sein können. Halsschildseiten gebogen, mit einfacher Rundung. Oberfläche ziemlich dicht und gleichmäßig punktiert, der Grund chagriniert und matt. Kopf mit Augenfurchen und nach vorn schräg gestellten ziemlich hohen Augenbalken. Stirn dicht punktiert. Flügeldecken fein punktiert-gestreift, mit gewölbten Zwischenräumen, der Grund ganz erloschen grob chagriniert und ziemlich matt. (Abb. 490—493; Tafel XII: F.) — Länge: 18—28 mm. Korea, Indien (?), China, Burma, Laos, Vietnam, Kambodscha, Thailand, Salanga, Malay Penin., Singapur, Sumatra, Banka, Java, Borneo, Philippinen (?) [= *semisulcata* (FAIRMAIRE, 1882); *biangulata* (GEBIEN, 1918)] **rectangula** (MOTSCHULSKY, 1872)
- 209 (208) Vorderschienen leicht gebogen, Innenrand in der Nähe der Mitte nur ganz wenig etwas dicker, jedoch ohne Winkel oder Zahn. Seitenrand des Halsschildes vor der Mitte lamellenartig eckig erweitert und dieser Teil des Randes abgeflacht, sonst ist der Halsschild quer, Seiten gebogen, gleichmäßig dicht punktiert, der Grund sehr grob chagriniert und ganz matt. Kopf mit erloschenen Augenfurchen und niedrigen Augenfalten, Stirn vorn ungleich spärlich grob punktiert. Flügeldecken wie bei der vorigen Art, die Grundskulptur aber gröber mikroskopisch gekörnelt und mehr matt. (Abb. 494—497; Tafel XII: G.) — Länge: 19—21 mm. China (Yunnan) **angulicollis** sp. n.
- 210 (197) Parameren des Aedoeagus gegen das Ende allmählich verschmälert und das Ende ohne Widerhaken.
- 211 (216) Hinterschenkel an der Basis unten mit einer scharfwinkligen Ecke. Vorderschienen innen an der apikalen Hälfte dicht abstehend gelb behaart: **XXVII. Gruppe: *dentipes***
- 212 (213) Hinterschenkel an der Basis unten neben dem Zahn abstehend gelb behaart. Flügel-

- decken fein punktiert-gestreift, die Zwischenräume sind leicht gewölbt und mit groben mikroskopischen Körnchen versehen, der Grund chagriniert und matt. Halsschildseiten weniger gebogen und die Vorderecken weiter nach vorn vorgezogen, Oberseite dichter und grob punktiert, der Grund aber seitlich grob chagriniert und matt. (Abb. 509–513; Tafel XIII: A.) — Länge: 20–30 mm. Malay Penin., Sumatra, Java, Borneo, Irian (?) **dentipes** (GEBIEN, 1914)
- 213 (212) Hinterschenkel am Ende unten neben dem Zahn kahl. Flügeldecken mit vollkommen abgeflachten Zwischenräumen. Die Punktreihen sind äußerst fein oder vorn stärker, hinten schwächer entwickelt. Der Grund fein gekörnt.
- 214 (215) Hinterbrust kahl. Punktreihen der Flügeldecken äußerst fein und hinter der Mitte erloschen. Der Grund mit sehr feiner, spärlicher Körnelung, vor allem am Absturz, dazwischen dicht mikroskopisch fein gekörnt, deshalb matt. (Abb. 498–503; Tafel XII: H.) — Länge: 24–30 mm. Indien (Assam), China (Yunnan), Vietnam **kempi kempi** (GRAVELY, 1915)
- 215 (214) Hinterbrust in der Mitte der Länge nach dicht gelb behaart. Punktreihen der Flügeldecken vorn stärker, nach hinten allmählich feiner entwickelt. Der Grund gleichmäßig sehr dicht und fein gekörnt, etwas glänzender. (Abb. 504–508; Tafel XII: I.) — Länge: 23–27 mm. Laos **kempi vientianei** ssp. n.
- 216 (211) Hinterschenkel unten vor dem Knie nicht ausgerandet und vor dem Ende ohne scharfe Ecke.
- 217 (236) Vorderschenkel unten dicht behaart. Mittelbrust nicht eingedrückt.
- 218 (235) Clypealsutur der Quere nach tief gefurcht. Vorderschienen des ♂ stark gebogen, innen, nahe der Basis oder der Mitte mit einem starken oder stumpfen Zahn: XXV. Gruppe: **cupripennis**
- 219 (222) Hinterschenkel unten dicht abstehend behaart. Vorderschienen innen etwas vor dem basalen Drittel mit einem sehr breiten, scharfen Zahn, außerdem vor der Basis noch mit einem kleineren Winkel, die Schiene an dem scharfen Zahn seitlich sehr breit; das Ende stark gekrümmt und innen am Ende mit abstehendem, gelbem Haarpinsel. Vorderschenkel dick, distal innen nicht eingeschnürt und vor dem Ende ohne stumpfen Zahn. Clypealsutur der Quere nach scharf gefurcht. Flügeldecken metallisch, nur ausnahmsweise schwarz.
- 220 (221) Flügeldecken fein punktiert-gestreift, die Zwischenräume sind leicht gewölbt, mit sehr dichter und feiner, mikroskopischer Körnelung, deshalb fettglänzend. Halsschild in der Mitte gröber und erloschen, gegen die Seiten feiner und erloschen punktiert, der Grund in der Mitte ziemlich glänzend, beide Seiten breit chagriniert und ziemlich matt. (Abb. 514–519; Tafel XIII: B.) — Länge: 22–32 mm. Indien (?), Sri Lanka (?), China (?), Kambodscha (?), Malaysia, Singapur, Sumatra, Keeling I., Bismarck Arch. (?) [= *aeripennis* (FAIRMAIRE, 1882); *coracina* auct. nec. KNOCH, 1801] **cupripennis cupripennis** (BOHEMAN, 1858)
- 221 (220) Flügeldecken tief punktiert-gestreift, die Zwischenräume sind stark gewölbt, stark glänzend, mit kaum erkennbarer, sehr spärlicher und feiner Punktierung. Der ganze Halsschild hochglänzend, sehr fein und spärlich punktiert, der Grund auch seitlich glatt. (Abb. 520–524; Tafel XIII: C.) — Länge: 22,5–31 mm. Nias **cupripennis splendidula** ssp. n.
- 222 (219) Hinterschenkel unten nicht behaart. Vorderschiene innen basal vor dem basalen Drittel mit einer zahnartigen Erweiterung, dort ist die Schiene nicht auffallend breit, das Ende gekrümmt, die Spitze mit abstehender Behaarung.
- 223 (226) Prosternum zwischen den Vorderhüften am Ende in der Mitte [ähnlich wie bei *sulcigera* (BOISDUVAL, 1835), siehe unter dem Leitzahl 189/190] ausgerandet. Flügeldecken glänzend, die Zwischenräume sind stark gewölbt, der Grund ohne Mikrokörnelung. Vorderschienen innen im basalen Drittel winklig stark erweitert, Mittel- und Hinterschienen im apikalen Drittel innen leicht gebogen und gelbröt behaart. Hinterbrust behaart.
- 224 (225) Flügeldecken metallisch grünlich-schwarzblau, selten mit kupferigem Schimmer. Fühler dünner, die vorletzten Glieder länger als breit, das 5. Glied kaum breiter als das 4. Die Behaarung der Vorderschienen innen am Ende beschränkt sich auf die äußerste Spitze und ist ziemlich spärlich. Hinterschienen innen am Ende ganz wenig und anliegend behaart. (Abb. 525–529; Tafel XIII: D.) — Länge: 24–28 mm. Sulawesi, Borneo (?), Japan (?) **sulawesiac sulawesiac** sp. n. s. str.
- 225 (224) Flügeldecken sowie der ganze Körper glänzend schwarz, Flügeldecken ohne Spur von Metallschimmer. Fühler kräftiger, die vorletzten Glieder nicht länger als breit, das 5. Glied bedeutend breiter als das 4. Die Behaarung der Vorderschienen innen am Ende erstreckt sich auf das Endviertel, und die Haare sind lang. Die Behaarung

der Hinterschienen innen am Ende mehr ausgedehnt und länger. (Abb. 530–532; Tafel XIII: E.) — Länge: 28 mm. Philippinen (Mindanao)

**sulawesiae nigerrima** ssp. n.

226 (223) Prosternum zwischen den Vorderhüften am Ende in der Mitte nicht ausgeschnitten. Vorderschienen stark gekrümmt, Innenrand im basalen Drittel mit erweitert zahnförmiger Erweiterung, Mittelbrust zwischen den Hüften abgeflacht. Hinterbrust behaart.

227 (230) Zwischenräume der Flügeldecken ohne Spur von Wölbung, vollkommen abgeflacht. Die Punkte der Längsreihen sehr fein, sie stehen frei und spärlich, ohne Längsstreifen. Vorderschenkel distal innen vor dem Ende ohne beulenartige Erweiterung. Hinterbrust kurz abstehend behaart.

228 (229) Alle Schenkel — ausgenommen die Knie — lebhaft rotbraun. Hinterschienen innen an der Basis erweitert, am Unterrand scharfkantig, enden am basalen Viertel in ein stumpfes Zähnchen, von da an bis zum Ende leicht ausgerandet und schräg abstehend gelb behaart. Mittelschienen leicht gebogen und innen von dem Ende bis über die Mitte behaart. (Abb. 533–538; Tafel XIII: F.) — Länge: 32,5 mm. Vietnam

**rufofemorata** sp. n.

229 (228) Beine sowie der ganze Körper schwarz, Hinterschienen innen an der Basis nur ganz wenig erweitert, unten kaum scharfkantig und gegen die Mitte ohne Winkel oder Zahn verschmälert, die Behaarung innen sehr spärlich und normal. Mittelschienen kaum gebogen, Innenrand am Ende nur sehr spärlich und nicht ausgedehnt behaart. (Abb. 539–544; Tafel XIII: G.) — Länge: 32–38 mm. China (Yunnan), Laos, Vietnam

**heros** (GEBIEN, 1918)

230 (227) Zwischenräume der Flügeldecken mehr oder weniger gewölbt. Die Punkte der Längsreihen sind fein, sie stehen entweder frei oder in den Längsstreifen. Vorderschienen gebogen, im basalen Viertel mit zahnförmiger Erweiterung, die Spitze innen behaart. Vorderschenkel vor dem Ende innen mit beulenartiger Erweiterung, weil apikal das Ende innen schmaler ist.

231 (232) Zwischenräume der Flügeldecken gleichmäßig gewölbt, mit fein eingerissenen Längsstreifen und feinen Punktreihen, welche bis zum Ende ausgebildet sind. Körper — auch die Flügeldecken — schwarz, ohne Metallschimmer. Die Skulptur der Flügeldecken besteht aus mikroskopisch feiner Körnelung, welche ziemlich glänzend ist, deshalb ist die Oberseite fettglänzend. Vorderschenkel unten behaart oder selten nackt, vor dem Ende am Oberrand mit einer stumpfen Ecke. (Abb. 545–552; Tafel XIII: H.) — Länge: 23–32 mm. Java, Bali, Sumbawa, Flores, Ceram, Neuguinea (?), Bismarck Arch. (?), Borneo, Sumatra

**valga** (WIEDEMANN, 1823)

232 (231) Zwischenräume der Flügeldecken vorn leicht, hinten allmählich noch schwächer gewölbt, vor allem die inneren Zwischenräume flach. Flügeldecken mehr oder weniger mit metallischem Schimmer. Die Punktreihen der Decken sind fein, stehen spärlich, miteinander durch sehr feine Längsrisse verbunden oder separiert.

233 (234) Flügeldecken wegen der sehr dichten und feinen Körnelung ganz matt, mit sehr leichtem Bronzeschimmer, schwärzlich. Vorderschenkel leicht gebogen, an der breitesten Stelle kaum breiter als das Ende beim beulenartigen Zahn vor dem Ende. (Abb. 553–558; Tafel XIII: I.) — Länge: 24–35 mm. Malay Penin., Singapur, Sumatra, Borneo (?), Java (?), Philippinen (?)

**coracina coracina** (KNOCH, 1801)

234 (233) Flügeldecken erloschen gekörnt und der Grund stark glänzend kupferig. Die Zwischenräume auch am Absturz leicht gewölbt. Die Punktreihen der Decken sind etwas gröber. (Abb. 559–562; Tafel XIV: A.) — Länge: 20–28 mm. Borneo (Kalimantan)

**coracina kalimantana** ssp. n.

235 (218) Clypealsutur der Quere nach nicht gefurcht. Vorderschienen einfach gebogen, ohne ausgesprochenen Zahn:

XXVI. Gruppe: **confusa**

— — Hinterbrust nackt, die Scheibe nicht verflacht und nicht eingedrückt. Halsschild quadratisch, Vorderrand gerade, die Vorderecken sind breit abgerundet rechtwinklig, die Oberfläche erloschen fein punktiert. Körper schwarz. Flügeldecken mit scharfen Punktreihen und Längsstreifen, vor allem in den inneren Reihen und am Absturz. Die Zwischenräume sind gewölbt, grob chagriniert und matt. Vorderschienen gekrümmt, Innenrand manchmal fast einfach oder im basalen Drittel leicht erweitert, aber ohne Zahn; das Ende innen kurz behaart. Mittelschienen nur leicht gebogen, Innenseite nicht ausgerandet und am Ende nur mit einem oberen und unteren schmalen Haarstreifen. (Abb. 563–566; Tafel XIV: B.) — Länge: 18–30 mm. Nepal, Indien, Sri Lanka, China (?), Laos (?), Java (?), Cocos-Keeling-I. [= *semivalga* (BLAIR, 1913)]

**confusa** (FAIRMAIRE, 1896)

236 (217) Vorderschenkel unten nackt.

- 237 (238) Mittelbrust nicht eingedrückt. Vorderschienen des ♂ gebogen und innen nicht abstehend behaart, ohne Zahn [= *confusa* (FAIRMAIRE, 1896), siehe Leitzahl 235/218].
- 238 (237) Mittelbrust in der Mitte eingedrückt.
- 239 (244) Vorderschienen innen fast der ganzen Länge nach dicht abstehend lang gelb behaart, Vorderschienen leicht gebogen. Mittelbrust der Quere nach vor den Hüften leicht eingedrückt: **XXVIII. Gruppe: matanga**
- 240 (241) Flügeldecken mit kaum erkennbaren, mikroskopischen, vollkommen erloschenen Punktreihen, ohne Längsstreifen, die Zwischenräume vollkommen flach, ohne Spur einer Wölbung, der Grund äußerst fein, mikroskopisch gekörnt, matt. Halsschild ohne starken Längsmittleindruck, fein punktiert und der Grund matt. Hinterbrust vorn dicht abstehend gelb behaart. Die Scheibe des Mentums hoch aufgebogen und die Mitte der Länge nach gefurcht. (Abb. 576–580; Tafel XIV: E.) — Länge: 23–27,5 mm. Sumatra **hangayi** sp. n.
- 241 (240) Flügeldecken punktiert-gestreift, die Zwischenräume gewölbt. Halsschild mit vollständiger Längsmittelfurche.
- 242 (243) Weder Kopf noch Halsschild punktiert bzw. vollkommen erloschen, fettglänzend. Clypeus vorn leicht gebogen. Augenfurchen und Augenbalken deutlich. Halsschild der Quere nach gewölbt, die Längsmittellinie ist nicht tief. Hinterbrust nackt. Vordere Abdominalsegmente ganz erloschen punktiert und chagriniert. Mentum vorn konisch, spärlich behaart, die Mitte mit einem Doppelkiel. Flügeldecken punktiert-gestreift, gegen das Ende sind die inneren Punktreihen erloschen; die Zwischenräume leicht gewölbt, matt. Mittel- und Hinterschienen einfach. (Abb. 567–571; Tafel XIV: C.) — Länge: 16,5–18 mm. Borneo **matanga** sp. n.
- 243 (242) Kopf und auch der Halsschild dicht punktiert, die Punktierung ist nur an den geneigten Seiten des Halsschildes erloschen, die Längsmittelfurche tief und die Scheibe größer punktiert als die Stirn. Vorderrand des Clypeus kaum erkennbar ausgerandet. Augenfurchen schmal, Augenbalken niedrig. Mentum dicht, abstehend, bartartig behaart. Hinterbrust behaart. Flügeldecken punktiert-gestreift, die Punkte übergreifen die feinen Streifen, die Zwischenräume leicht gewölbt, matt. Mittel- und Hinterschienen einfach. (Abb. 572–575; Tafel XIV: D.) — Länge: 20–23,2 mm. Malay Penin., Sumatra **furaticollis** sp. n.
- 244 (239) Vorderschienen innen nur im Endviertel oder an der Spitze behaart, die Behaarung meist anliegend, selten an der Spitze abstehend und lang.
- 245 (248) Halsschild und Propleuren äußerst grob und dicht gerunzelt punktiert, nur die Scheibe in der Mitte einzeln punktiert. Prosternum grob punktiert oder grob gerunzelt: **XXX. Gruppe: fruhstorferi**
- 246 (247) Halsschild quadratisch, Vorderrand gerade und nur seitlich schwach gerandet, Vorderecken schräg abgestutzt, fein gerandet, Seiten vorn etwas lappenartig erweitert, sonst ist die Randung sehr fein; die Mittellängsfurche breit und tief. Flügeldecken tief punktiert-gestreift und die Zwischenräume stark gewölbt. Kopf dick, hinter den Augen nicht eingeschnürt. Clypealsutur kaum angedeutet. Stirn in der Mitte mit einzelnen Punkten, sonst chagriniert und matt. Vorderschienen am Endviertel gekrümmt, nur die äußerste Spitze unten dicht gelb behaart. Mittel- und Hinterschienen gerade. Propleuren sehr grob und einzeln, Prosternum vor den Hüften feiner und dicht punktiert. (Abb. 581–585; Tafel XIV: F.) — Länge: 19–25 mm. Sulawesi **fruhstorferi** sp. n.
- 247 (246) Halsschild schmaler, Seiten leicht gebogen, von der Mitte an nach vorn stärker verengt, mit vollkommen abgestumpften Vorderecken, Vorderrand leicht nach vorn gebogen, gegen die Basis ist der Rand verengt, in der Mitte erloschen. Oberseite sehr grob gerunzelt-punktiert, nur neben der Mittellinie einzeln und eng aneinanderstoßend punktiert, glänzend. Flügeldecken tief punktiert-gestreift, die Zwischenräume gewölbt, etwas ungleich, mit Spuren von dachförmiger Querwölbung. Kopf hinter den Augen eingeschnürt, Clypealsutur kaum ausgebuchtet. Stirn fein punktiert. Propleuren und Prosternum vor den Vorderhöften sehr grob gerunzelt. (Abb. 586–590; Tafel XIV: G.) — Länge: 21,5–24,5 mm. Sulawesi **conicollis** sp. n.
- 248 (245) Halsschild und Propleuren einzeln punktiert oder nur sehr seicht erloschen, ebenso wie das Prosternum vor den Hüften. Kopf hinter den Augen stärker verengt.
- 249 (258) Mentum mit ausgesprochenem, dichtem, gelbem Bart.
- 250 (251) Wangen schmäler als die Augen, nach vorn verengt. Clypeus lang vorgestreckt, die Ecken breit abgerundet, gewölbt, Clypealsutur nicht gefurcht. Vorderschienen einfach gebogen, das Ende innen mit einem Haarpinsel. Analsegment-Furche in der Mitte meist unterbrochen: **XXIX. Gruppe: mandibularis**

- — Clypeus länger vorgezogen, der Vorderrand gebogen, nur die Mitte abgestutzt. Stirn und Clypeus der Quere nach leicht gewölbt, einzeln fein punktiert (Clypeus viel feiner), der Grund glänzend; Augenbalken vorhanden, Augenfurchen fehlen. Die breit gebogenen Vorderschienen innen am Endviertel abstehend dicht gelb behaart, sonst einfach. Seitenrand des Halsschildes bei Seitenansicht gerade; Oberseite fein und spärlich punktiert, die Längsmittellinie ist flach. Der Grund fettglänzend. Flügeldecken mit scharfen Punktreihen und Längsstreifen, die Zwischenräume sind gleichmäßig gewölbt, glatt und glänzend. Mittel- und Hinterschienen einfach. Hinterbrust kahl. Analsegment seicht gerundet, die Randung in der Mitte unterbrochen. (Abb. 591–595; Tafel XIV: H.) — Länge: 18–26 mm. Indien, Sri Lanka, China (?), Sumatra (?), Java (?) **mandibularis** (GEBIEN, 1918)
- 251 (250) Wangen so breit wie die Augen, parallel, zwischen Clypeus und Wangen ausgeschnitten, Ecken des Clypeus stumpf, Oberseite flach, Clypealsutur tief eingedrückt. Vorderschienen außen vor dem Ende ausgeschnitten und das Ende bei Seitenansicht dicker. Analsegment ununterbrochen scharf gefurcht: XXXI. Gruppe: **excisa**
- 252 (253) Mittelbrust in der Mitte zwischen den Mittelhüften mit einem Hinterbrust vor den Hinterhüften beiderseits neben der Mittellinie mit je einem kleinen, rundlichen Körnchen. Fühler auffallend kurz, die vorletzten Glieder sind deutlich breiter als lang. Halsschild quer, mit scharfer und tiefer Längsmittelfurche, rundherum dick gerandet, Oberfläche glänzend, scheinbar unpunktiert. Kopf mit sehr hohen Augenbalken und kurzer Augenfurche, die Stirn ist breit abgeflacht und mit dem Clypeus gemeinsam sehr grob punktiert, ohne Clypealfurche. Flügeldecken scharf punktiert-gestreift, die Punktreihen sind kettenartig, die Zwischenräume sind leicht und gleichmäßig gewölbt, der Grund glänzend. Vorderschienen am Endfünftel stark gekrümmt, Außenseite vor dem Ende ausgeschweif und das Ende außen scharfkantig. Mittelschienen auffallend abgeplattet, im basalen Drittel stark gebogen, das Ende innen scharfkantig und unten ausgehöhlt. Das Endfünftel der Hinterschienen verdickt. (Abb. 596–604; Tafel XIV: I.) — Länge: 20,5–21 mm. Malaysia, Singapur **plicifrons** (GEBIEN, 1918)
- 253 (252) Mittelbrust in der Mitte zwischen den Mittelhüften ohne Körnchen. Fühler normal lang, die vorletzten Glieder sind nicht breiter als lang. Halsschild quer, ohne oder mit ganz seichter Mittellinie. Stirn sehr fein oder einzeln fein punktiert, Schläfen hinter den Augen verschmälert. Mittelschienen nicht abgeplattet, höchstens am Ende innen etwas erweitert.
- 254 (255) Der scharfe und nach vorn allmählich erweiterte Seitenrand des Halsschildes weit vor dem Seitenrand plötzlich unterbrochen, so daß der Seitenrand den Vorderrand nicht erreicht, zwischen Vorderrand und Ende des Vorderrandes ist der Halsschild breit schräg abgestutzt. Vorn ist der Halsschild breit abgeflacht, Oberseite kaum erkennbar punktiert. Kopf mit scharf eingeschnittener Clypealsutur. Augenbalken sind vertretend, Stirn abgeflacht, fast unpunktiert, matt. Flügeldecken punktiert-gestreift, die Zwischenräume sind leicht gewölbt, chagriniert und matt. Vorderschienen am Ende mehr als ein Drittel stark gebogen, Innenrand in der basalen Hälfte mit zwei stumpfen Erweiterungen. Vorderschienen am Außenrand bei der Krümmung ausgeschnitten und das Ende außen danach scharfkantig. Mittelschienen am Ende innen plötzlich erweitert und vor der Spitze mit einem stumpfen Ecke. (Abb. 605–612; Tafel XV: A.) — Länge: 22–29 mm. Malay Penin., Singapur, Sumatra, Borneo, Sulawesi, Philippinen **excisa** (GEBIEN, 1914)
- 255 (254) Der scharfe Seitenrand des Halsschildes vorn nicht unterbrochen, er geht ununterbrochen in den Vorderrand über. Clypealsutur der Quere nach nicht furchenartig vertieft.
- 256 (257) Die Zwischenräume der Flügeldecken sind vollkommen flach, mit feinen Punktreihen, ohne Streifen, der Grund grob chagriniert und matt. Halsschildseiten breit gebogen. Vorderschienen gegen das Ende stark gekrümmt, das Endviertel außen plötzlich erweitert und bildet bei der Erweiterung eine stumpfe Ecke, der Innenrand ohne Zahn, nur breit erweitert. Die Randung des Analsegments ist schmal und in der Mitte kurz unterbrochen. (Abb. 613–617; Tafel XV: B.) — Länge: 26 mm. Laos **rondoni** sp. n.
- 257 (256) Zwischenräume gewölbt mit scharfen Punktreihen und innen auch mit Längsstreifen, der Grund ist fettglänzend, Halsschildseiten weniger gebogen. Vorderschienen nur am Endfünftel kurz erweitert, außen vor dem Ende ohne Zahn, Innenrand am Ende stark gebogen, ohne Zahn. Die Randung des Analsegments ist auffallend breit, tief und vollständig. (Abb. 618–621; Tafel XV: C.) — Länge: 24 mm. Malay Penin. **selangorana** sp. n.

- 258 (249) Mentum ohne Bart, höchstens spärlich und abstehend behaart.
- 259 (260) Analsegment durch die Furche in der Mitte deutlich breiter begrenzt als an den Seiten. Körper auffallend schmal, parallel, Flügeldecken mit scharf eingeschnittenen, spärlich stehenden Reihenpunkten. Mentum mit tiefer Längsmittelfurche, beiderseits der Scheibe bei Seitenansicht hochgewölbt: XXXII. Gruppe: **depressa**  
 — — Stirn und Clypeus gleichmäßig sehr spärlich und grob punktiert, mit schmalen Augenfurchen und niedrigen Augenbalken, der Grund matt, Halsschild quadratisch, Vorderrand gerade abgestutzt, Vorderecken sehr breit abgerundet, Seitenrand bei Ansicht von oben fast gerade, mit Längsmittleindruck, die Oberfläche erloschen punktiert und der Grund chagriniert. Flügeldecken mit scharf eingeschnittenen, groben, miteinander nicht verbundenen Reihenpunkten, welche bis zum Ende gleichmäßig sind. Die Zwischenräume sind leicht gewölbt, fein chagriniert und matt. Propleuren glatt. Hinterbrust kurz behaart, Analsegment sehr breit gerandet. Vorderschienen im Enddrittel gebogen, das Ende innen ohne abstehende Behaarung. Mentum der Länge nach gewölbt, mit tiefer Längsmittelfurche, runzelig punktiert. Mittel- und Hinterschienen einfach. (Abb. 622–627; Tafel XV: D.) — Länge: 18–24 mm. Sri Lanka **depressa** (GEBIEN, 1918)
- 260 (259) Analsegment am Ende durch die Punkte parallel begrenzt und auch in der Mitte schmal. Körper weniger schlank. Die Punktreihen der Flügeldecken stehen in Längsstreifen, sie sind weniger tief und nicht so scharf begrenzt: XXXIII. Gruppe: **impressa**
- 261 (262) Prosternum am Ende zwischen den Vorderhüften der Quere nach gewölbt und stumpf vorgezogen, der schmalste Raum zwischen den Hüften deutlich schmaler als der Raum zwischen Vorderrand und Hüften, der Länge nach zwischen den Hüften kaum und erloschen gefurcht. Augenfurchen sehr tief, Augenbalken nicht entwickelt, Stirn flach und sehr grob, dicht ungleich bis zur scharfen Clypealsutur punktiert, Clypeus äußerst fein punktiert, der Länge nach gewölbt. Halsschild quadratisch, Vorderrand gerade, Seitenrand stark gebogen, nach vorn und hinten gleichmäßig verengt, Oberseite in beiden Richtungen gewölbt, äußerst fein und spärlich punktiert, der Grund chagriniert, ohne Längsmittleindruck. Flügeldecken punktiert-gestreift, die Zwischenräume sind gewölbt, fettglänzend. Propleuren glatt. Hinterbrust glatt und kahl. Vorderschienen fast gerade, innen am Ende kurz behaart, Unterrand mit schmaler Furche. (Abb. 628–632; Tafel XV: E.) — Länge: 20 mm. Java **fortepunctaticeps** sp. n.
- 262 (261) Prosternum am Ende zwischen den Vorderhüften abgeflacht und gerade abgestutzt, beiderseits der Hüften tief gefurcht; der Raum zwischen den Hüften so breit oder fast so breit wie die Länge zwischen den Vorderhüften und Vorderrand des Prosternums. Augenfurchen schmal oder fehlend. Clypeus und Stirn liegen in gleicher Ebene, Clypealsutur nicht auffallend scharf abgesetzt.
- 263 (270) Halsschild glatt, unpunktiert, oder äußerst fein erloschen punktiert, fettglänzend, quadratisch, mit seichtem Längsmittleindruck. Seitenrand dick, Hinterbrust kaum oder dicht abstehend behaart, neben der Mittellinie vor den Hüften und hinter der Mitte mit je einem kleinen Körnchen, welches wegen der Behaarung schwer zu sehen ist.
- 264 (265) Vorderrand vor den schräg abgestutzten Vorderecken plötzlich linienförmig verschmälert, nachher ist der Rand dick, bei Seitenansicht stark nach unten gebogen, bei Ansicht von oben gegen die Basis stark verengt und die Hinterecken treten kurz spitzwinklig vor. Oberseite an den Vorderecken auffallend nach vorn geneigt. Oberseite sehr fein und spärlich punktiert, der Grund chagriniert. Vorderrand des Clypeus breit ausgerandet, Clypealsutur nicht vertieft, Stirn abgeflacht, Augenbalken scharf vortretend, Clypeus feiner punktiert als die Stirn. Flügeldecken scharf punktiert-gestreift, die Zwischenräume sind gleichmäßig gewölbt, fettglänzend. Mittel- und Hinterbrust dicht abstehend behaart. Mentum trapezförmig, abstehend spärlich behaart. Vorderschienen am distalen Viertel stark gebogen, innen am Ende kurz behaart. (Abb. 633–637; Tafel XV: F.) — Länge: 18–26 mm. Malay Penin., Sumatra, Linga I., Java, Borneo **javanica** (GEBIEN, 1918)
- 265 (264) Vorderrand des Halsschildes auch an den Vorderecken sehr dick, die Vorderecken sind nicht schräg abgestutzt.
- 266 (267) Vorderrand des Clypeus tief ausgerandet. Vorderschienen im Endviertel stark gebogen, innen am Ende anliegend behaart. Prosternum vor den Hüften erloschen punktiert, Propleuren nicht glatt. Mentum trapezförmig, flach, vorn beiderseits mit je einer stumpfen, schräg gestellten Beule, runzelig punktiert, spärlich und abstehend behaart. Hinterbrust behaart. Stirn vorn einzeln fein punktiert, Clypeus viel



feiner und gleichmäßig punktiert, der Grund chagriniert. Flügeldecken punktiert-gestreift, die Streifen sind fein eingeschnitten, und alle Punkte der Reihen übergreifen die Streifen. Die Zwischenräume sind gewölbt, äußerst fein mikroskopisch und spärlich, erloschen punktiert, der Grund erloschen chagriniert und fettglänzend. (Abb. 638–642; Tafel XV: G.) — Länge: 19–25 mm. Philippinen

**philippinensis** sp. n.

- 267 (266) Vorderrand des Clypeus fast ganz gerade. Vorderschienen am Ende kaum gebogen, Innenrand, bzw. das Ende anliegend gelb behaart. Prosternum vor den Hüften ziemlich glatt. Mentum trapezförmig, der Quere nach leicht gewölbt, die Mitte der Länge nach wenigstens vorn eingedrückt, fast nackt oder abstehend spärlich behaart. Seiten des Halsschildes weniger gewinkelt.
- 268 (269) Die Punkte der Flügeldecken sind scharf eingedrückt und stehen in Längsstreifen sehr dicht hintereinander, miteinander durch feine Striche — auch seitlich — verbunden, der Grund ziemlich glänzend. Hinterbrust dicht abstehend behaart. Hinterschienen einfach, Vorderschienen nur am Ende kurz und kaum gebogen, das Ende innen anliegend behaart. (Abb. 643–647; Tafel XV: H.) — Länge: 18–22 mm. Philippinen
- 269 (268) Die Punkte der Flügeldecken stehen spärlich hintereinander, und die äußeren Punktreihen sind vorn ohne Streifen. Zwischenräume der Flügeldecken erloschen chagriniert, fettglänzend. Hinterbrust fast kahl. Hinterschienen innen am Ende ohne Spur eines Kielchens, Vorderschienen gegen das Ende einfach leicht gebogen, innen vor dem Ende ohne Ausschnitt, ohne bemerkenswerte Erweiterung vor dem Ende. (Abb. 648–651; Tafel XV: I.) — Länge: 18–23 mm. Buru, Amboina, Ceram
- 270 (263) Halsschild mehr oder weniger grob punktiert.
- 271 (274) Halsschild quadratisch, sehr grob und einzeln punktiert, mit tiefem Längsmittlereindruck; Stirn ebenfalls grob punktiert, mit scharfen Augenfalten. Flügeldecken tief gestreift punktiert, die Zwischenräume einfach gewölbt. Vorderschenkel unten breit abgeflacht, oben und unten mit scharfer Leiste, gebogen, Vorderschienen am Ende leicht gebogen.
- 272 (273) Mentum mit einem Mittelkiel, beiderseits die Scheibe eingedrückt, die Vorderecken breit verflacht und seitlich mit je einem schräg zu Mitte und vorn ziehendem Kiel versehen, erscheint kahl. Prosternum feiner und dicht, Propleuren gröber und erloschen punktiert, Hinterbrust fast kahl, 1. Abdominalsegment in der Mitte abgeflacht. Kopf und Halsschild einzeln und grob punktiert. Augenfalten scharf vortretend, Stirn flach. Halsschild quadratisch, Seitenrand bei Seitenansicht fast gerade, Vorderrand gerade, vordere Hälfte fast parallel, von der Mitte an zur Basis leicht verengt, die Längsmittellinie ist scharf, Oberseite wie die Stirn grob und einzeln punktiert. Flügeldecken punktiert-gestreift, die Zwischenräume sind gewölbt, am Absturz weniger gewölbt als vorne. Vorderschenkel unten breit abgeflacht, gebogen, der obere Rand leistenartig scharf. (Abb. 652–657; Tafel XVI: A.) — Länge: 18–21 mm. China (Yunnan), Laos
- 273 (272) Mentum ohne Mittelkiel, mit einer scharfen Längsmittelfurche, daneben mit je einem Kiel und zwischen diesen Kielen und Seitenrand gefurcht, bei den Vorderecken eingedrückt, und der Eindruck vorn durch einen Kiel begrenzt. Prosternum dichter, Propleuren einzeln und grob punktiert, die Basis aber glatt. Hinterbrust in der Mitte behaart, vor den Hinterhüften innen mit scharfen, vor den Hüften, neben der Mitte mit je zwei kleineren Körnchen. Halsschild sehr grob und gleichmäßig punktiert, ebenso wie die Stirn. Seitenrand des Halsschildes bei lateraler Ansicht stark S-förmig gebogen, der Rand an den Vorderecken dick. Die Reihenpunkte der Flügeldecken gröber, miteinander nicht verbunden. Vorderschenkel gebogen, parallel, unten abgeflacht, Ober- und Unterrand mit scharfer Leiste. (Abb. 658–661; Tafel XVI: B.) — Länge: 18,5–20 mm. Burma (Tenasserim)
- 274 (271) Halsschild meist nicht ausgesprochen quadratisch (wenn er quadratisch ist, ist das Mentum nicht gekielt), die Punktierung fein und einfach, nicht gleichmäßig. Vorderschenkel unten kaum abgeflacht und höchstens nur ganz stumpf begrenzt.
- 275 (278) Scheibe des Mentums flach, ohne Mittelkiel und ohne Mittelfurche.
- 276 (277) Vorderschienen dünn, am Ende kaum gebogen. Halsschild quadratisch, die Vorderecken sind breit abgerundet, Seiten gebogen, nach vorn stärker, nach hinten schmaler verengt und vor der Basis etwas ausgeschweift; mit schwacher Längsmittellinie. Oberseite gleichmäßig fein punktiert, die Scheibe ziemlich glänzend, gegen die Seiten mehr fettglänzend. Punktreihen der Flügeldecken ziemlich scharf, die Längs-

**tenasserimica** sp. n.

- streifen sind nur am Absturz stärker eingeschnitten, die Zwischenräume sind einfach leicht gewölbt, mit mikroskopisch feiner, erloschener und spärlicher Punktierung. (Abb. 662—665; Tafel XVI: C—D.) — Länge: 17—18 mm. Christmas I. **carbonaria** (ARROW, 1900)
- 277 (276) Vorderschienen dünn und stärker gebogen. Halsschild quadratisch, bei Ansicht von oben sind die Seiten fast parallel, die Vorderecken abgerundet etwas vorgezogen, Vorderrand beiderseits leicht ausgerandet, die Längsmittellinie ist scharf. Oberseite dicht und ungleich punktiert, die Punktierung ist seitlich gröber, aber spärlicher, der Grund seitlich mehr chagriniert und matt. Flügeldecken mit sehr feinen Punkt-reihen und tiefen Längsstreifen, die Zwischenräume von der 3. an ein wenig dachförmig, äußerst fein und mikroskopisch punktiert, in den Punkten befinden sich kaum erkennbare, mikroskopische Härchen, der Grund chagriniert. (Abb. 666—669; Tafel XVI: E.) — Länge: 22—24 mm. Malay Penin. **silvestris** sp. n.
- 278 (275) Scheibe des Mentums der Länge nach schmal oder breiter eingedrückt. Hinterbrust behaart.
- 279 (280) Vorderschienen im Enddrittel gebogen, Innenrand von der Basis an gerade, das Ende breit ausgebogen, das Ende deshalb viel schmaler als etwas vor der Mitte, wo die Schienen am breitesten sind, die unten scharfe Innenseite endet weit vor dem Ende. Kopf mit scharfen Augenbalken. Mentum in der Mitte schmal der Länge nach gefurcht, außerdem läuft neben dem Rand mit dem doppelten Mittelkiel parallel vorn je eine stumpfe Leiste. Vorderecken und Seiten abgeflacht. Halsschild mit tiefer Längsmittelfurche, die Scheibe beiderseits ziemlich hochgewölbt, gleichmäßig fein punktiert. Flügeldecken mit scharf eingeschnittenen Punkten der Reihen, innen sowie am Absturz auch Längsstreifen vorhanden. Die Zwischenräume gewölbt, chagriniert und matt. (Abb. 670—674; Tafel XVI: F.) — Länge: 15—21 mm. Madagaskar, Sri Lanka, Thailand, Malay Penin., Singapur, Karimon I., Riouw I., Sumatra, Banka I., Nias I., Java, Borneo, Banguay, Sulawesi, Philippinen [= *sulcator* (KNOCH, 1801)] **impressa** (FABRICIUS, 1801)
- 280 (279) Vorderschienen kaum gebogen, das Ende innen nicht ausgeschweift, die ganze Schiene der ganzen Länge nach gleich breit. Kopf mit starken Augenbalken, Stirn flach und gleichmäßig, einzeln punktiert. Mentum trapezförmig, die Mitte der Länge nach eingedrückt, beiderseits erhaben, die Vorderecken bis zur Mitte verflacht. Halsschild weniger tief eingedrückt und die Scheibe weniger gewölbt, die Punktierung kaum feiner als bei der Stirn. Flügeldeckenpunkt-reihen sind weit gröber und die Punkte stehen spärlicher hintereinander, am Absturz sind alle Punkte in Längsstreifen; die Zwischenräume einfach gewölbt, der Grund glänzender. (Abb. 675—679; Tafel XVI: G.) — Länge: 16—23 mm. Aru I., Biak I., Korido I., Neuguinea, Normanby, Bismarck Arch., Australien, Philippinen **punctulator** (FAIRMAIRE, 1883)

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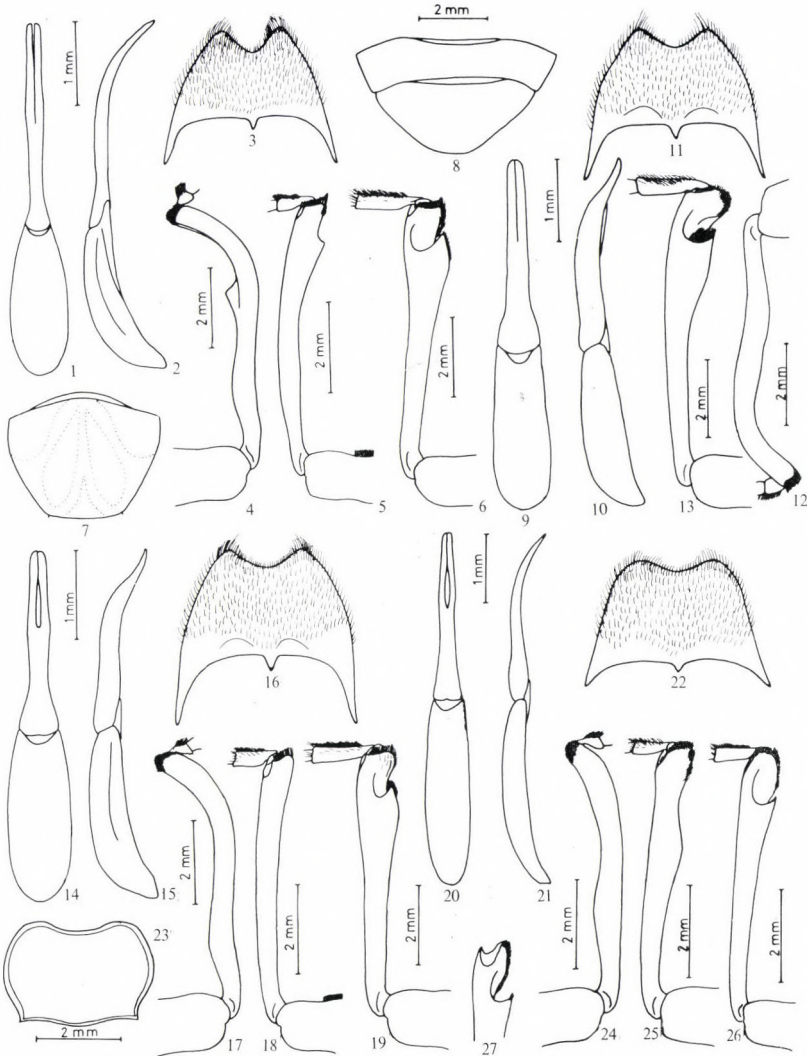


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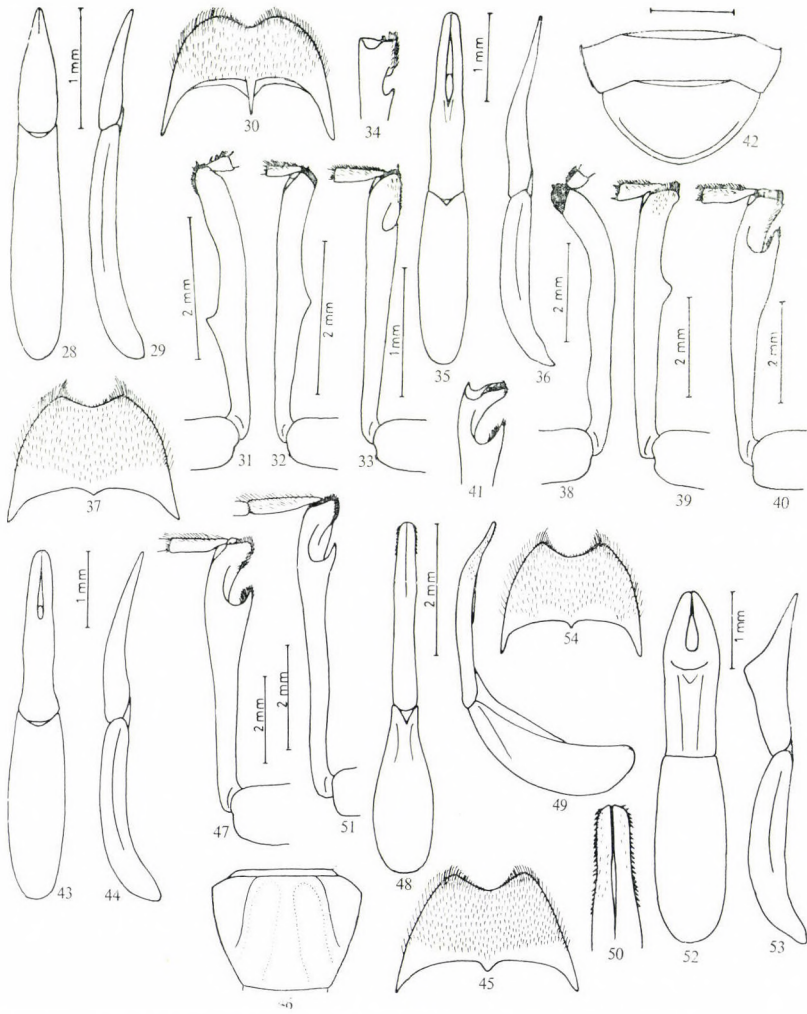


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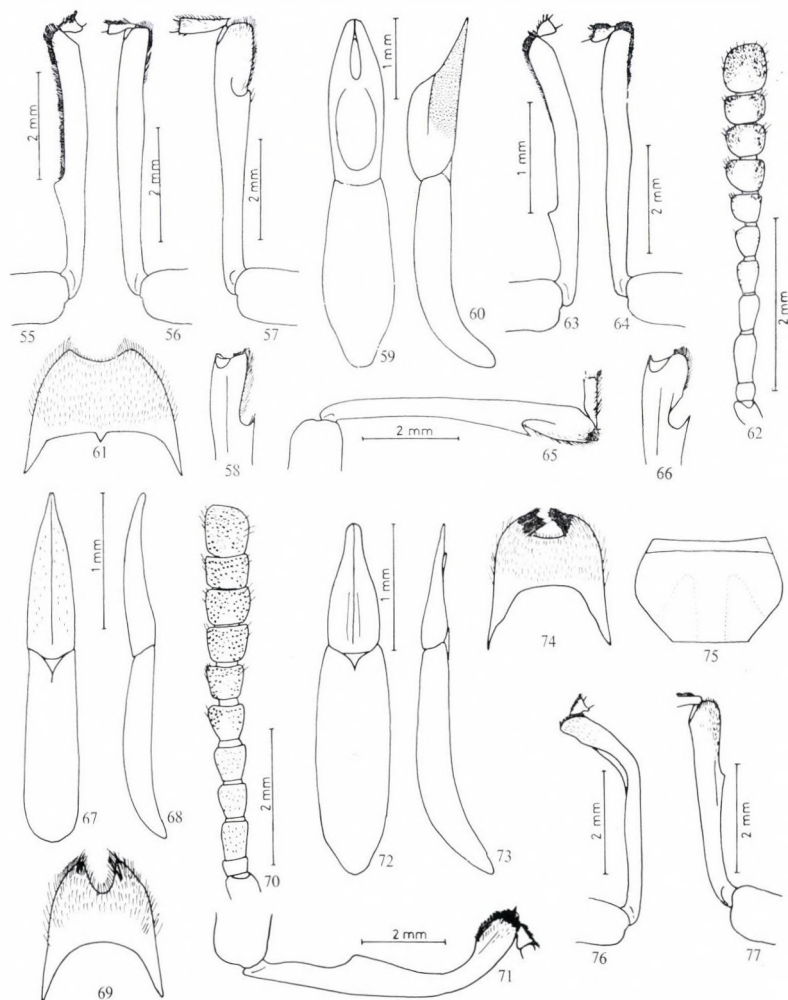


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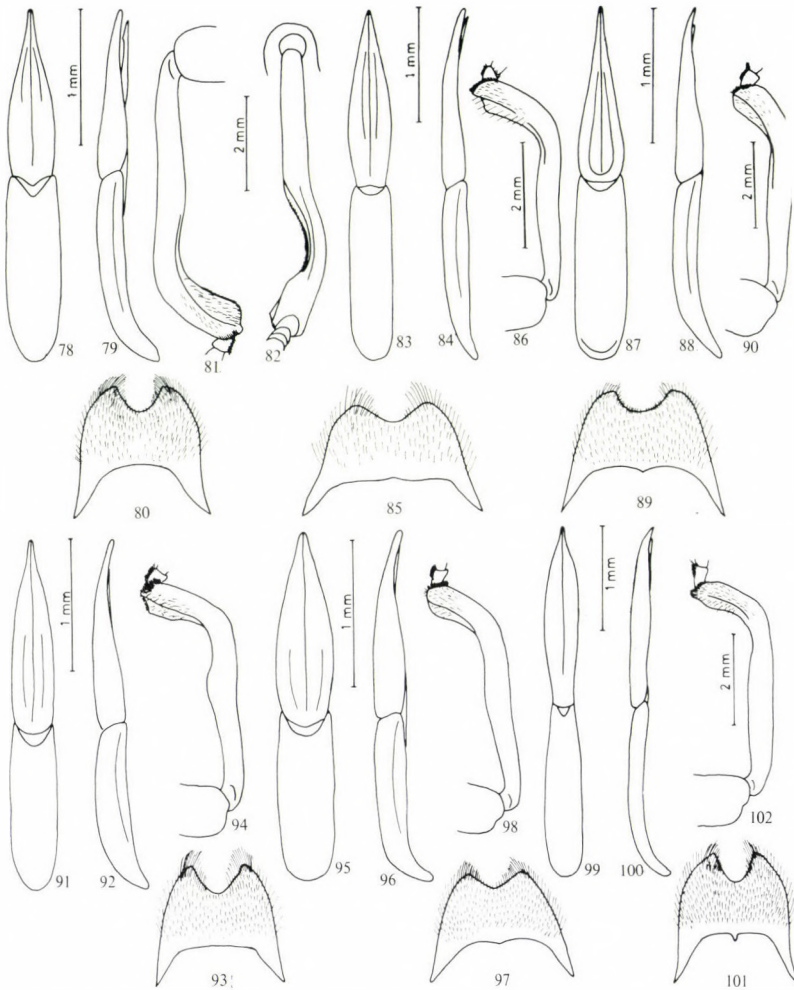


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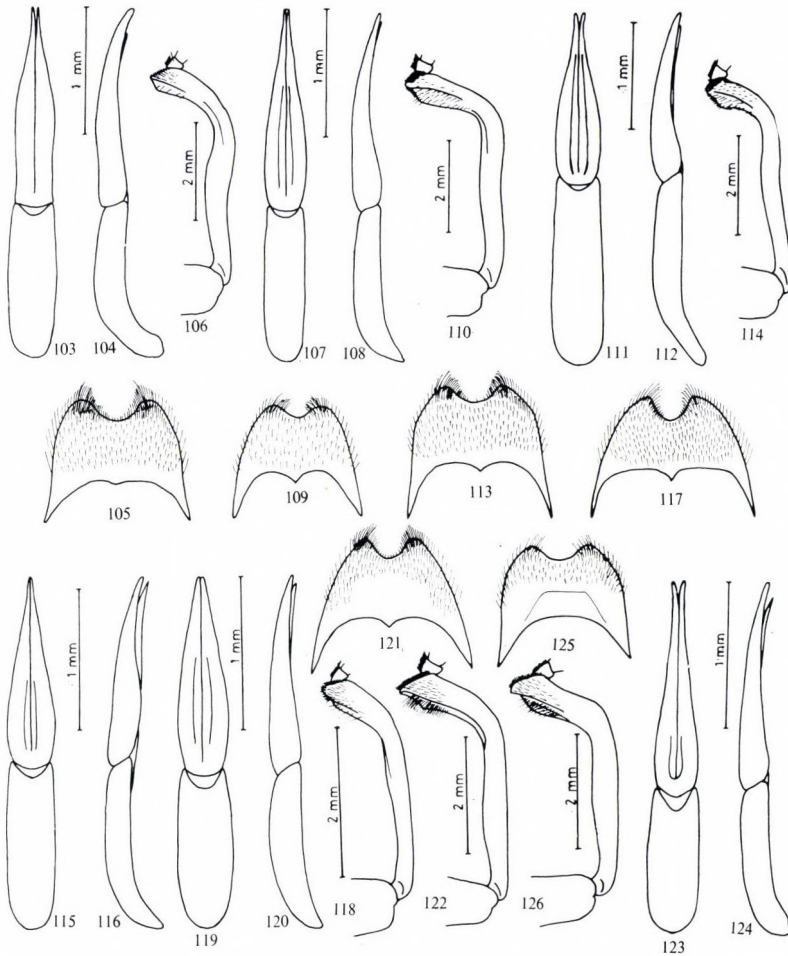


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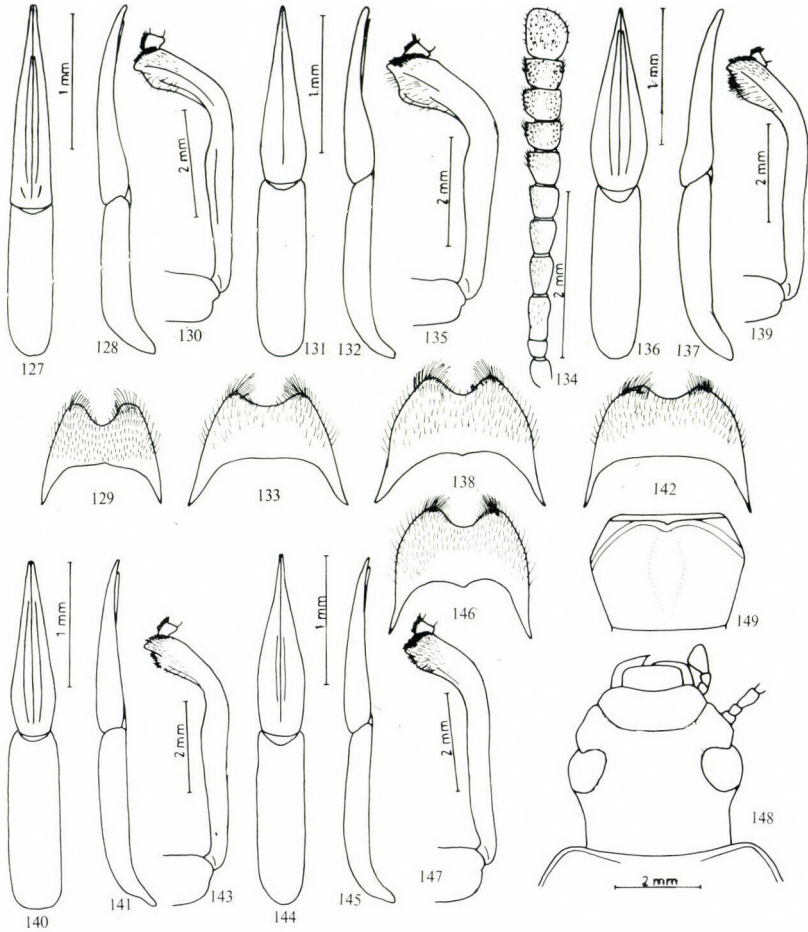


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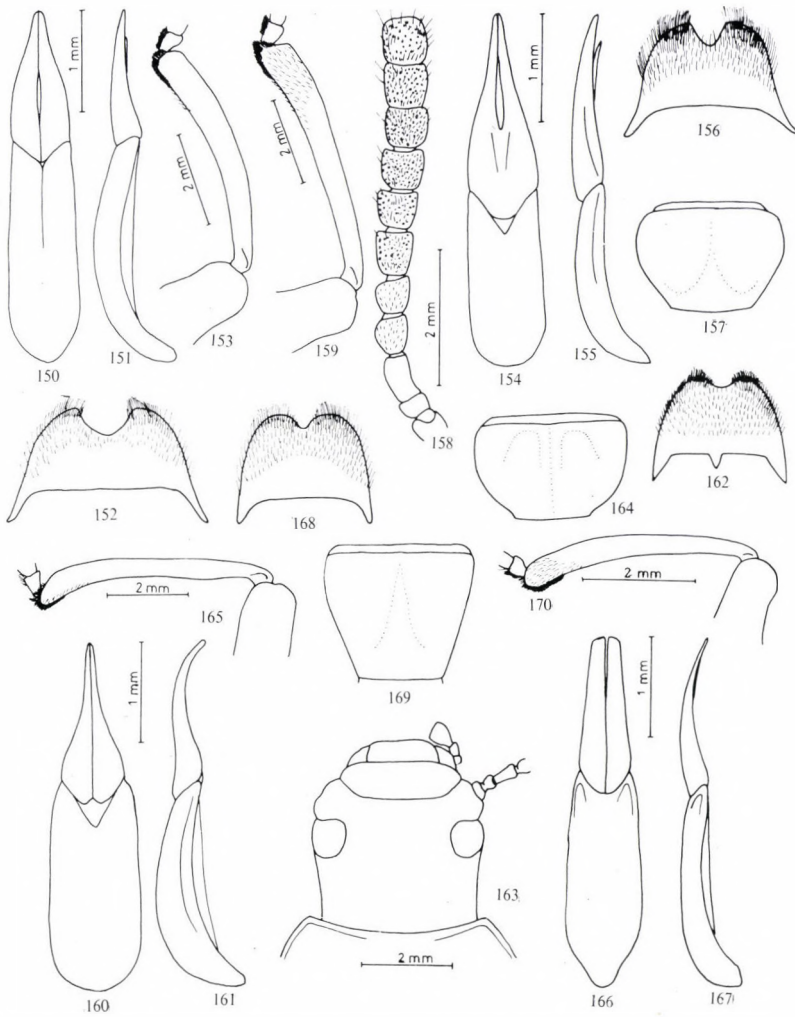


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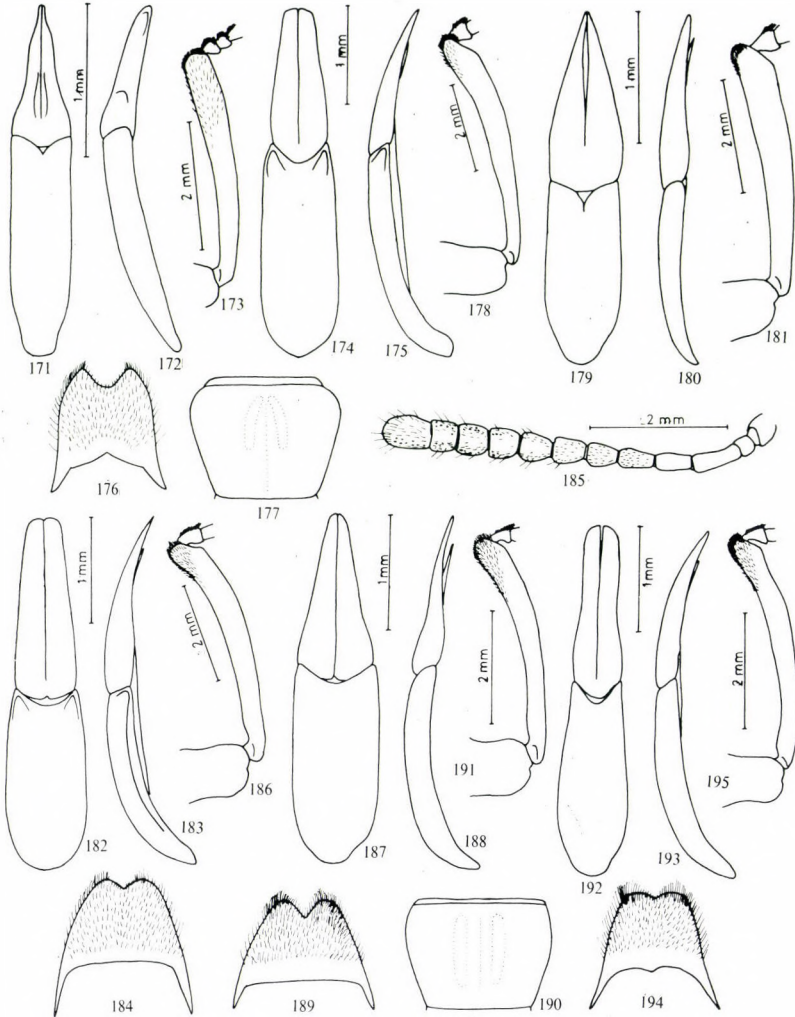


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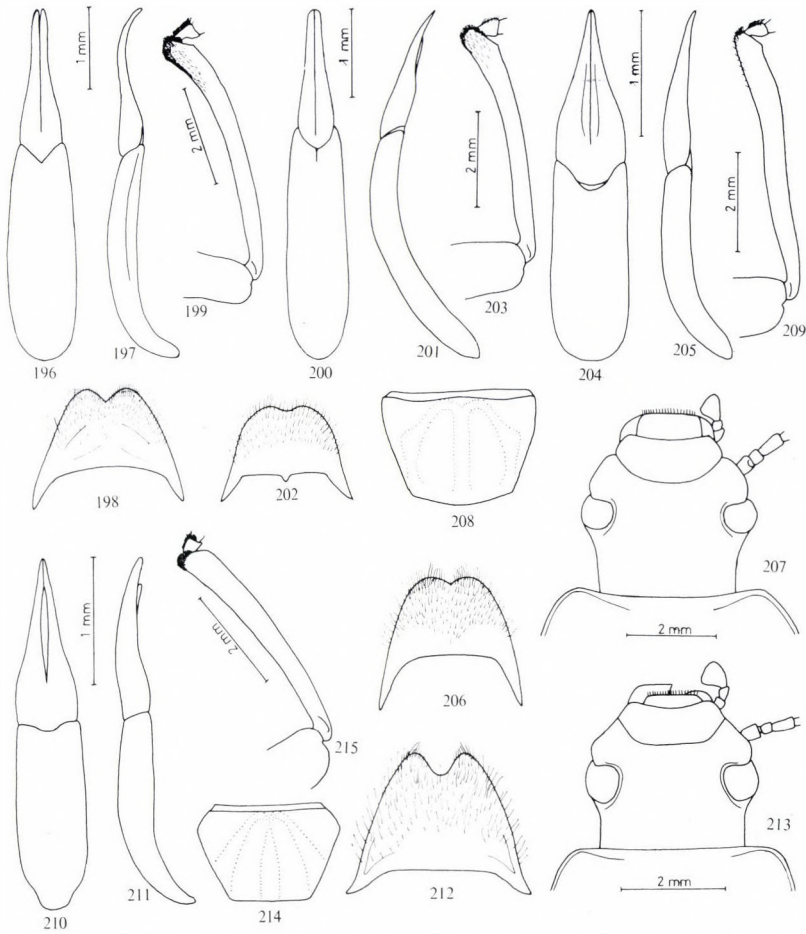


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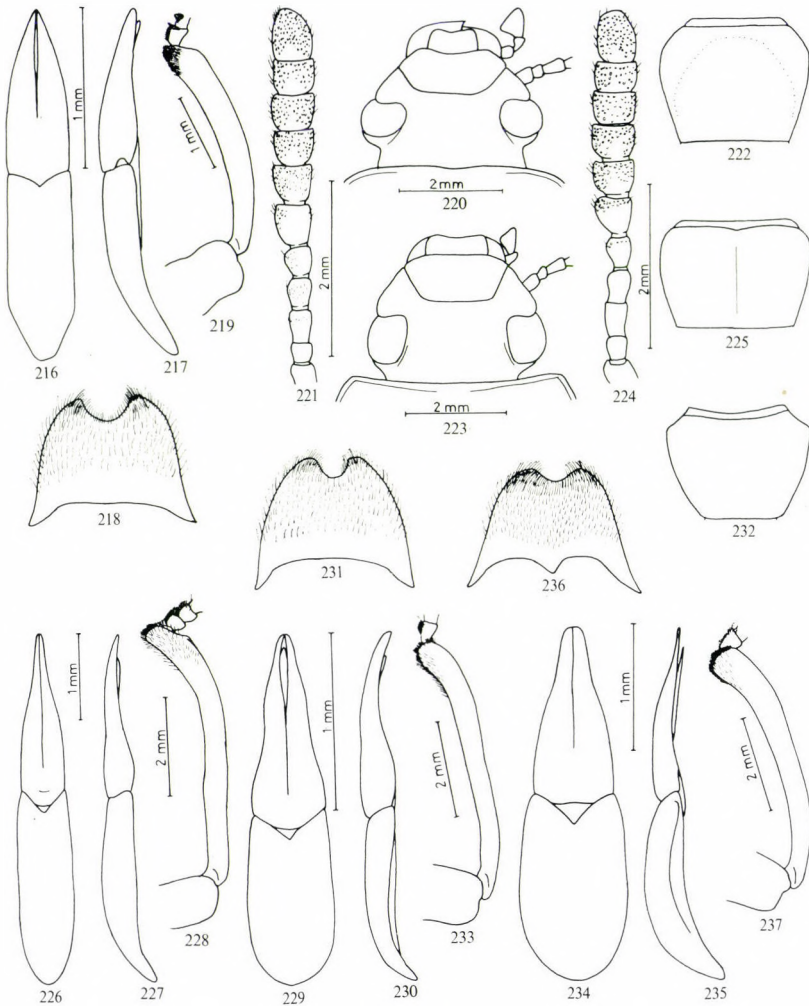


Abb. 216—219. *Promethis minor* CARTER, 1914. — Abb. 220—222. *P. aberrans* sp. n. — Abb. 223—225. *P. borneensis* sp. n. — Abb. 226—228. *P. pubiventris* (BLAIR, 1919). — Abb. 229—233. *P. kinabaluensis* sp. n. — Abb. 234—237. *P. pauperula* (GEBIEN, 1918) (216, 226, 229, 234 = Aedoeagus von oben; 217, 227, 230, 235 = Aedoeagus bei Seitenansicht; 218, 231, 236 = 8. Urosternit; 220, 223 = Kopf; 221, 224 = Fühler; 222, 225, 232 = Mentum; 219, 228, 233, 237 = Vorderschiene)



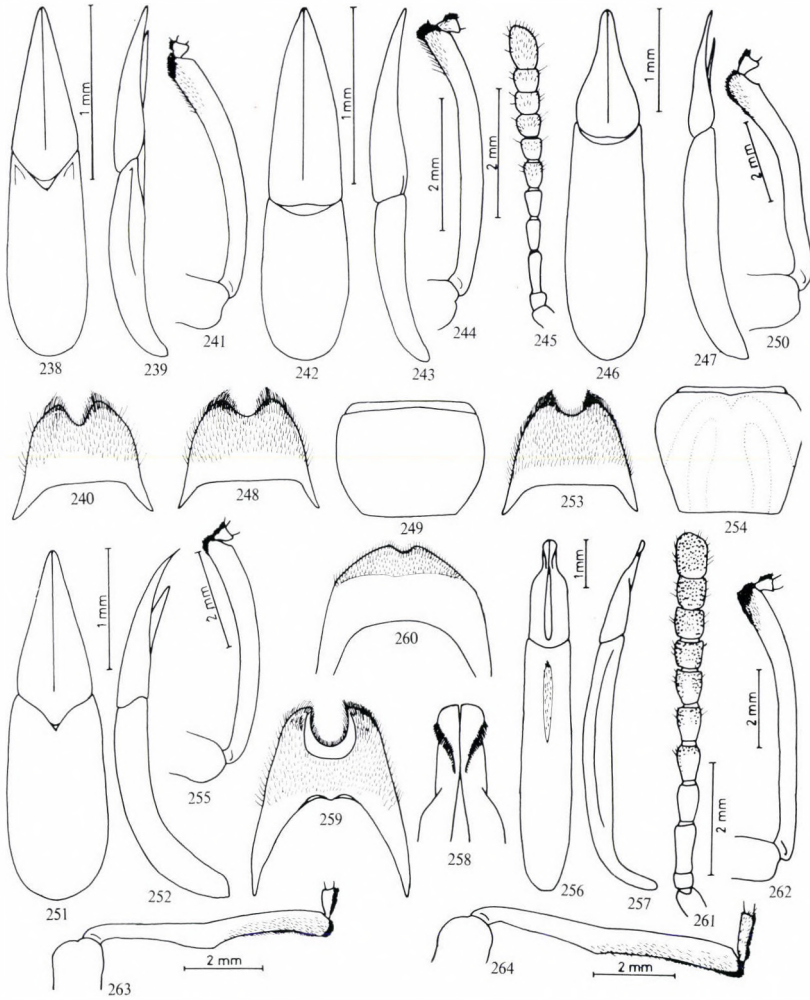


Abb. 238—241. *Promethis sinuato-collis* sp. n. — Abb. 242—245. *P. iriomotensis* (M. T. CHÛJÔ, 1979). — Abb. 246—250. *P. szetchuanica* sp. n. — Abb. 251—255. *P. striatipennis* (LEWIS, 1894). — Abb. 256—264. *P. valgipes valgipes* (MARSEUL, 1876) (238, 242, 246, 251, 256 = Aedoeagus von oben; 239, 243, 247, 252, 257 = Aedoeagus bei Seitenansicht; 258 = Parameren; 240, 248, 253, 259 = 8. Urosternit; 260 = Urotergit; 245, 261 = Fühler; 249, 254 = Mentum; 241, 244, 250, 255, 262 = Vorderschiene; 263 = Mittelschiene; 264 = Hinterschiene)

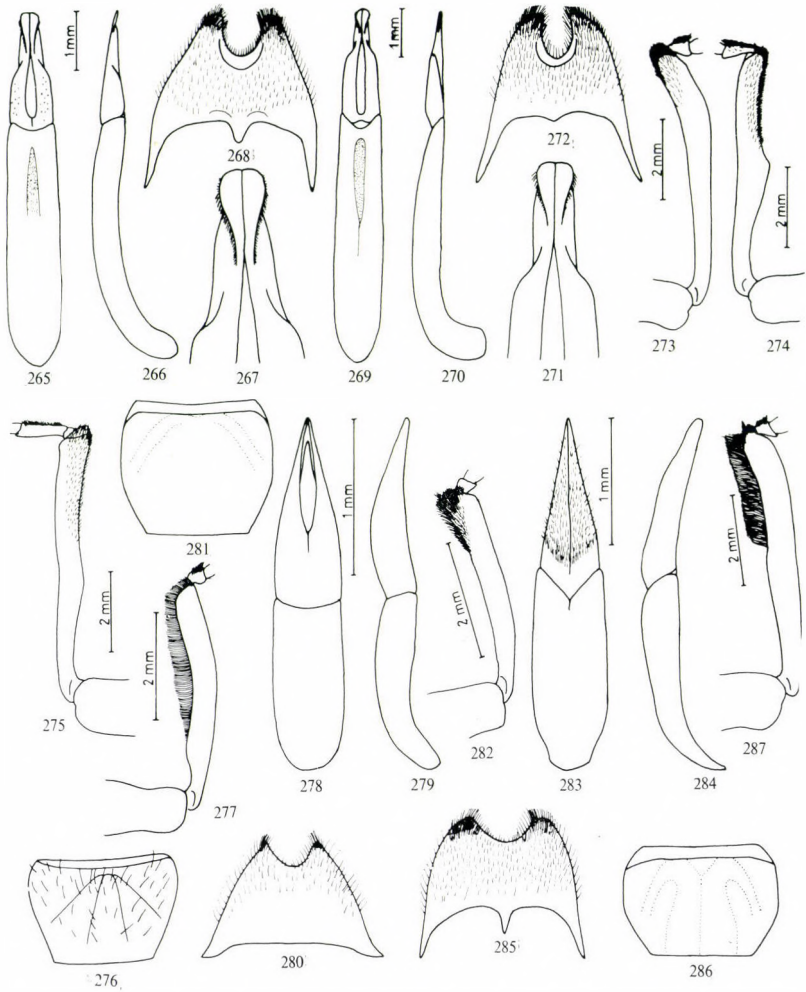


Abb. 265—268. *Promethis valgipes semivalgipes* ssp. n. — Abb. 269—275. *P. subvalgipes* (M. T. CHŪJŌ, 1981). — Abb. 276—277. *P. temporalis* sp. n. — Abb. 278—282. *P. albertsi* sp. n. — Abb. 283—287. *P. brevicornis* (WESTWOOD, 1842) (265, 269, 278, 283 = Aedoeagus von oben; 266, 270, 279, 284 = Aedoeagus bei Seitenansicht; 267, 271 = Parameren; 268, 272, 280, 285 = 8. Urosternit; 276, 281, 286 = Mentum; 273, 277, 282, 287 = Vorderschiene; 274 = Mittelschiene; 275 = Hinterschiene)

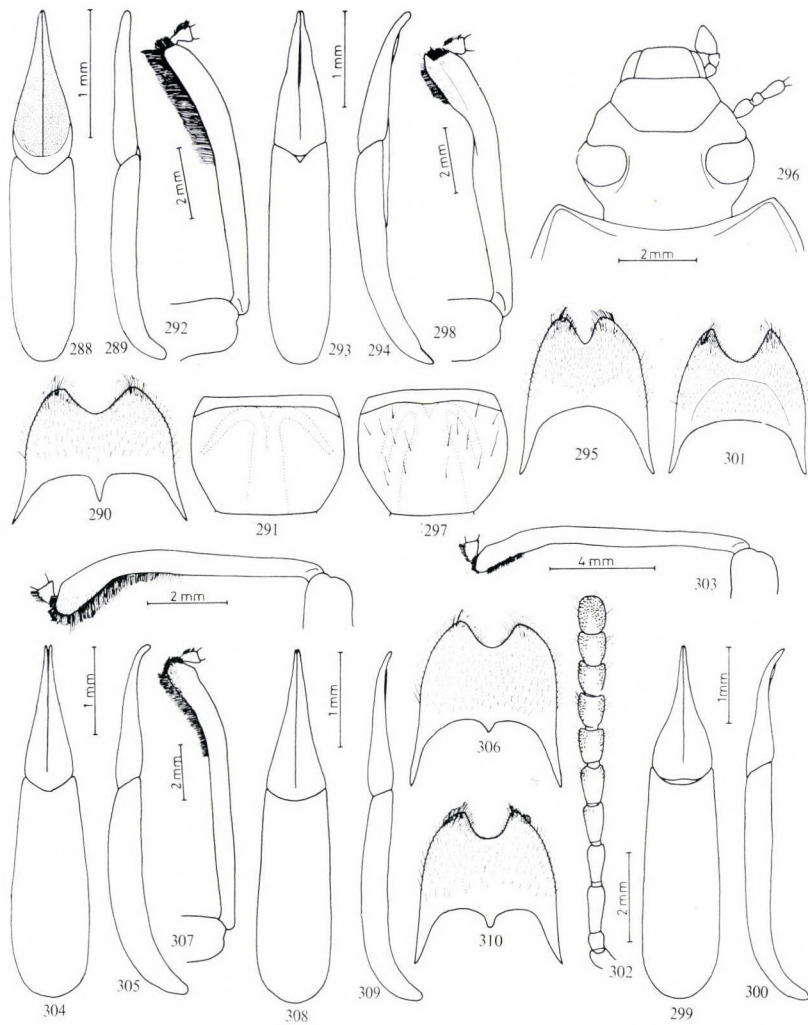


Abb. 288—292. *Promethis furva* (GEBIEN, 1918). — Abb. 293—298. *P. producta* (GEBIEN, 1918). — Abb. 299—303. *P. amplipennis* (GEBIEN, 1918). — Abb. 304—307. *P. barbata* (GEBIEN, 1918). — Abb. 308—311. *P. hieki* sp. n. (288, 293, 299, 304, 308 = Aedeagus von oben; 289, 294, 300, 305, 309 = Aedeagus bei Seitenansicht; 290, 295, 301, 306, 310 = 8. Urosternit; 296 = Kopf; 291, 297 = Mentum; 302 = Fühler; 292, 298, 303, 307, 311 = Vorderschiene)

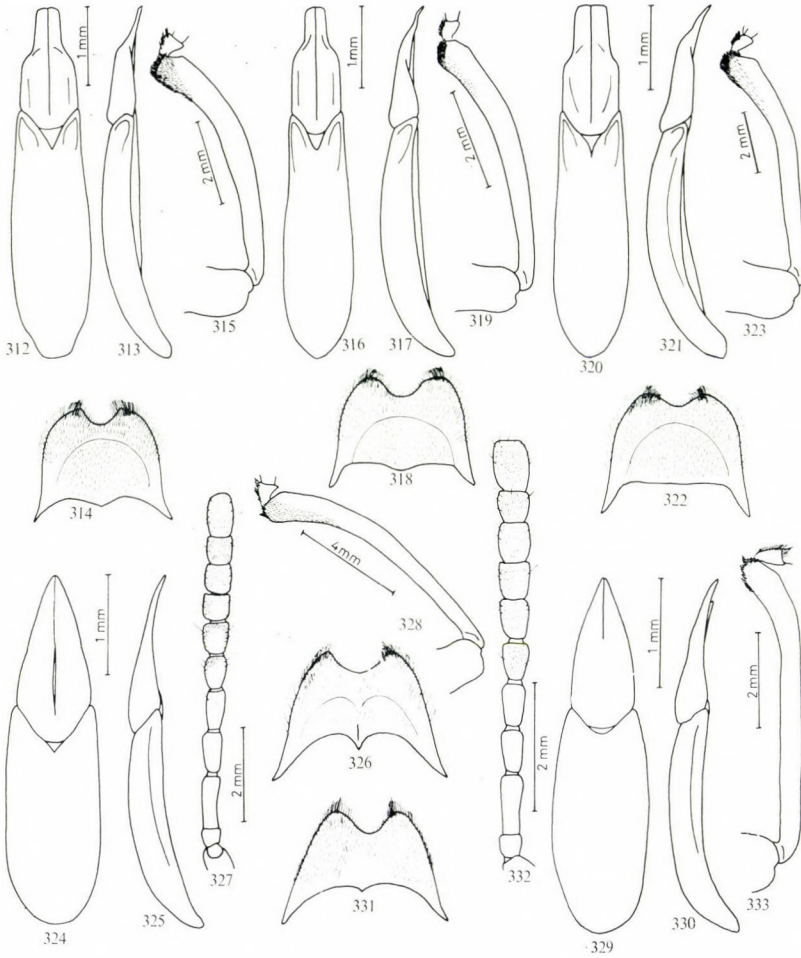


Abb. 312—315. *Promethis evanescens* (GEBIEN, 1918). — Abb. 316—319. *P. chinensis* sp. n. —  
 Abb. 320—323. *P. taiwana* (MASUMOTO, 1981). — Abb. 324—328. *P. oshimana* (MIWA, 1935).  
 — Abb. 329—333. *P. okinawana* (M. T. SHŪJŌ, 1978) (312, 316, 320, 324, 329 = Aedeagus  
 von oben; 313, 317, 321, 325, 330 = Aedeagus bei Seitenansicht; 314, 318, 322, 326, 331 =  
 8. Urosternit; 327, 332 = Fühler; 315, 319, 323, 328, 333 = Vorderschiene)

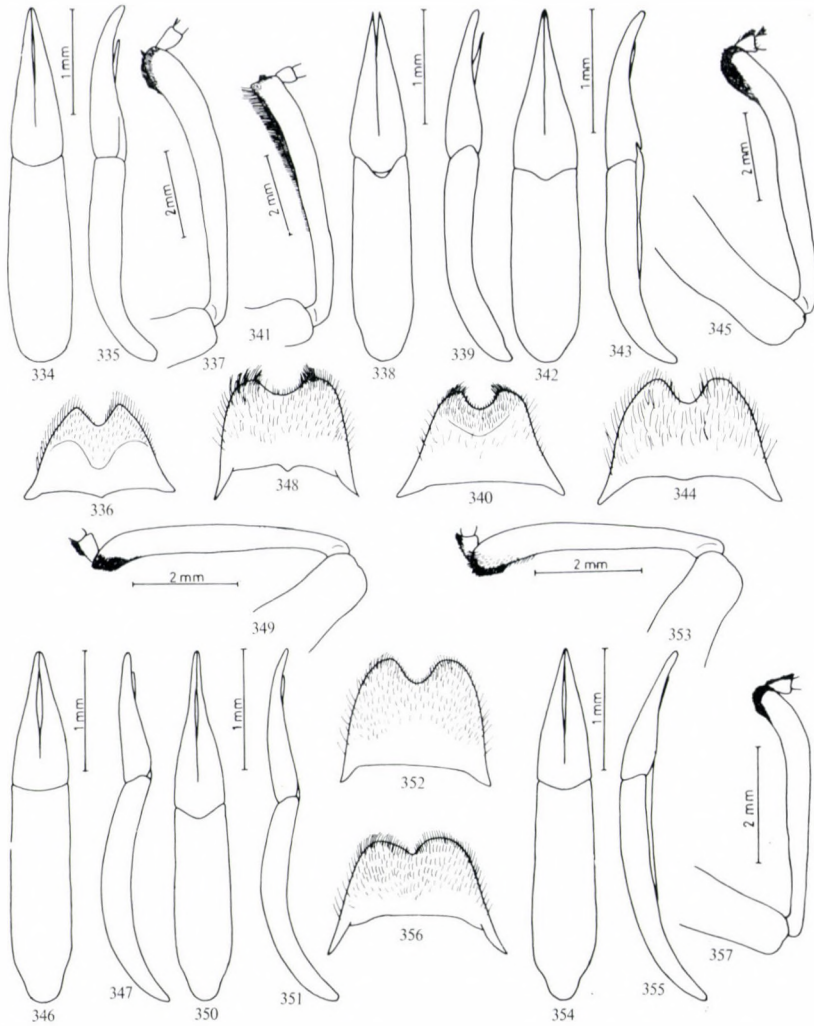


Abb. 334—337. *Promethis sterrha* (OLLIFF, 1889). — Abb. 338—341. *P. opaca* CARTER, 1914.  
 — Abb. 342—345. *P. nigra* (BLESSIG, 1861). — Abb. 346—349. *P. punctithorax* sp. n. — Abb.  
 350—353. *P. carteri* sp. n. — Abb. 354—357. *P. angulata* (ERICHSON, 1842) (334, 338, 342,  
 346, 350, 354 = Aedeagus von oben; 335, 339, 343, 347, 351, 355 = Aedeagus bei Seiten-  
 ansicht; 336, 340, 344, 348, 352, 356 = 8. Urosternit; 337, 341, 345, 349, 353, 357 = Vorder-  
 schiene)

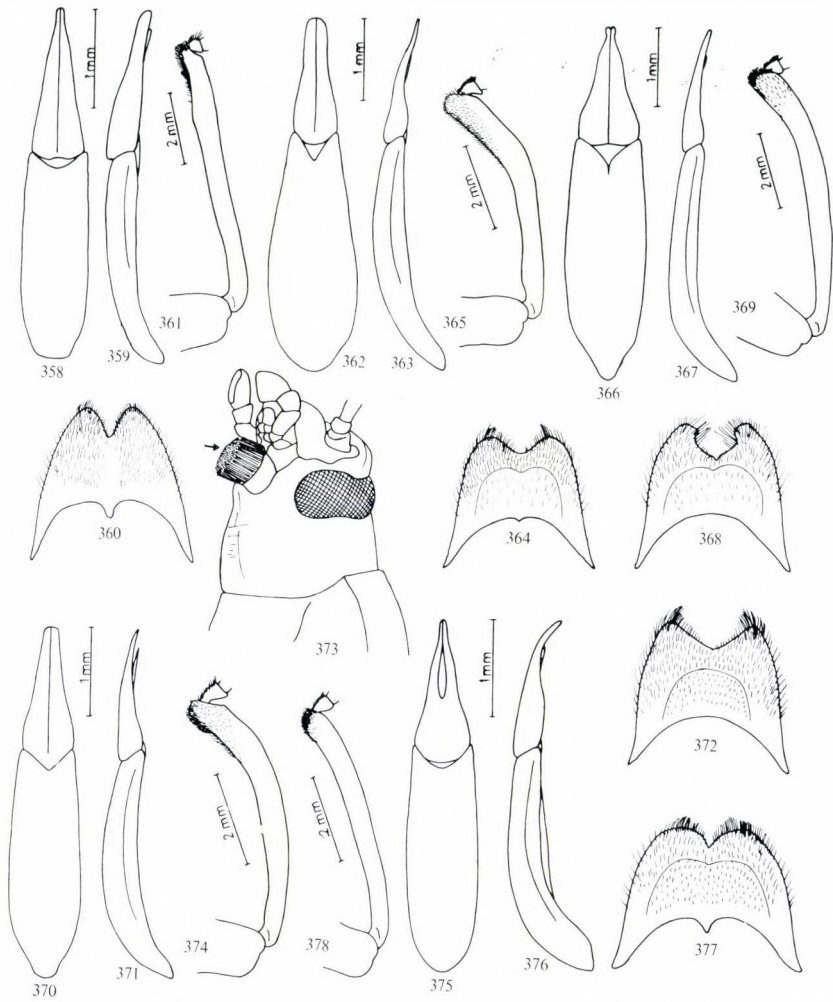


Abb. 358—361. *Promethis quadraticollis* (GEBIEN, 1920). — Abb. 362—365. *P. nitouana* sp. n. — Abb. 366—369. *P. insomnia* (LEWIS, 1894). — Abb. 370—374. *P. formosana* (MASUMOTO, 1981). — Abb. 375—378. *P. birmanica* sp. n. (358, 362, 366, 370, 375 = Aedeagus von oben; 359, 363, 367, 371, 376 = Aedeagus bei Seitenansicht; 360, 364, 368, 372, 377 = 8. Urosternit; 373 = Kopf mit Bart; 361, 365, 369, 374, 378 = Vorderschiene)

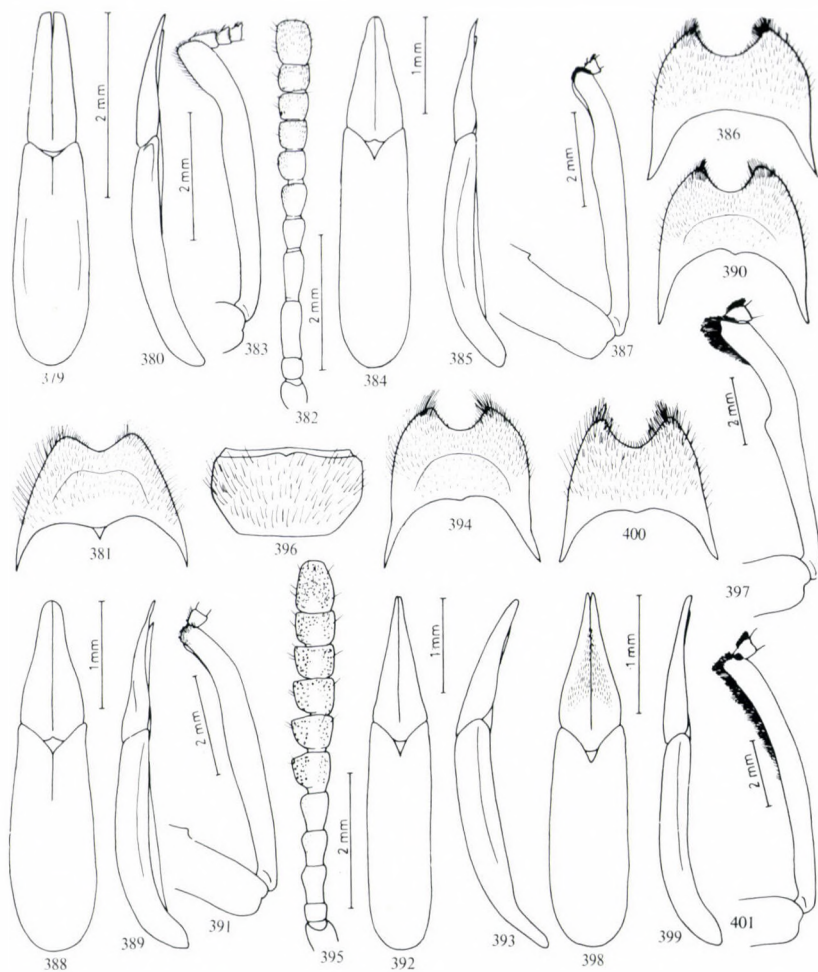


Abb. 379—383. *Promethis tonkinensis* (GEBIEN, 1918). — Abb. 384—387. *P. subrobusta subrobusta* (MOTSCHULSKY, 1872). — Abb. 388—391. *P. subrobusta indochinensis* ssp. n. — Abb. 392—397. *P. illaescollis* (FAIRMAIRE, 1883). — Abb. 398—401. *P. unidentata* sp. n. (379, 384, 388, 392, 398 = Aedoeagus von oben; 380, 385, 389, 393, 399 = Aedoeagus bei Seitenansicht; 381, 386, 390, 394, 400 = 8. Urosternit; 382, 395 = Fühler; 396 = Mentum; 383, 387, 391, 397, 401 = Vorderschiene)

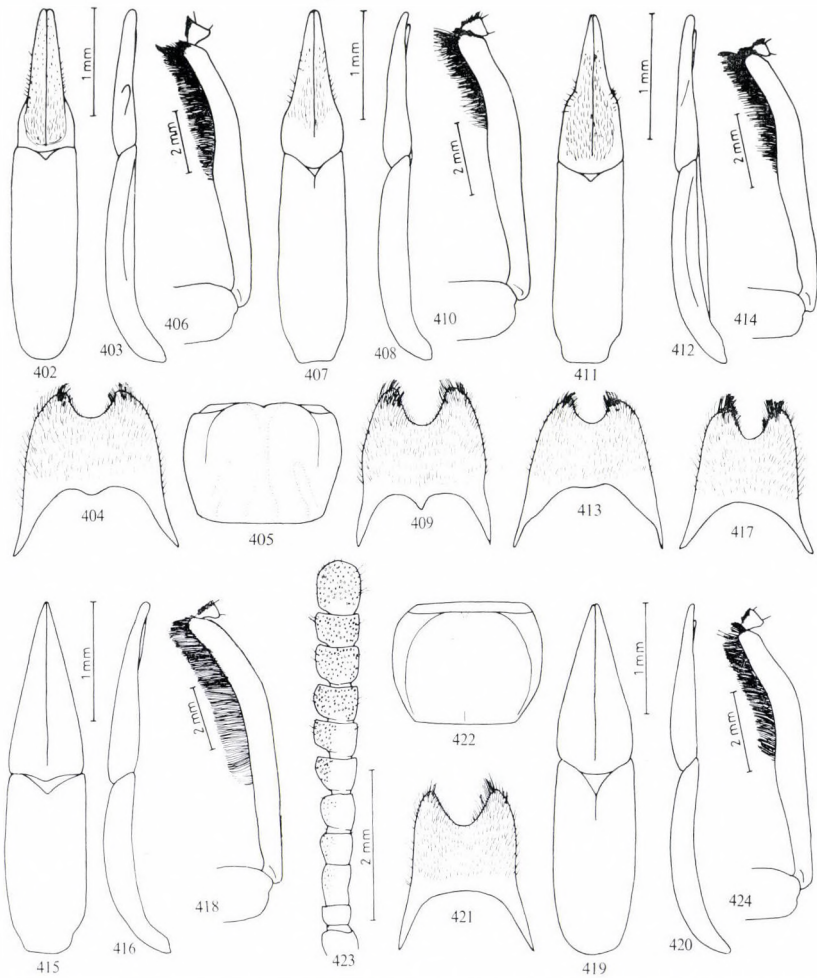


Abb. 402—406. *Promethis punctatostriata* (MOTSCHULSKY, 1872). — Abb. 407—410. *P. manillarum* (FAIRMAIRE, 1886). — Abb. 411—414. *P. andamanica* sp. n. — Abb. 415—418. *P. penicilligera* (GEBIEN, 1911). — Abb. 419—424. *P. puncticollis* (MOTSCHULSKY, 1872) (402, 407, 411, 415, 419 = Aedoeagus von oben; 403, 408, 412, 416, 420 = Aedoeagus bei Seitenansicht; 404, 409, 413, 417, 421 = 8. Urosternit; 405, 422 = Mentum; 423 = Fühler; 406, 410, 414, 418, 424 = Vorderschiene)



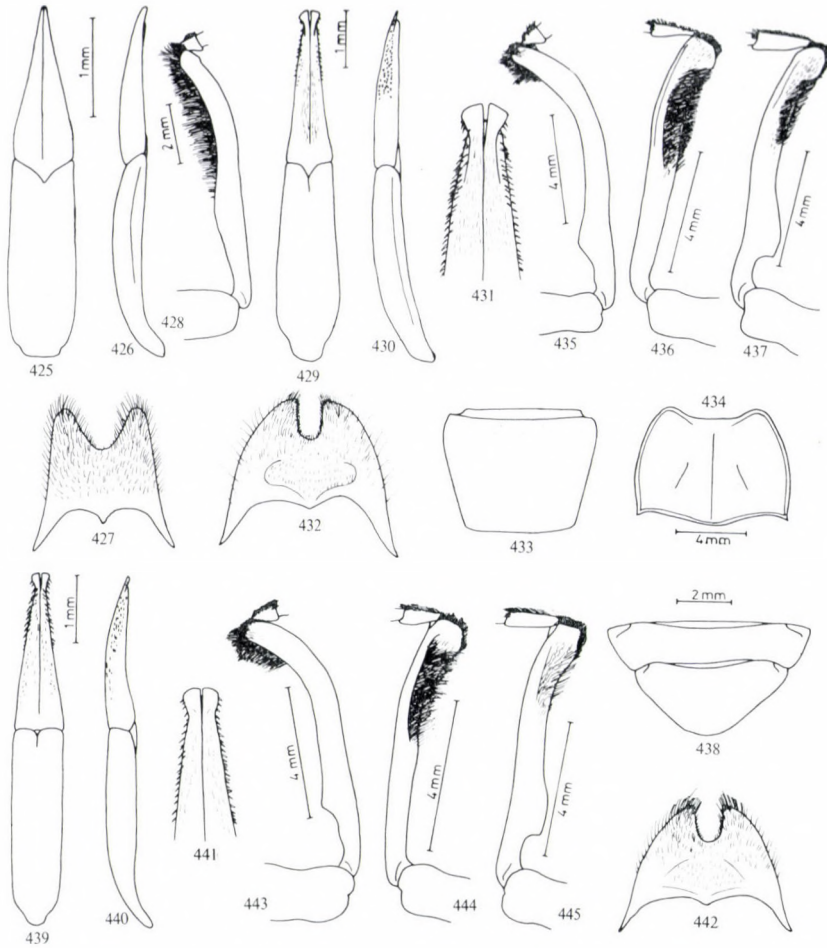


Abb. 425—428. *Promethis opacimentum* sp. n. — Abb. 429—438. *P. sulcigera* (BOISDUVAL, 1835). — Abb. 439—445. *P. subfoveata* (GEBIEN, 1918) (425, 429, 439 = Aedeagus von oben; 426, 430, 440 = Aedeagus bei Seitenansicht; 431, 441 = Parameren; 427, 432, 442 = 8. Urosternit; 433 = Mentum; 434 = Halsschild; 438 = Analsegment, 428, 435, 443 = Vorder-  
 schiene, 436, 444 = Mittelschiene, 437, 445 = Hinterschiene)

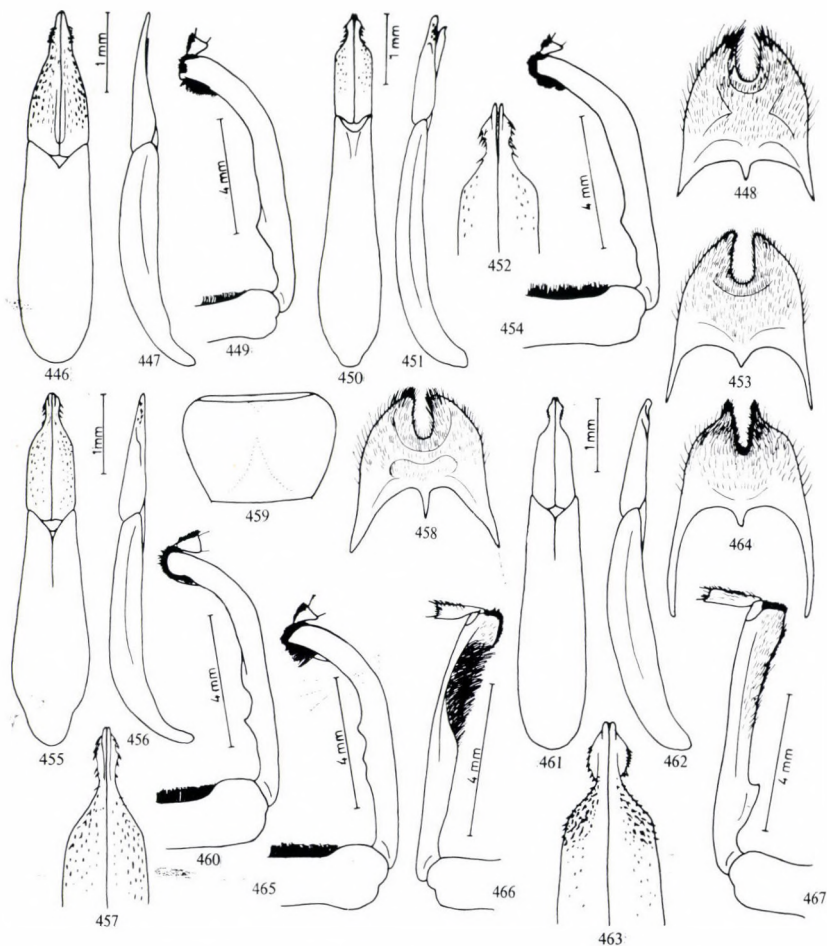


Abb. 446—449. *Promethis vietnamica* (KASZAB, 1980). — Abb. 450—454. *P. haagi* sp. n. —  
 Abb. 455—460. *P. transversicollis* (MOTSCHULSKY, 1872). — Abb. 461—467. *P. harpagon* sp. n.  
 (446, 450, 455, 461 = Aedoeagus von oben; 447, 451, 456, 462 = Aedoeagus bei Seiten-  
 ansicht; 452, 457, 463 = Parameren; 448, 453, 458, 464 = 8. Urosternit; 459 = Mentum; 449,  
 454, 460, 465 = Vorderschiene; 466 = Mittelschiene; 467 = Hinterschiene)

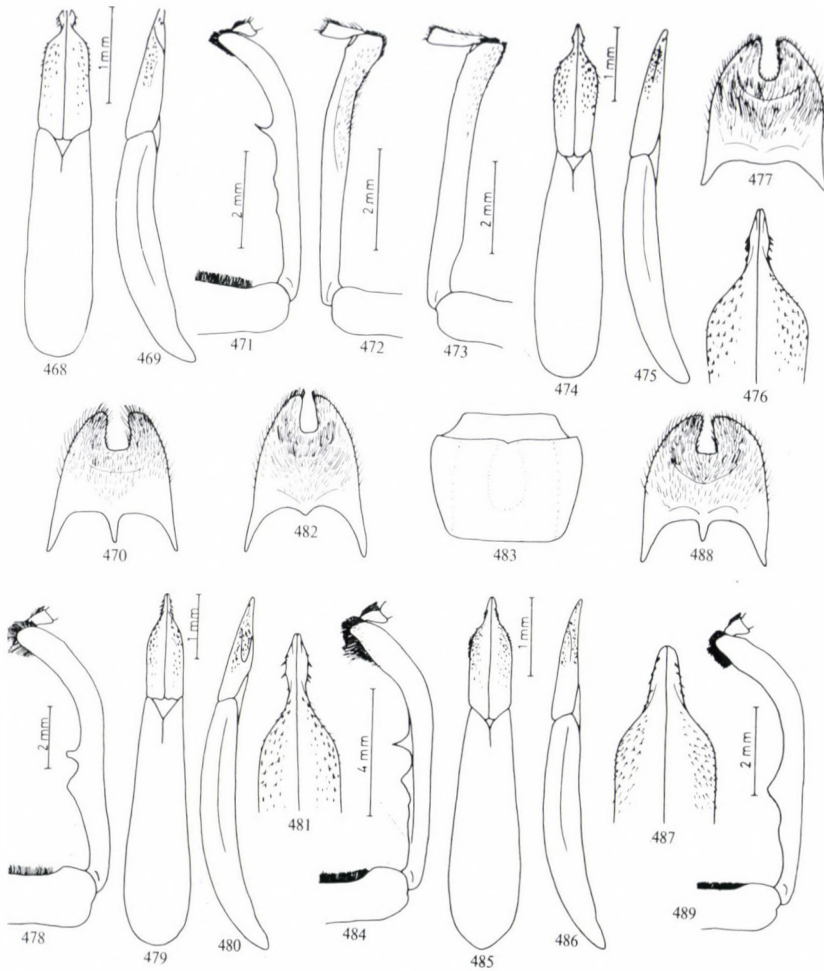


Abb. 468—473. *Promethis xantusi* sp. n. — Abb. 474—478. *P. setipes* sp. n. — Abb. 479—484. *P. laosensis* sp. n. — Abb. 485—489. *P. proteus* sp. n. (468, 474, 479, 485 = Aedeagus von oben; 469, 475, 480, 486 = Aedeagus bei Seitenansicht; 476, 481, 487 = Parameren; 470, 477, 482, 488 = 8. Urosternit; 483 = Mentum; 471, 478, 484, 489 = Vorderschiene; 472 = Mittelschiene; 473 = Hinterschiene)

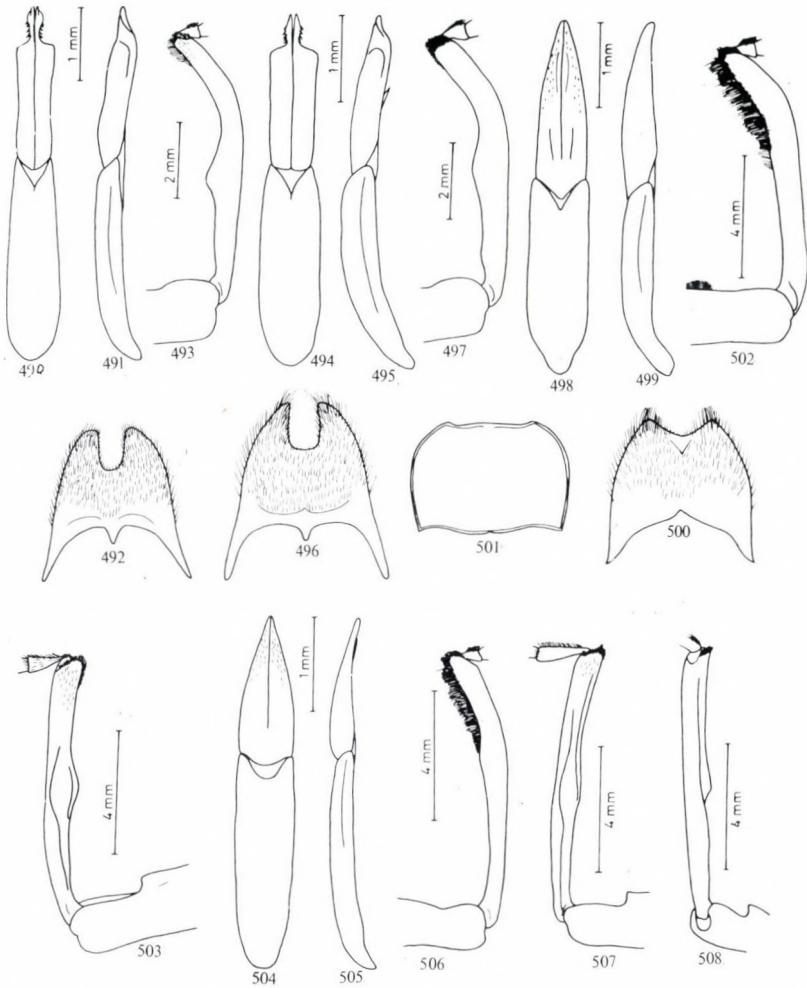


Abb. 490—493. *Promethis rectangula* (MOTSCHULSKY, 1872). — Abb. 494—497. *P. angulicollis* sp. n. — Abb. 498—503. *P. kempi kempi* (GRAVELY, 1915). — Abb. 504—508. *P. kempi vientianei* ssp. n. (490, 494, 498, 504 = Aedoeagus von oben; 491, 495, 499, 505 = Aedoeagus bei Seitenansicht; 492, 496, 500 = 8. Urosternit; 501 = Halsschild; 493, 497, 502, 506 = Vorder-schiene; 503 = Hinterschiene; 507 = Hinterschiene von oben; 508 = Hinterschiene bei Seitenansicht)

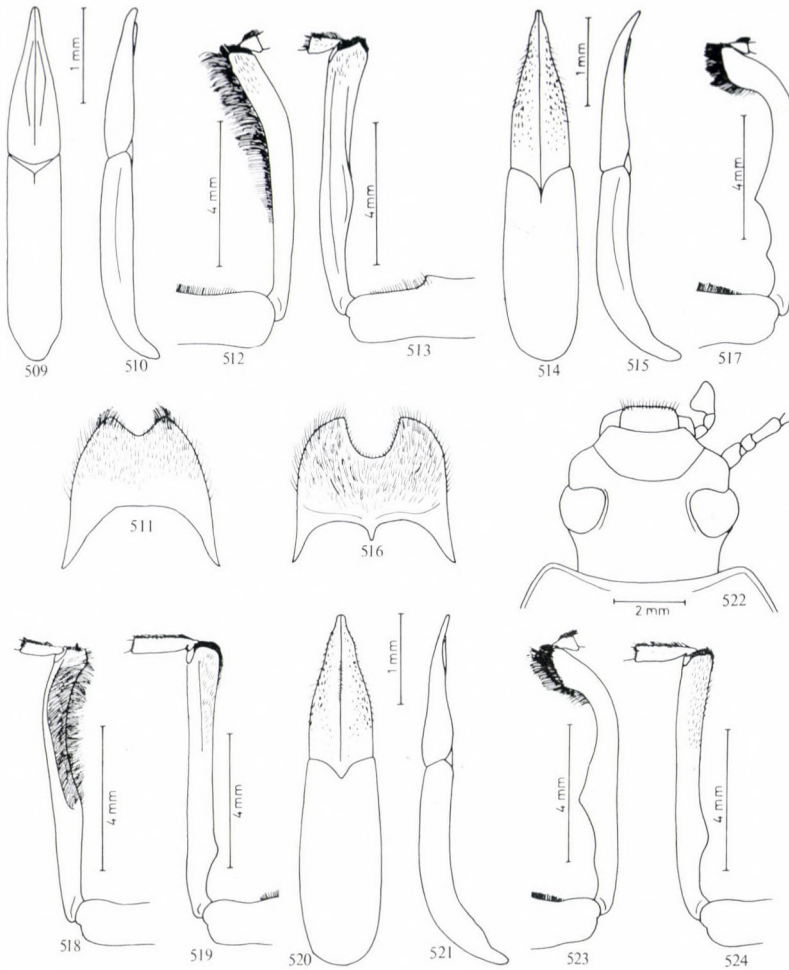


Abb. 509—513. *Promethis dentipes* (GEBIEN, 1914). — Abb. 514—519. *P. cupripennis cupripennis* (BOHEMAN, 1858). — Abb. 520—524. *P. cupripennis splendidula* ssp. n. (509, 514, 520 = Aedeagus von oben; 510, 515, 521 = Aedeagus bei Seitenansicht; 511, 516 = 8. Urosternit; 522 = Kopf; 512, 517, 523 = Vorderschiene; 518 = Mittelschiene; 513, 519, 524 = Hinterschiene)

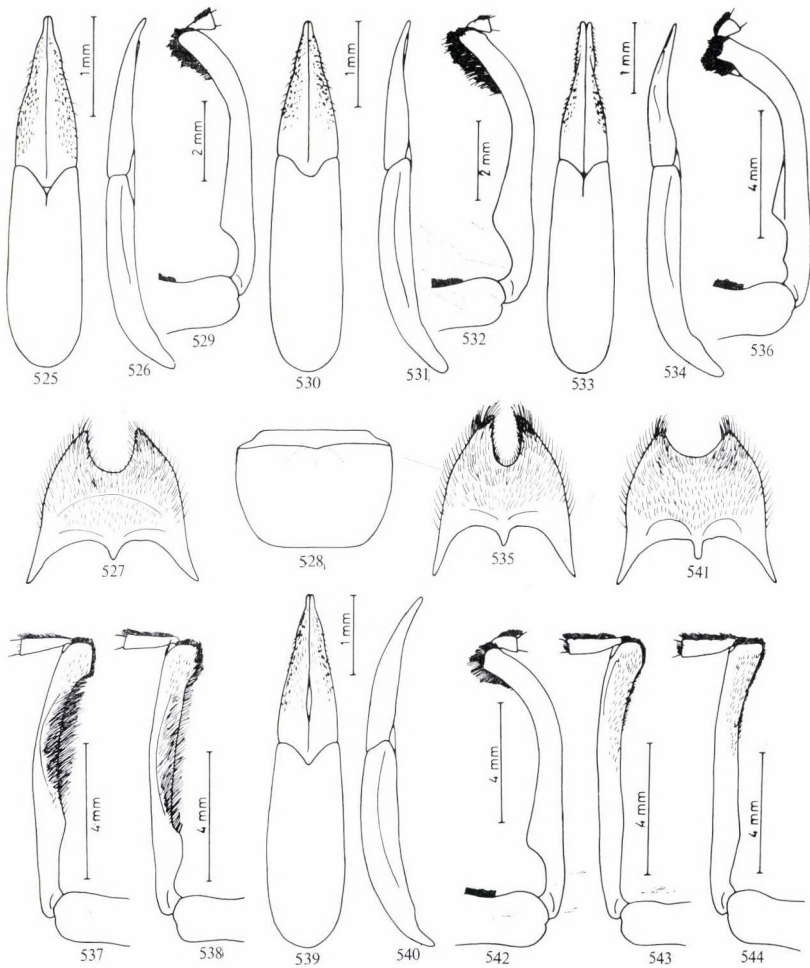


Abb. 525—529. *Promethis sulawesiae sulawesiae* sp. n. — Abb. 530—532. *P. sulawesiae nigerima* ssp. n. — Abb. 533—538. *P. rufofemorata* sp. n. — Abb. 539—544. *P. heros* (GEBIEN, 1918) (525, 530, 533, 539 = Aedeagus von oben; 526, 531, 534, 540 = Aedeagus bei Seitenansicht; 527, 535, 541 = 8. Urosternit; 528 = Mentum; 529, 532, 536, 542 = Vorderschiene; 537, 543 = Mittelschiene; 538, 544 = Hinterschiene)

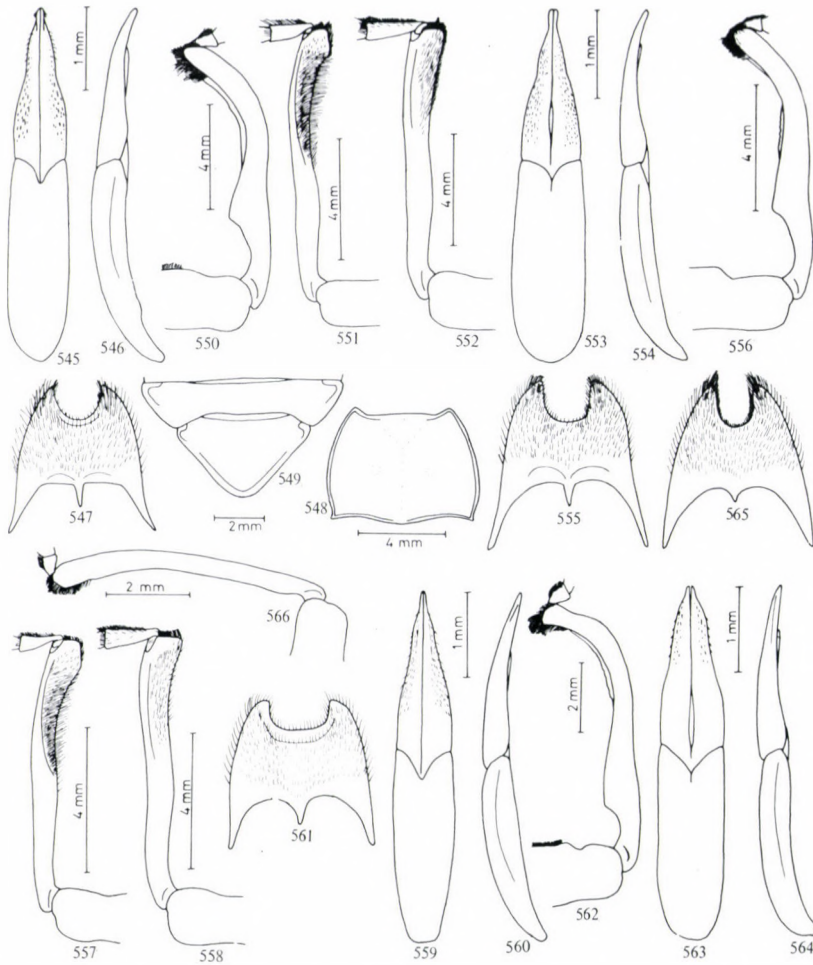


Abb. 545—552. *Promethis valga* (WIEDEMANN, 1823). — Abb. 553—558. *P. coracina coracina* (KNOCH, 1801). — Abb. 559—562. *P. coracina kalmintana* ssp. n. — Abb. 563—566. *P. confusa* (FAIRMAIRE, 1896) (545, 553, 559, 563 = Aedoeagus von oben; 546, 554, 560, 564 = Aedoeagus bei Seitenansicht; 547, 555, 561, 565 = 8. Urosternit; 548 = Halsschild; 549 = Analsegment; 550, 556, 562, 566 = Vorderschiene; 551, 557 = Mittelschiene; 552, 558 = Hinterschiene)

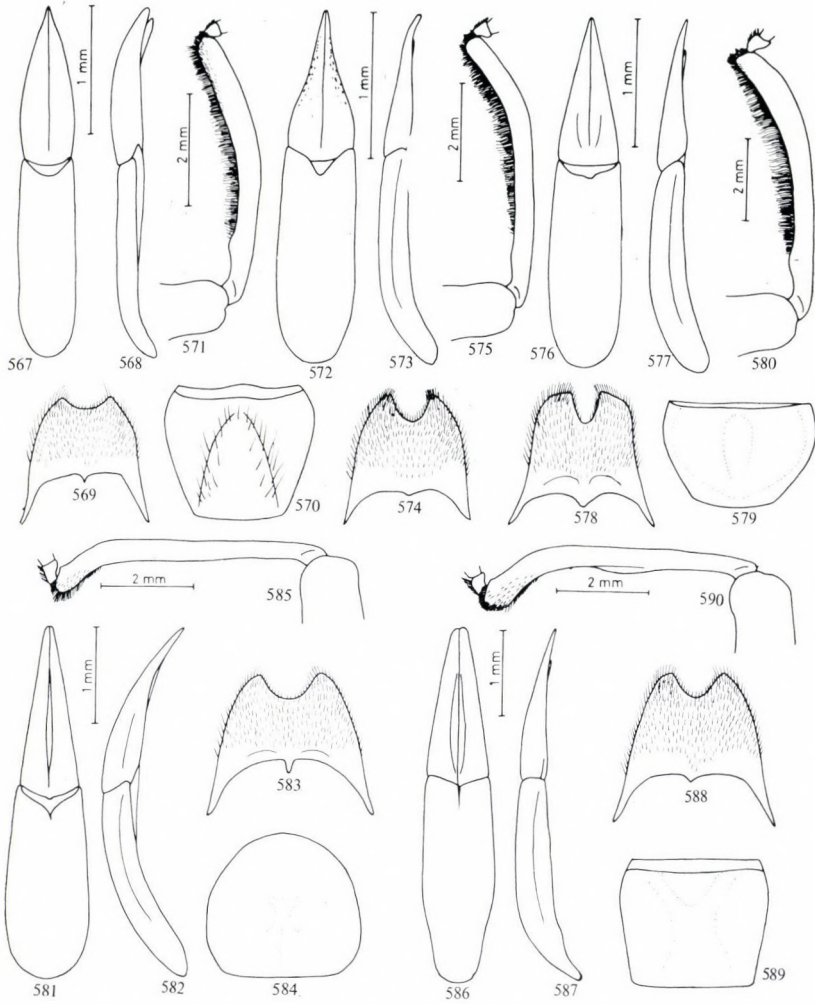


Abb. 567—571. *Promethis matanga* sp. n. — Abb. 572—575. *P. furcaticollis* sp. n. — Abb. 576—580. *P. hangayi* sp. n. — Abb. 581—585. *P. fruhstorferi* sp. n. — Abb. 586—590. *P. conicollis* sp. n. (567, 572, 576, 581, 586 = Aedeagus von oben; 568, 573, 577, 582, 587 = Aedeagus bei Seitenansicht; 569, 574, 578, 583, 588 = 8. Urosternit; 570, 579, 584, 589 = Mentum; 571, 575, 580, 585, 590 = Vorderschiene)



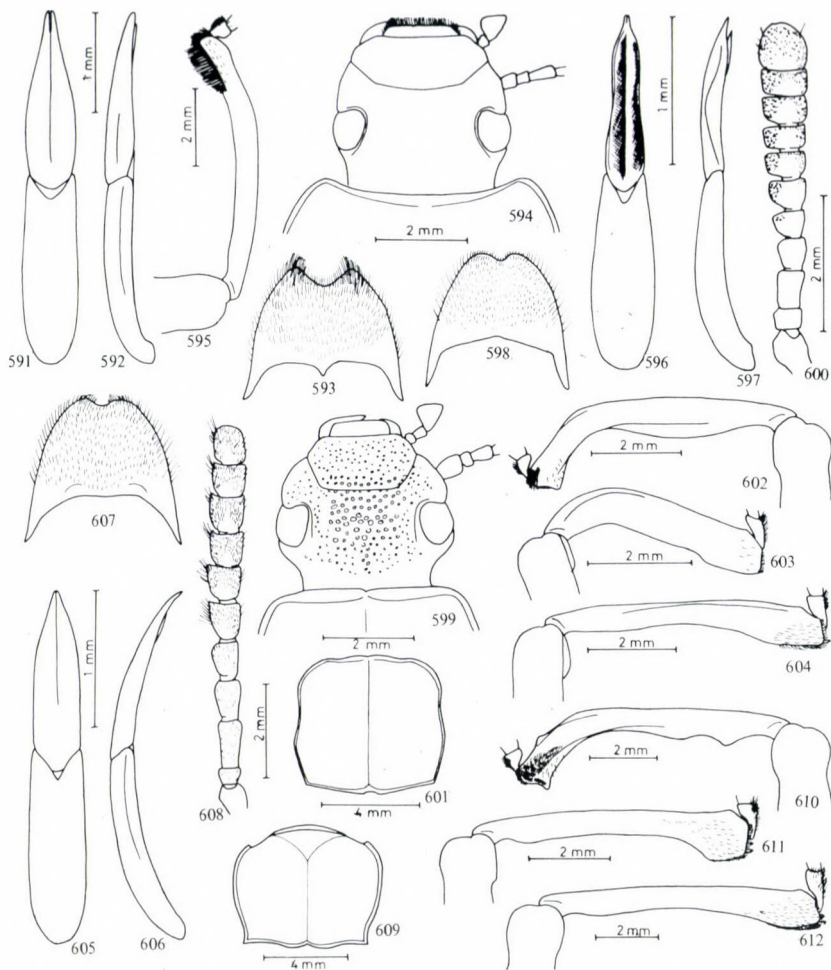


Abb. 591—595. *Promethis mandibularis* (GEBIEN, 1918). — Abb. 596—604. *P. plicifrons* (GEBIEN, 1918). — Abb. 605—612. *P. excisa* (GEBIEN, 1914) (591, 596, 605 = Aedeagus von oben; 592, 597, 606 = Aedeagus bei Seitenansicht; 593, 598, 607 = 8. Urosternit; 594, 599 = Kopf; 600, 608 = Fühler; 601, 609 = Halsschild; 595, 602, 610 = Vorderschiene; 603, 611 = Mittelschiene; 604, 612 = Hinterschiene)

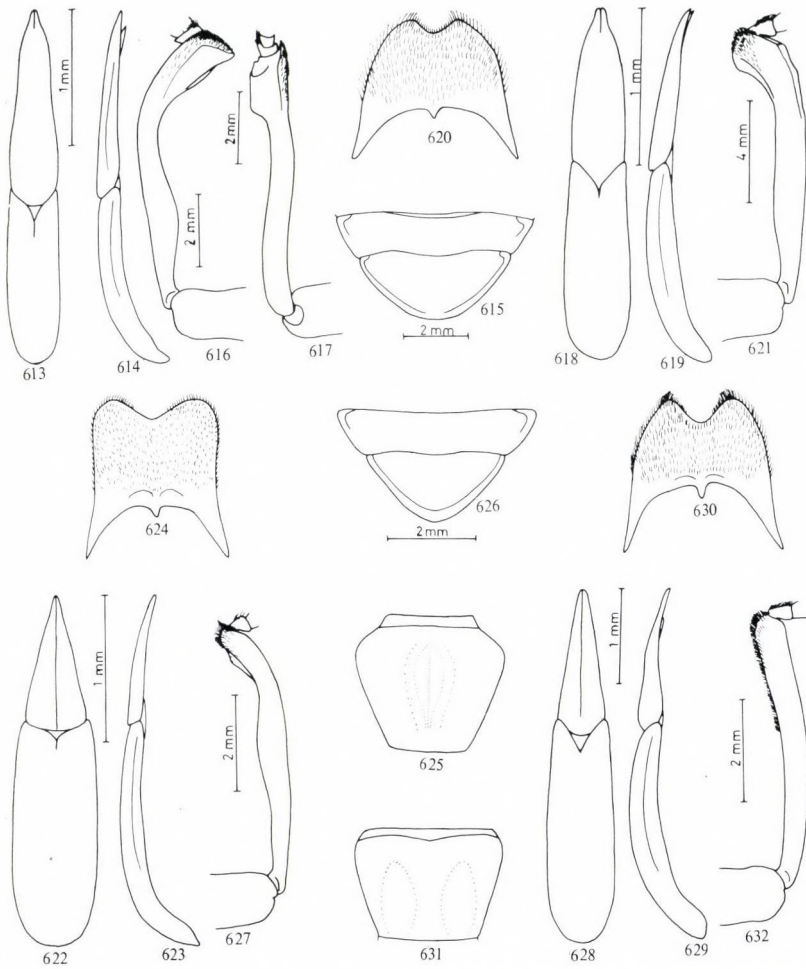


Abb. 613—617. *Promethis rondoni* sp. n. — Abb. 618—621. *P. selangorana* sp. n. — Abb. 622—627. *P. depressa* (GEBIEN, 1918). — Abb. 628—632. *P. fortepunctaticeps* sp. n. (613, 618, 622, 628 = Aedoeagus von oben; 614, 619, 623, 629 = Aedoeagus bei Seitenansicht; 620, 624, 630 = 8. Urosternit; 615, 626 = Analsegment; 625, 631 = Mentum; 616 = Vorderschiene von oben; 617 = Vorderschiene bei Seitenansicht; 621, 627, 632 = Vorderschiene)

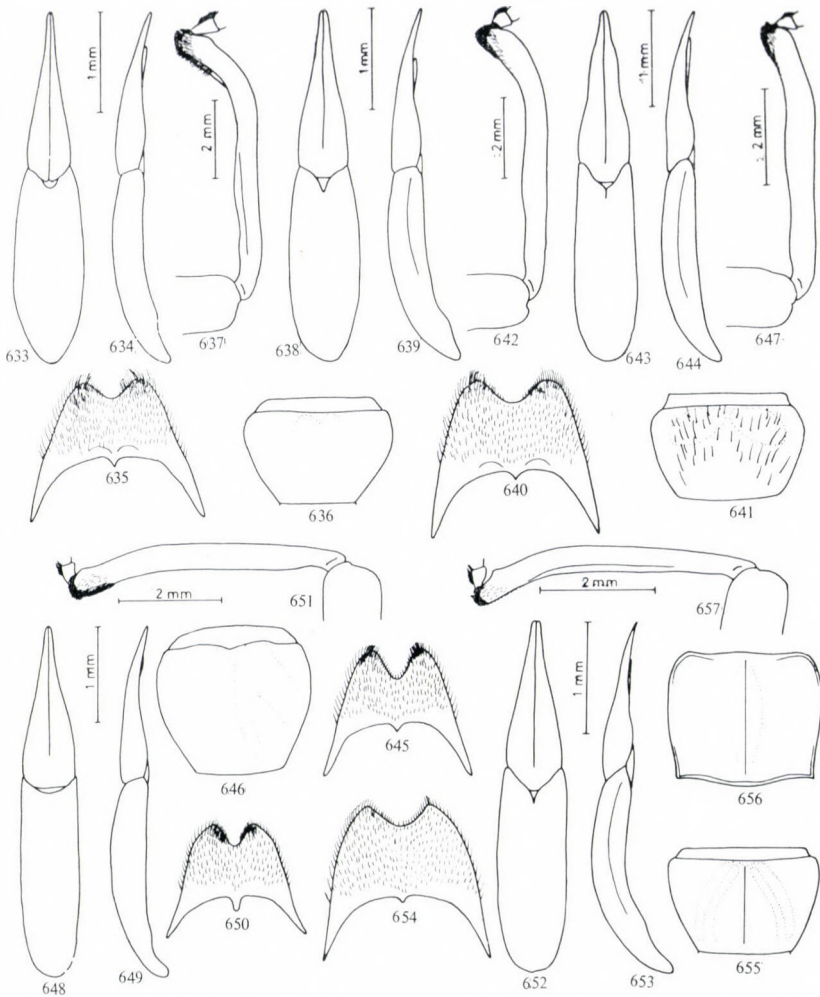


Abb. 633—637. *Promethis javanica* (GEBIEN, 1918). — Abb. 638—642. *P. philippinensis* sp. n. — Abb. 643—647. *P. pseudoimpressa* sp. n. — Abb. 648—651. *P. buruensis* sp. n. — Abb. 652—657. *P. sulcicollis* sp. n. (633, 638, 643, 648, 652 = Aedoeagus von oben; 634, 639, 644, 649, 653 = Aedoeagus bei Seitenansicht; 635, 640, 645, 650, 654 = 8. Urosternit; 636, 641, 646, 655 = Mentum; 656 = Halsschild; 637, 642, 647, 651, 657 = Vorderschiene)

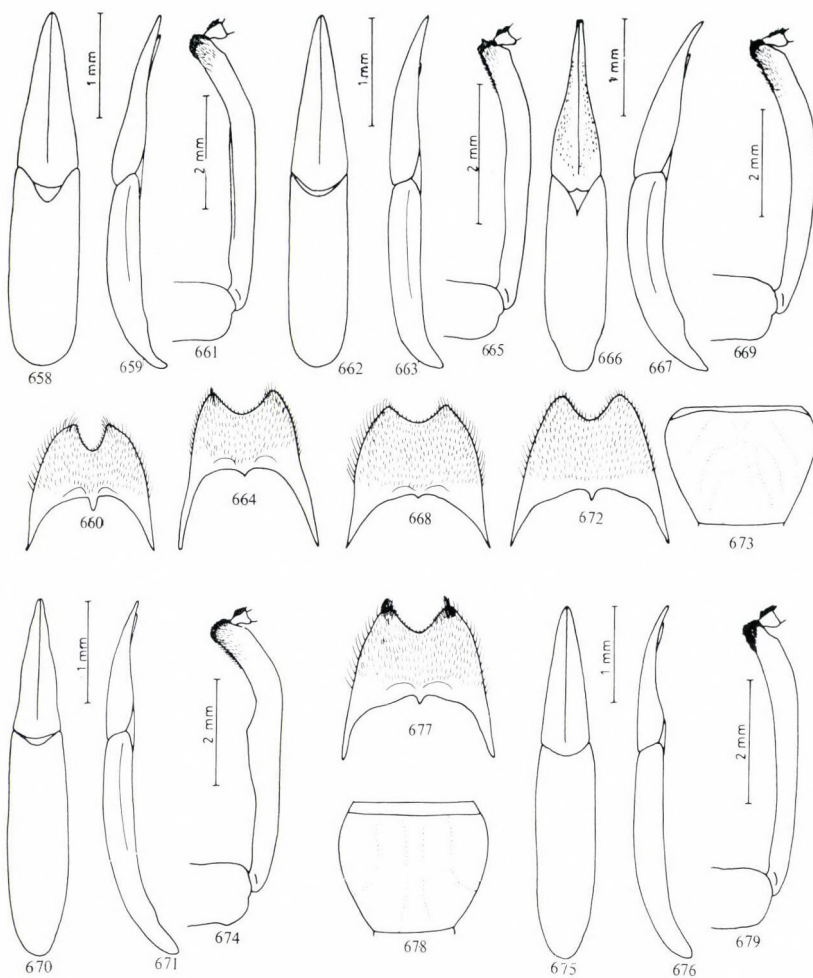
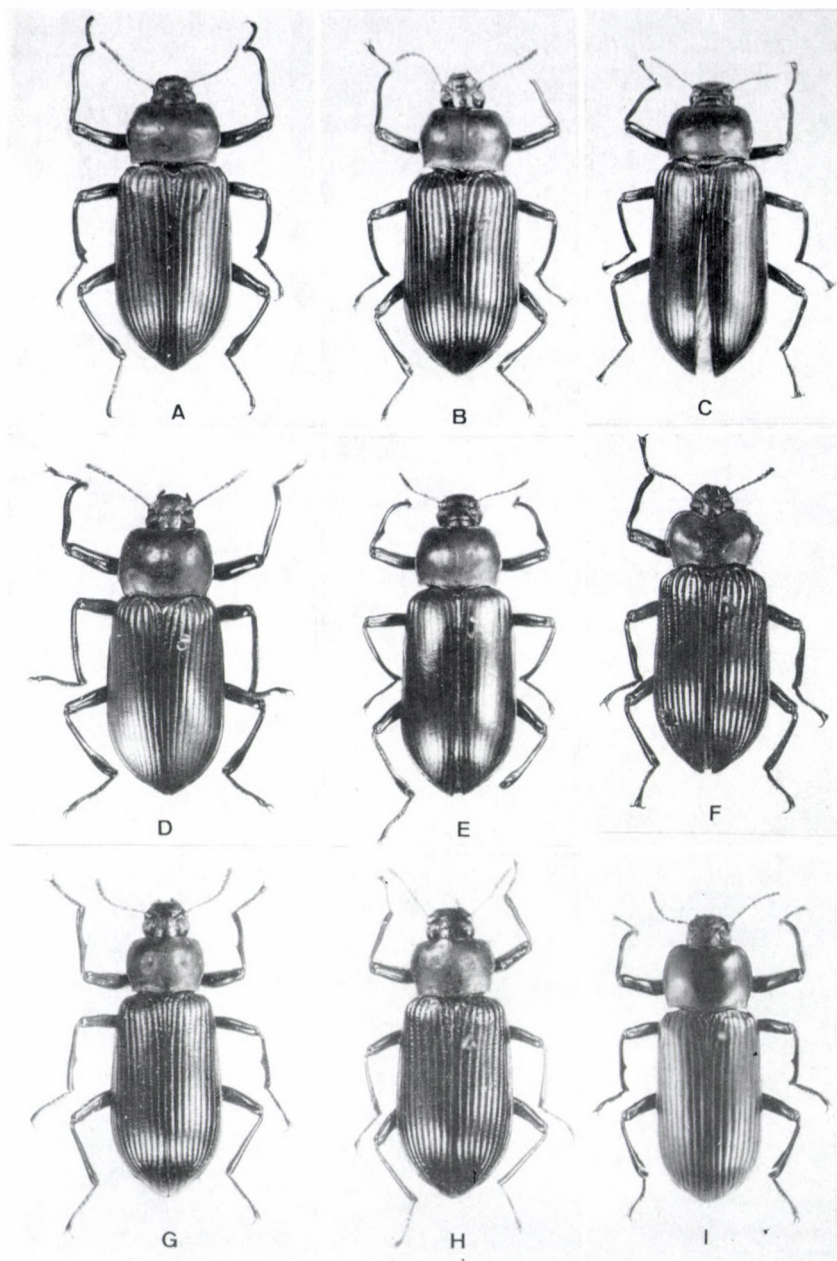
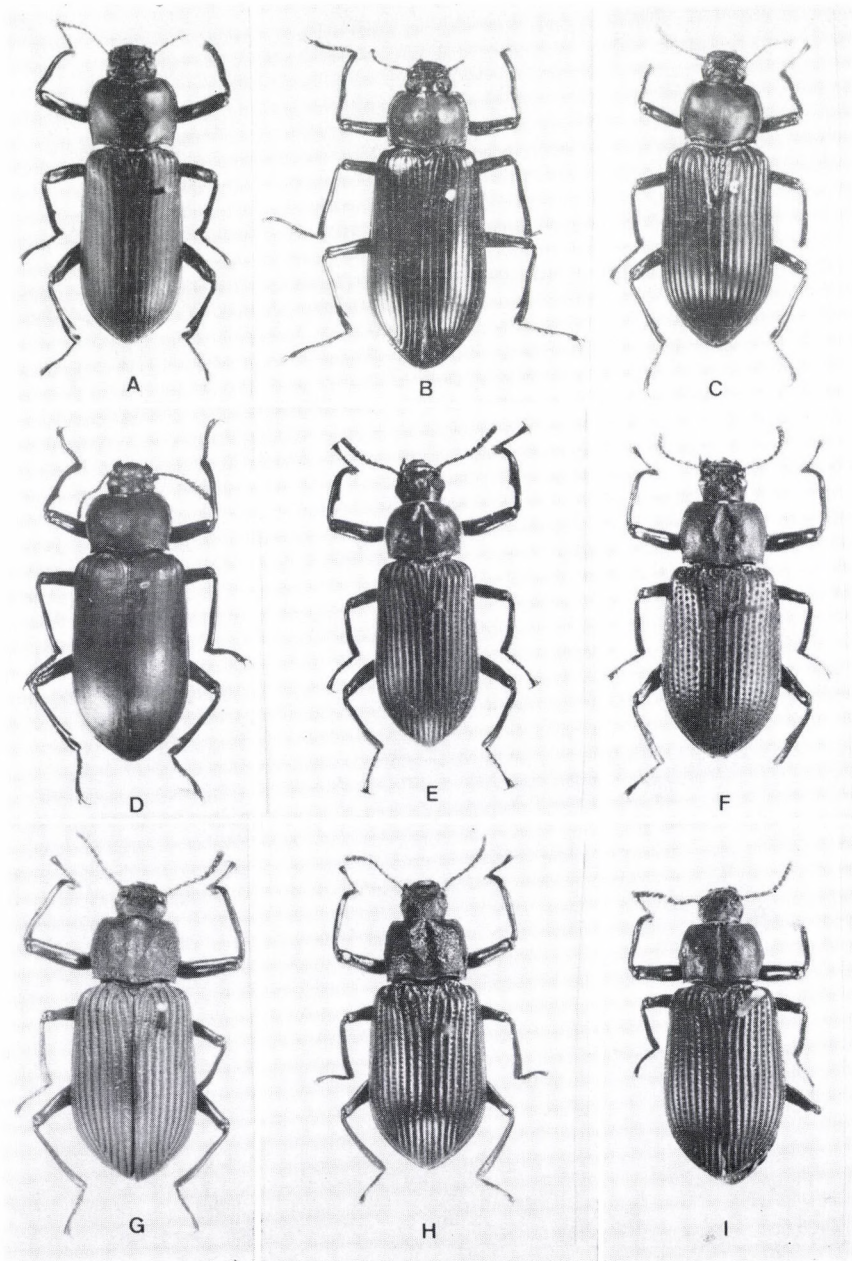


Abb. 658—661. *Promethis tenasserimica* sp. n. — Abb. 662—665. *P. carbonaria* (ARROW, 1900). — Abb. 666—669. *P. silvestris* sp. n. — Abb. 670—674. *P. impressa* (FABRICIUS, 1801). — Abb. 675—679. *P. punctulator* (FAIRMAIRE, 1883) (658, 662, 666, 670, 675 = Aedeagus von oben; 659, 663, 667, 671, 676 = Aedeagus bei Seitenansicht; 660, 664, 668, 672, 677 = 8. Urosternit; 673, 678 = Mentum; 661, 665, 669, 674, 679 = Vorderschiene)



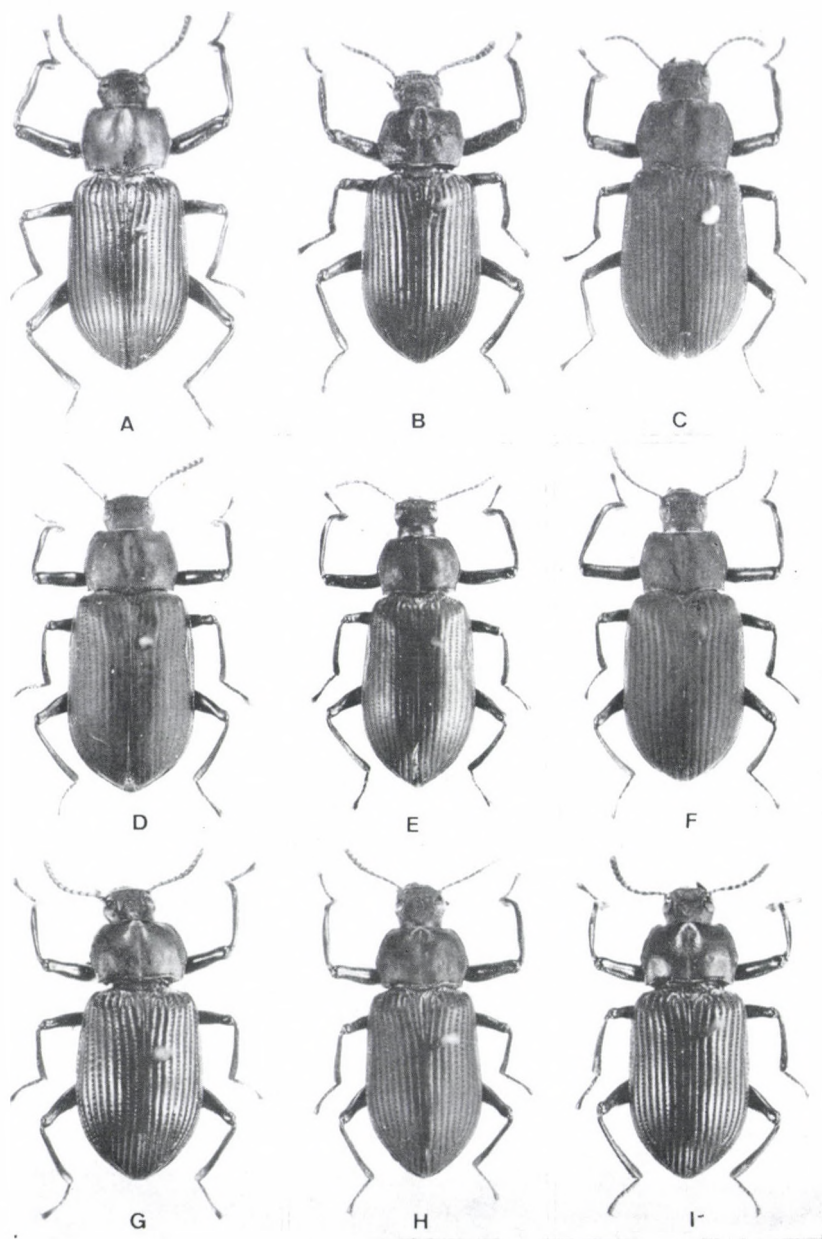
Tafel I

A = *Promethis pedestris* (GEBIEN, 1918) LT ♂; B = *P. microcephala* (FAIRMAIRE, 1899) ♂, und C = LT ♀; D = *P. subbiangulata subbiangulata* (M. T. CHÛJÔ, 1978) HT ♂; E = *P. subbiangulata mausona* ssp. n. HT ♂; F = *P. cordicollis* sp. n. PT ♂; G = *P. noctivigila* (LEWIS, 1894) ♂, und H = ♀; I = *P. parallela parallela* (FAIRMAIRE, 1897) ♂



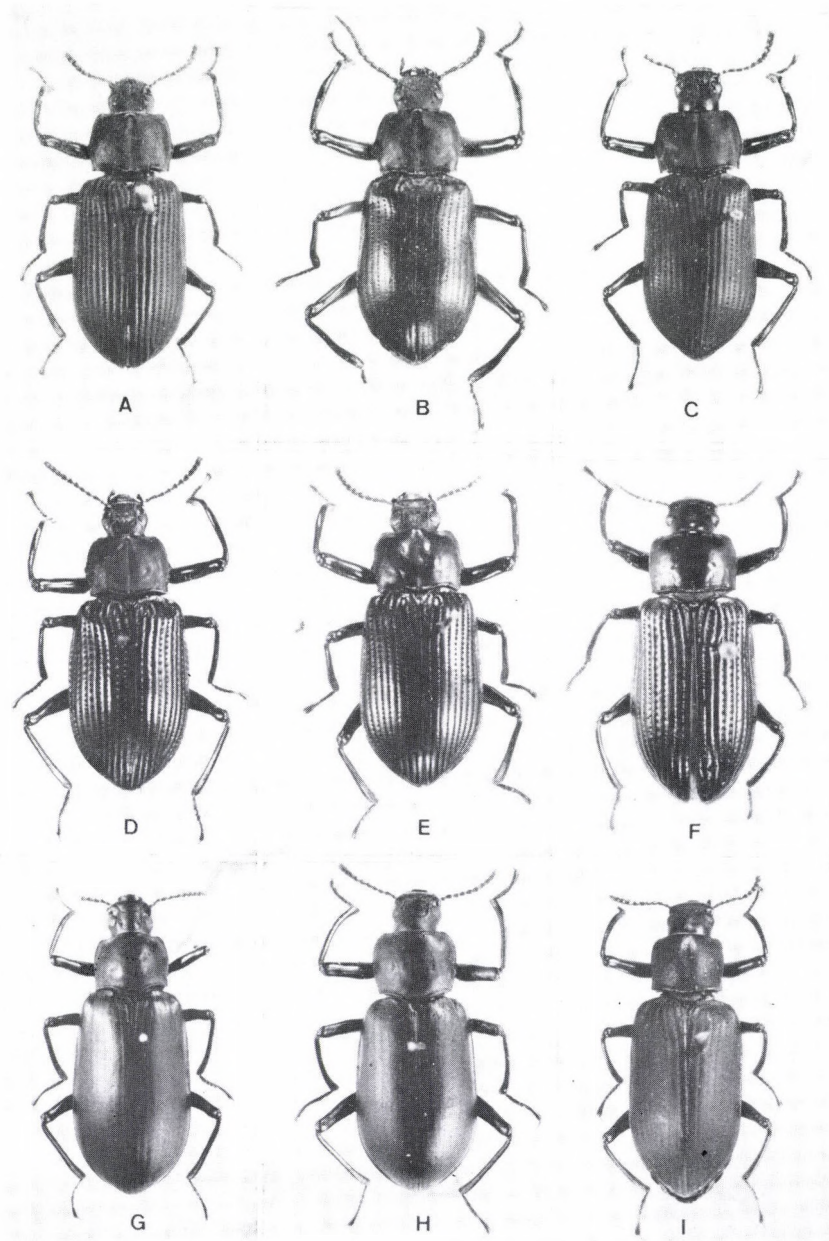
Tafel II

A = *Promethis parallela cheni* ssp. n. PT; B = *P. persimilis* (M. T. CHÛJÓ, 1980) HT ♂;  
 C = *P. yunnanica* sp. n. HT ♂; D = *P. kurosawai* (MASUMOTO, 1982) ♂; E = *P. setulosa*  
 (GEBIEN, 1918) ♂; F = *P. rufipennis* (KASZAB, 1980) PT ♂; G = *P. rugosa* sp. n. HT ♂;  
 H = *P. crenatostriata* (MOTSCHULSKY, 1872) ♂; I = *P. timorensis* sp. n. HT ♂



Tafel III

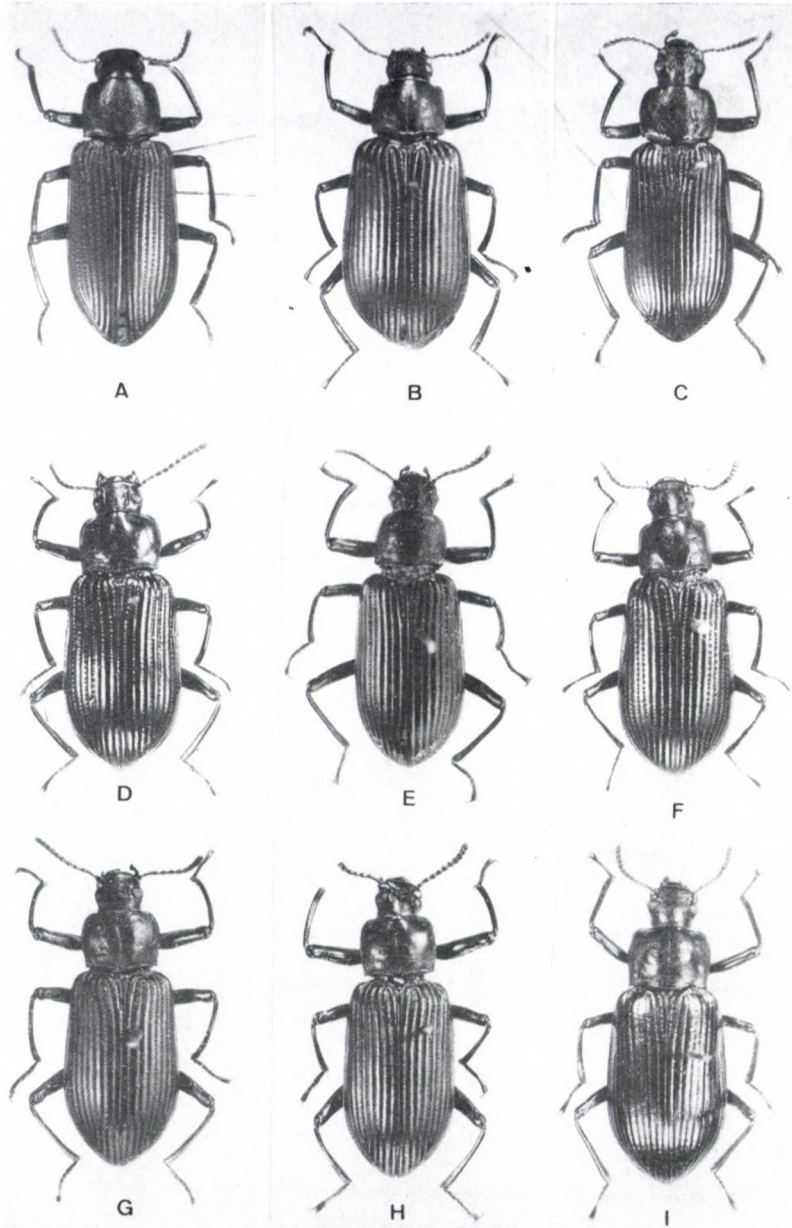
A = *Promethis villososternalis* sp. n. HT ♂; B = *P. insularis* sp. n. PT ♂; C = *P. sumatrana* sp. n. PT ♂; D = *P. walshae* sp. n. HT ♂; E = *P. laevicollis* sp. n. HT ♂; F = *P. tibialis* (GUÉRIN-MÉNEVILLE, 1834) ♂; G = *P. luzonica* sp. n. PT ♂; H = *P. oceanica* sp. n. PT ♂; I = *P. aequatorialis* (BLANCHARD, 1853) NT ♂



Tafel IV

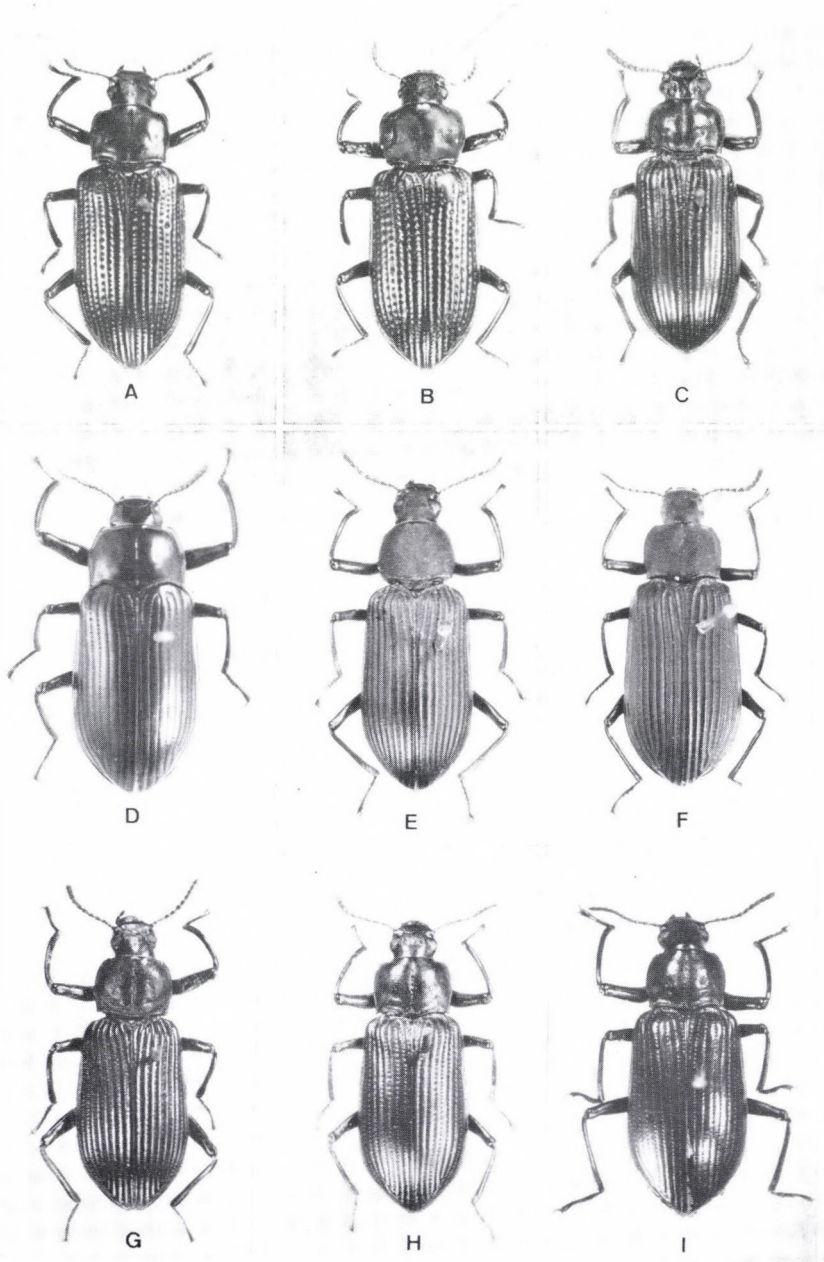
A = *Promethis cameronensis* sp. n. PT ♂; B = *P. sanguinicus* (FAIRMAIRE, 1893) ♂; C = *P. masumotoi* sp. n. HT ♂; D = *P. mindanaoensis* sp. n. HT ♂; E = *P. sulcatipennis* sp. n. PT ♂; F = *P. queenslandica* sp. n. HT ♂; G = *P. glabra* (HOPE, 1831) ♂; H = *P. glabricula* (MOT-SCHULSKY, 1872) ♂; I = *P. granulata* sp. n. HT ♂





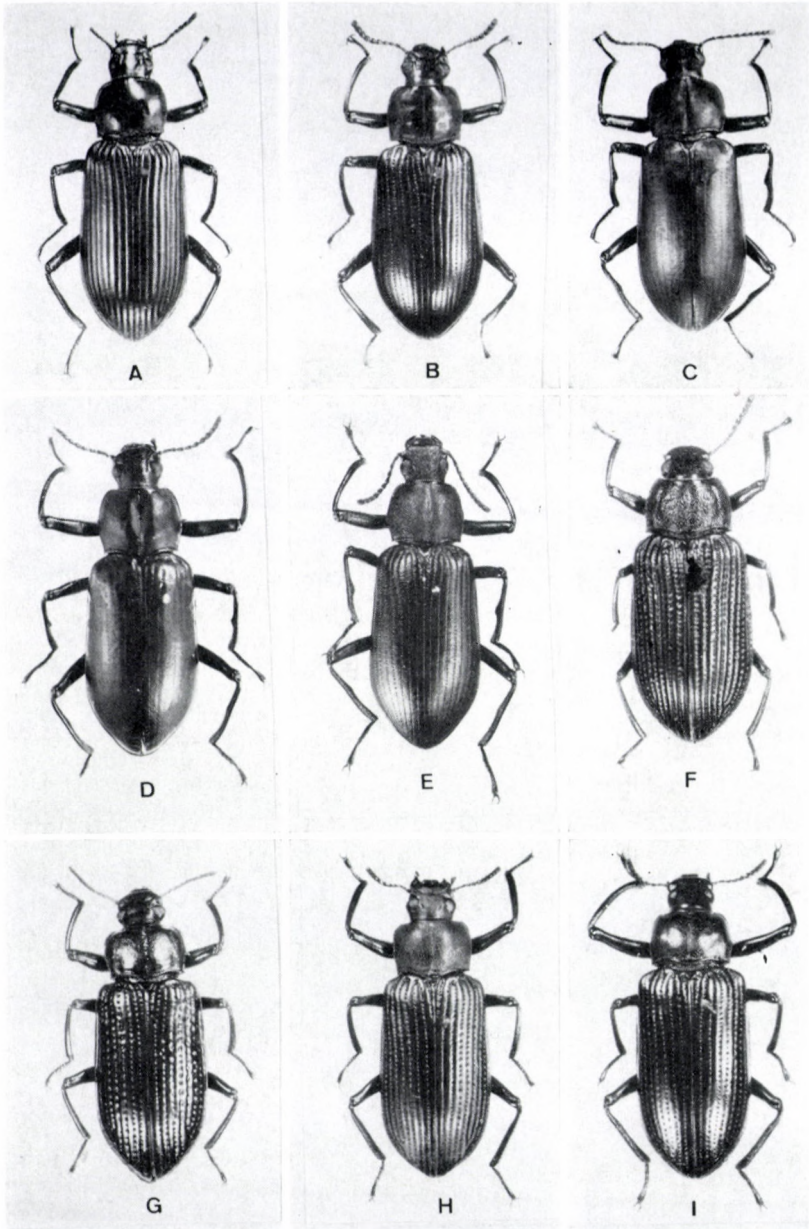
Tafel V

A = *Promethis exigua* (M. T. CHÛJÔ, 1980) HT ♂; B = *P. harmandi* ALLARD, 1896 ♂; C = *P. kaoshana* (MASUMOTO, 1982) HT ♂; D = *P. vitalisi* (PIC, 1929) ♂; E = *P. microthorax* sp. n. HT ♂; F = *P. almoresensis* sp. n. PT ♂; G = *P. tatsienlua* sp. n. HT ♂; H = *P. tonkinaea* sp. n. HT ♂; I = *P. darlingtoni* sp. n. HT ♂



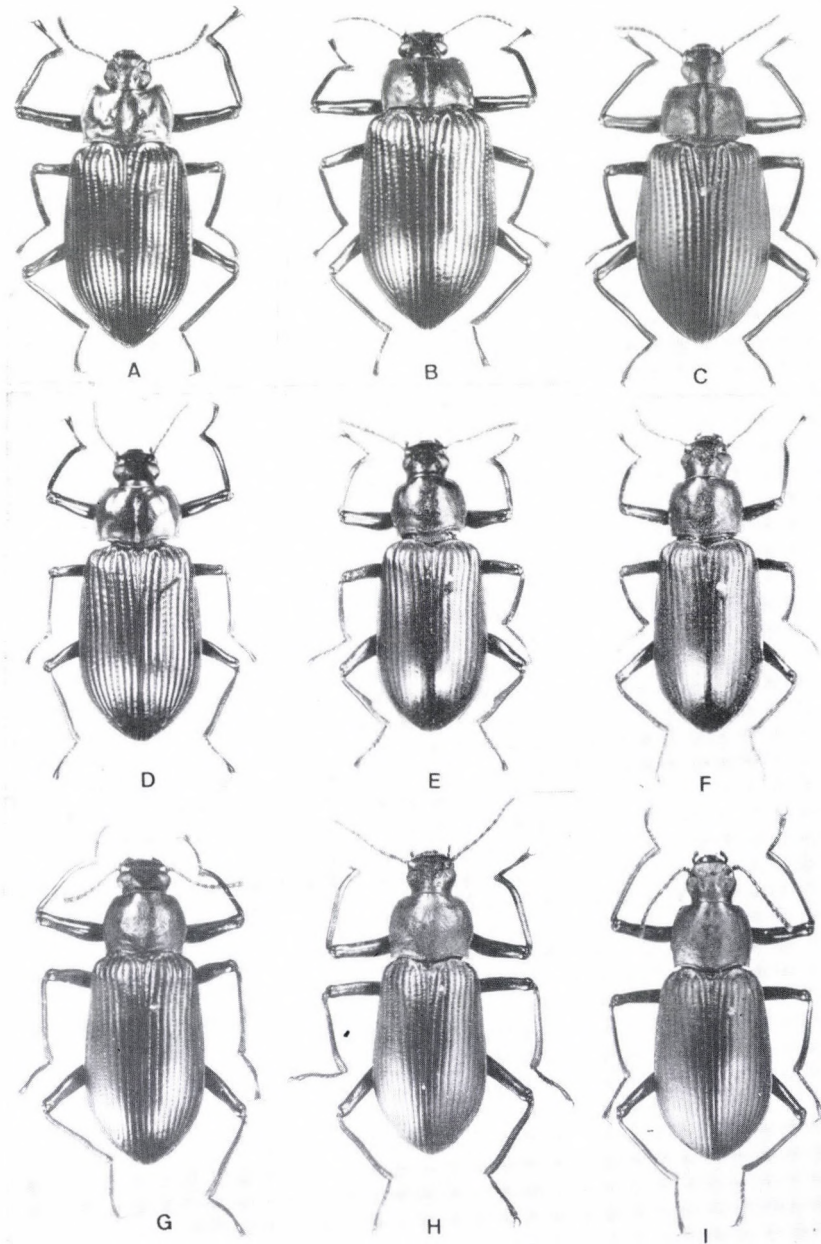
Tafel VI

A = *Promethis quadricollis* PASCOE, 1869 ♂; B = *P. minor* CARTER, 1914 ♂; C = *P. aberrans* sp. n. HT ♀; D = *P. borneensis* sp. n. HT ♀; E = *P. pubiventris* (BLAIR, 1919) HT ♂; F = *P. kinabaluensis* sp. n. HT ♂; G = *P. pauperula* (GEBIEN, 1918) ♂; H = *P. sinuatocollis* sp. n. PT ♂; I = *P. iriomotensis* (M. T. CHÛJÔ, 1979) HT ♂



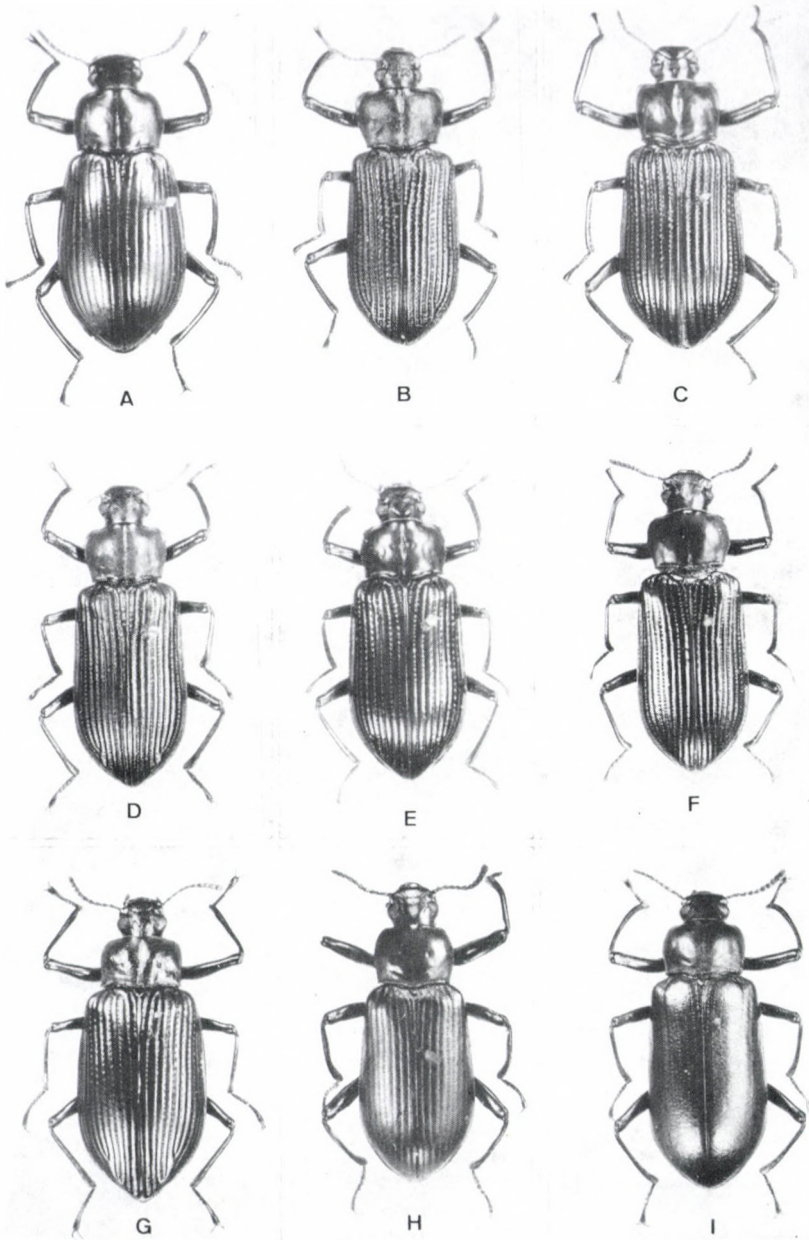
Tafel VII

A = *Promethis szetchuanica* sp. n. PT ♂; B = *P. striatipennis* (LEWIS, 1894) PLT ♂; C = *P. valgipes valgipes* (MARSEUL, 1876) ♂; D = *P. valgipes semivalgipes* ssp. n. HT ♂; E = *P. subvalgipes* (M. T. CHÛJÔ, 1981) ♂; F = *P. temporalis* sp. n. PT ♂; G = *P. albertisi* sp. n. PT ♂; H = *P. brevicornis* (WESTWOOD, 1842) ♂; I = *P. furva* (GEBIEN, 1918) ♂



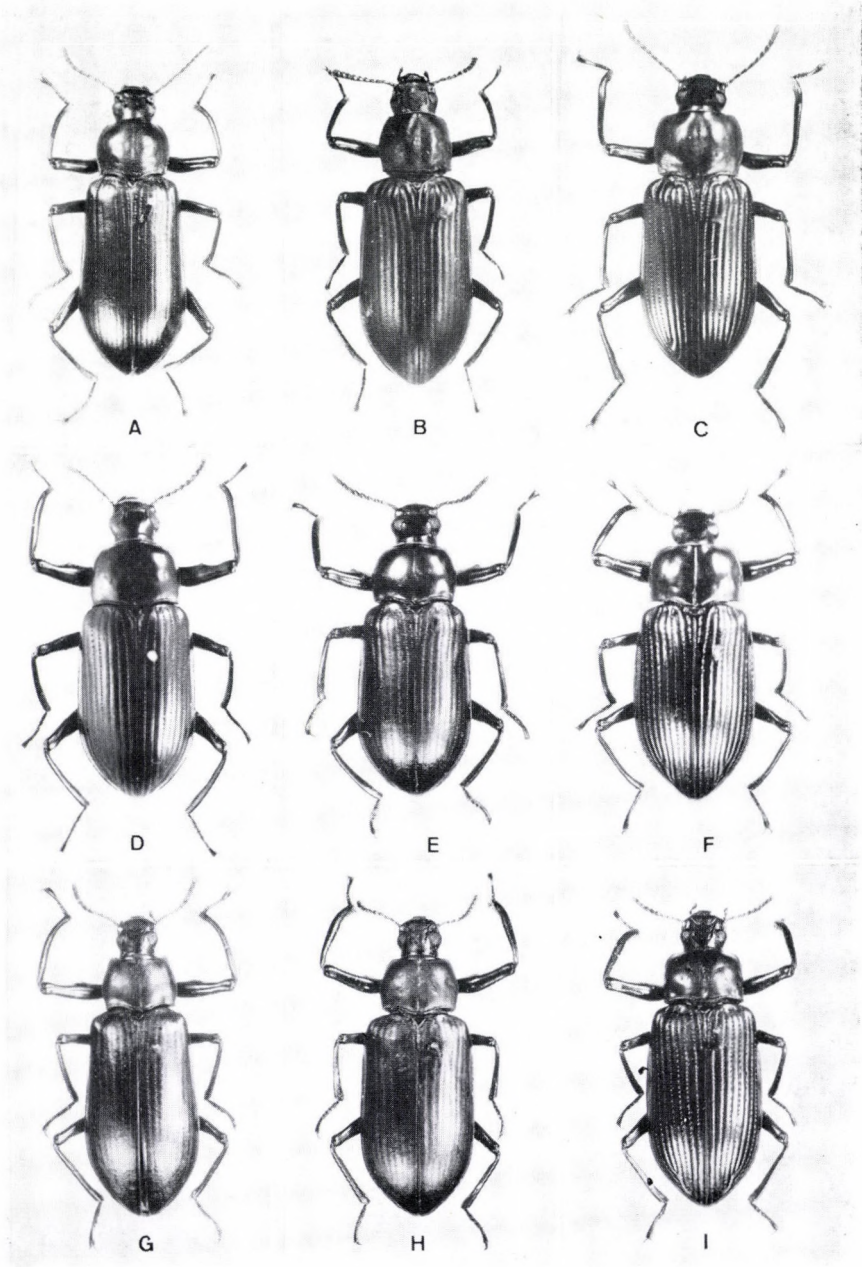
Tafel VIII

A = *Promethis producta* (GEBIEN, 1918) LT ♂; B = *P. amplipennis* (GEBIEN, 1918) ♂; C = *P. barbata* (GEBIEN, 1918) ♂; D = *P. hieki* sp. n. PT ♂; E = *P. evanescens* (GEBIEN, 1918) ♂; F = *P. chinensis* sp. n. HT ♂; G = *P. taiwana* (MASUMOTO, 1981) ♂; H = *P. oshimana* (MIWA, 1935) ♂; I = *P. okinawana* (M. T. CHÛJÔ, 1978) ♂



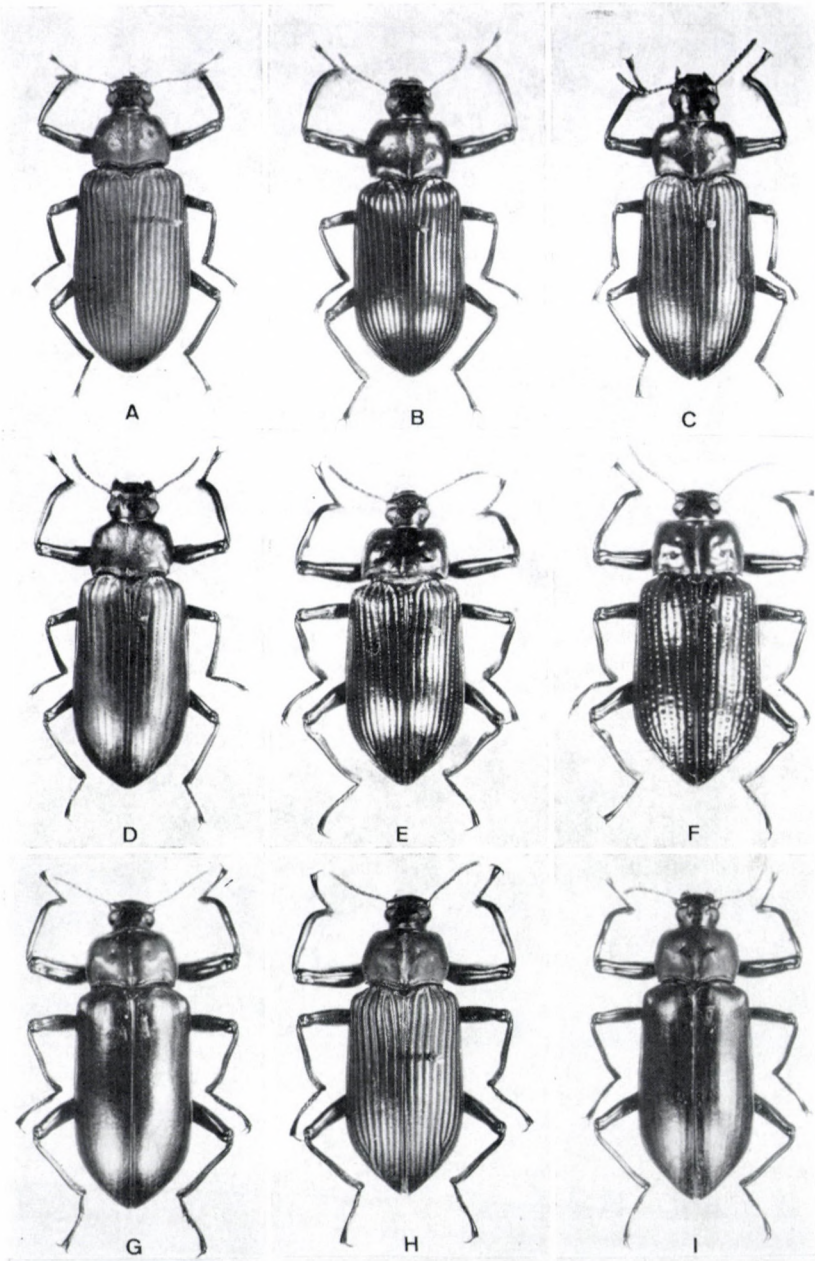
Tafel IX

A = *Promethis sterrha* (OLLIFF, 1889) ♂; B = *P. opaca* CARTER, 1914 ♂; C = *P. nigra* (BLESIG, 1861) ♂; D = *P. punctithorax* sp. n. HT ♂; E = *P. certeri* sp. n. PT ♂; F = *P. angulata* (ERICHSON, 1842) ♂; G = *P. quadraticollis* (GEBIEN, 1920) ♂; H = *P. nitouana* sp. n. HT ♂; I = *P. insomnia* (LEWIS, 1894) ♂



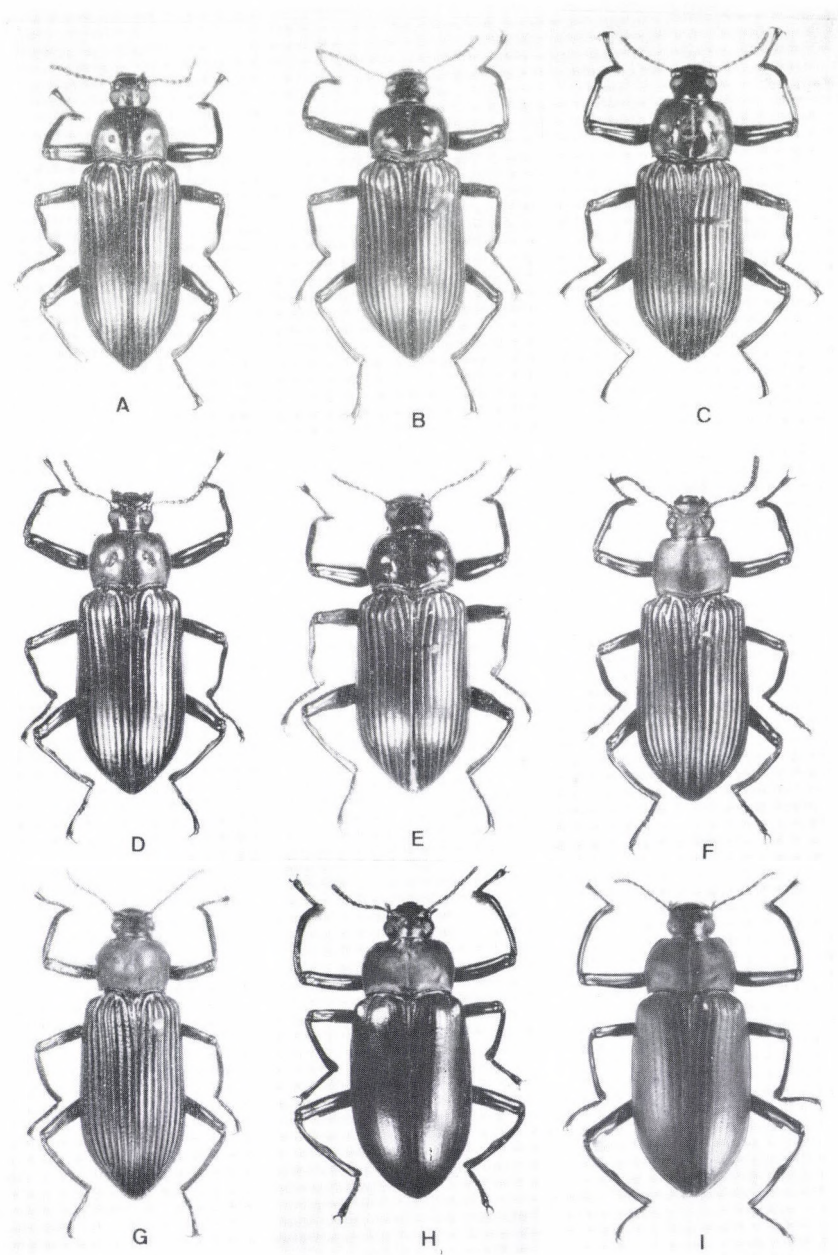
Tafel X

A = *Promethis formosana* (MASUMOTO, 1981) ♂; B = *P. birmanica* sp. n. PT ♀; C = *P. tonkinensis* (GEBIEN, 1918) ♂; D = *P. subrobusta subrobusta* (MOTSCHULSKY, 1872) ♂; E = *P. subrobusta indochinensis* ssp. n. PT ♂; F = *P. illaescollis* (FAIRMAIRE, 1883) ♂; G = *P. unidentata* sp. n. PT ♂; H = *P. punctatostriata* (MOTSCHULSKY, 1872) ♂; I = *P. manillarum* (FAIRMAIRE, 1886) ♂



Tafel XI

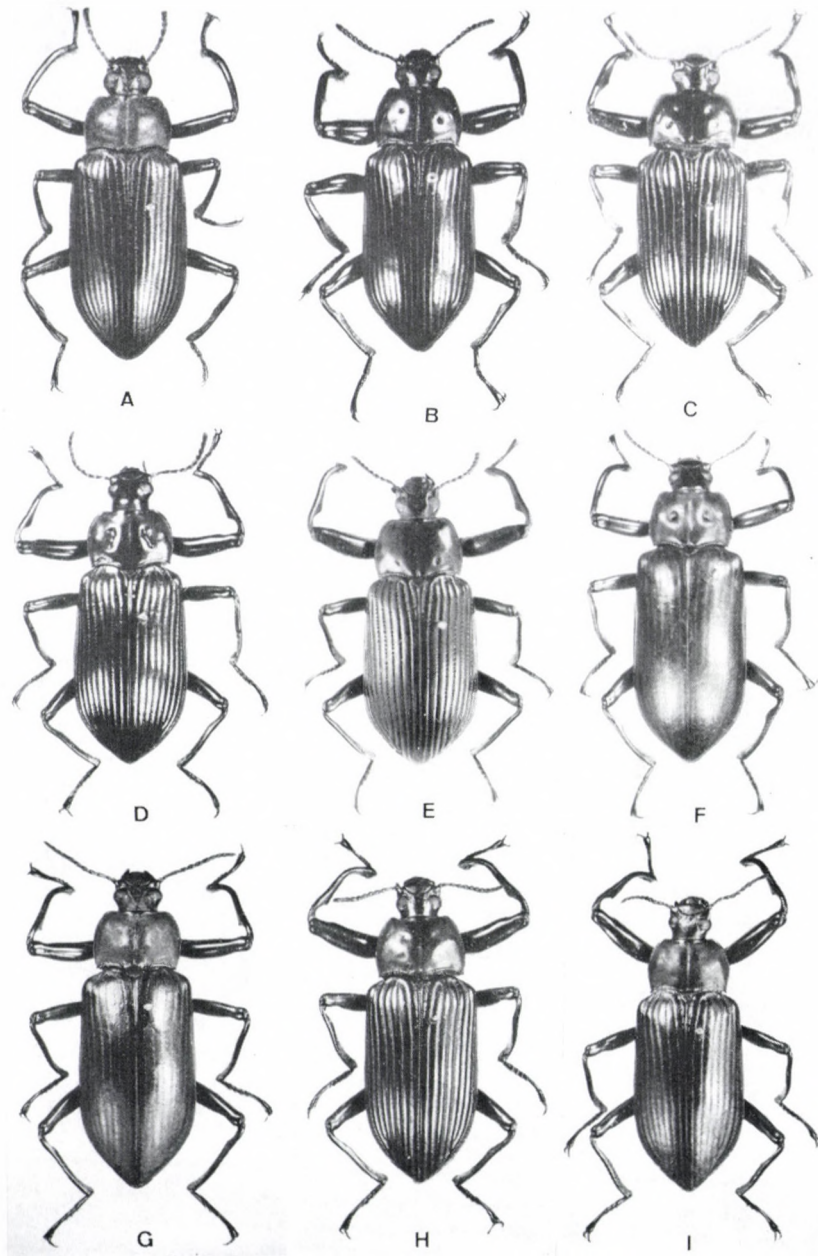
A = *Promethis andamanica* sp. n. PT ♂; B = *P. penicilligera* (GEBIEN, 1911) ♂; C = *P. puncti-collis* (MOTSCHULSKY, 1872) ♂; D = *P. opacimentum* sp. n. HT ♂; E = *P. sulcigera* (BOIS-DUVAL, 1835) ♂; F = *P. subfoveata* (GEBIEN, 1918) PLT ♂; G = *P. vietnamica* (KASZAB, 1980) ♂; H = *P. haagi* sp. n. HT ♂; I = *P. transversicollis* (MOTSCHULSKY, 1872) ♂



Tafel XII

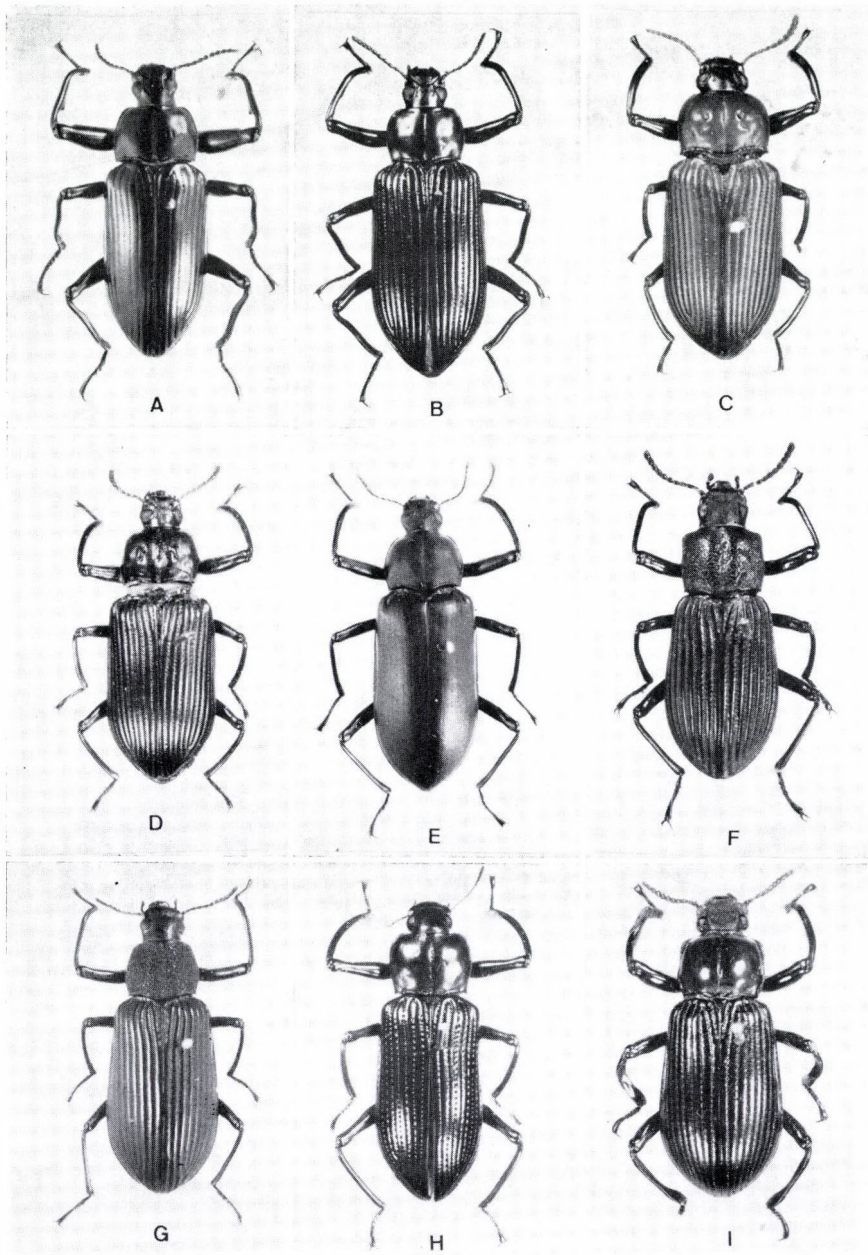
A = *Promethis harpagon* sp. n. HT ♂; B = *P. xantusi* sp. n. HT ♂, C = *P. setipes* sp. n. PT ♂; D = *P. laosensis* sp. n. PT ♂, E = *P. proteus* sp. n. PT ♂; F = *P. rectangula* (MOT-SCHULSKY, 1872) ♂; G = *P. angulicollis* sp. n. HT ♂; H = *P. kempii kempii* (GRAVELY, 1915) ♂; I = *P. kempii vientianei* ssp. n. HT ♂





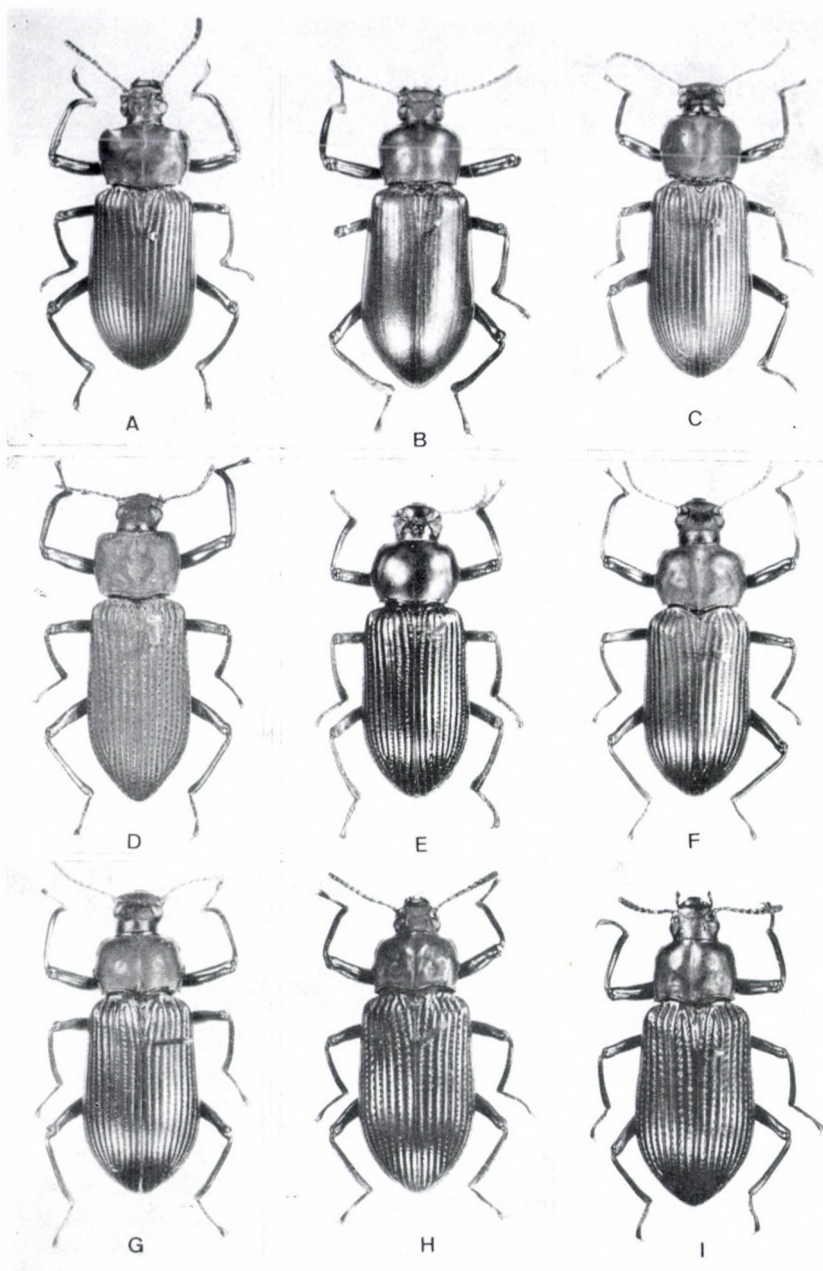
Tafel XIII

A = *Promethis dentipes* (GEBIEN, 1914) ♂; B = *P. cupripennis cupripennis* (BOHEMAN, 1858) ♂;  
 C = *P. cupripennis splendidula* ssp. n. PT ♂; D = *P. sulawesiae sulawesiae* sp. n. HT ♂;  
 E = *P. sulawesiae nigerrima* ssp. n. HT ♂; F = *P. rufofemorata* sp. n. HT ♂; G = *P. heros*  
 (GEBIEN, 1918) ♂; H = *P. valga* (WIEDEMANN, 1823) ♂; I = *P. coracina coracina* (KNOCH,  
 1801) ♂



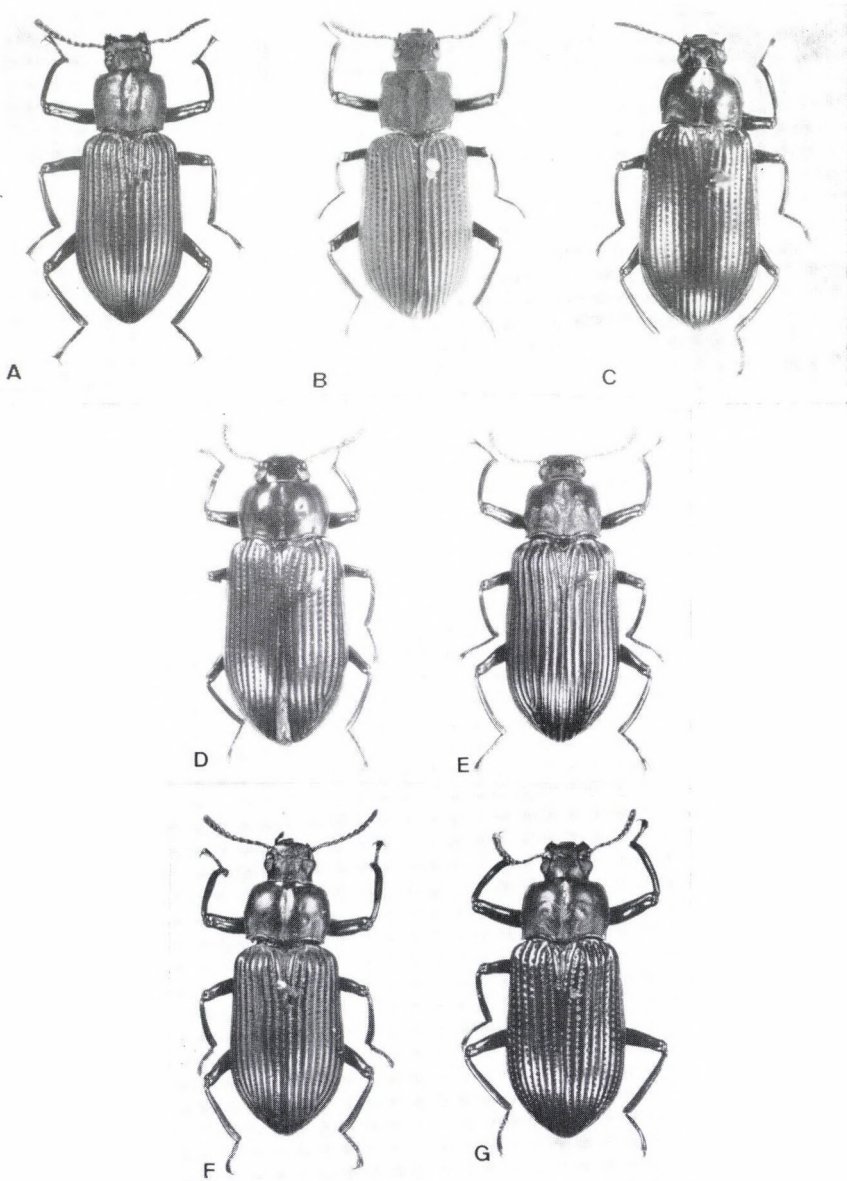
Tafel XIV

A = *Promethis coracina kalimantana* ssp. n. HT ♂; B = *P. confusa* (FAIRMAIRE, 1896) ♂;  
 C = *P. matanga* sp. n. HT ♂; D = *P. furcaticollis* sp. n. HT ♂; E = *P. hangayi* sp. n. HT ♂;  
 F = *P. fruhstorferi* sp. n. PT ♂; G = *P. conicollis* sp. n. HT ♂; H = *P. mandibularis* (GEBIEN,  
 1918) ♂; I = *P. plicifrons* (GEBIEN, 1918) ♂



Tafel XV

A = *Promethis excisa* (GEBIEN, 1914) ♂; B = *P. rondoni* sp. n. HT ♂; C = *P. selangorana* sp. n. HT ♂; D = *P. depressa* (GEBIEN, 1918) ♂; E = *P. fortepunctaticeps* sp. n. HT ♂; F = *P. javanica* (GEBIEN, 1918) ♂; G = *P. philippinensis* sp. n. PT ♂; H = *P. pseudoimpressa* sp. n. PT ♂; I = *P. buruensis* sp. n. PT ♀



## Tafel XVI

A = *Promethis sulcicollis* sp. n. PT ♂; B = *P. tenasserimica* sp. n. PT ♂; C = *P. carbonaria* (ARROW, 1900) ♂; und D = ST ♀; E = *P. silvestris* sp. n. PT ♂; F = *P. impressa* (FABRICIUS, 1801) ♂; G = *P. punctulator* (FAIRMAIRE, 1883) ♂

## ORIBATID MITES (ACARI) FROM SRI LANKA\*

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(Received 16 March, 1987)

Eleven new species are described, one new genus: *Granuloteratoppia* and one new subgenus: *Eremaozetes* (*Seteremaozetes*) established. 17 identified species enumerated. New distribution data given for some species.

The oribatid fauna of Sri Lanka (previously Ceylon) is inadequately known. The first reports on some species, collected in *Nepenthes* were given by OUDEMANS. The only extensive publication is that of J. BALOGH (1970), in which 43 new species and 7 new genera were described. MAHUNKA (1973) listed 14 species of the family Otocephidae, of which 9 were new to science.

This paper treats only a fraction of the oribatid material in our collection still awaiting study. The completion of this study shows that the oribatid fauna of Sri Lanka is probably many times the number of species known so far. Similarly to other animal groups, the number of endemic species is high. Besides these, zoogeographically interesting are the more widely distributed species, which occur either in nearby or distant localities. However, the oribatid fauna of the Western Pacific Area is so imperfectly known that care must be taken when drawing any zoogeographical conclusions. Below only the records of occurrence will be given and I add notes only in exceptional cases of distribution.

### LIST OF LOCALITIES

- CMB-1, 2, 6 and 10: Waaga, 18. 6. 1968, litter  
CMB-4: Waaga, 18. 6. 1968, rotten palm-roots  
CMB-5: Waaga, 18. 6. 1968, hanging mosses on trees  
CMB-11 and 12: Kalutara, 19. 6. 1968, Hevea plantage, litter and humus  
CMB-19, 20, 21: Kandy, 22. 6. 1968, Udewattekele Sanctuary, primary rain-forest, litter and humus  
CMB-23: Nuwara Eliya, 23-24. 6. 1968, moss forest, litter  
CMB-25: Nuwara Eliya, 23-24. 6. 1968, moss forest, luxuriant wet moss on the bark of trees  
CMB-26: Nuwara Eliya, 23-24. 6. 1968, moss forest, mosses on logs  
CMB-33: Nuwara Eliya, 24. 6. 1968, Ambawela Area, rain-forest, hanging moss on trees  
CMB-54: Battulu Oya, 29. 6. 1968, swampy area, wet detritus with *Salvinia*  
CMB-60: Siduwa, E from Colombo, 29. 6. 1968, detritus of palm-roots

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

- CMB-62, 63: Kelinkanda, Kukulegama Area, 1. 7. 1968, rain-forest, moss and litter  
 CMB-71: Oliyagankale, near Akuressa, Matara district, 3. 7. 1968, litter and humus under bamboo  
 CMB-75: Oliyagankale, near Akuressa, Matara district, 3. 7. 1968, rain-forest, hanging moss

## LIST OF IDENTIFIED SPECIES

## NANHERMANIIDAE

*Cythermannia stellata* BALOGH, 1970 — CMB-62, described from New Guinea

## MICROTEGEIDAE

*Microtegeus cornutus* BALOGH, 1970 — CMB-62

*Microtegeus quadriseta* BALOGH et MAHUNKA, 1977 — CMB-11, known from Bolivia

## CARABODIDAE

*Aokiella rotunda* HAMMER, 1980 — CMB-21, known from Java

*Austrocarabodes plumosus* BALOGH, 1970 — CMB-5, 6, 10

*Machadocephus taprobanicus* BALOGH, 1970 — CMB-5, 60, 62

*Trichocarabodes capillatus* BALOGH, 1970 — CMB-33

## OTOCEPHEIDAE

*Acrotocephus bucephalus* BALOGH, 1970 — CMB-2, 10

*Megalotocephus loksai* BALOGH, 1970 — CMB-10

*Dolicheremaeus lineatus* BALOGH, 1970 — CMB-6

*Dolicheremaeus elisabethae* BALOGH, 1970 — CMB-6, 20

*Dolicheremaeus trimucronatus* MAHUNKA, 1973 — CMB-71

## TECTOCEPHEIDAE

*Tegeocranellus levis* (BERLESE, 1904) — CMB-12, known from South Europe and Fiji!

## HEMILEIDAE

*Tuberemaeus multisetusis* BALOGH, 1970 — CMB-1, 10, 62

## GALUMNIDAE

*Flagellozetes porosus* BALOGH, 1970 — CMB-33

## PLATEREMAEIDAE

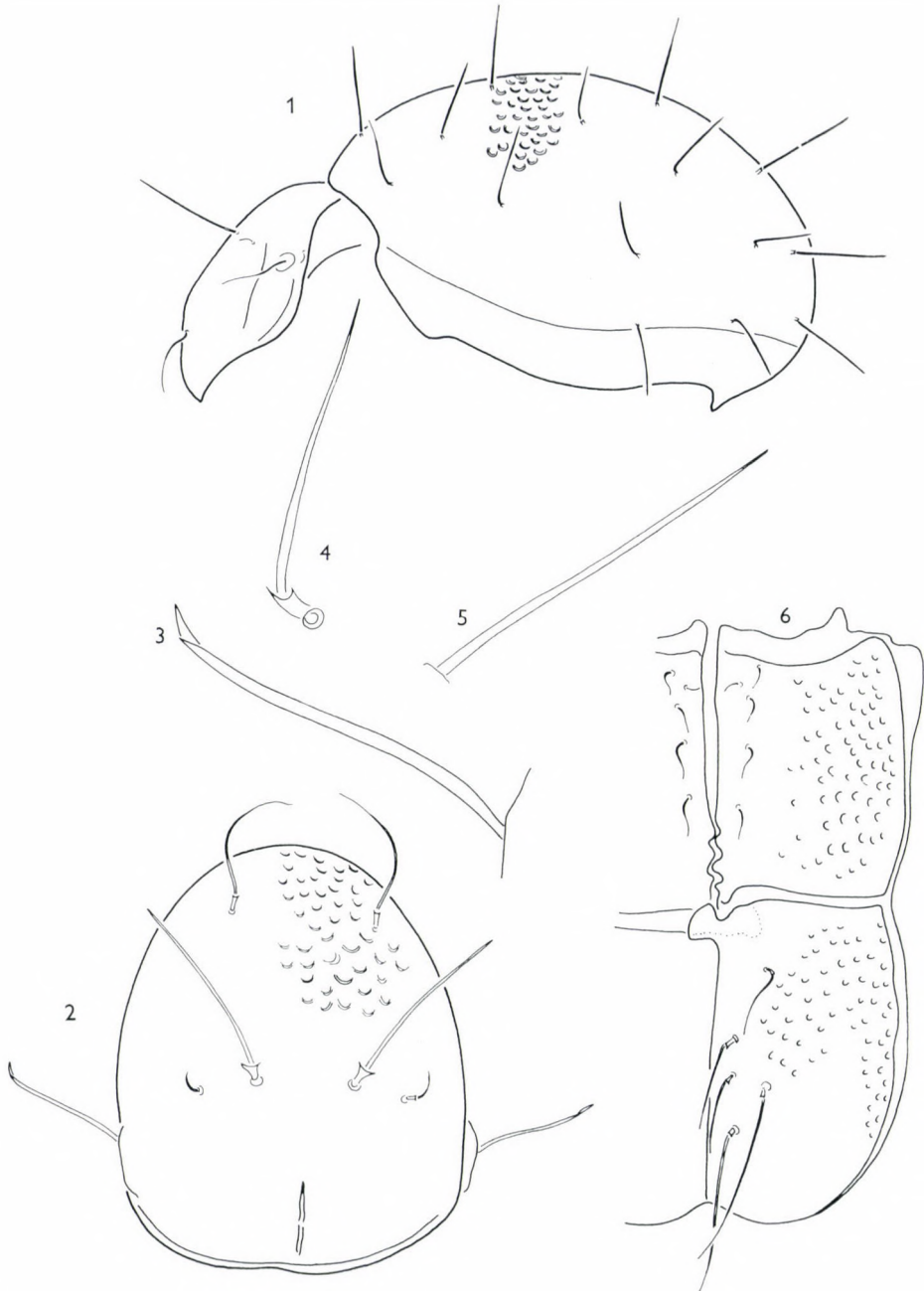
*Plateremaeus legendrei* BALOGH, 1962 — CMB-19, known from Madagascar. The unique exemplar from Sri Lanka is 730  $\mu\text{m}$  long, 394  $\mu\text{m}$  wide

DESCRIPTION AND REDESCRIPTION SOME NEW  
OR LITTLE KNOWN SPECIES

## PHTHIRACARIDAE

*Hoplophthiracarus kaszabi* sp. n. (Figs 1—6)

Length of aspis: 336  $\mu\text{m}$ ; length of notogaster: 719  $\mu\text{m}$ ; height of notogaster: 451  $\mu\text{m}$ .



Figs 1—6. *Hoplophthiracarus kaszabi* sp. n. 1 = lateral, 2 = aspis, dorsal, 3 = sensillus, 4 = notogastral seta  $e_2$ , 5 = notogastral seta  $h_1$ , 6 = anogenital region

**A s p i s:** Sensillus long, setiform, smooth, slightly curved, their apical part with a separated tip. Interlamellar setae short, curved; lamellar setae long, erect, longer than sensillus. Rostral setae medium long, curved inward; distance *ro-ro* as long as setae *ro*. Prodorsum densely and roughly foveolate.

**N o t o g a s t e r:** Relatively long, roughly and densely foveolate. 15 pairs of erect, straight, smooth notogastral setae. Weak heterotrichy: setae  $d_2$ ,  $e_2$  and  $h_2$  shorter than  $c_1$ ,  $d_1$  and  $h_1$ . (The length of some notogastral setae:  $c_1$ : 131  $\mu\text{m}$ ;  $e_1$ : 123  $\mu\text{m}$ ,  $h_1$ : 139  $\mu\text{m}$ ,  $d_2$ : 82  $\mu\text{m}$ ,  $h_3$ : 82  $\mu\text{m}$ ,  $p_3$ : 116  $\mu\text{m}$ .)

**V e n t r a l s i d e:** Ano-adanal plate with five pairs of setae: two pairs of anal, three pairs of adanal setae present. Setae  $ad_1$  apparently originating in the same longitudinal row as the two anal setae. The two anal setae medium long; setae  $ad_1$  and  $ad_2$  about of the same length and much longer than the anal setae;  $ad_3$  much shorter than  $ad_1$  and  $ad_2$ , and shorter than the two anal setae.

**R e m a r k s:** The genus *Hoplophthiracarus* is very rich in species, but this is the first one described from Sri Lanka. The long, setiform sensillus combined with the medium long, curved rostral setae and weak notogastral heterotrichy occur together only in this species.

**M a t e r i a l e x a m i n e d:** Sri Lanka, CMB-5; holotype.

### **Phthiracarus passimpunctatus** sp. n. (Figs 7—9)

Length of aspis: 127  $\mu\text{m}$ ; length of notogaster: 238  $\mu\text{m}$ ; height of notogaster: 148  $\mu\text{m}$ .

**A s p i s:** Sensillus long, hook-shaped, smooth. Setae of aspis setiform, short, fine; rostral setae a little longer than the rest. Interbothridial region with some foveolae.

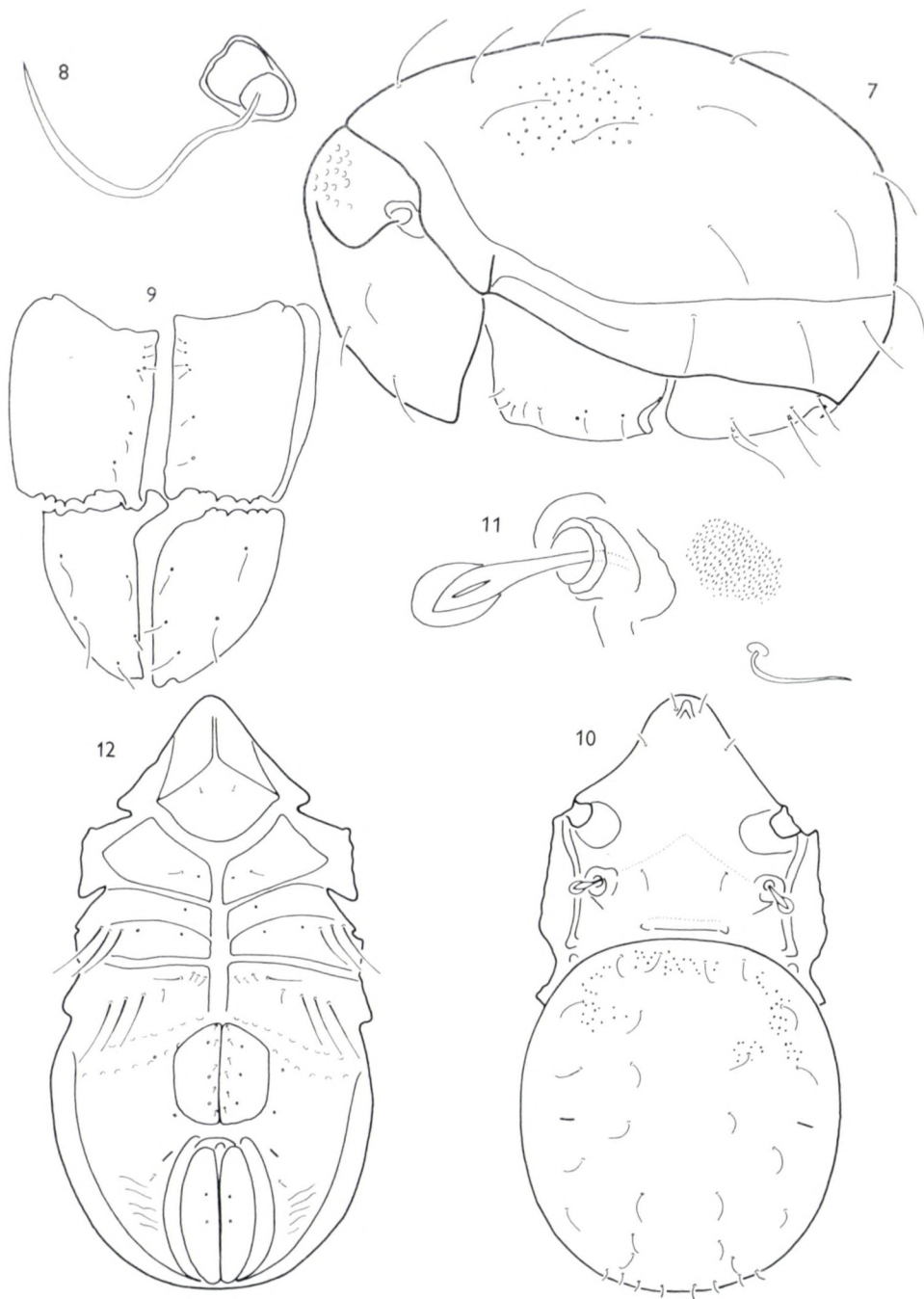
**N o t o g a s t e r:** 15 pairs of fine, short, setiform notogastral setae, all about of the same length. Setae  $c_2$  originated farther back than  $c_1$  and  $c_3$ . Notogaster ornamented with irregularly scattered pits.

**V e n t r a l s i d e:** Seven pairs of genital, three-two pairs of ano-adanal setae present. All setae fine; the ano-adanal setae longer than the genital ones.

**R e m a r k s:** The setiform, smooth, hook-shaped sensillus combined with the foveolated interbothridial region and the irregularly scattered punctuation comprises a unique combination of characters in this genus.

**M a t e r i a l e x a m i n e d:** Sri Lanka, CMB-4, 1 holotype.





Figs 7—12. 7—9: *Phthiracarus passimpunctatus* sp. n. 7 = lateral, 8 = sensillus, 9 = ano-genital region. — 10—12: *Phyllhermannia tenuiseta* sp. n. 10 = dorsal, 11 = sensillus, 12 = ventral

## HERMANNIIDAE

**Phyllhermannia tenuiseta** sp. n. (Figs 10—12)

Length: 615  $\mu\text{m}$ ; width: 328  $\mu\text{m}$ .

**Prodorsum:** Sensillus short with a short stalk and egg-shaped head. Prodorsal setae short, setiform; rostral and lamellar setae extremely short and fine, hardly observable, straight, divergent. There is a  $\wedge$ -shaped slit in the rostral region. Interlamellar setae curved, fine, smooth, longer than lamellar and rostral setae. On the basal part of prodorsum, near the dorsosejugal suture, two small tubercles connected with a straight, horizontal line are present.

**Notogaster:** 16 pairs of small, fine, slightly curved notogastral setae present. Surface of notogaster with scattered, irregular groups consisting of small, irregular bright points.

**Ventral side:** Epimeral setal formula: 2—1—5—7(8). The three lateral pairs of 3rd and 4th epimeral setal row much longer than the rest of epimeral setae. 6 + 3 genital, two pairs of aggenital, two pairs of anal and only one visible pair of adanal setae present (?). All genital, aggenital, anal and adanal setae extremely short and fine, disappearing. There are some oblique lines on the ventral plate in level with anal plates.

**Remarks:** The small, fine notogastral setae combined with the short, capitate sensillus, the peculiar ornamentation of the notogaster and the reduced setae in the anogenital region is a unique combination of features in the genus *Hermannia*.

**Material examined:** Sri Lanka, CMB-26, 1 holotype.

## PLATEREMAEIDAE

**Plateremaeus latus** sp. n. (Figs 13—15)

Length: 574—619  $\mu\text{m}$ ; width: 418—480  $\mu\text{m}$ .

**Prodorsum:** Extremely broad, broader than its length. Rostrum broadly rounded; rostral and lamellar setae originated in the rostral region, far from each other, former setae in the ventral, latter setae on the dorsal side of rostrum; both pairs of setae semicircularly curved smooth. Pedotecta II long, pointed, straight, directed outward and forward. Interlamellar setae very short, spiniform. Sensillus setiform, curved.

**Notogaster:** Broader than long, broadest in the first third. Dorsosejugal suture straight. Surface of notogaster flattened. Setation of notogaster peculiar: one pair of medium long notogastral setae, directed forward and originating in the posterior part of notogaster. Two pairs of short, fine curved

notogastral setae in postero-marginal position and four pairs of extremely small and fine notogastral setae in postero-marginal position near to ventral plate observable only in ventral view.

**V e n t r a l s i d e :** Very strong ventral neotrichy, 34—36 pairs of ventral setae present. The first pair of epimeral setae, near to anterior margin of



Figs 13—15. *Plateremaeus latus* sp. n. 13 = dorsal, 14 = ventral, 15 = lateral

epimeres I extremely long, longer than rostral setae, majority of ventral setae small, fine, smooth. Seven pairs of genital, six pairs of anal setae present. There is an oblique lyrifissure at the anterior margin of anal plate. Legs with "crispins". Some leg-segments with pointed spurs.

**R e m a r k s:** This species essentially differs from all known *Plateremaeus* species; the enumeration of the differences is unnecessary and would be quite formal. The shape of prodorsum, the setation of notogaster and ventral plate essentially differ from those of the other known *Plateremaeus* species.

**M a t e r i a l e x a m i n e d:** Sri Lanka, CMB-62 holotype, and 1 paratype.

#### EREMAEUZETIDAE

##### *Seteremaeozetes* subgen. nov.

Similar to *Eremaeozetes* s. str. but the lamellae are fused medially, cuspides broad, covering the whole rostral region. Lamellar setae placed opposite to each other in the medial slit between lamellar cuspides. Seven or eight genital setae present.

**T y p e - s p e c i e s:** *Eremaeozetes (Seteremaeozetes) obtectus* sp. n.

##### *Eremaeozetes (Seteremaeozetes) obtectus* sp. n. (Figs 19—20)

**L e n g t h:** 513—533  $\mu\text{m}$ ; **w i d t h:** 250—275  $\mu\text{m}$ .

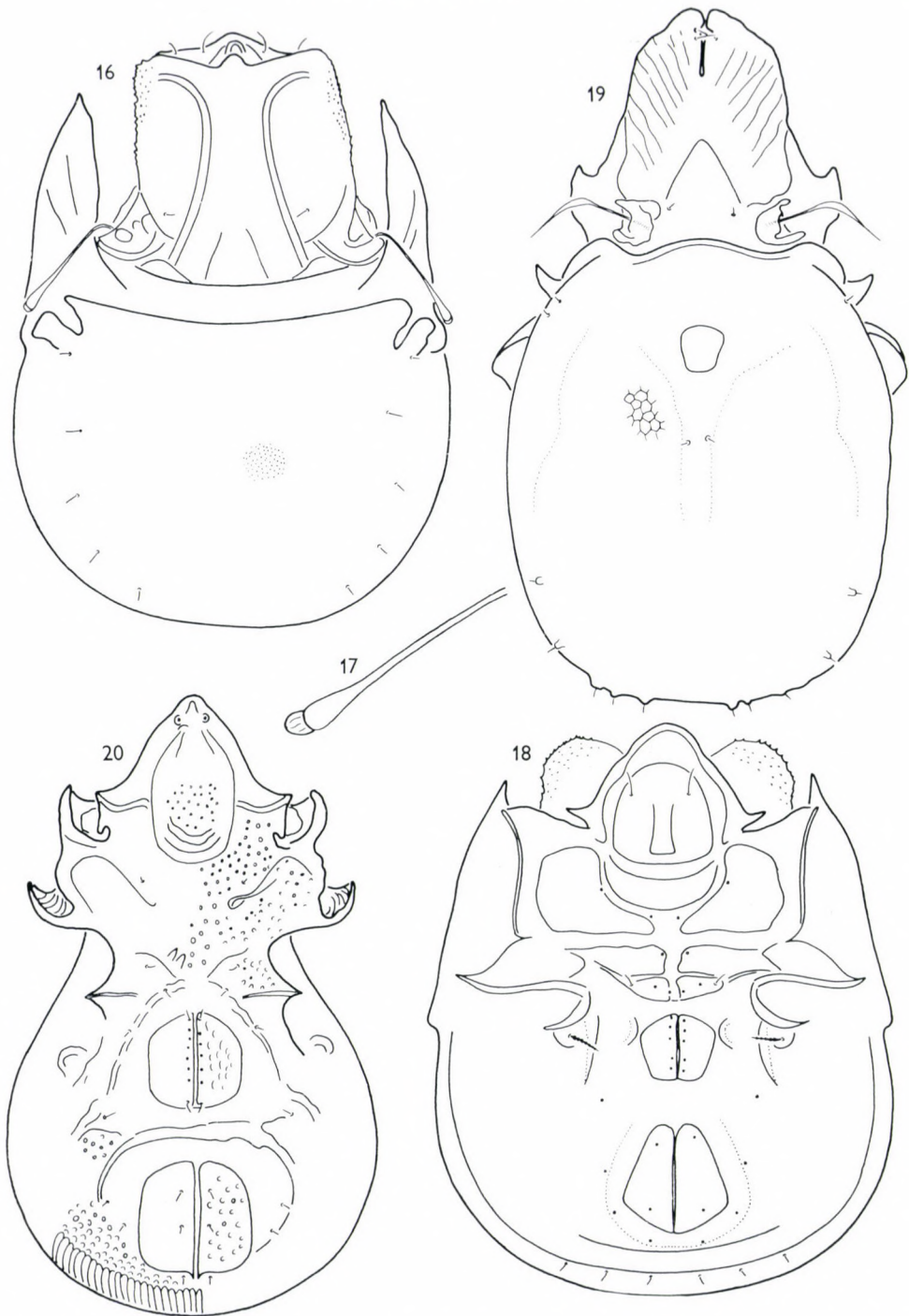
**P r o d o r s u m:** Sensillus lanceolate, curved, directed first outward then backward, with a long setiform tip. Interlamellar setae small, stiff-form. Rostral setae originating on the ventral side of rostrum, represented only by alveoli.

**N o t o g a s t e r:** Dorsosejugal suture undulate. Lenticulus present. Eight pairs of very small, setiform notogastral setae: two pairs (probably setae  $c_1$  and  $c_2$ ) on the shoulder; one pair near the medial line, about the middle point of notogaster; five pairs in submarginal or marginal position, originating on small sclerotized protuberances. Notogaster with a polygonated network.

**V e n t r a l s i d e:** Labiogenal articulation suctorial. Epimeral region with scattered foveolae. Epimeral setae hardly visible. 7—8 pairs of genital setae; one pair of aggenital, two pairs of anal, three pairs of adanal setae present.

**R e m a r k s:** The given subgeneric characters separate the new species from all known Eremaeozetidae.

**M a t e r i a l e x a m i n e d:** Sri Lanka, CMB-54 holotype: 2 paratypes.



Figs 16–20. 16–18: *Neseutegaeus denticulatus* sp. n. 16=dorsal, 17=sensillus, 18=ventral, — 19–20: *Eremaeozetes (Seteremaeozetes) obtectus* sp. n. 19 = dorsal, 20 = ventral

## EUTEGAEIDAE

**Neseutegaeus denticulatus** sp. n. (Figs 16—18)

Length: 332  $\mu\text{m}$ ; width: 254  $\mu\text{m}$ .

**Pr o d o r s u m:** Sensillus long with long, outward and backward directed stalk and a gradually dilated, small head. Lamellae parallel, exterior margin mainly at their apical half with small, spiniform granulae. Lamellar and rostral setae small, originating on the anterior margin of lamellae and rostrum. Interlamellar setae originating on the basal half of lamellae, and represented only by their alveoli.

**N o t o g a s t e r:** Dorsosejugal suture slightly excavated. Humeral appendage very long and straight with a pointed tip; only a little shorter than the lamellae. Notogaster broader than long. Five pairs of extremely short and fine notogastral setae in submarginal position; three pairs in postero-marginal position (visible on the ventral side), near the posterior margin of ventral plate. Epimeral region prolonged into two horizontal appendages. Epimeral setal formula: 2—1—3—3 (?). Five pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae, represented only by their alveoli.

**R e m a r k s:** This is the first *Neseutegaeus* species with granulated lamellae and extremely small, reduced notogastral setae.

**M a t e r i a l e x a m i n e d:** Sri Lanka, CMB-5, holotype.

## CARABODIDAE

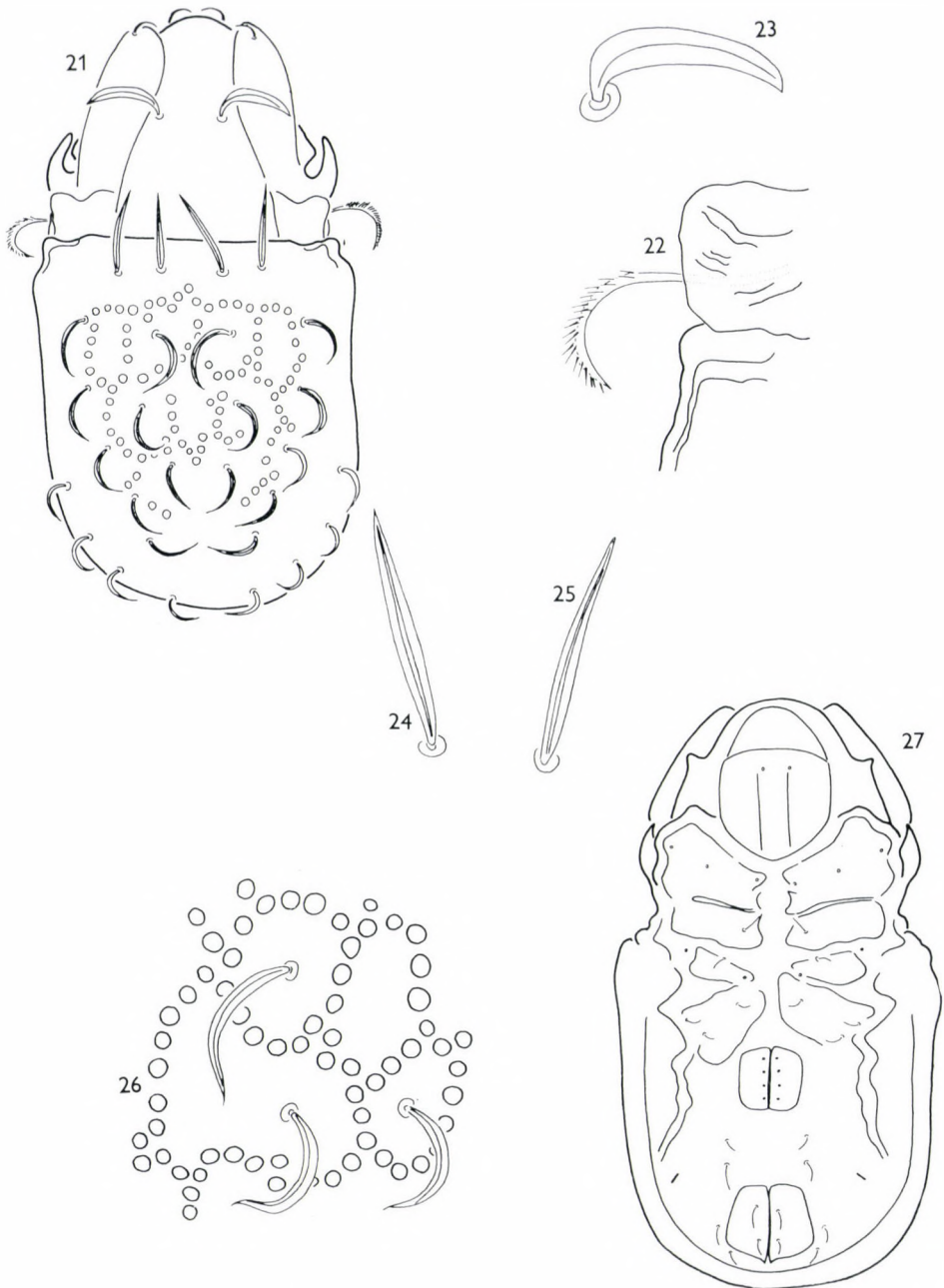
**Austrocarabodes bellicosus** sp. n. (Figs 21—27)

Length: 406  $\mu\text{m}$ ; width: 234  $\mu\text{m}$ .

**Pr o d o r s u m:** Sensillus directed outward and backward, unilaterally densely ciliate. Interlamellar setae large, shaped like a willow-leaf, originating on the middle of interlamellar area, curved outward. Lamellar and rostral setae short, curved.

**N o t o g a s t e r:** Dorsosejugal suture straight. Shoulder tuberculate. 14 pairs of curved notogastral setae present; 12 pairs slightly phylliform; two pairs, setae  $c_1$  and  $c_2$ , originating near dorsosejugal suture, straight, directed forward. Surface of notogaster with a polygonate structure consisting of large, round tubercles.

**V e n t r a l s i d e:** The type of *Carabodes*, i.e. apodemata well developed; epimeres I—IV present. Epimeral setal formula: 3—1—3—3; epimeral setae very short and fine, sometimes almost reduced. Four pairs of genital setae



Figs 21—27. *Austrocarabodes bellicosus* sp. n. 21 = dorsal, 22 = sensillus, 23 = interlamellar seta, 24 = notogastral seta  $c_1$ , 25 = notogastral seta  $c_2$ , 26 = notogastral setae  $da$ ,  $dm$  and  $lm$ , 27 = ventral

represented by their alveoli; one pair of genital, two pairs of anal, three pairs of adanal setae present. Setae  $ad_1$  and  $ad_2$  near each other;  $ad_3$  preanal and near setae  $ag$ , all setae small, fine. Lyrifissures  $iad$  apoaanal, far lateral from the anal plate.

**Remarks:** There are two *Austrocarabodes* species having anteriorly directed, straight, long  $c_1$  and  $c$  setae and 12 pairs of curved notogastral setae: *A. agressor* BALOGH et MAHUNKA, 1978 (Queensland) and *A. erectus* MAHUNKA, 1983 (Africa), but the latter has quite another type of notogastral structure. The new species belongs to the *Austrocarabodes agressor* species-group, but setae  $c$  of *agressor* are much longer, while the remaining notogastral setae are longer and less curved; the adanal setae are slightly dilated, phylliform and the genital setae are long.

**Material examined:** Sri Lanka, CMB-75, holotype.

### *Austrocarabodes agalawatta* sp. n. (Figs 28—31)

Length: 431  $\mu\text{m}$ ; width: 221  $\mu\text{m}$ .

**Prodorsum:** Sensillus short, directed first outward, then backward, with a slightly dilated, brush-like, unilaterally dense ciliated head. Interlamellar setae originating nearly at the middle of interlamellar area, long, curved outward. Lamellar setae unilaterally ciliated, rostral setae smooth, both small, curved. Lamellae narrow, marginal, interlamellar area with small, scattered foveolae.

**Notogaster:** Dorsosejugal suture slightly arched. Shoulder prominent. 14 pairs of small, arched, smooth, slightly dilated and pointed notogastral setae present. Surface of notogaster with irregularly scattered foveolae.

**Ventral side:** The type of *Carabodes*. Epimeral setae  $lb$  abnormally long, straight. Four pairs of very small genital, one pair of setiform aggenital, two pairs of fairly long anal, three pairs of slightly phylliform adanal setae present. Setae  $ad_1$  in postanal,  $ad_2$  in adanal,  $ad_3$  in preanal position.

**Remarks:** There are only a few *Austrocarabodes* species with scattered foveolae on the notogaster: *A. alveolatus* HAMMER, 1973 (Samoa), *A. falcatus* HAMMER, 1973 (Samoa), *A. maculatus* HAMMER, 1966 (New Zealand); but the form of sensillus, the shape of rostral and lamellar setae, etc. are different.

**Material examined:** Sri Lanka, CMB-62, holotype.

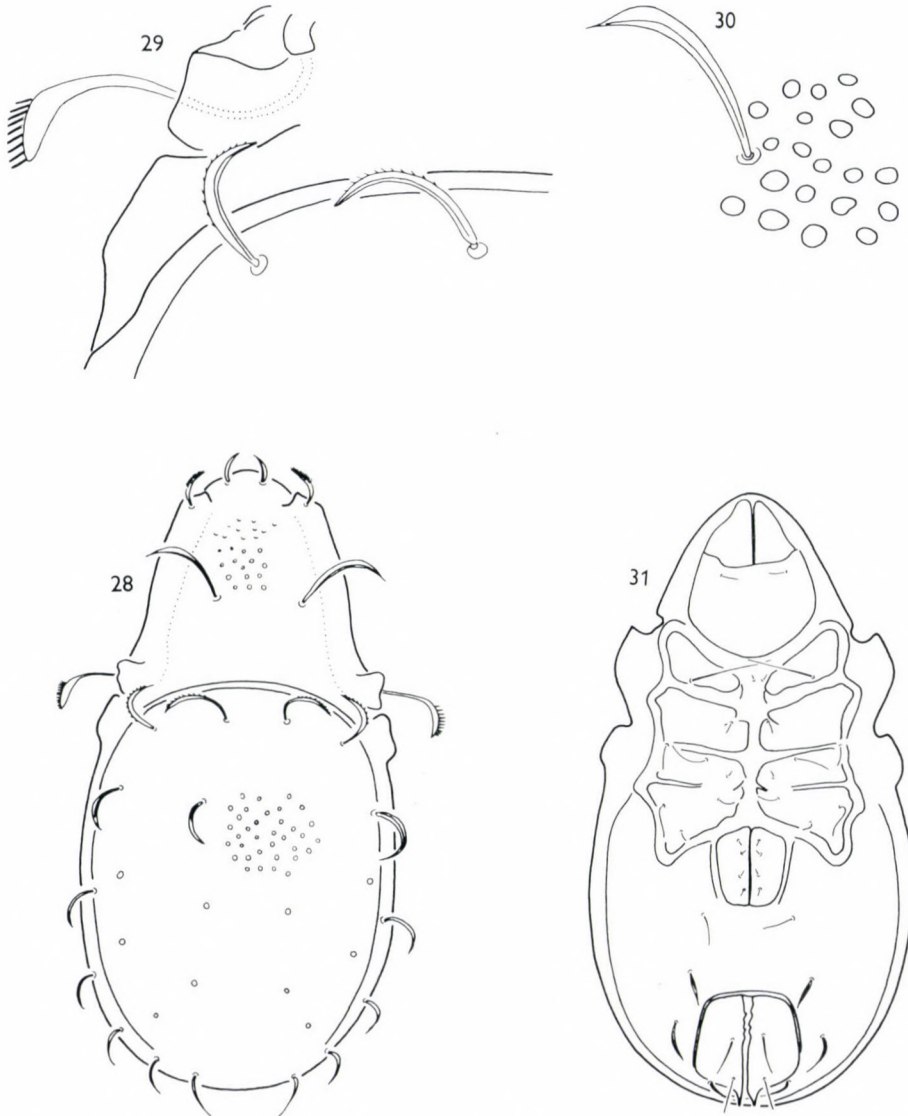


## OTOCEPHEIDAE

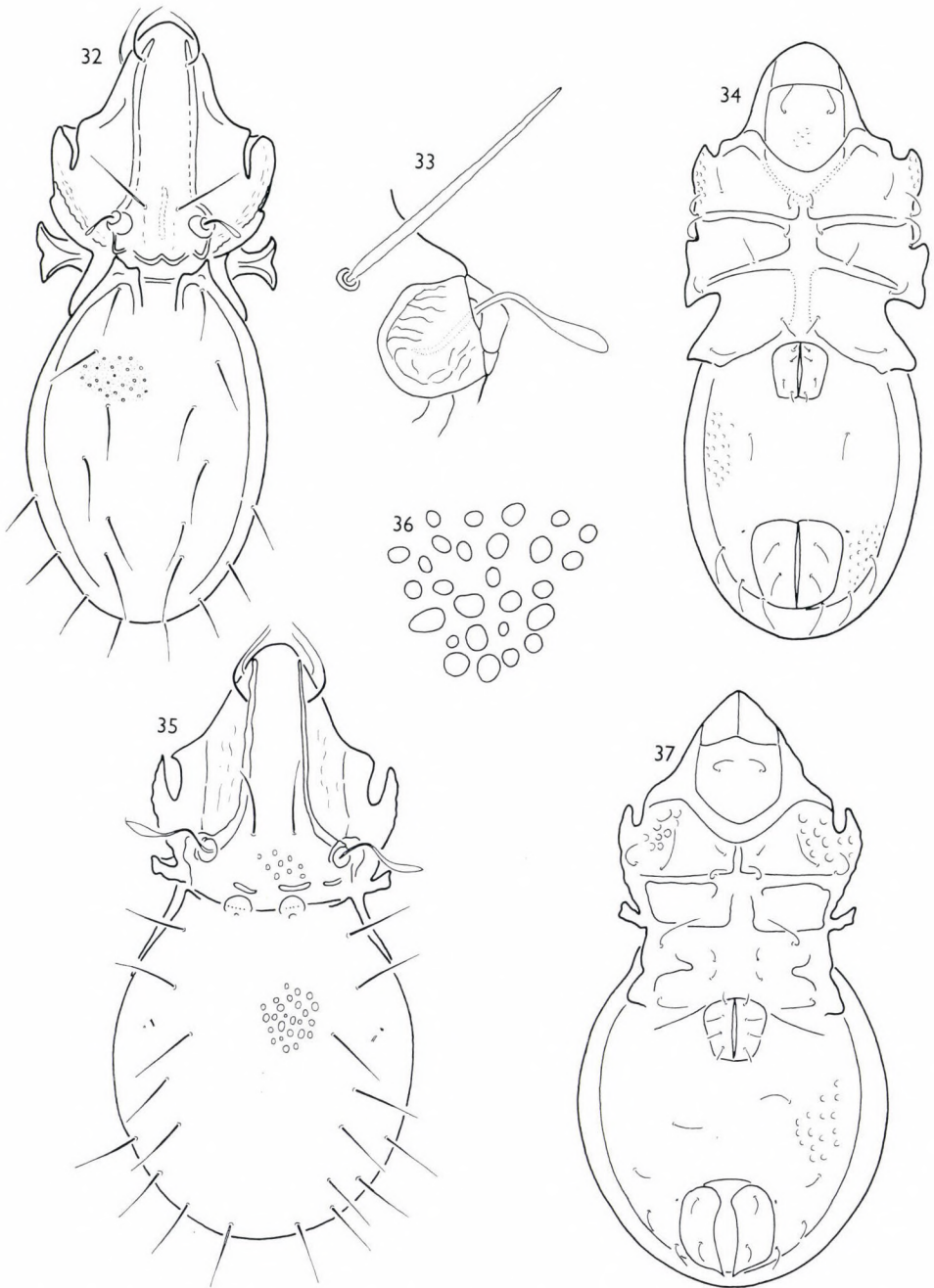
*Acrotocepheus besucheti* MAHUNKA, 1974 (Figs 32–34)

Our single specimen, in all probability, is identical with this species. There are some small differences, therefore, we give additional figures. The length of our specimen is 1107  $\mu\text{m}$ ; the width is 472  $\mu\text{m}$ .

Material examined: Sri Lanka, CMB-62, 1 specimen.



Figs 28–31. *Austrocarabodes agalawatta* sp. n. 28 = dorsal, 29 = sensillus, 30 = interlamellar seta, 31 = ventral



Figs 32—37. 32—34: *Acrotocepeus besucheti* MAHUNKA, 1974. — 32 = dorsal, 33 = sensillus and interlamellar seta, 34 = ventral. 35—37: *Dolicheremaeus densefoveolatus* sp. n. 35 = dorsal, 36 = sculpture of notogaster, 37 = ventral

**Dolicheremaeus densefoveolatus** sp. n. (Figs 35—37)

Length: 422—480  $\mu\text{m}$ ; width: 213—246  $\mu\text{m}$ .

**Pro dorsum:** Sensillus with long, S-shaped stalk and a gradually dilated, elongate head. Interlamellar and lamellar setae almost of the same length, rostral setae much shorter. Basal part of interlamellar area obscurely foveolate, between interlamellar and rostral setae surface smooth.

**Notogaster:** Ten pairs of straight, smooth, erect notogastral setae present. Surface of notogaster densely foveolate; foveolae of different sizes, irregularly distributed.

**Ventral side:** The first epimeres densely foveolate, the 2nd to 4th without foveolae. Four pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae present. Lyrifissure *iad* near to anal plate.

**Remarks:** There are only three medium-sized foveolate *Dolicheremaeus* species: *D. markus* BALOGH, 1970 (Sri Lanka), *D. lineolatus* HAMMER, 1981 (Java) and *D. granulatus* HAMMER, 1981 (Java). *D. markusi* has 14 pairs of notogastral setae; *D. lineolatus* has a foveolate interlamellar area and *D. granulatus* has a setiform sensillus.

**Material examined:** Sri Lanka, CMB-63, holotype; 1 paratype.

## OPPIIDAE

**Granuloteratoppia** gen. n.

Fam. Oppiidae s. lat. Sensillus setiform. Interlamellar setae reduced, only their alveoli present. Lamellar setae much nearer to interlamellar than to rostral setae. Apodemata III and IV absent. Epimeral region with broad sternum. Five pairs of genital setae. Tibia I with a sclerotized apophysis.

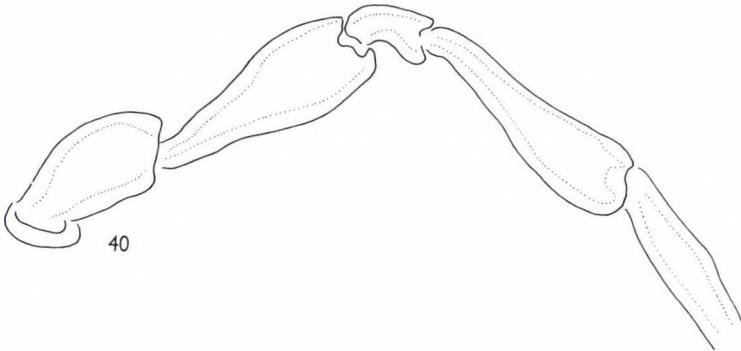
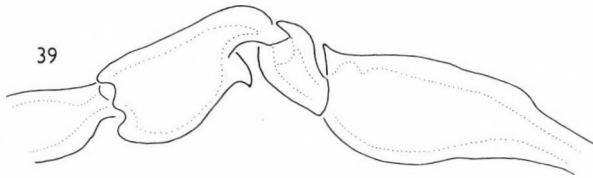
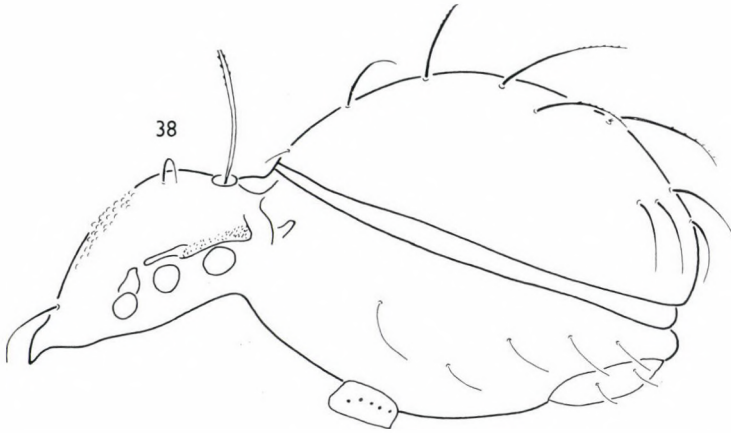
Type-species: *Granuloteratoppia annulata* sp. n.

**Granuloteratoppia annulata** sp. n. (Figs 38—45)

Length: 426—451  $\mu\text{m}$ ; width: 238—271  $\mu\text{m}$ .

**Pro dorsum:** Sensillus setiform, long, their distal part with some short cilia. Interlamellar setae reduced, only their alveoli present. Lamellar setae long, setiform, near to interlamellar setae. Rostral region between lamellar and rostral setae with scattered tubercles. Pedotecta II densely granulate.

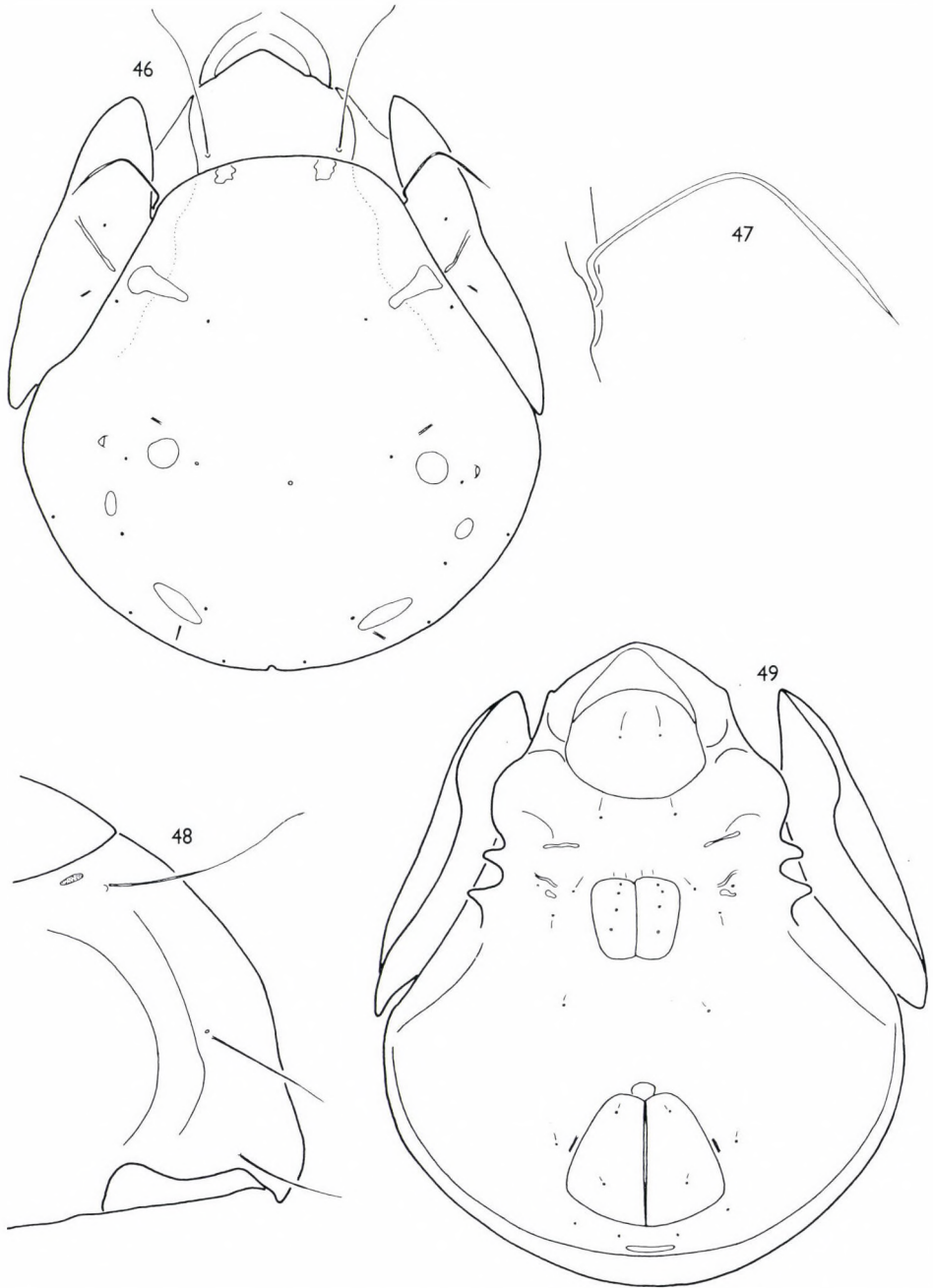
**Notogaster:** Dorsosejugal suture arched, in the median line with a single, short crista. Ten pairs of notogastral setae: setae *c* on the dorsosejugal suture; setae  $p_1$ - $p_3$  and  $h_1$ - $h_3$  behind, on the second half of notogaster.



Figs 38—40. *Granuloteratoppia annulata* gen. n. sp. n. 38 = lateral, 39 = leg I, femur, genu and tibia, 40 = leg IV, trochanter, femur, genu and tibia



Figs 41—45. *Granuloteratoppia annulata* gen. n. sp. n. 41 = dorsal, 42 = sensillus, 43 = notogastral seta *lp*, 44 = ventral, 45 = left genital plate



Figs 46—49. *Pergalumna taprobanica* sp. n. 46 = dorsal, 47 = sensillus, 48 = prodorsum lateral, 49 = ventral

**Ventral side:** Ventral plate arched in later view. Epimeral region divided by a broadened sternal plate. Genital plates with five long genital setae: all genital setae provided with a large ring. Lyrifissure *iad* long, near to anal plates. Adanal setae  $ad_1$  and  $ad_2$  in adanal,  $ad_3$  in preanal position.

**Material examined:** Sri Lanka, CMB-23, holotype; CMB-25 and CMB-33 2 paratypes.

#### GALUMNIDAE

#### *Pergalumna taprobanica* sp. n. (Figs 46—49)

Length: 623  $\mu\text{m}$ ; width: 533  $\mu\text{m}$ .

**Prodorsum:** Sensillus setiform, medium long, in the middle bent at right angle, smooth, distal half very slightly thickened with a sharp, setiform tip. Interlamellar setae long with a fine, almost flagelliform end. Lamellar and rostral setae medium long, fine.

**Notogaster:** Four pairs of areae porosae; *Aa* long, dilating laterally,  $A_1$  circular,  $A_2$  much smaller and circular,  $A_3$  the largest, as long as *Aa*. Porus medialis present. Posterior margin in the median line with a small incision.

**Ventral side:** Ventral setae very short and fine, almost reduced. Small, ribbon-shaped, transversal area porosa postanal present.

**Remarks:** This species belongs to the species-group "*dimidiatae-longipilae*", i.e. to the species-group with well-developed dorsosejugal suture and long interlamellar setae, but none of these have this form of sensillus combined with similar areae porosae.

**Material examined:** Sri Lanka, CMB-4, holotype.

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## THE FAMILY CERATOKALUMMIDAE BALOGH, 1970 (ACARI, ORIBATEI)\*

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Family Ceratokalummidae BALOGH, 1970 revised and redefined. Identification keys given for five genera and eight species. Two new *Ceratokalumma* species described. Catalogue given for the genera and species of the family.

The family Ceratokalummidae was set up by J. BALOGH (1970) to contain the species *Ceratokalumma insignis* gen. n., sp. n. collected in Port Moresby, New Guinea. The following brief diagnosis was given: Prodorsum with true lamellae. Pteromorphae of tip auriculate, i.e. large, movable. Four pairs of indistinctly defined and barely observable true areae porosae. Setae *c* (= *ta*) originating on pteromorphae. Ten pairs of notogastral setae. Five pairs of genital setae. Chelicerae extremely small.

MAHUNKA (1983) described a new family as Genavensiidae to accommodate the species *Genavensia hungarorum* gen. n., sp. n. He established that the genus *Genavensia* is closely related to *Cultrobates* WILLMANN, 1930 (Guatemala, Japan) and *Arcozetes* HAMMER, 1958 (Argentina), hence he referred these genera to the new family. Apparently J. BALOGH's (1970) publication on New Guinea, and the description of *Ceratokalumma insignis* escaped MAHUNKA's attention. It is obvious from those that *Ceratokalumma* belongs to the same sharply definable generic group. Finally, MAHUNKA (1985) described *Genavensia longiseta* from Guadeloupe Island, a species closely related to *G. hungarorum* MAHUNKA, 1983.

During the study of the oribatid material from the Western Pacific area, two new *Ceratokalumma* species have been found, one from Fiji and one from Hawaii. It is striking that all the species are known from a single or only few specimens. Since the majority of the species have been collected by extraction in Berlese funnel or Winkler—Moczarsky extractor, probably this group of oribatids does not typically occur in litter and soil. It is not impossible that these animals are arboricolous or planticolous and are only occasionally found in the soil.

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

*Ceratokalummidae* BALOGH, 1970

Pteromorphae movable. Prodorsum with true lamellae. Tectum developed with free cuspis. Labiogenal articulation suctorial. Apodemata and epimeral setae of Galumnidae type, i.e. partly reduced. Five pairs of genital setae. Ten pairs of notogastral setae or alveoli. Setae *c* originating on pteromorphae. Four pairs of areae porosae (sometimes hardly observable).

Type-genus: *Ceratokalumma* BALOGH, 1970

Five genera altogether with eight species; more species are expected.

## KEY TO GENERA

- 1 (4) Lamellar cuspides never meeting (Figs 1, 3, 7, 18, 22).
- 2 (3) The tip or anterior margin of pteromorpha projecting anteriorad from the level of dorsosejugal suture **Ceratokalumma** BALOGH, 1970
- 3 (2) Anterior margin of pteromorpha on the same level with the dorsosejugal suture **Cultrobates** WILLMANN, 1930
- 4 (1) Lamellar cuspides meeting or fused.
- 5 (6) Lamellar cuspides touching along the median line **Arcozetes** HAMMER, 1958
- 6 (5) Lamellar cuspides fused.
- 7 (8) Interlamellar setae reduced, only their alveolis present (Fig. 12). Three pairs of adanal setae present (Fig. 13) **Guaranozetes** BALOGH et MAHUNKA, 1981
- 8 (7) Interlamellar setae long: almost as long as or longer than prodorsum. Two pairs of adanal setae present (Figs 14, 16) **Genavensia** MAHUNKA, 1982

*Ceratokalumma* BALOGH, 1970

Lamellae lateral, cuspides broadly separated. Interlamellar setae very short and fine. Cuspides incised, each with two tips. Aerae porosae hardly visible, evanescent. Legs monodactyle.

Type-species: *Ceratokalumma insignis* BALOGH, 1970

Three species occur in the Western Pacific Area.

## KEY TO SPECIES

- 1 (2) Sensillus long: as long as the length of lamellae without cuspides, their distal half gradually dilated. Interlamellar setae absent, only alveoli present. Notogastral setae short and fine, but well developed. L: 260  $\mu$ m; W: 167  $\mu$ m. — Papua New Guinea (Figs 1–2) **insignis** BALOGH, 1970
- 2 (1) Sensillus much shorter than the length of lamellae. Interlamellar setae short, fine, but always present. Notogastral setae extremely short, almost unobservable.
- 3 (4) Sensillus short with short stalk and short elongately fusiform head. On the top of this head there is a curved apical seta. L: 299  $\mu$ m; W: 221  $\mu$ m. — Hawaii Islands (Figs 3–6) **kaszabi** sp. n.
- 4 (3) Sensillus medium long with short stalk and long, gradually dilating, medially directed head. The top of this head rounded. L: 271  $\mu$ m; W: 172  $\mu$ m. — Fiji Island (Figs 7–11) **naisselincei** sp. n.

*Guaranozetes* BALOGH et MAHUNKA, 1981

Distal part of lamellae fused. The fused part very short. Interlamellar setae reduced, only their alveoli present directed forward and outward. Sensillus long with long stalk and an egg-shaped, elongate head. Four pairs of areae porosae; ten pairs of very short, almost evanescent notogastral setae. Five pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae present.

Type-species: *Guaranozetes nudus* BALOGH et MAHUNKA, 1981

- — Lamellar setae originating on the lateral margin of lamellae, behind cuspides. Cuspis with one tip. Rostrum with two incisions. L: 230–246  $\mu\text{m}$ ; W: 140–148  $\mu\text{m}$ . — Paraguay (Figs 12–13) **nudus** BALOGH et MAHUNKA, 1981

*Genavensia* MAHUNKA, 1983

Distal part of lamellae fused. The fused part has a medial incision, and two small lateral teeth. Interlamellar setae long; lamellar setae slightly converging. Sensillus short with short stalk and an almost globular head. Four pairs of well-visible areae porosae. Ten pairs of notogastral setae: 5 pairs of genital, one pair of aggenital, two pairs of anal, two pairs of adanal setae present.

Type-species: *Genavensia hungarorum* MAHUNKA, 1983

Two very similar species.

## KEY TO SPECIES

- 1 (2) Interlamellar setae reaching only to rostrum, blunt at tip. Dorsosejugal region finely striated. Mentum smooth. L: 281  $\mu\text{m}$ ; W: 223  $\mu\text{m}$ , without pteromorphae: 189  $\mu\text{m}$ . — Guatemala (Figs 14–15) **hungarorum** MAHUNKA, 1983
- 2 (1) Interlamellar setae very long, filiform, much longer than prodorsum. Dorsosejugal region strongly granulated. Mentum at its basal half with strong transversal rugae. L: 291–312  $\mu\text{m}$ ; W: 237–252  $\mu\text{m}$ . — Guadeloupe (Figs 16–17) **longiseta** MAHUNKA, 1985

*Cultrobates* WILLMANN, 1930

Lamellae converging, cuspides touching only one point or almost touching. Cuspides with blunt incision at *Oribatella*. Anterior margin of pteromorphae truncated. Four pairs of areae porosae, ten pairs of small notogastral setae present. Five pairs of genital, one pair of aggenital, two pairs of anal, two pairs of adanal setae present.

Type-species: *Cultrobates heterodactylus* WILLMANN, 1930

Only two species.

- 1 (2) Legs I monodactyl, legs II—IV tridactyl. Sensillus with short stalk and slightly dilated, medially and anteriorly directed, long head. Interlamellar setae very long, longer than lamellae. Entire ventral side with fine and hardly discernible longitudinal lines. A transverse arc of small tubercles below mentum. L: 286  $\mu\text{m}$ ; W: 169  $\mu\text{m}$ . — Guadeloupe, Guatemala, Columbia (Figs 18—19) **heterodactylus** WILLMANN, 1930
- 2 (1) Legs I—IV bidactyl. Sensillus with long stalk and short, slightly dilated head. Interlamellar setae very short. L: 260  $\mu\text{m}$ ; W: 145  $\mu\text{m}$ . Japan (Figs 22—24) **nipponicus** AOKI, 1982

*Arcozetes* HAMMER, 1958

Lamellae converging; cuspides touching along the median line. Cuspides with blunt incision, each with two tips. Medial tip much longer than lateral one. Anterior margin of pteromorphae truncate. Lateral margin of pteromorphae densely lineate. Five pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae represented only with their alveoli. Legs tridactyle.

Type-species: *Arcozetes bicuspidatus* HAMMER, 1958

Only one species.

- — Sensillus with short stalk and with a short, slightly dilated, elongated head. Areae porosae small. Ten very short notogastral setae present. L: 270  $\mu\text{m}$ ; W: 214  $\mu\text{m}$  (without pteromorphae). — Argentina (Figs 20—21) **bicuspidatus** HAMMER, 1958

DESCRIPTIONS OF NEW SPECIES

*Ceratokalumma kaszabi* sp. n. (Figs 3—6)

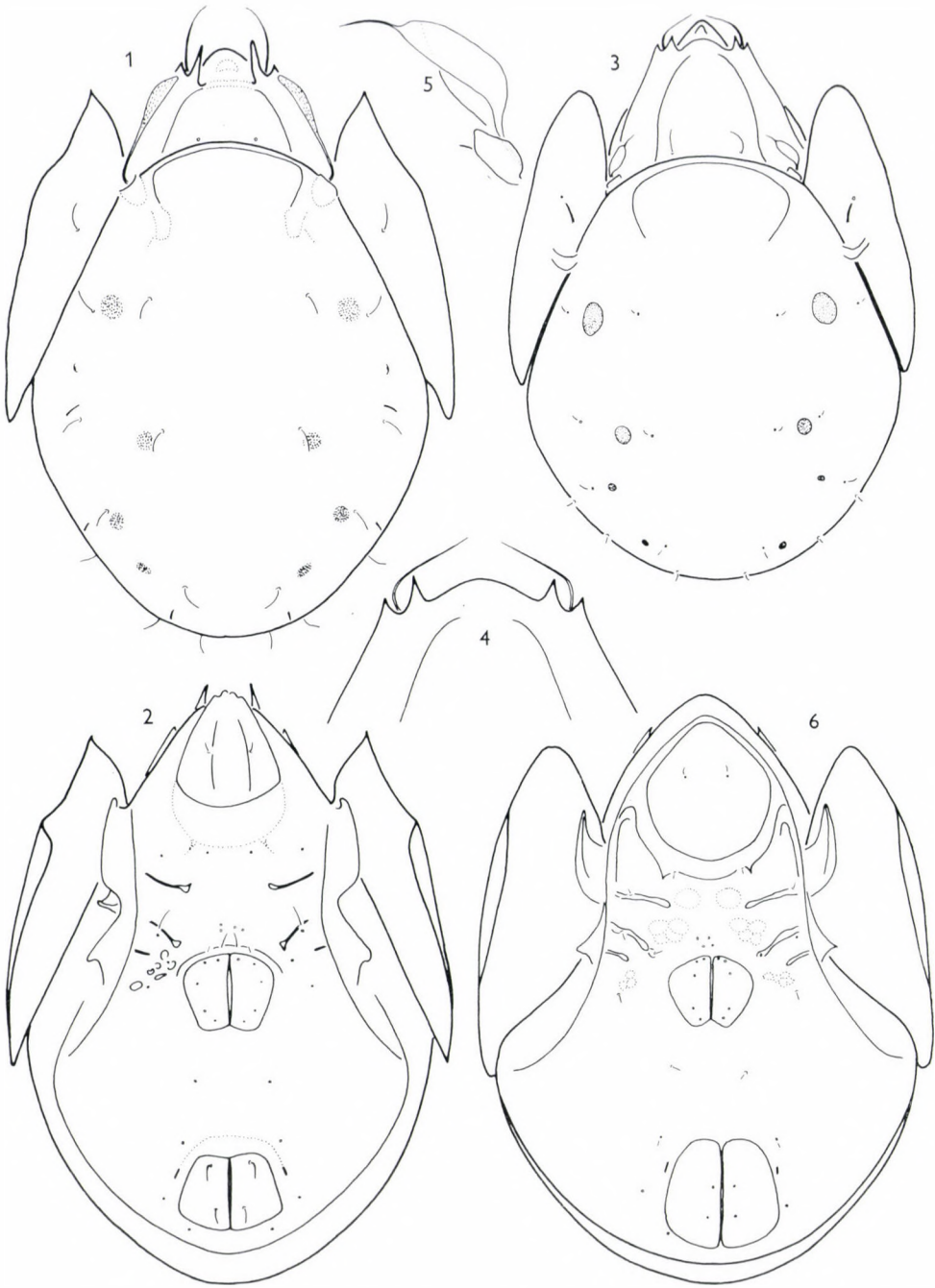
Length: 299  $\mu\text{m}$ ; width: 221  $\mu\text{m}$ . Colour: light brown.

**P r o d o r s u m:** Sensillus with short stalk and a short, elongately fusiform, antero-medially directed head. On the top of this head there is a medium-long, slightly curved apical setae. Interlamellar setae very fine and short, shorter than the half length of distance *in-in*. Lamellae submarginal; cuspides incised, each with two tips. Lamellar setae curved, their distal half directed medially.

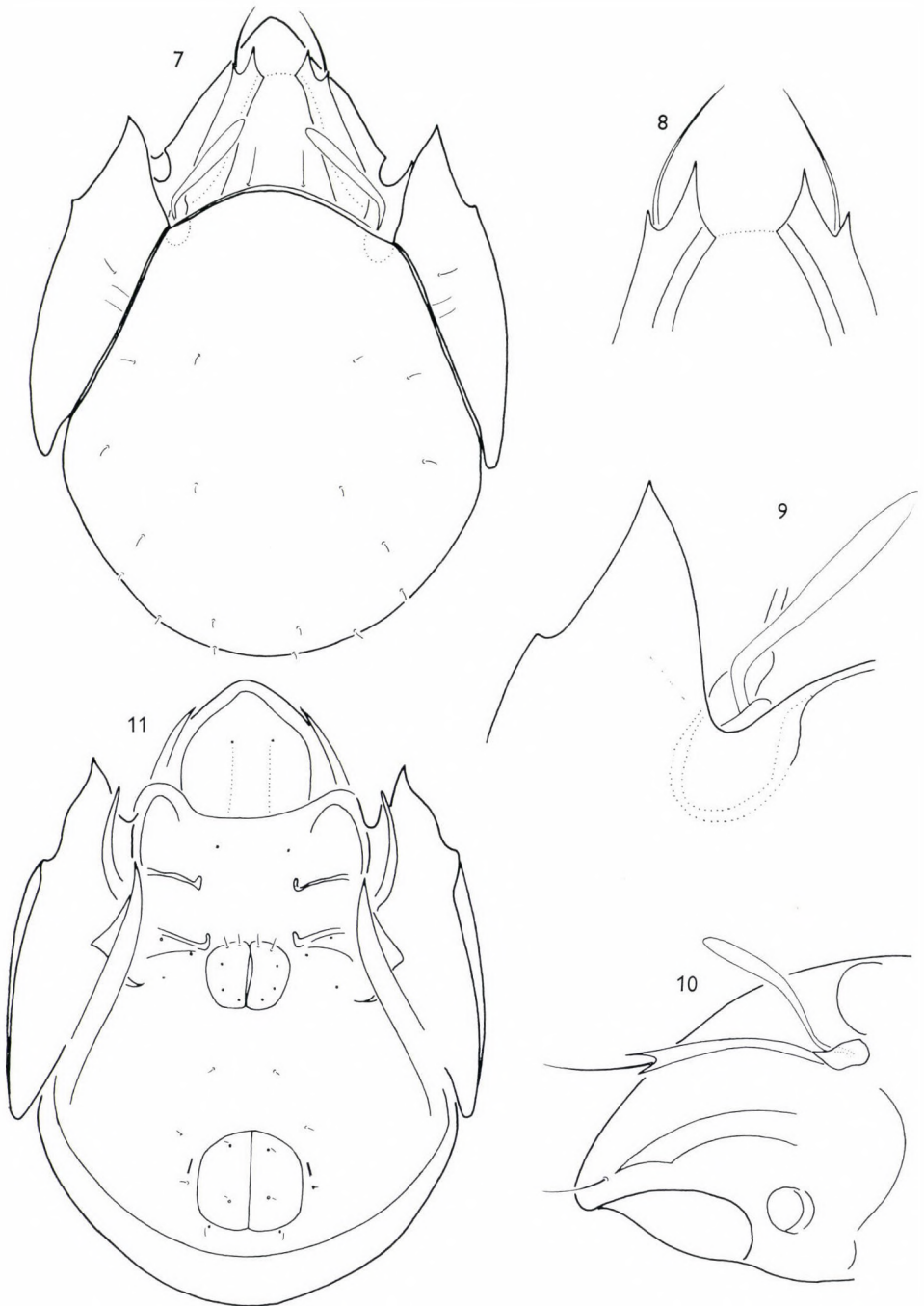
**N o t o g a s t e r:** Anterior margin of pteromorphae rounded, without pointed tip. Ten pairs extremely short, disappearing notogastral setae. Setae *c* originating on pteromorphae. Areae porosae evanescent with disappearing contours; *Aa* twice larger than *A*<sub>1</sub>, *A*<sub>2</sub> and *A*<sub>3</sub> smaller, hardly visible.

**V e n t r a l s i d e:** Epimeral region of Galumnidae type, i.e. apodemata and epimeral setae reduced. Epimeral setal formula: 1—2—3—1. Five pairs of genital alveoli; genital setae reduced. One pair of aggenital, three pairs of adanal, two pairs of anal setae present.

**M a t e r i a l e x a m i n e d:** Hawaii Islands, Hawaii Island, 6. 10. 1968; Kipuka on North Slope Hualalae, *Metrosideros* forest on lava flow, 4000 ft, *Nephrolepis*-ferns and shrubs, litter and soil from a hole; 1 holotype.



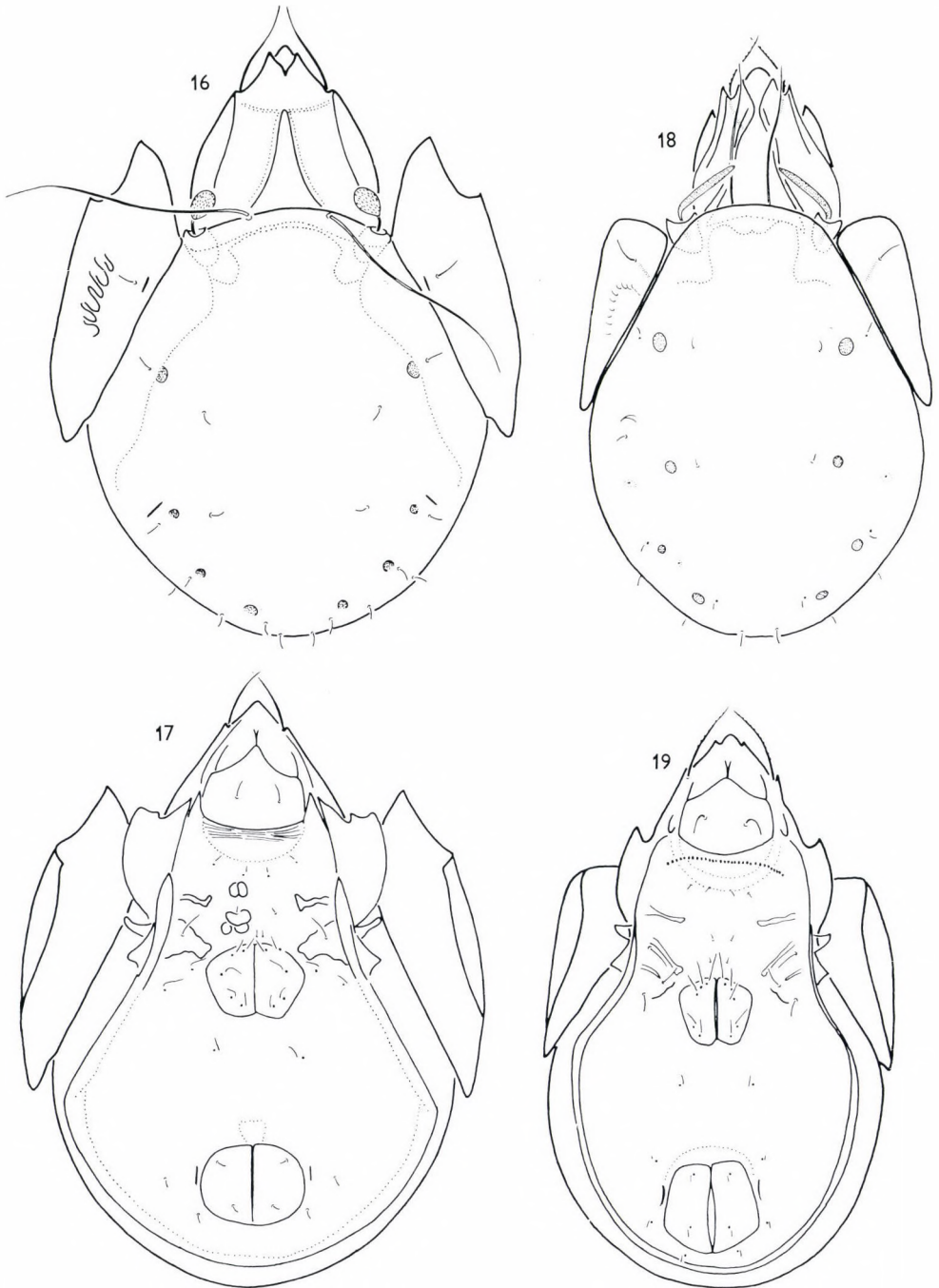
Figs 1—6. 1—2: *Ceratokalumma insignis* BALOGH, 1970. 1 = dorsal, 2 = ventral. — 3—6: *C. kaszabi* sp. n. 3 = dorsal, 4 = lamellar cuspides, 5 = sensillus, 6 = ventral



Figs 7—11. *Ceratokalumma naisselinei* sp. n. 7 = dorsal, 8 = lamellar cuspides, 9 = sensillus, 10 = prodorsum, lateral view, 11 = ventral

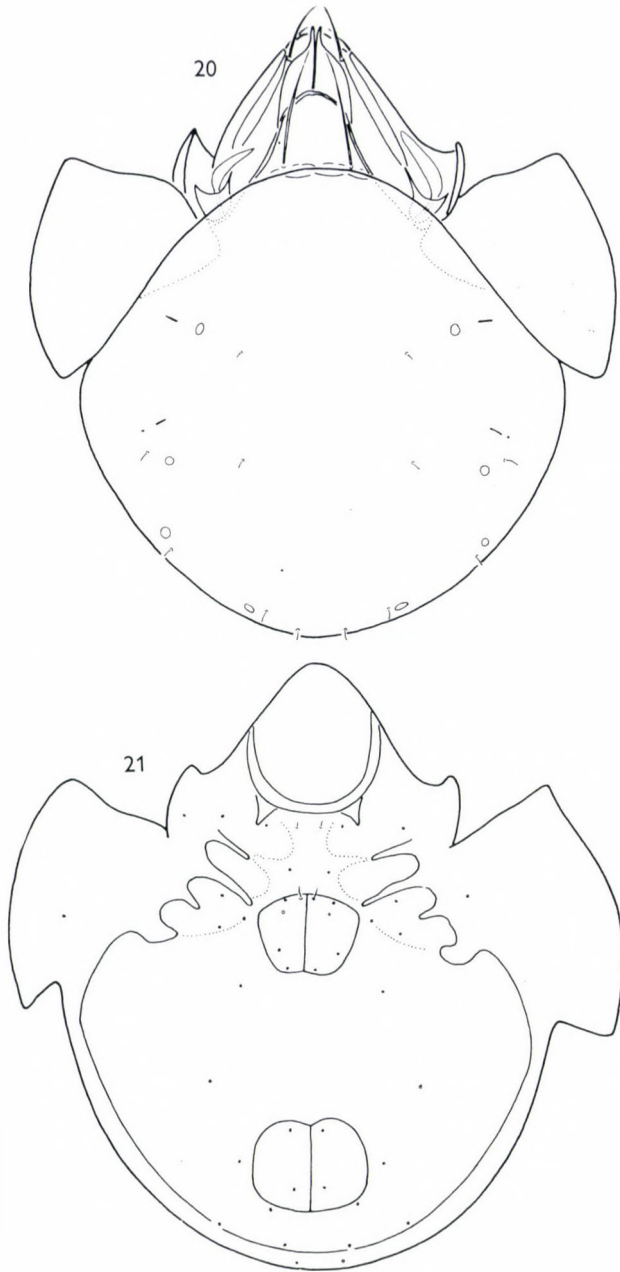


Figs 12—15. 12—13: *Guaranozetes nudus* BALOGH et MAHUNKA, 1981. 12 = dorsal, 13 = ventral. — 14—15: *Genevensia hungarorum* MAHUNKA, 1983. 14 = dorsal, 15 = ventral

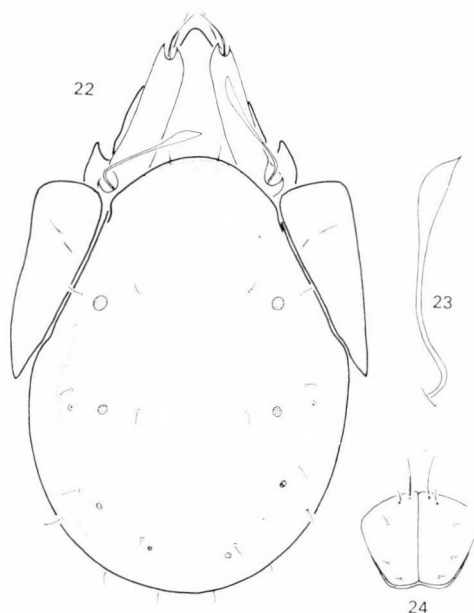


Figs 16—19. 16—17: *Genavensia longiseta* MAHUNKA, 1987. 16 = dorsal, 17 = ventral. —  
18—19: *Cultrobates heterodactylus* WILLMANN, 1930. 18 = dorsal, 19 = ventral





Figs 20—21. *Arcozetes bicuspidatus* HAMMER, 1958. 20 = dorsal, 21 = ventral



Figs 22—24. *Cultribates nipponicus* AOKI, 1982. 22 = dorsal, 23 = sensillus, 24 = genital plates

***Ceratokalumma naisselinei* sp. n. (Figs 7—11)**

Length: 271  $\mu\text{m}$ ; width: 172  $\mu\text{m}$ . Colour: brown.

**Prodorsum:** Sensillus medium long with short stalk and a long, medially directed head. The top of this head rounded. Interlamellar setae medium long, fine, directed anteriorly; distance *in-in* a little longer than the length of interlamellar setae. Cuspides incised, each with two tips; lateral tip much shorter than medial one. Lamellar setae directed forward, slightly arched, smooth.

**Notogaster:** Anterior margin of notogaster with a sharp, pointed tip. Ten pairs of very small but observable notogastral setae; setae *c* originating on pteromorphae. Areae porosae disappeared.

**Ventral side:** Epimeral region of Galumnidae type; apodemata and epimeral setae partly reduced. Epimeral setal formula: 1-0-1-2. Five pairs of genital setae, one pair of aggenital, two pairs of anal, three pairs of adanal setae present.

**Material examined:** Fiji, Wainandoi, Viti Levu 17. 7. 1966 in moss on rocks rain-forest, coll. G. BORNEMISSZA, 1 holotype.

## CATALOGUE OF THE CERATOKALUMMIDAE

## CERATOKALUMMIDAE BALOGH, 1970: 323

**Genaviidae** MAHUNKA, in BALOGH et MAHUNKA, 1981 (syn. n.)  
**Genavensiidae** MAHUNKA, 1983: 721 (syn. n.)

**Arcozetes** HAMMER, 1958: 101, Figs 125, 125a

**A. bicuspidatus** HAMMER, 1958: 101, Figs 125, 125a

**Ceratokalumma** BALOGH, 1970: 324

**C. insignis** BALOGH, 1970: 324, Figs 91—92

**C. naisselinci** sp. n.

**C. kaszabi** sp. n.

**Cultrobates** WILLMANN, 1930: 242, Fig. 4

**C. heterodactylus** WILLMANN, 1930: 241, Fig. 4

**C. heterodactylus** MAHUNKA, 1983: 723, Figs 32—33

**C. nipponicus** AOKI, 1982: 182, Figs 6. A—D

**Guaranozetes** BALOGH et MAHUNKA, 1981: 98, Figs 146—149

**G. nudus** BALOGH et MAHUNKA, 1981: 100, Figs 146—149

**Genavensia** MAHUNKA, 1983: 721, Figs 28—31

**G. hungarorum** MAHUNKA, 1983: 721, Figs 28—31

**G. longiseta** MAHUNKA, 1985: 141, Figs 52—55

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MOINA KASZABI SP. N. (CRUSTACEA, CLADOCERA),  
ITS SEPARATION FROM *M. BELLI* GURNEY  
BY MULTIVARIATE ANALYSES\*, \*\*

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*Moina kaszabi* n. sp. is described from Mongolia; cluster, principal components and stepwise discriminant analyses were carried out on African specimens of *Moina belli*, *M. macrocopa*, and on *M. kaszabi*. All analyses gave very similar results, for they completely separated the above-mentioned OTUs.

GURNEY (1904) described *Moina belli* from South Africa, later the species was several times recorded from African localities. Also, DADAY (1913) published *M. belli* var. *salina* from South Africa, a taxon which GOULDEN (1968) considered as a synonym of the typical form. He listed similarly the new species (*M. lateralis* and *M. tonsurata*) by BREHM (1935, 1958) in the synonyms of *M. belli*, too. *Moina turkomanica* KEISER, 1931 also was regarded as synonym, though with a question mark.

Most recently, DUMONT, PENSAERT & VAN DE VELDE (1981) reported *M. belli* GURNEY from West Africa, Central Sahara and the Libyan coast, considering it as an African endemism, typical of arid and semi-arid zones.

During his expeditions to Mongolia, KASZAB (1963-1968) collected several plankton samples also, the Branchiopoda material of them was published by BRTEK, FORRÓ & PONYI (1984), listing the new species, described in this paper, as *M. cf. belli*. In this paper I publish the description of *Moina kaszabi* sp. n., the results of morphological comparisons with South African and with Mali specimens of *M. belli*, as well as with type specimens. Principal component and stepwise discriminant analyses were carried out on specimens mentioned above and an African sample of *M. macrocopa* was also included.

***Moina kaszabi* sp. n.**

*Moina cf. belli* BRTEK, FORRÓ & PONYI, 1984: 92, 98, Figs 42-48

Derivatio nominis: The species is dedicated to the late DR. ZOLTÁN KASZAB, who collected the material of this species in Mongolia.

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

\*\* Ergebnisse der zoologischen Forschungen von DR. Z. KASZAB in der Mongolei, Nr 497.

**H o l o t y p e** female, "Mongolia, Čojbalsan aimak, Fluss Kerulen bei Čojbalsan, 700 m, 16 August, 1965, leg. Z. KASZAB". — Allotype: male, ditto. — Paratypes: 20 dissected females and 2 males on slides and further 50 alcoholic specimens in one tube. The whole type material is deposited in the Hungarian Natural History Museum. This material comes from the sample No. 422 (KASZAB, 1963—1968): "Čojbalsan aimak, Fluss Kerulen bei Čojbalsan, 700 m, 16 August 1965. — Vom stehenden Salzwasser neben der Brücke mit Wassernetz gefangen".

**D i a g n o s i s:** Head large, supraocular depression absent. Antennule slender, long, antenna robust. Shell rotund, with slight reticulation pattern, ventral rim with 45—55 long setae, followed by 8—10 groups of small setae posteriorly. On the postero-dorsal corner of each valve a hook is present. Postabdomen relatively large, with rows of long hairs on the dorsal margin. Postanal conical part with 7—10, mostly eight feathered teeth and a bident tooth. The claw has a small, distinct pecten, that consists of 12—15 thin teeth. There is a "Basaldorn" on the ventral side of the base of the claw. Epphippium with two eggs, ornamented with polygonal reticulation.

Male smaller, its head long, antennule long, two sensory setae present, distal and broader, with six hooks. First leg with a large hook and a well-developed exopod. Postabdomen with 7—8 feathered teeth, a pecten also present. Vas deferens opens dorsal to the base of the claw.

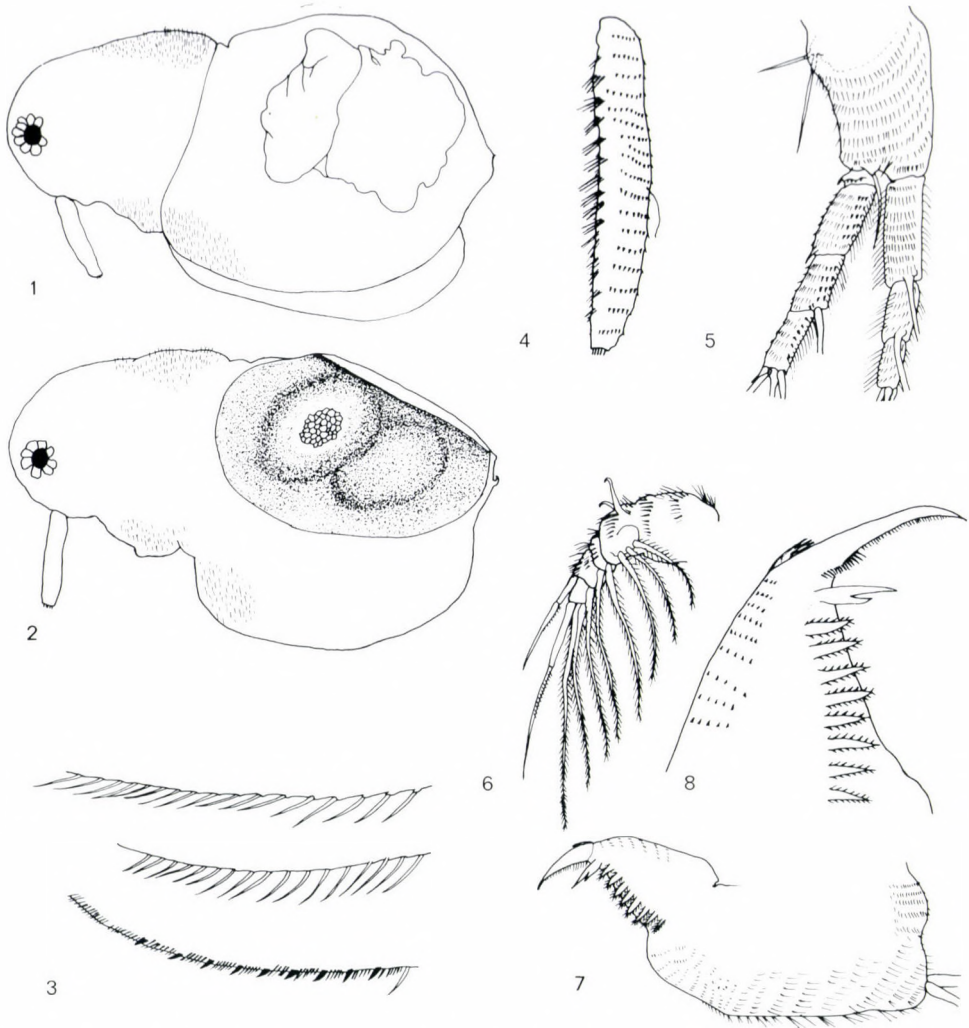
**Size:** The females range from 1.010 to 1.330 mm, mean = 1.144 mm.

**D e s c r i p t i o n:** The head of the female is large, broadly rounded, almost half of the total body length. There are hairs on the head, most densely covered on its postero-dorsal part (Figs 1—2). Supraocular depression is lacking.

The shell is also covered with hairs on its anterior part. Slight reticulation of elongated cells is on the ventral part of the shell. There are 45—55 long, thin setae on the ventral margin of the shell; their size is decreasing only slightly posteriorly. Behind them appears a row of minute setae. The posterior shell rim has 8—10 groups of these setae, which increase in size posteriorly within each group; the grouping disappears dorsally (Fig. 3). There is a hook on the postero-dorsal corner of each valve.

Antennule is slender, its length about the sextuple of the width. The sensory seta is not long, it originates from the middle part of the antennule. There are 15—18 transverse rows of minute setae, a vertical row of long hairs is also present (Fig. 4). There is a terminal tuft of olfactory setae.

Antennae are well developed, long (Fig. 5). The basipod is robust, with two setae near to its basis, both are shorter than the basipod. The apical seta on the basipod between the two rami is shorter than the first segment of endopod. The basipod and the segments of the rami are covered with rows of minute setae. There is a vertical row of long hairs on the inner surface of the exopod, and on the inner and outer surfaces of the endopod. The second and third segments of the exopod have several rows (5 and 4, respectively) of small



Figs 1—8. *Moina kaszabi* sp. n., female. 1 = parthenogenetic female; 2 = gamogenetic female; 3 = three details of the ventral rim of the shell; 4 = antennule; 5 = antenna; 6 = first leg; 7 = postabdomen; 8 = postabdominal claw

teeth, while the terminal segment bears a single vertical row of these teeth. Such rows were not seen on the endopod segments. The setation pattern is that typical of *Moina* (0—0—1—3/1—1—3).

The first leg is not as long as that of *M. belli*, otherwise it is rather similar. The ultimate and also the penultimate segments bear setae, the latter being shorter (Fig. 6).

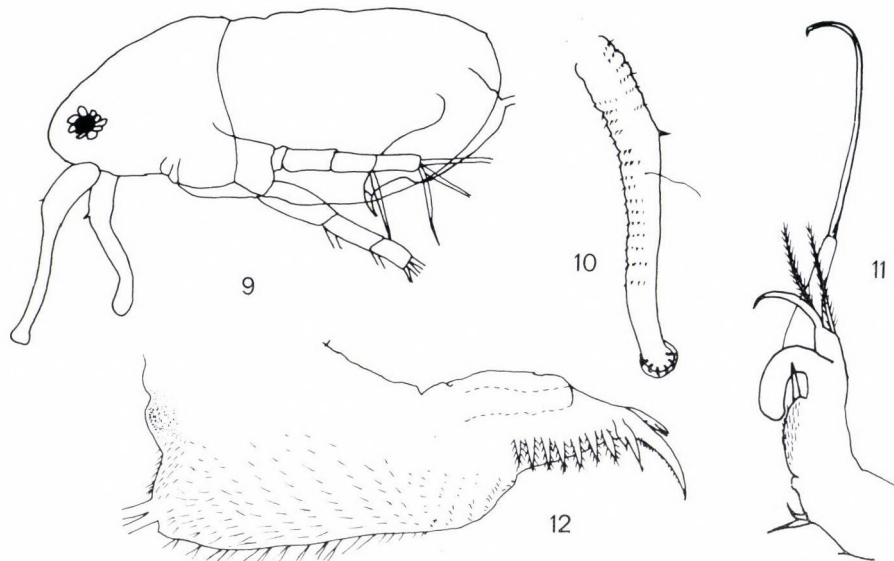
The postabdomen is large, the preanal part is very long, robust, the postanal conical part is relatively short (Fig. 7). The postabdomen bears two

abdominal setae, the dorsal part is covered with oblique rows of long hairs, proximally the hairs become shorter. The conical postanal extension bears seven to ten, mostly eight feathered teeth and one bident tooth. There are several rows of fine setae on the ventral side. The postabdominal claw is relatively short, it has a small pecten consisting of some 13—15 fine teeth (Fig. 8). The pecten is followed by a row of fine setae, which extends almost to the tip of the claw. "Basaldorn", a cluster of fine teeth, at the ventral base of the claw is present.

The ephippium contains two eggs, its surface is reticulated with a polygonal pattern (Fig. 2).

Males are smaller than females. Head is large, longer than one-third of total body length (Fig. 9). There is a slight depression above the eye. No hairs were seen on the head and shell surface, a reticulation of polygonal pattern was observed. The ventral margin of the shell bears 28—30 long setae, posteriorly they are followed by a row of minute setae, but there is not more than one group of the setae, otherwise ungrouped. The postero-dorsal corner bears a hook.

The antennule is long, it has two sensory setae (Fig. 10). The smaller is very short, located at the knee, about one-third the distance from the base to the tip. The other seta is fine and long originating below the short one, at about the middle point of the antennule. There are several rows of small setae and longer hairs on the antennule. The tip is enlarging and has six hooks and a tuft of olfactory setae.



Figs 9—12. *Moina kaszabi* sp. n., male. 9 = lateral view of the whole animal; 10 = antennule; 11 = first leg; 12 = postabdomen



The antenna is similar to that of the female, except the exopod, where the rows of small teeth are lacking on the last three segments.

The first leg has a well-developed recurved hook, the exopod has a long terminal seta which terminates in a small hook (Fig. 11).

The postabdomen is similar to that of the female (Fig. 12), it bears seven feathered teeth and a bident tooth, the rami of the latter are unequal. The postabdominal claw has a pecten and a "Basaldorn" at its ventral base, as well.

Genital opening is near the dorsal base of the claw. The structure of spermatozoa could not be determined.

**Differential diagnosis:** *Moina kaszabi* sp. n. is closely related to *M. belli* and *M. macrocopa*, the latter species is also known to occur in Mongolia (FLÖSSNER, 1986). The unique first leg of female *M. macrocopa* distinguishes these species, but other characters, such as the setation pattern of the ventral margin of the shell, are also different in the two species.

*M. belli* and *M. kaszabi* are more closely related, but several characters distinguish them. The setation of the ventral rim (number of setae, number of groups of setae) of the shell is different. The head of *M. kaszabi* is larger, the first leg, the preanal part and the postanal conical extension of the postabdomen are shorter.

No original material of *Moina turkomanica* KEISER, 1931 is available (N. N. SMIRNOV, pers. commun.), thus only a comparison with the description is possible. Unfortunately, the setation pattern of the shell was not described in detail, but differences in other characters (e.g. the shape of the rami of the antenna, reticulation of the shell, etc.) can be found, suggesting the distinctness of the two taxa.

Original specimens of *M. belli* GURNEY, 1904 are deposited in the British Museum Natural History). The type material consists of three females, one of them is herewith designated as lectotype, and the remaining two as paralectotypes. *Moina belli* GURNEY, 1904: ectotype: 1904. 9.21.19.; paralectotypes: 1904. 9.21.20—21.

**Numerical analyses:** The recognition of a number of morphological peculiarities of the Mongolian specimens (BRTEK, FÖRRÓ & PONYI, 1984) necessitated a more thorough comparison, a closer scrutiny of these species which certainly can be best done by multivariate analyses. In these studies the following OTUs (samples) were used (in brackets are given the numbers of specimens measured):

- Moina belli*** GURNEY, 1904 — South Africa (2, types)
- Moina belli*** GURNEY, 1904 — South Africa (20)
- Moina belli*** var. ***salina*** DADAY, 1913 — South Africa (19)
- Moina belli*** GURNEY, 1904 — Mali (7)
- Moina macrocopa*** (STRAUS, 1820) — Tunisia (18)
- Moina kaszabi*** sp. n. — Mongolia (20)

**Table 1**  
List of the variables

- 
1. Length of the body
  2. Height of the shell
  3. Length of the shell
  4. Length of the head
  5. Number of setae on the ventral margin of the shell
  6. Number of groups of setae on the ventral margin of the shell
  7. Length of the basipod of the antenna
  8. Length of the endopod of the antenna
  9. Length of the exopod of the antenna
  10. Length of the antennule
  11. Width of the antennule
  12. Length of the sensory seta of the antennule
  13. Length of the first leg
  14. Length of the seta on the ultimate segment of the first leg
  15. Length of the seta on the penultimate segment of the first leg
  16. Length of the ultimate segment of the first leg
  17. Length of the plumose seta on the ultimate segment of the first leg
  18. Length of the preanal part of the postabdomen
  19. Width of the preanal part of the postabdomen
  20. Length of the postanal part of the postabdomen
  21. Length of the claw
  22. Number of feathered teeth on the postabdomen
- 

**Table 2**  
Results of principal components analyses

Variable	PC1	PC2	PC3	PC4
1	0.897	-0.281	-0.209	-0.116
2	0.750	-0.185	-0.279	-0.267
3	0.882	-0.163	-0.274	-0.232
4	0.659	-0.637	-0.157	0.010
5	0.180	0.656	0.468	-0.274
6	0.310	-0.584	0.600	0.234
7	0.632	-0.569	0.116	0.107
8	0.925	0.040	0.022	0.141
9	0.893	0.123	-0.041	-0.030
10	0.750	-0.350	0.268	0.079
11	0.728	0.060	0.079	-0.270
12	0.421	0.644	0.433	-0.041
13	0.788	0.327	0.047	0.298
14	0.555	0.273	-0.513	0.254
15	0.653	0.431	-0.242	0.282
16	0.695	0.246	0.267	0.394
17	0.805	-0.195	0.345	-0.040
18	0.838	-0.090	-0.011	0.106
19	0.733	0.351	-0.168	-0.278
20	0.887	0.086	0.107	-0.176
21	0.794	0.203	-0.021	-0.233
22	0.207	0.217	-0.221	0.496
Eigenvalue	11.113	2.891	1.685	1.191
Cumulative proportion of total variance explained	0.505	0.636	0.713	0.767

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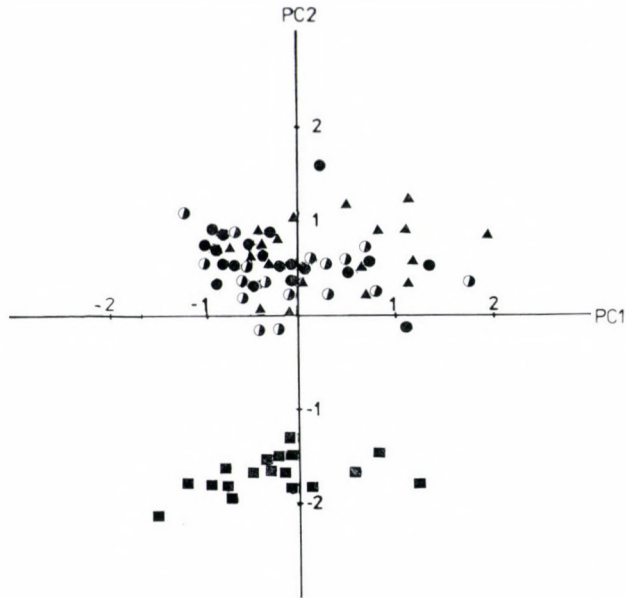


Fig. 13. Bivariate scattergram of the individuals in the plane  $PC1 \times PC2$ . Symbols: *Moina kaszabi* sp. n. (●), *M. belli* GURNEY (▲), *M. belli* var. *salina* DADAY (○), *M. macrocopa* STRAUS (■), T indicates type specimens

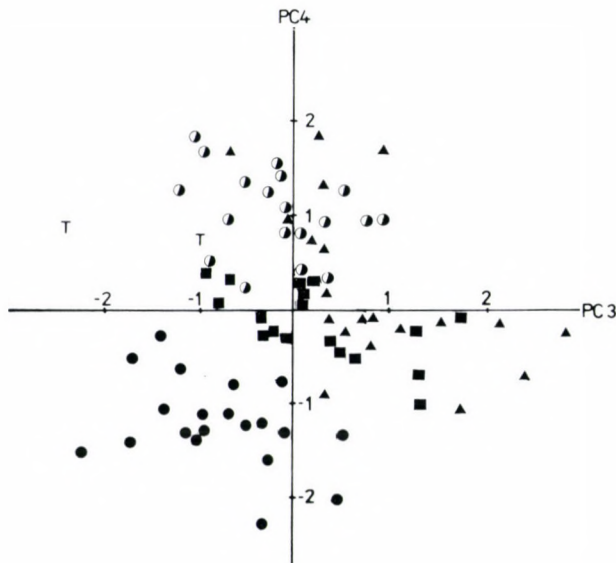


Fig. 14. Bivariate scattergram of the individual in the plane  $PC3 \times PC4$ . For symbols see Fig. 13

22 characters, 19 metrical and 3 meristic ones were measured on each specimen (Table 1), principal component analysis (PCA), discriminant analysis (DA) and cluster analysis were carried out.

PCA involves the Varimax rotation of the axes representing the main components. The maximum variation is expressed by the first component, the remaining variability by the subsequent ones in a sequence of decreasing order. All samples, except the specimens from Mali, were included in the analysis; the BMDP4M programme (DIXON, 1981) was applied. Table 2 lists the variable loadings on the first four components. The first component had high and all positive loadings, merely the meristic variables had smaller values ("size-axis"). The second component has loadings of different sign and magnitude ("shape-axis"), and so are the third and fourth components, too. The first component accounted for 50.5% of the total variance, while the second one accounted for 13.1%. These values indicate great variation in shape. Bivariate scattergrams of the individuals in the plane of PC1×PC2 and PC3×PC4 are shown in Figs 13—14. The second component completely separated *M. macrocopa* from *M. belli* and *M. kaszabi*, the latter two species forming one group (Fig. 13). In the plane of PC3×PC4 (Fig. 14) separation

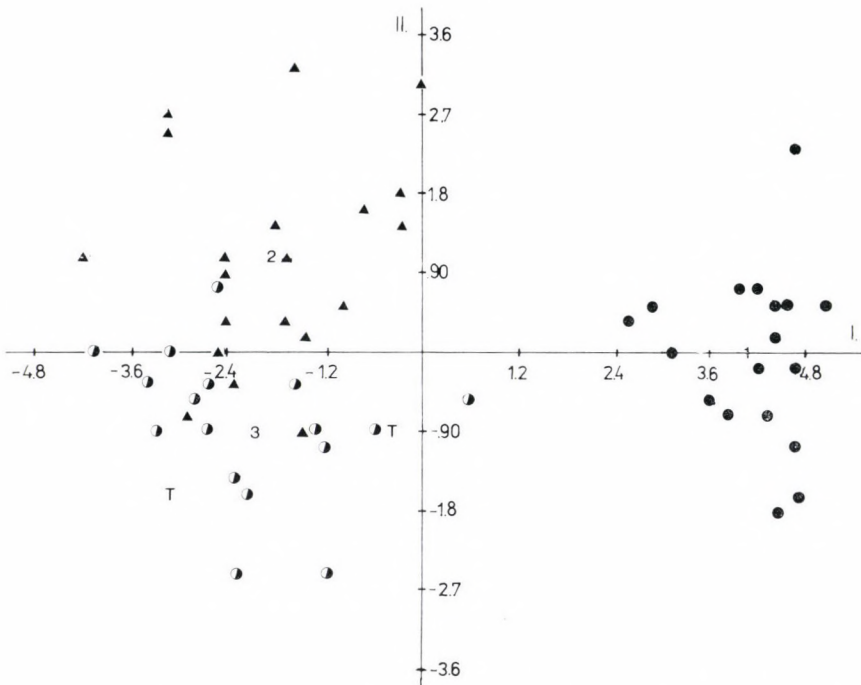


Fig. 15. Discrimination of *Moina kaszabi* sp. n. (●), *M. belli* GURNEY (▲), *M. belli* var. *salina* DADAY (●), with respect to the two canonical axes. Numbers are means of each group, T indicates type specimens

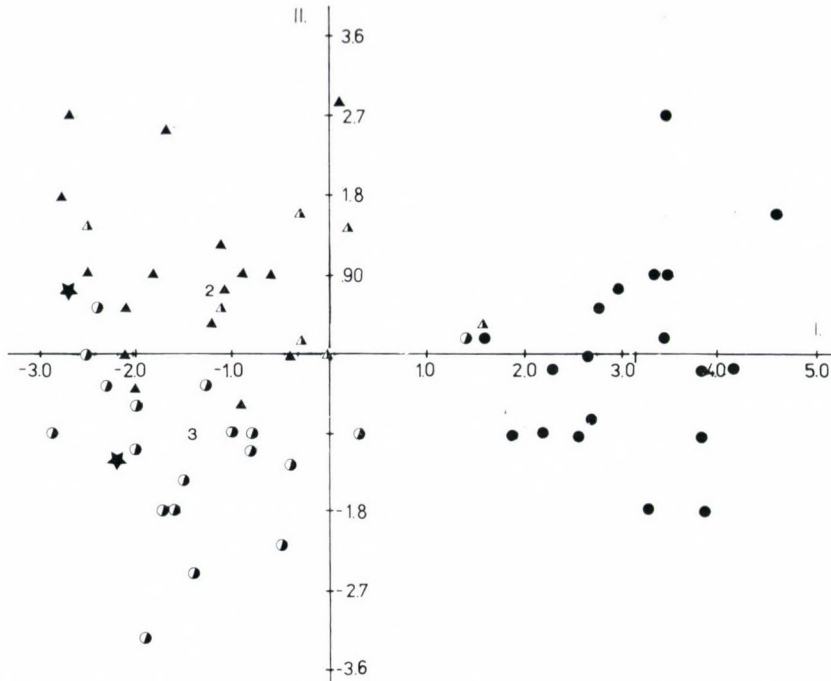


Fig. 16. Discrimination of *Moina kaszabi* sp. n. (●), *M. belli* GURNEY from South Africa (▲), from Mali (▲) and *M. belli* var. *salina* DADAY (●), with respect to the two canonical axes. Numbers are means of each group, \* indicates overlap

of *M. kaszabi* and *M. belli* also is shown. The bivariate plot in the plane of  $PC1 \times PC3$  showed one large group, it is not illustrated here.

DA focuses on interpopulational variation, it points out the axes (produced by linear combinations of the original variables) that maximize the

**Table 3**

Coefficients for canonical variates  
of the main discriminating variables

Variables	Coefficients for canonical variates	
4*	0.019	0.012
5	-0.085	-0.079
13	-0.070	0.064
16	-0.129	0.109
18	0.007	-0.025
20	-0.049	-0.015
Constant	12.161	-2.628

\* Numbers refer to the sequential numbers of the original variables listed in Table 1.

differences between the OTUs. BMDP7M programme (DIXON, 1981) was applied, three different runs were carried out. The first one included the OTUs of *M. kaszabi*, *M. belli* from South Africa and *M. belli* var. *salina* from South Africa and the two type specimens (Table 3, Fig. 15); the data of the second run contained the above-mentioned OTUs and also *M. belli* from Mali (Table 4, Fig. 16). The third computer running was carried out on all of the OTUs, with specimens from Mali excluded (Table 5, Fig. 17). In all of the three cases specimens of *M. kaszabi* were separated into the same distinct group, and the *a posteriori* probability of correct classification was 1.0 for all of the individuals of this species. In the second run one specimen from Mali was placed in the *M. kaszabi* group. Considerable overlap occurred between the OTUs from South Africa (*M. belli* and *M. belli* var. *salina*), confirming that they belong to one taxon.

An UPGMA cluster analysis was also carried out on the arithmetic means of the four groups used also in PCA and the third discriminant analysis.

**Table 4**

Coefficients for canonical variates  
of the main discriminating variables

Variable	Coefficients for canonical variates	
4*	0.022	0.019
13	-0.063	0.068
16	-0.124	0.095
18	0.008	-0.028
20	-0.043	-0.039
Constant	3.334	-6.534

\* Numbers refer to the sequential numbers of the original variables listed in Table 1.

**Table 5**

Coefficients for canonical variates  
of the main discriminating variables

Variable	Coefficients for canonical variates		
4*	0.004	0.020	0.004
5	0.035	-0.108	-0.079
6	0.809	-0.036	-0.177
7	0.030	-0.005	0.008
13	-0.022	-0.040	0.034
16	-0.005	-0.150	0.165
20	-0.003	-0.049	-0.033
Constant	-14.485	13.544	-2.726

\* Numbers refer to the sequential numbers of the original variables listed in Table 1.

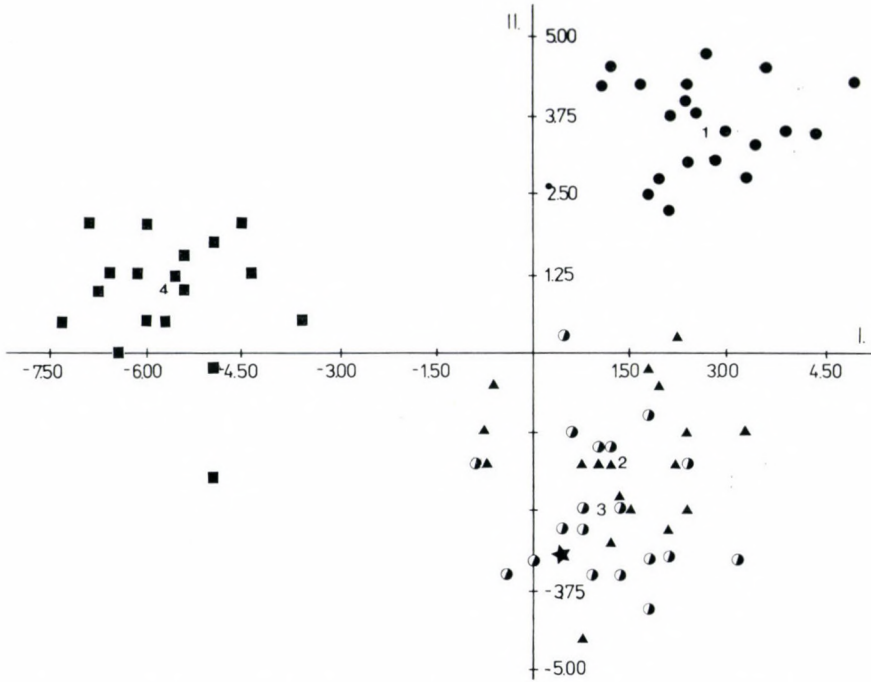


Fig. 17. Discrimination of *Moina kaszabi* sp. n. (●), *M. belli* GURNEY (▲), *M. belli* var. *salina* DADAY (◐) and *M. macrocopa* (STRAUS) (■), with respect to the two canonical axes. Numbers are means of each group, \* indicates overlap

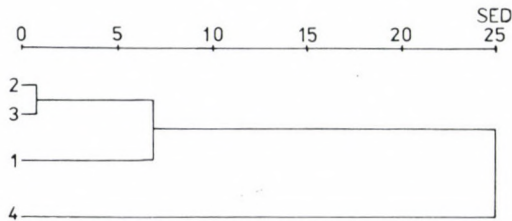


Fig. 18. Dendrogram of the UPGMA cluster analysis, numbers refer to the same groups as in Fig. 17, SED = Squared Euclidean distance

The programme used squared Euclidean distance measures. The dendrogram is shown on Fig. 18. This analysis gave very similar results to those of PCA and DA, also indicating that the OTUs belong to three different taxa.

The morphological comparison as well as the numerical analyses yielded highly similar results, confirming the distinctness of *Moina kaszabi* sp. n. Following GOULDEN (1968), and particularly DUMONT, PENSART & VAN DE VELDE (1981), *M. belli* is taken as an African endemism, distributed in Africa, Arabia and Levant. I would suggest that *M. turkomanica* KEISER, 1931 should

also be considered as a distinct species, but this problem can be solved only by studying material from its locality.

**Acknowledgements:** I thank DRs H. J. DUMONT and H. E. GRUNER for sending me material, which made this study possible. Special thanks are due to DR. G. BOXSHALL and S. HALSEY for the loan of the type material of *Moina belli*. I am indebted to DR. Cs. MOSKÁT for his help in the numerical analyses.

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## A SURVEY OF THE ORIBATID FAUNA (ACARI) OF VIETNAM, II\*<sup>o</sup> \*\*

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(Received 10 March, 1987)

The study of soil and moss samples collected in Vietnam revealed 17 species, of which 15 are new to science. 3 of them represent also new genera: *Kaszabozetes* gen. n. (family: Microzetidae), *Subpirnodus* gen. n. (family: Oripodidae) and *Vietoppia* gen. n. (family: Oppiidae). Complementary figures and description to already known species are presented.

In the first part of this series of papers I outlined the antecedents of my collecting trip to Vietnam and ventured to formulate my views on faunal relations. The foregoing paper also discussed the results of my preliminary research concerning the Oribatid material extracted from various samples of soil, moss, litter, nests, etc. My present contribution proposes to disclose the most recent findings of the work in progress. Herewith I describe 15 new species and erect three new genera.

It is especially noteworthy to mention that a large number of Oripodida species has come forward, since this is the first case that this group of species is extracted in masses from soil samples. It is all the more interesting, because this group has been known mainly from samples of epiphytic moss or some kind of vegetation living on trees.

### LIST OF LOCALITIES

- No. 23. Vinh Phu, Tam Dao, N from the village, 21. I. 1986. — Sifted from decaying debris and rotten tumps, extracted in Moczarsky—Winkler bag. Leg. S. MAHUNKA, and J. OLÁH.
- No. 25. Vinh Phu, Tam Dao, N from the village, 21. I. 1986. — Berlese, Nematoda and Tardigrada samples from moss of lying, rotten and standing trees. Leg. S. MAHUNKA and J. OLÁH.
- No. 26. Vinh Phu, Tam Dao, N from the village, 21. I. 1986. — Berlese and Nematoda samples from litter of forest near to the shore of a small pond. Leg. S. MAHUNKA and J. OLÁH.
- No. 28. Vinh Phu, Tam Dao, 21. I. 1986. — Berlese and Nematoda samples from dry and wet moss taken from stones lying in stream-bed. Leg. S. MAHUNKA and J. OLÁH.
- No. 29. Vinh Phu, Tam Dao, 21. I. 1986. — Sifted from decaying debris and litter collected near to the stream-bed. Extracted in Moczarsky—Winkler bag. S. MAHUNKA and J. OLÁH.
- No. 34. Vinh Phu, Tam Dao, waterfall, 21. I. 1986. — Berlese and Nematoda samples from litter and humus taken from cracks of rocky wall.

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

\*\* Hungarian zoological studies in Vietnam. No. 6.

- No. 56. Thanh Hoa, Tho Xuan, 25. I. 1986. — Berlese and Nematoda samples from moss growing on living trees. Leg. S. MAHUNKA and J. OLÁH.  
 No. 67. Thanh Hoa, Ngoc Lac, Suoi Trang (Trang stream), 26. I. 1986. — Singling from under stones lying in the stream-bed. Leg. S. MAHUNKA and J. OLÁH.  
 No. 68. Thanh Hoa, Sam Son, 26. I. 1986. — Berlese and Nematoda samples from litter and soil of a secondary forest. Leg. S. MAHUNKA and J. OLÁH.  
 No. 83. Ha Son Binh, Hoa Binh, 8 km to Da Bac (war monument), 30. I. 1986. — Sifted material from decaying debris, roots and litter from cracks of a steep slope of a rocky wall. Extracted in Moczarsky—Winkler bags (partly extracted in Budapest, in Berlese funnels from 6. II. 1986. till 28. II.).

## LIST OF IDENTIFIED SPECIES

## PHTHIRACARIDAE (PERTY, 1841)

**Hoplophorella cuneiseta** sp. n.  
 Locality: No. 34.

## CEPHEIDAE BERLESE, 1896

**Sphdrocephus tuberculatus** sp. n.  
 Locality: No. 25.

## MICROZETIDAE GRANDJEAN, 1936

**Berlesezetes auxiliaris** (GRANDJEAN, 1936)  
 Locality: No. 83.

**Kaszabozetes velatus** gen. n., sp. n.  
 Locality: No. 83.

## METRIOPPIIDAE BALOGH, 1943

**Ceratoppia crassiseta** BALOGH et MAHUNKA, 1967  
 Localities: No. 28, No. 29.

## CARABODIDAE C. L. KOCH, 1837

**Aokiella florens** BALOGH et MAHUNKA, 1967  
 Localities: No. 23, No. 83.

**Austrocarabodes szentivanyii** BALOGH et MAHUNKA, 1967  
 Locality: No. 83.

## OPPIIDAE GRANDJEAN, 1954

**Amerioppia vietnamica** sp. n.  
 Locality: No. 68.

**Multioppia tamdao** sp. n.  
 Locality: No. 26.

**Pulchroppia granulata** sp. n.  
 Locality: No. 29.

**Striatoppia opuntiseta** BALOGH et MAHUNKA, 1968  
 Locality: No. 83.

**Vietoppia hungarorum** gen. n., sp. n.  
 Locality: No. 29.

## SUCTOBELBIDAE GRANDJEAN, 1954

**Suctobelba variosetosa** HAMMER, 1961  
 Locality: No. 56.

## CYMBAEREMEIDAE SELLNICK, 1928

**Scapheremaeus crassus** sp. n.  
 Locality: No. 83.

## ORIPODIDAE JACOT, 1925

- Cosmopirnodus tridactylus** sp. n.  
Locality: No. 25.
- Oripoda excavata** sp. n.  
Locality: No. 26.
- Subpirnodus mirabilis** gen. n., sp. n.  
Locality: No. 26.
- Truncopes orientalis** MAHUNKA, 1987  
Locality: No. 68.

## ORIBATULIDAE THOR, 1929

- Brasilobates maximus** sp. n.  
Locality: No. 29.
- Nanobates clavatus** sp. n.  
Locality: No. 29.
- Peloribates kaszabi** sp. n.  
Localities: No. 29, No. 83.
- Perxylobates brevisetus** sp. n.  
Locality: No. 29.

## CERATOZETIDAE GRANDJEAN, 1954

- Allozetes pusillus** (BERLESE, 1914)  
Locality: No. 83.
- Uracrobates magniporosus** BALOGH et MAHUNKA, 1967  
Locality: No. 68.

## ORIBATELLIDAE JACOT, 1925

- Lamellobates hauseri** MAHUNKA, 1977  
Locality: No. 83.
- Paralamellobates ceylanicus** (OUDEMANS, 1916)  
Locality: No. 83.

## GALUMNIDAE JACOT, 1925

- Pergalumna granulata** BALOGH et MAHUNKA, 1976  
Locality: No. 29.

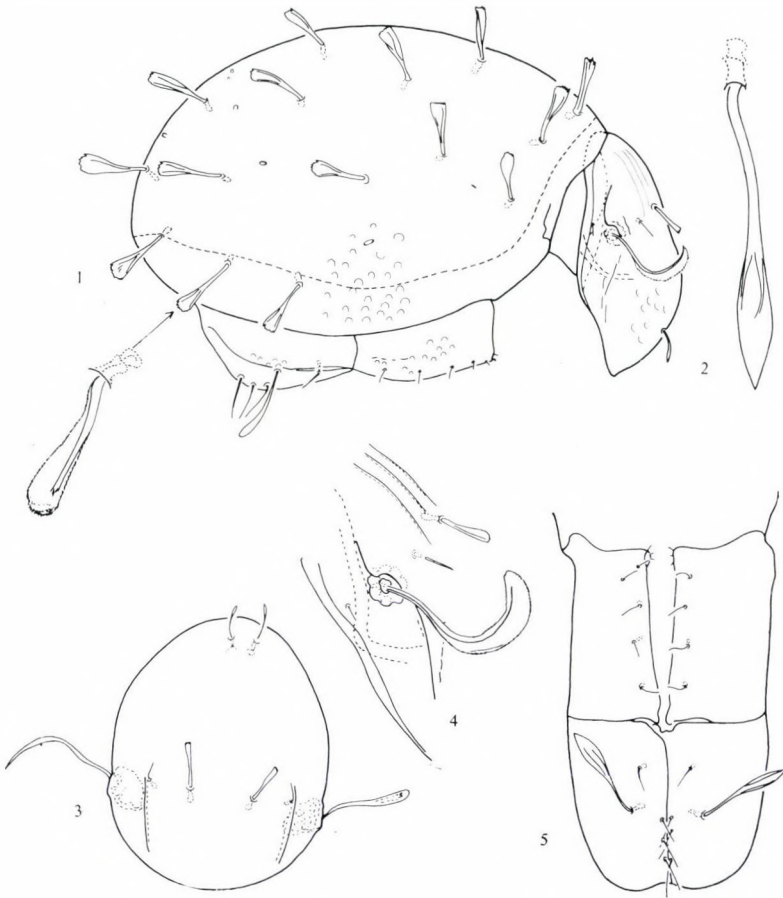
**Hoplophorella cuneiseta** sp. n.

Measurements. — Length: of aspis: 154—172  $\mu\text{m}$ , length of notogaster: 292—340  $\mu\text{m}$ , height of notogaster: 192—204  $\mu\text{m}$ .

**Aspis:** Dorsal outline of aspis concave medially (Fig. 1). Its surface weakly foveolate, basally one pair of stronger and some weaker longitudinal rugae present (Fig. 3). Rostral setae lanceolate, interlamellar setae dilate, cuneiform. Sensillus very long, curved backwards, falciform (Fig. 4).

**Notogaster:** Its surface ornamented by fine, shallow alveoli. Fifteen pairs of cuneiform notogastral setae (Fig. 1) present, no greater difference among them. Lyrifissures hardly observable, *in* and *ips* absent.

**Anogenital region:** Ano-adanal and genito-aggenital plates ornamented by foveolae. Four pairs of larger and five pairs of smaller genital



Figs 1—5. *Hoplophorella cuneiseta* sp. n. — 1 = body in lateral view, 2 = seta  $ad_2$ , 3 = aspis in dorsal view, 4 = bothridial region, 5 = anogenital region

setae present. Setae  $ad_1$  and two pairs of anal setae originating near to each other along the inner margin of ano-adanal plate. All three pairs equal in length. One pair very long and large, adanal ( $ad_2$ ) setae (Fig. 2) and one very short and simple setae ( $ad_3$ ) also present (Fig. 5).

**Type material:** Holotype (1233-HO-87): No. 34, 1 paratype from the same sample. Holotype deposited in the HNHM and paratype in the MHNG.

**Remarks:** The new species is well characterized by the falciform sensillus and the cuneiform notogastral setae. This combination of characters was unknown among the heretofore known *Hoplophorella* BERLESE, 1923 species.

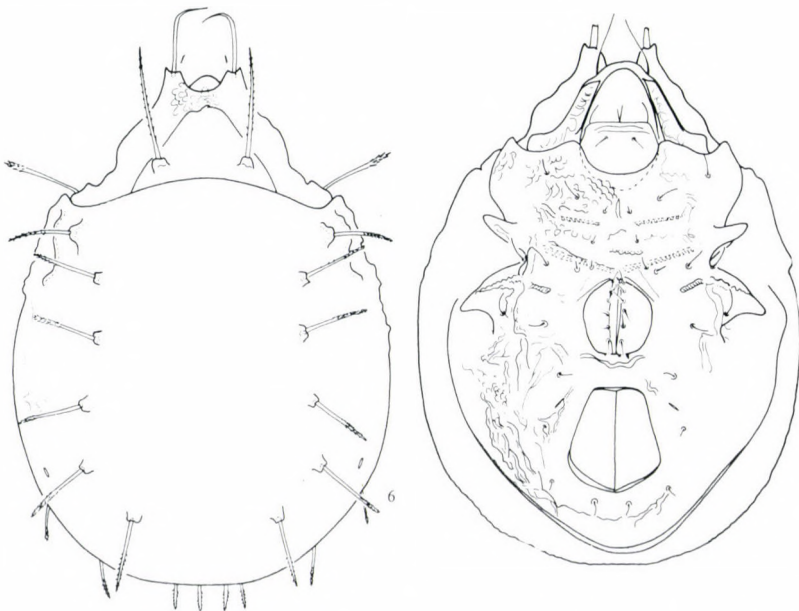
***Sphydrocepheus tuberculatus* sp. n.**

Measurements. — Length: 681  $\mu\text{m}$ , width: 508  $\mu\text{m}$ .

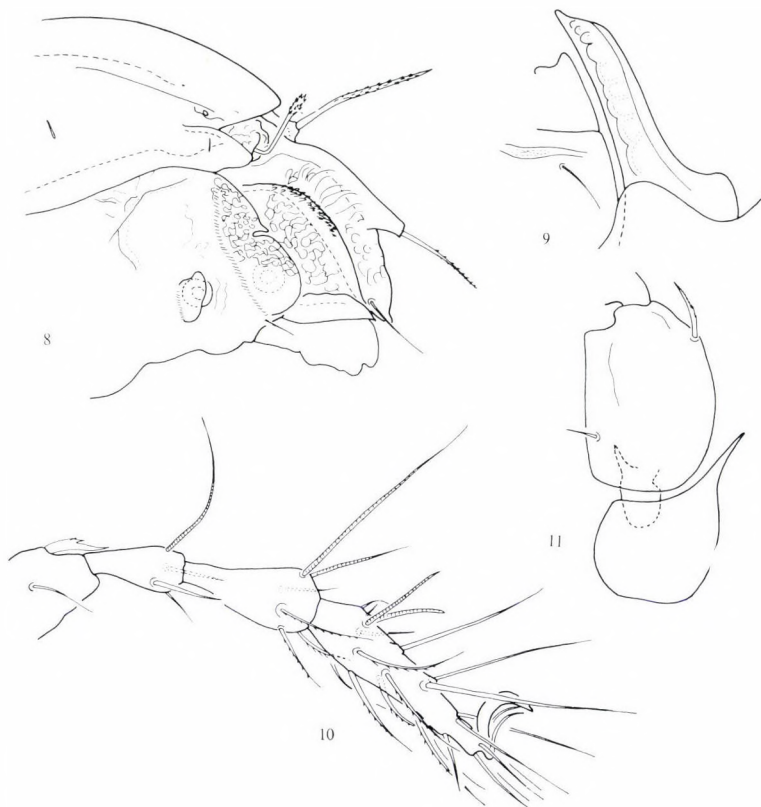
**Prodorsum:** Lamellae well developed, they are fused by a wide transverse band, but in front of it a long, free cuspis present (Fig. 6). Between them the rostrum well visible in dorsal view. The cuspis of lamellae bears a short lateral spine. Rostral setae thin and simple, lamellar ones thicker, their end bent inwards. Interlamellar setae sitting on tubercles, much thicker and longer than the other prodorsal setae. Sensillus also long, with a small, spinulose head. Lamellar surface alveolate, prodorsum also partly foveolate and ornamented also by ribs. A well-developed turtorium present (Fig. 8), covered by thick spines or long squama. A well-developed genal teeth (?) (Fig. 9) also observable.

**Lateral part of podosoma:** Pedotecta I very large, with deep incision medially. Its surface also alveolate. Pedotecta II—III long, but comparatively narrow. Discidium very large.

**Notogaster:** Dorsosejugal suture slightly, convex. A well-developed humeral projection present. Surface of notogaster covered by secretion granules. Ten pairs of notogastral setae present, 6 pairs of them arising on tubercles, they are stout, erect, pilose on their distal half. Some rugae or ribs also visible. Four pairs of notogastral setae arising on postero-marginal position. They are much shorter than the others.



Figs 6—7. *Sphydrocepheus tuberculatus* sp. n. — 6 = dorsal side, 7 = ventral side



Figs 8—11. *Sphodrocepeus tuberculatus* sp. n. — 8 = anterior part of body in lateral view  
9 = lateral part of prodorsum in ventral view, 10 = leg I, 11 = trochanter and femur of  
leg IV

**Coxisternal region:** Mentum with a transverse lath, its surface foveolate. Epimeral surface distinctly covered by rugae and irregular alveoli. Apodemes narrow, sejugal apodemes connected with each other. Epimeral borders hardly and partly observable. Epimeral setal formula: 3—1—3—3. Setae *3a* and *4a* originating very near to each other, all simple and thin.

**Anogenital region:** Ventral plate ornamented by irregular rugae, surface of genital and anal plates smooth. All setae in the anogenital region simple and thin. Setae *ad*<sub>1</sub> and *ad*<sub>2</sub> in postanal, *ad*<sub>3</sub> in adanal position. Lyrifissures *iad* well visible, originating in apoanal position (Fig. 7).

**Legs:** All legs tridactylous, a very strong heterodactylia present. Chaetotaxy of leg I shown as in Fig. 10. Trochanter of leg IV with a very long spur dorsally (Fig. 11). Femur of the palpus with two very long setae basally (as shown by AOKI, 1967).

**Type material:** Holotype (1234-HO-87): No. 25: deposited in the HNHM.

**R e m a r k s:** The genus *Sphodrocephus* WOOLLEY et HIGGINS, 1963 comprises only two species. The new species is distinguished from both by the long and erect sensillus and the form of the lamellae. The presence of the genal teeth is a remarkable feature in this family, and it was not mentioned by the other authors.

### **Kaszabozetes gen. n.**

**D i a g n o s i s:** Family Microzetidae. Rostrum with a fist-shaped apex, rostral setae arising on it. Lamellae short, originating far from each other. Interlamellar setae arising on their anterior part. Interlamellar process absent. A divided, irregular velum exists between the prodorsal surface and the lamellae. Sensillus reclinate, setiform. Dorsosejugal suture complete medially. Pteromorphae large, with two apices. Nine pairs of notogastral setae present, four median pairs arising in a longitudinal row. Epimeral setal formula: 3—1—3—3. Anogenital setal formula: 6—1—2—3. Genital and anal apertures nearly touching medially, both well framed. Chelicerae normal. All leg monodactylous.

**Type species:** *Kaszabozetes velatus* sp. n.

**R e m a r k s:** The family Microzetidae GRANDJEAN, 1936 is problematic and the establishment of a new genus is rather uncertain. This form stands wide apart from the heretofore known Microzetidae taxa, thus, a new genus has to be established. On the basis of the main characters it is readily distinguished from all other taxa.

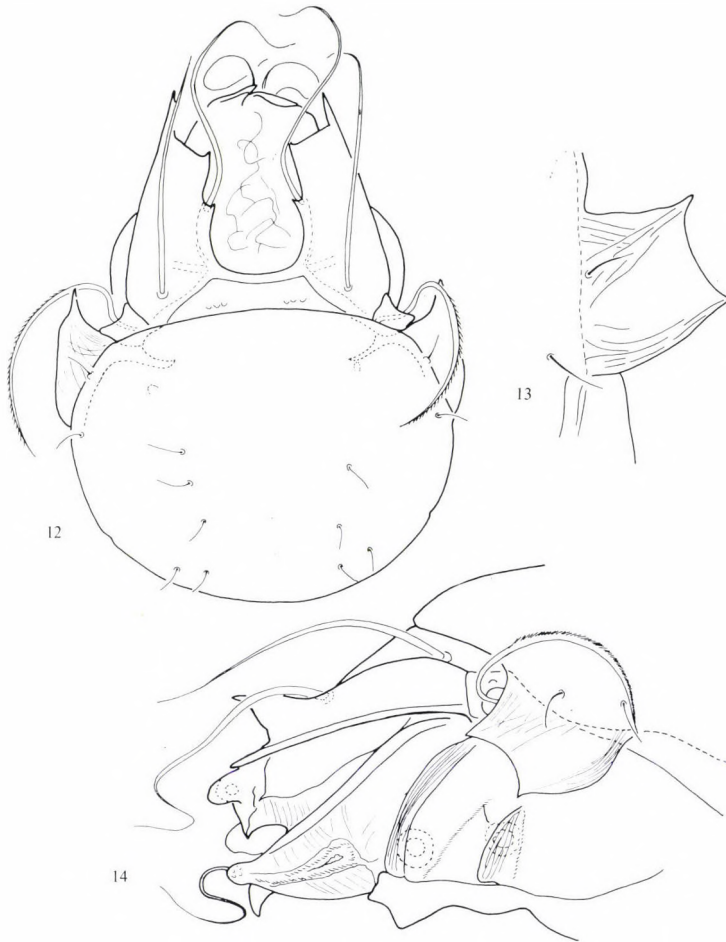
I dedicate the new genus to the late DR. Z. KASZAB, the renown coleopterologist, the once director-general of the Hungarian Natural History Museum, Budapest.

### **Kaszabozetes velatus sp. n.**

**Measurements.** — Length: 314  $\mu\text{m}$ , width: 256  $\mu\text{m}$ .

**P r o d o r s u m:** Lamellae wide, they are connected by a strong, arched transverse bridge basally. Their outer cuspis long and spiniform. In the interlamellar region an irregular velum visible (Fig. 12). Lamellar setae arising on the inner margin of the lamellae, rostral setae and the preceding ones very long, with flagellate end. Interlamellar setae very strong, erect, they stand prominently like a dagger. Sensillus setiform, reclinate, unilaterally ciliate. Tutorium wide, with a laminate expansion dorsally (Fig. 14).

**N o t o g a s t e r:** Pteromorphae very large, with concave lateral margin and on anterior and one posterior apex. Its surface rugose and striate (Fig. 13). Notogastral outline in lateral view sinuate posteriorly. Notogastral setae thin but well observable.



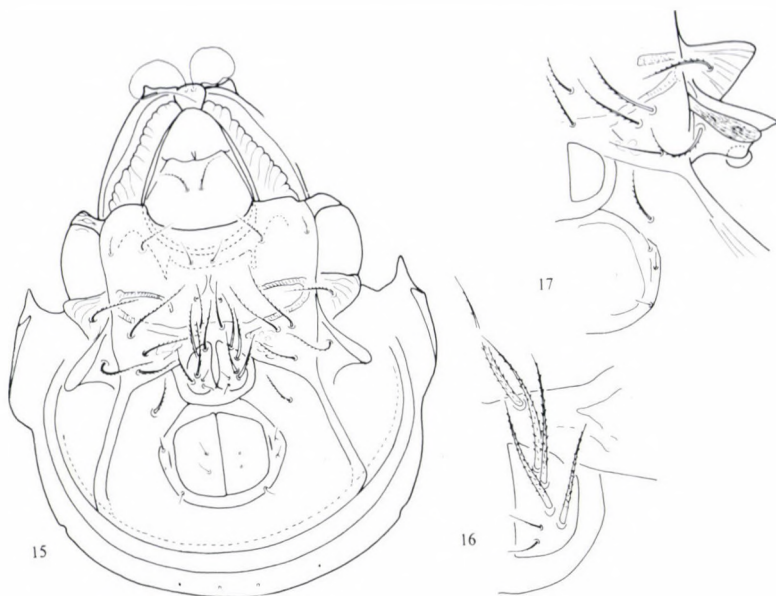
Figs 12—14. *Kaszabozetes velatus* gen. n. sp. n. — 12 = dorsal side, 13 = pteromorpha, 14 = anterior part of body in lateral view

**Lateral part of podosoma:** Pedotecta I and II—III very large, both with transversal striation. Antero-lateral margin of discidium also wide and strongly chitinized (Fig. 17). The surface along gnathosoma transversally rugose.

**Coxisternal region:** Without any longitudinal striation, but some irregular, weak spots are visible on the surface. Epimeral setae very strong, all ciliate or squamose. Epimeral borders and apodemes weakly developed or short, only the sejugal one well developed (Fig. 15).

**Anogenital region:** Genital and anal aperture framed by a continuous strong ring. They are touching medially. Anogenital setae very characteristic, the setae of the genital region (Fig. 16) strong, only  $ag_1$  and  $ag_2$





Figs 15—17. *Kaszabozetes velatus* gen. n. sp. n. — 15 = ventral side, 16 = genital plate, 17 = lateral part of the epimeral region

short and fine. The other strong and well ciliate. The setae of the anal region short, thin and simple. All three pairs of adanal setae arising in adanal position. Lyrifissure *iad* long.

**Legs:** The setae *p* on leg I simple, all others on legs I—IV spiniform.

**Type material:** Holotype (1235-HO-87): No. 83: deposited in the HNHM.

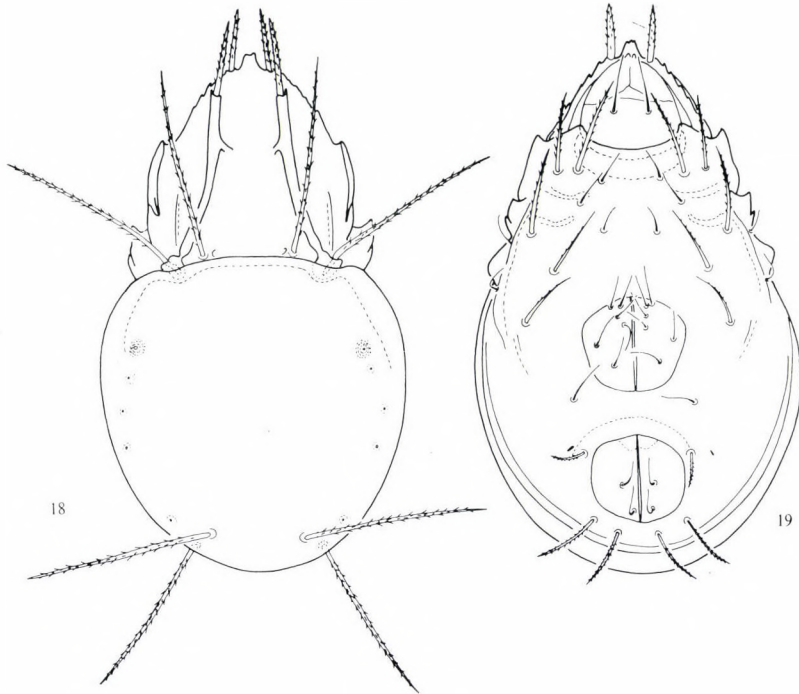
**Remarks:** The new species displays some unique features: form of the rostrum, tutorium and lamellae, the insertion of the notogastral setae (*lm*, *lp*, *h*<sub>3</sub>). On the basis of these combinations it is distinguished from all other microzetoid taxa.

#### *Ceratoppia crassiseta* BALOGH et MAHUNKA, 1967

The species was described only on the basis of the slightly damaged holotype. Because the original description was short and some important characters were not referred to I give hereunder a complementary description.

**Measurements.** — Length: 384—416  $\mu\text{m}$ , width: 240—272  $\mu\text{m}$ .

**Prodorsum:** Apex of rostrum nasiform, its anterior margin convex (Figs 23—24) or with some teeth. Rostral setae arising on tubercles. On the lateral margins of prodorsum 5—6 distinct teeth observable on each side



Figs 18—19. *Ceratoppia crassiseta* BALOGH et MAHUNKA, 1967 — 18 = dorsal side, 19 = ventral side

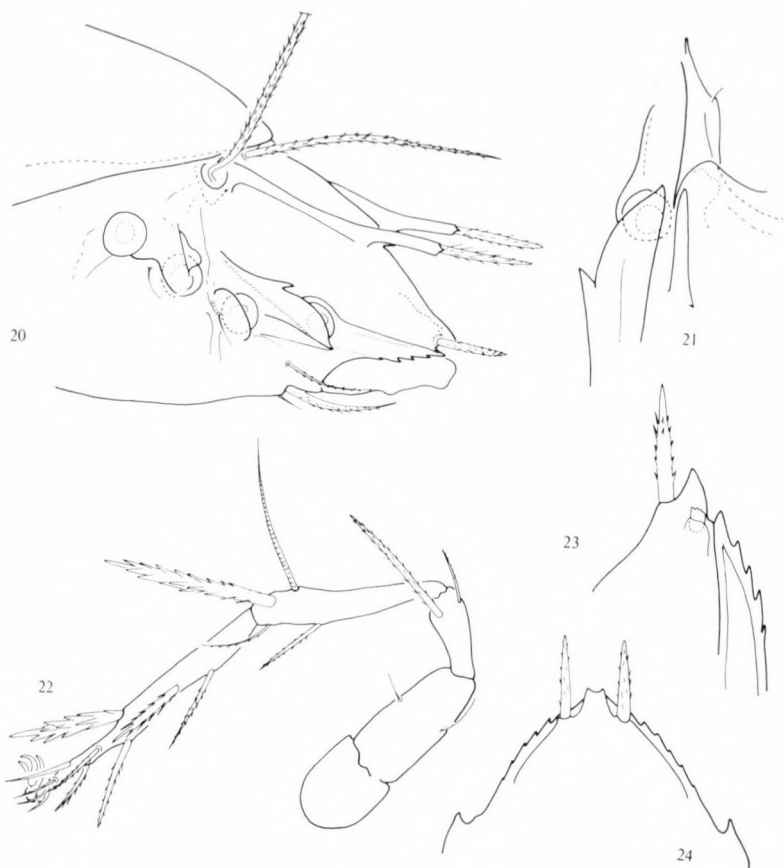
(Fig. 24). Lamellar cuspis with a sharp outer (Fig. 18) spine. Sensillus and interlamellar setae nearly equal in length.

**N o t o g a s t e r:** Two pairs of long and strong, well-ciliate notogastral setae present. Five pairs of porose areae with a larger median porus observable (Fig. 18).

**C o x i s t e r n a l r e g i o n:** Pedotecta I large with a large, sharp spur on its dorsal margin (Fig. 20). Under the pedotecta a sharp spine visible, like genal tooth (Fig. 21). Pedotecta II rounded, discidium small. Epimeral setal formula: 3—1—3—3. Setae *1b* much stronger than *1c*, *3c* and *4c* short and simple.

**L e g s:** All legs tridactylous, median claws slightly stronger than the lateral ones. Some very thick and distinctly pilose setae arising on legs, one very large one exists on trochanter of leg III and some other on genu, tibia and tarsus of leg IV (Fig. 22).

**E x a m i n e d m a t e r i a l:** No. 28: 1 specimen, No. 29: 3 specimens.



Figs 20—24. *Ceratoppia crassiseta* BALOGH et MAHUNKA, 1967 — 20 = anterior part of body from lateral view, 21 = pedotectum I from ventro-lateral view, 22 = leg IV, 23—24 = rostrum

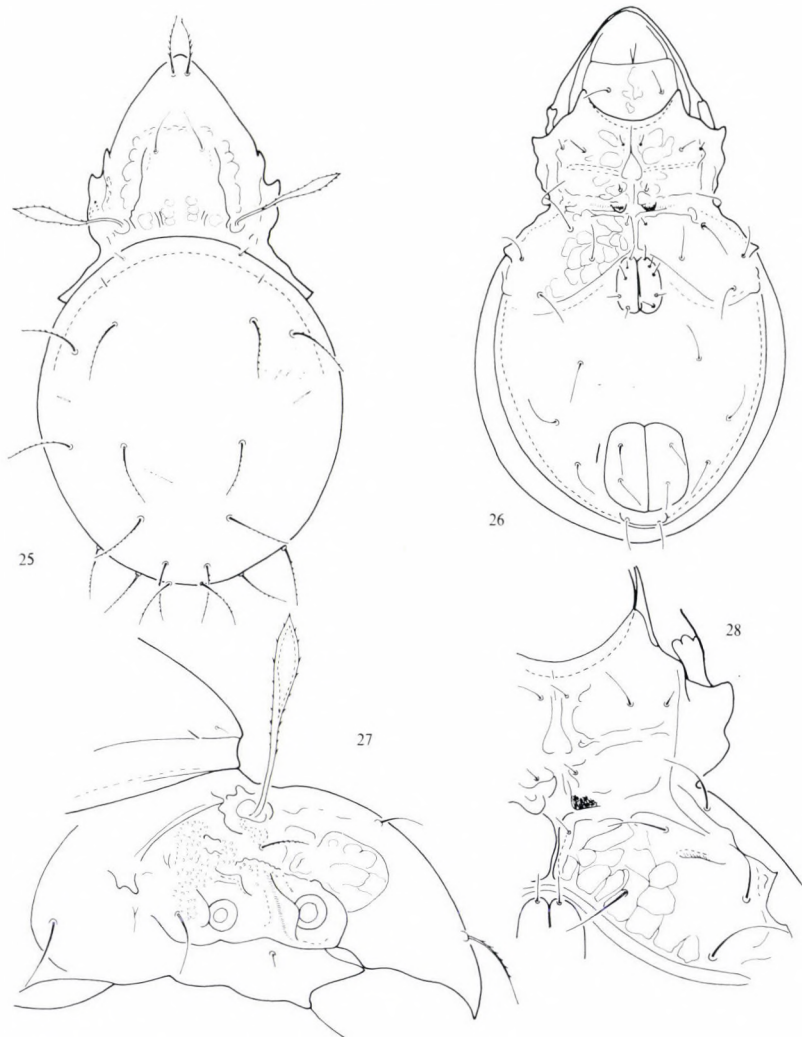
### *Amerioppia vietnamica* sp. n.

Measurements. — Length: 258—288  $\mu\text{m}$ , width: 150—168  $\mu\text{m}$ .

**Prodorsum:** Rostral setae weakly arched, arising on small tubercles near to each other. They are much stronger than lamellar ones and well ciliate. Costulae absent, but at this place (Fig. 25) a thin and sharp line visible. A weak, transverse costula before them and some light spots present on the well-pustulate prodorsum (Fig. 27), exobothridial setae nearly as long as lamellar ones. Sensillus very large, with an acute distal end. Its margin also ciliate.

**Notogaster:** Ten pairs of short notogastral setae present. Setae *ta* minute, setae  $p_1$ ,  $p_2$  and  $p_3$  arising very near to each other. All setae slightly ciliate.

**Coxisternal region:** This region is well chitinized, epimeral borders developed. Between the epimeres a comparatively wide longitudinal



Figs 25—28. *Amerioppia vietnamica* sp. n. — 25 = dorsal side, 26 = ventral side, 27 = prodorsum in lateral view, 28 = epimeral region

field present, being dilated anteriorly and near to the sejugal region (Fig. 26). Apodemes also well observable. Surface of epimeres ornamented by irregular fields. Epimeral setae strong, setae *1c* arising far from pedotecta I, and is much shorter than setae *1b*. In the sejugal region, on the borders, one pair of chitinous thickenings present (Fig. 28). Pedotecta II—III not observable, discidium large, with a sharply pointed posterior apex.

**A n o g e n i t a l r e g i o n:** Genital plates slightly elongate anteriorly, setae *g*<sub>5</sub> arising here. Among the aggenital, anal and adanal setae no great differences observable, but *ad*<sub>1</sub> shorter than the others and arising on a transverse lath.

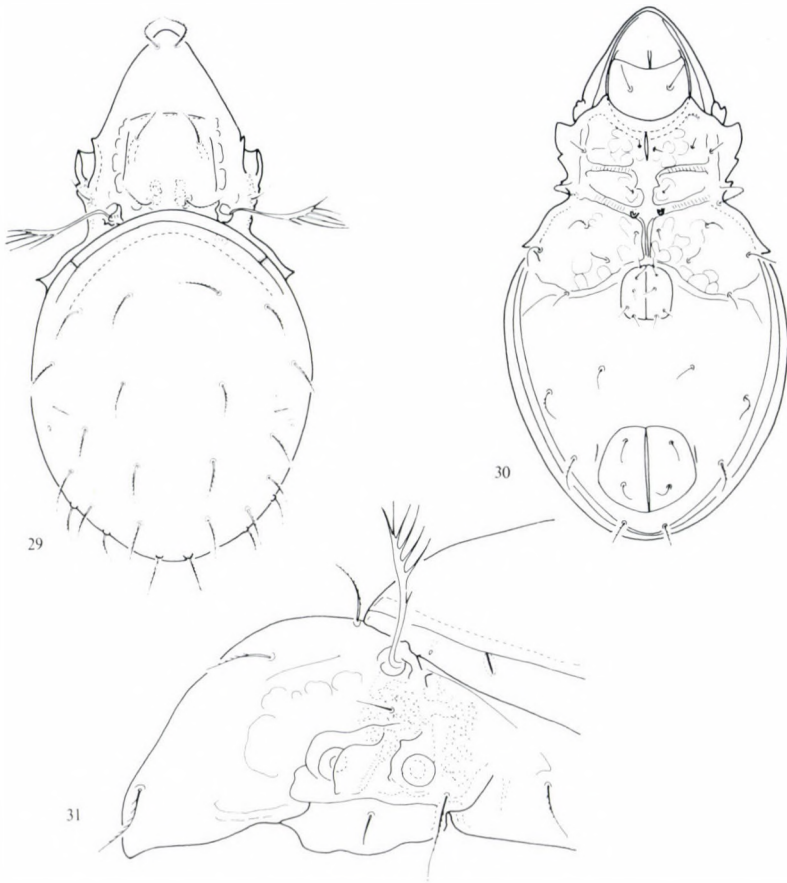
Type material: Holotype (1238-HO-87): No. 68; 18 paratypes from the same sample. Holotype and 12 paratypes (1238-PO-87) deposited in the HHNM, 4 paratype in the CSCV and 2 paratype in the MHNG.

Remarks: The new species clearly belongs to the genus *Amerioppia* HAMMER, 1961. It is distinguished from the already known species of the genus by the position of setae  $p_1$ - $p_3$  and its very large sensillus.

***Multioppia tamdao* sp. n.**

Measurements. — Length: 352  $\mu\text{m}$ , width: 184  $\mu\text{m}$ .

Prodorsum: Rostrum conical, rostral setae strongly bent inwards, but not geniculate. Their outer margin distinctly barbed. Lamellar and inter-



Figs 29—31. *Multioppia tamdao* sp. n. — 29 = dorsal side, 30 = ventral side, 31 = prodorsum in lateral view

lamellar setae thin, simple and finely ciliate. Costula absent, but a weak thickening behind lamellar setae and sharp longitudinal and transversal lines present. Some light spots in the interlamellar and in the lamellar region present. Exobothridial region (Fig. 31) granulate. Sensillus long, pectinate, with 5—6 long branches.

**Notogaster:** Dorsosejugal region well chitinized. Lyrifissures *ia* short. Thirteen pairs of notogastral setae present, but setae  $c_2$  represented only by their alveoli. All other nearly equal in length, well ciliate. Setae  $p_1$ — $p_3$  arising on small tubercles (Fig. 29).

**Coxisternal region:** Apodemes and epimeral borders well developed, ap. sej. thick, one pair of tubercles present on them. Epimeral surface ornamented by irregular alveoli. Epimeral setae short, setae *3c* the longest of all. Setae *1c* short, arising far from pedotecta I. Setae *4b* originating on the posterior border of coxisternal region (Fig. 30).

**Anogenital region:** Genital plate excavated anteriorly. Five pairs of genital setae present. Adanal setae longer than the other setae in this region.

**Type material:** Holotype (1239-HO-87): No. 26, deposited in the HNHM.

**Remarks:** The new species belongs to the genus *Multioppia* HAMMER, 1961 and stands near to *M. glabra* (MIHELICIC, 1971). It is distinguished from it by the longer lamellar and interlamellar setae and by the shape of the sensillus.

### ***Pulchroppia granulata* sp. n.**

**Measurements.** — Length: 639—672  $\mu$ m, width: 336—348  $\mu$ m.

**Prodorsum:** Elongated anteriorly; rostral setae arising on small tubercles. Interlamellar area with irregular ribs, tubercles and weak hollows, this structure is well visible also in lateral view. Costula absent. Lateral part of prodorsum pustulate, some crests also present here (Fig. 34). Ratio of prodorsal setae  $in > ro > le$ , all well ciliate. Sensillus pectinate, with 4—5 branches of different lengths.

**Notogaster:** Anterior margin of notogaster with some rounded, dark fields (Fig. 32), like tubercles. Ten pairs of notogastral setae present, setae *ta* short, thin and smooth. All other nine pairs well ciliate and long. Setae *ta* originating far from lyrifissures *ia*.

**Coxisternal region:** Apodemes and epimeral borders on epimeres I—II well developed; on sejugal borders a well-developed, rounded tubercle present. Setae *3a* arising on it. Apodemes III—IV and epimeral borders of the epimeres III—IV absent. A polygonal area in this region, characterizing



Figs 32—35. *Pulchroppia granulata* sp. n. — 32 = dorsal side, 33 = ventral side, 34 = anterior part of body in lateral view, 35 = genital region

the genus, is well observable (Fig. 33). Epimeral setal formula: 3—1—3—3. Pedotecta II—III reduced, discidium very large, convex medially.

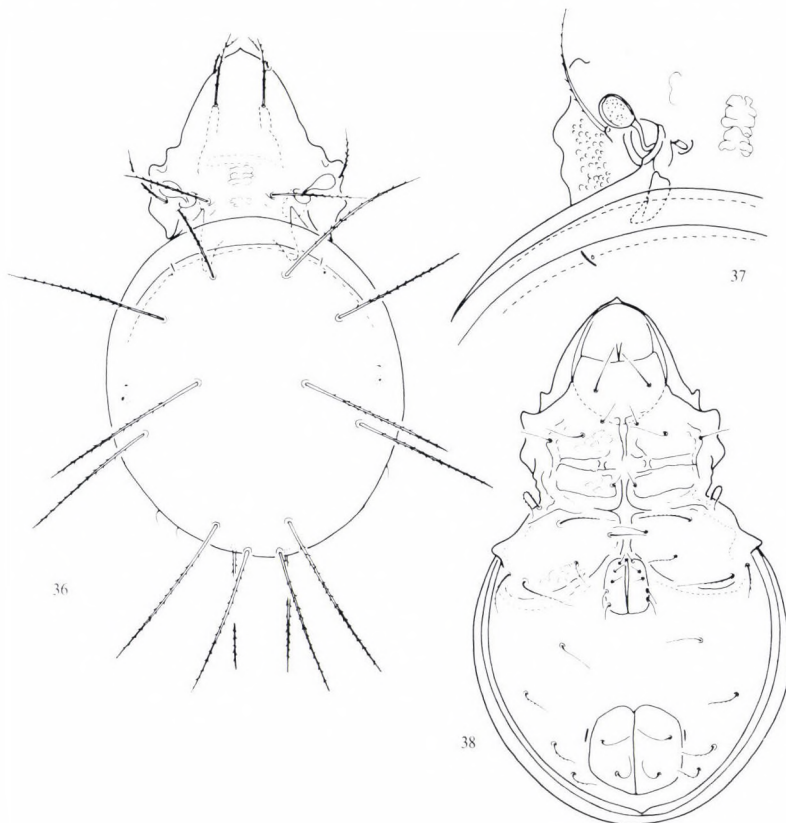
**Anal region:** Genital plates (Fig. 35) excised anteriorly, therefore their anterior corner removed far from each other. Genital and aggenital setae thin, anal setae much stronger, adanal setae much longer than the preceding ones. Setae  $ad_1$  and  $ad_2$  in paraanal, setae  $ad_3$  in preanal position. Among the latter ones setae  $ad_1$  the longest, their cilia also the longest of all. Lyrifissures *iad* originating far from the anal apertures. On the surface of the anal plates a strong longitudinal chitinous thickening present.

Type material: Holotype (1240-HO-87); No. 29, 1 paratype from the same sample. Holotype deposited in the HNHM and paratype in the MHNG.

Remarks: The new species belongs to the genus *Pulchroppia* HAMMER, 1980, which is characterized by 10 notogastral setae. It is distinguished from all the other species by the characteristic structure in the interlamellar region.

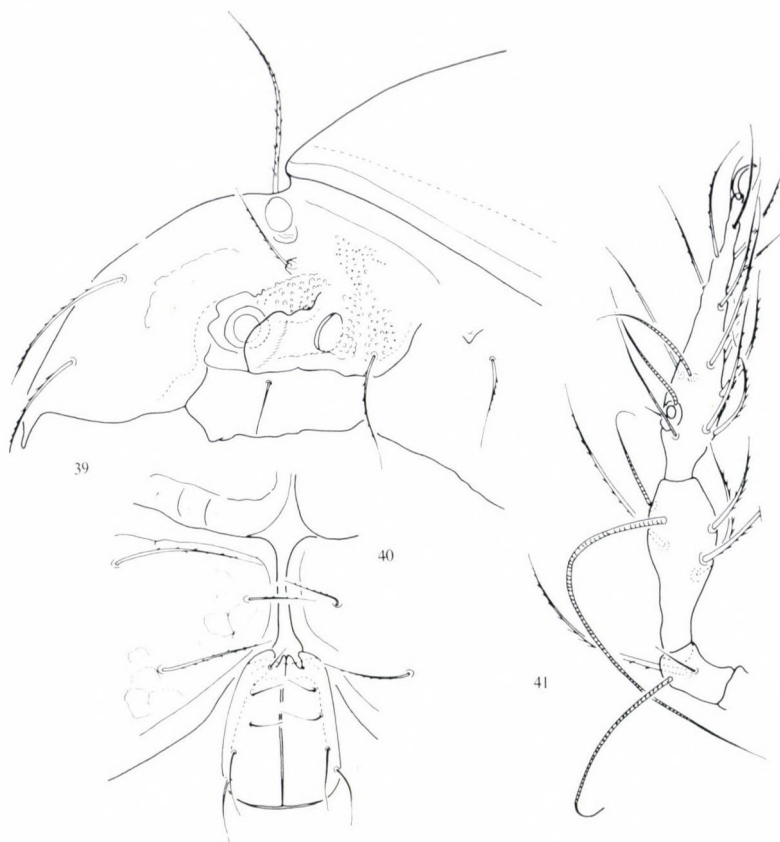
***Vietoppia* gen. n.**

Diagnosis: Family Oppiidae. Rostrum sharply pointed. Costula absent but a short weak thickening present. Lamellar setae arising much nearer to the rostral than to the interlamellar setae. Sensillus short and clavate. One pair of strong teeth present behind bothridia, from the bothridium a strong crest runs to pedotecta. Ten pairs of notogastral setae present, *ta* represent only by their alveoli. Epimeral setal formula: 3-1-3-3. Setae *Ic*



Figs 36—38. *Vietoppia hungarorum* gen. n. sp. n. — 36 = dorsal side, 37 = bothridial region, 38 = ventral side





Figs 39—41. *Vietoppia hungarorum* gen. n. sp. n. — 39 = prodorsum in lateral view, 40 = genital region, 41 = leg I

arising far from pedotecta I. Discidium normal. Between epimeres III and IV a wide field visible. Anogenital setal formula: 5—1—2—3. Genital plates deeply incised anteriorly. Setae  $ad_1$  and  $ad_2$  in adanal,  $ad_3$  in preanal position. Lyrifissures  $iad$  opening parallel and near to the anal aperture. Legs thin and all joints long. On the tarsus of leg I a strong chitinous ring present.

Type species: *Vietoppia hungarorum* sp. n.

Remarks: This new taxon is well characterized by many characters that have been unknown in this family (chitinous ring on tarsus of leg I, postbothridial teeth, deeply incised genital plates) or some combinations were unknown (short, clavate sensillus with 5 pairs of genital setae; 5 pairs of genital setae combined with the position of adanal setae).

**Vietoppia hungarorum** sp. n.

Measurements. — Length: 459  $\mu\text{m}$ , width: 271  $\mu\text{m}$ .

**Prodorsum:** Ratio of prodorsal setae:  $in > le > ro > ex$ , setae rostrales thick, slightly blunt at tip, all well ciliate. Setae *ex* arising on tubercles (Fig. 39). Sensillus clavate, its peduncle thin. Lateral part of prodorsum pustulate or tuberculate (Fig. 37). In the interbothridial region some (4—5 pairs) light spots and 1—2 weak transversal rugae or laths present (Fig. 36). Exo- and postbothridial region with a complicated structure (Fig. 37).

**Notogaster:** Very high in lateral view, and with a wide anterior margin. Seven pairs of very long and two pairs of very short ( $p_2, p_3$ ) notogastral setae present; all well ciliate.

**Coxisternal region:** Apodemes and borders well developed, but epimeres III—IV not well-framed posteriorly. All epimeral setae long, setae *3c* much longer than *1c* or *4c*. Some irregular fields observable on the epimeral surface.

**Anogenital region:** Genital plate characteristically incised anteriorly (Fig. 40). Setae  $g_1$  and  $g_2$  originating marginally, and both pairs longer than the anterior pairs. Aggenital and adanal setae almost equal in length, all ciliate (Fig. 38).

**Legs:** All legs long and thin.

**Type material:** Holotype (1241-HO-87); No. 29; deposited in the HNHM.

**Remarks:** The new species stands very far from all the heretofore known Oppiidae taxa.

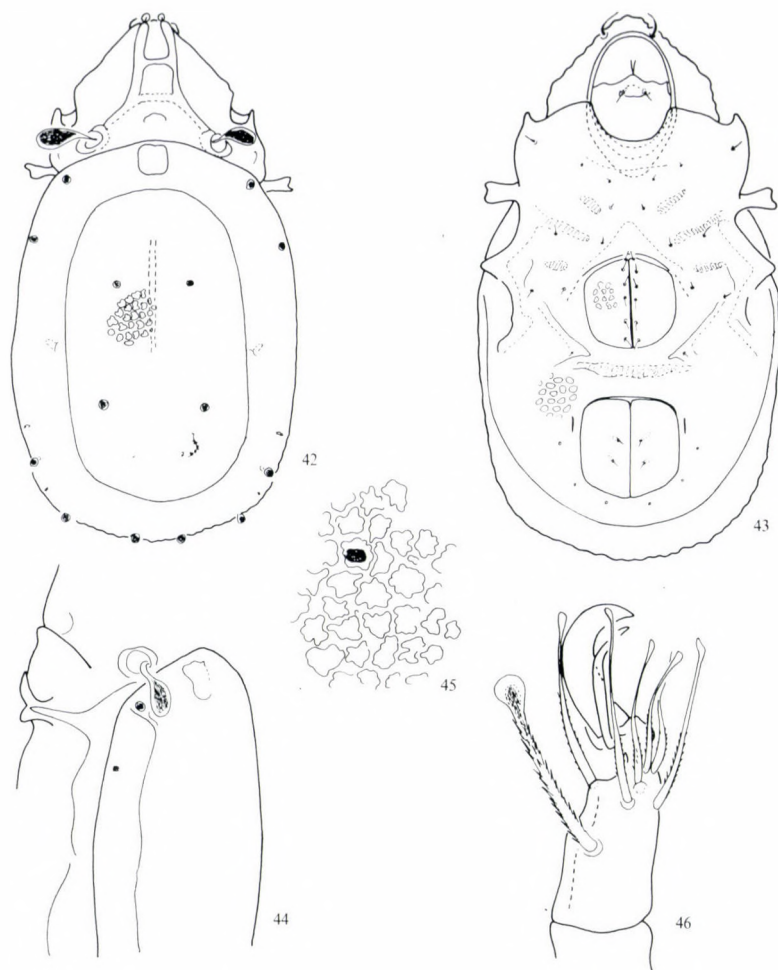
**Scapheremaeus crassus** sp. n.

Measurements. — Length: 582  $\mu\text{m}$ , width: 328  $\mu\text{m}$ .

**Prodorsum:** Lamellar cuspis long, lamellar setae arising on their apex, circular (Fig. 42). Rostral setae simple, setiform. Translamella and an other transversal lath also present. Sensillus large, clavate and dark.

**Notogaster:** Very high in lateral view. Median part of notogaster well framed, elliptical. Whole surface covered with a thick secretion layer, forming a polygonate sculpture (Fig. 45). A strong and long spine present in the humeral region (Fig. 44). Seven (?) pairs of circular notogastral setae observable.

**Coxisternal region:** Anteriorly the middle of mentum with a transverse chitinous thickening, setae *hy* arising on it. Ornamentation of the



Figs 42—46. *Scapheremaeus crassus* sp. n. — 42 = dorsal side, 43 = ventral side, 44 = humeral region, 45 = sculpture of the notogaster, 46 = leg III

epimeres similar to the notogastral one. Epimeral setae short, spiniform. Apodemes well developed, epimeral borders not observable.

**A n o g e n i t a l r e g i o n:** Genital plate originating far anteriorly, before them a triangular thickening present. Six pairs of genital setae visible. Ventral plate with simple polygonate sculpture, but some stronger unsculpturate laths also observable. Anal plate also with polygonate sculpture. Aggenital, anal and adanal setae short, spiniform (Fig. 43).

**L e g s:** All legs tridactylous, a strong heterodactylia observable. Lateral claws geniculate basally. Setae *ft* of all tarsi — with the exception of leg I —

strong (Fig. 46), this and nearly all other setae of tarsi strongly dilate on their distal end.

Type material: Holotype (1242-HO-87): No. 83; deposited in the HNHM.

Remarks: The new species belongs to a species group which is characterized by a long and free lamellar cuspis. It is distinguished from all con-



Figs 47—51. *Cosmopirnodus tridactylus* sp. n. — 47 = dorsal side, 48 = tarsus and tibia of leg IV, 49 = ventral side, 50 = anterior part of body in lateral view, 51 = leg I

genera by the sculpture of the notogaster and the ventral region. The strong chitinization and the thick body in lateral view also well characterize this species.

**Cosmopirnodus tridactylus sp. n.**

Measurements. — Length: 348  $\mu\text{m}$ , width: 188  $\mu\text{m}$ .

**Prodorsum:** Rostrum widely rounded. Costulae long, with wide cusps. Ratio of prodorsal setae  $in > le > ro$ ; setae  $in$  and  $le$  slightly blunt, setae  $ro$  setiform, all three pairs well ciliate (Fig. 50). Setae  $in$  arising on tubercles and thicker than the others. Sensillus completely hidden by a shoulder in dorsal view (Fig. 47).

**Coxisternal region:** Mentum finely foveolate. Epimeral surface ornamented only laterally, smooth medially. Apodemes well developed, ap. 2 and ap. sej. ending near the genital aperture (Fig. 49). Epimeral setal formula: 3—0—2—2. Setae  $lc$  arising very near the margin of pedotecta I.

**Anogenital region:** Ventral plate ornamented by alveoli as in notogaster, but medially, between the genital and anal apertures foveolae are much smaller, than laterally. Anogenital setal formula: 2—1—2—3. All three pairs of adanal setae long,  $ad_1$  and  $ad_2$  originating in adanal position.

**Legs:** All legs short as are all joints, with different spines (Figs 48, 51). Some setae with a widened proximal end. All legs tridactylous, strong heterodactylia observable.

**Type material:** Holotype (1243-HO-87): No. 25; deposited in the HNHM.

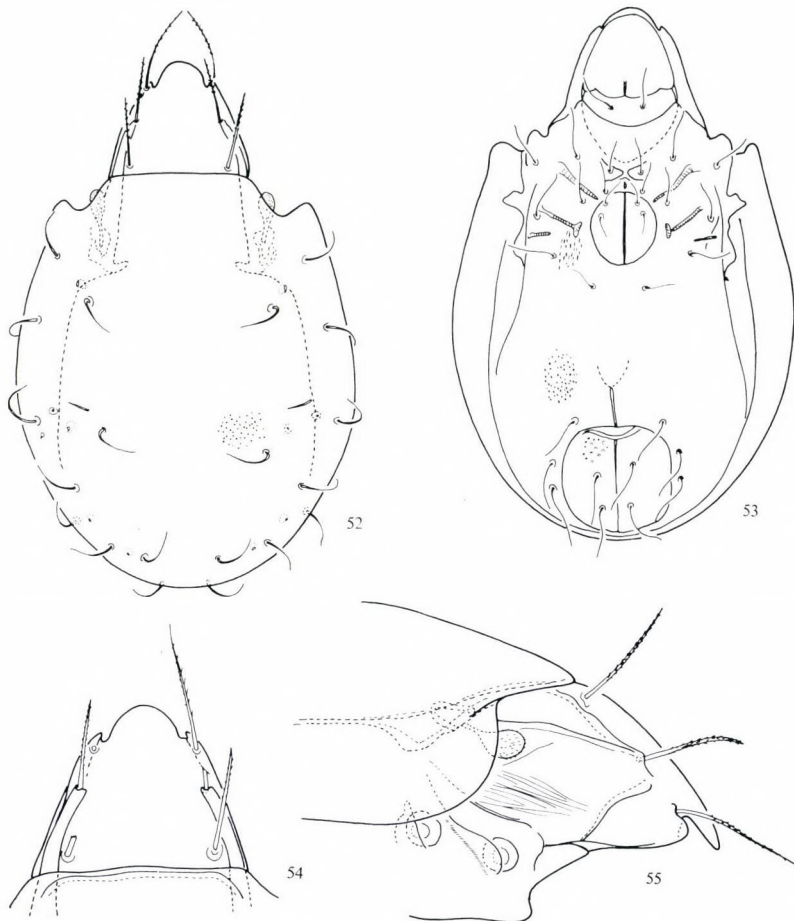
**Remarks:** In the original description of the genus (BALOGH, 1970: 315) some important characters were erroneously given, e.g.: epimeral setal formula, number of claws. I have examined the holotypus and the correct epimeral setal formula is 3—0—2—2. All legs tridactylous as in the new species. The latter is distinguished from the type-species by the measurements of the body, by the absence of the sternal apodeme before the genital aperture, and the much stronger sculpture on the anogenital region.

**Oripoda excavata sp. n.**

Measurements. — Length: 288  $\mu\text{m}$ , width: 184  $\mu\text{m}$ .

**Prodorsum:** Rostrum elongate, with semicircular median apex, and a deep sinus on each side (Fig. 54). Rostral setae setiform, lamellar and interlamellar ones blunt at tip (Fig. 55).

**Notogaster:** Dorsosejugal suture straight. Well-developed pteromorphae present, excavated anteriorly in dorsal view (Fig. 52). Ten pairs of simple but strong, curved notogastral setae present.



Figs 52—55. *Oripoda excavata* sp. n. — 52 = dorsal side, 53 = ventral side, 54 = prodorsum in dorsal view, 55 = prodorsum in lateral view

**Coxisternal region:** Among the apodemes ap. 2, ap. sej. and a short ap. 3 observable. Ap. sej. dilated near the genital aperture. Pedotecta II—III and discidium well developed. Epimeral surface ornamented by small, weak foveolae. All epimeral setae long, flagellate. Epimeral setal formula: 3—1—2—1 (Fig. 53).

**Anogenital region:** Ventral plate finely striated. Surface of genital plate smooth, anal plates foveolate. All setae of this region flagellate but not very long. Setae  $ad_1$  and  $ad_2$  in adanal, setae  $ad_3$  in preanal position.

**Legs:** All legs tridactylous.

**Type material:** Holotype (1236-HO-87): No. 26, deposited in the HHNM.

**Remarks:** On the basis of the characteristic rostral apex, the new species stands nearest to *Oripoda trilabiata* HAMMER, 1961. The latter is distinguished from the new species by the much longer and flagellate adanal and anal setae, and the form of the rostral sinus.

#### **Subpirnodus gen. n.**

**Diagnosis:** Family Oripodidae. Rostrum truncate. Lamellae and prelamellae present. Dorsosejugal suture convex medially, trichobothrium completely covered by the humeral part of notogaster. Notogaster covered by round tubercles — excepting some on the posterior margin — the latter triangularly elongate. Epimeral setal formula: 3-0-2-2, anogenital setal formula: 1-0-2-3. All legs tridactylous.

Type species: *Subpirnodus mirabilis* sp. n.

**Remarks:** On the basis of the anogenital setal formula the new taxon belongs to the subfamily Pirnodinae GRANDJEAN, 1956. It is distinguished from the other taxa by the well-developed prelamellae, the sculpture of the notogaster and by the absence of the aggenital setae.

#### **Subpirnodus mirabilis sp. n.**

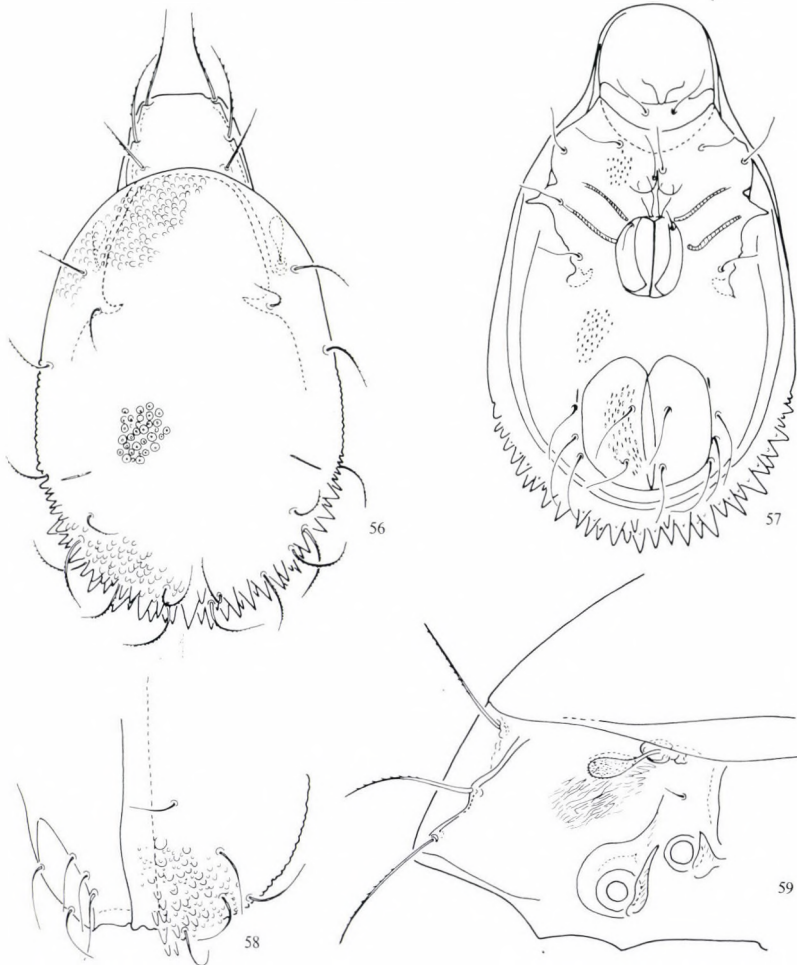
**Measurements.** — Length: 288  $\mu\text{m}$ , width: 184  $\mu\text{m}$ .

**Prodorsum:** Anterior margin of prodorsum nearly straight, lamellar setae arising laterally on the cuspis of the prelamellae (Fig. 59). No essential difference — with the exception of setae *ex* — among the prodorsal setae, but the rostral one being thinner than the others. Prodorsal surface finely striated laterally. Sensillus long, with a clavate head.

**Notogaster:** Shoulder rounded, without projection, dorsosejugal suture strongly convex medially. Whole surface covered by tubercles, those in postero-marginal position (Fig. 56) gradually expanded. Ten pairs of well-developed notogastral setae present, all well ciliate, setae *Ip* arising laterally, setae  $h_{(1-3)}$  and setae  $p_{(1-3)}$  assemble into groups in postero-marginal position (Fig. 58).

**Coxisternal region:** Pedotecta II—III large, sharply pointed discidium weakly developed. Epimeral surface ornamented by small, elongate foveolae. Apodemes narrow, ap. 2 and ap. sej. reaching near to genital aperture. Sternal apodeme weak. Epimeral setae long, setae *3a* and *4a* originating very near to each other in front of genital aperture.

**Anogenital region:** Ventral plate ornamented also by small foveolae as is coxisternal region. Genital setae short, anal and adanal ones long and thin. All three pairs of adanal setae originating in adanal position (Fig. 57).



Figs 56—59. *Subpirnodus mirabilis* gen. n. sp. n. — 56 = dorsal side, 57 = ventral side, 58 = posterior end of the notogaster, 59 = prodorsum in lateral view

**Type material:** Holotype (1237-HO-87): No. 26, deposited in the HNHM.

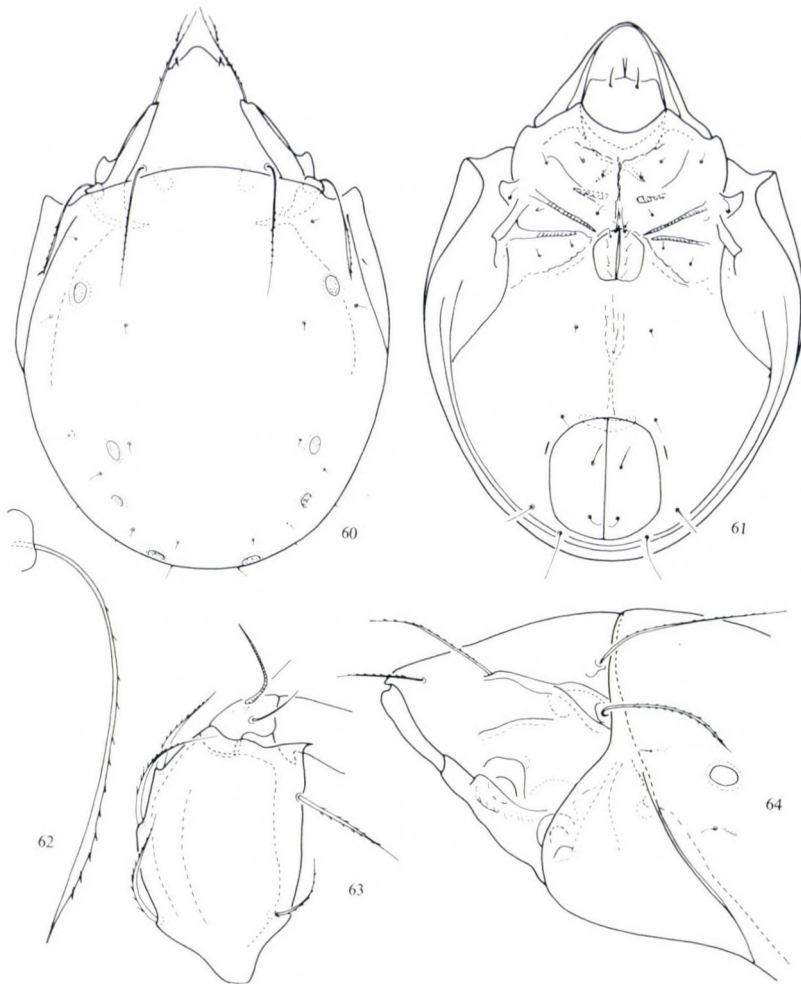
**Remarks:** On the basis of the main characters given in the generic diagnosis, the new species is distinguished from all Oripodida taxa.

#### ***Brasilobates maximus* sp. n.**

**Measurements.** — Length: 836—976  $\mu\text{m}$ , width: 582—664  $\mu\text{m}$ .

**Prodorsum:** Rostrum conical but blunt. All prodorsal setae thin, simple, either setiform or filiform: ratio:  $in > le > ro$ . Sensillus (Fig. 62)





Figs 60—64, *Brasilobates maximus* sp. n. — 60 = dorsal side, 61 = ventral side, 62 = sensillus, 63 = trochanter of leg II, 64 = anterior part of body in lateral view

reclinate, very long, its head gradually lanceolate but thin, ciliate. Lamellae well developed, prelamellae absent (Fig. 64).

**Notogaster:** Dorsosejugal suture scarcely convex medially. Pteromorphae movable, but hinge not reaching the dorsosejugal suture (Fig. 60). Four pairs of very large, well-framed areolae porosae and ten pairs of very thin, hardly observable notogastral setae (or sometimes only their alveoli) present. Surface without any sculpture.

**Coxisternal region:** Epimeral borders and apodemes weakly developed (Fig. 61), ap. 2 short, ap. sej. and ap. 3 much longer, nearly touch-

ing medially. Discidium small, custodium absent. Well-developed circumpedal carinae present. All epimeral setae fine, minute.

**Anogenital region:** Five pairs of genital setae present. The anterior first pair much longer than the others. Aggenital setae also minute. Among the adanal setae there are great differences,  $ad_1$  the longest, while  $ad_3$  the shortest of all.

**Legs:** All legs tridactylous. Femur of leg II (Fig. 63) with a sharp spur at its anteroventral corner. Tibia II also with a strong basal process.

**Type material:** Holotype (1244-HO-87): No. 29, 2 paratypes from the same sample. Holotype deposited in the HNHM, 1 paratype in the CSCV and 1 paratype in the MHNG.

**Remarks:** The new species stands very near to the type-species of the genus *Brasilobates* PÉREZ-IÑIGO et BAGGIO, 1980. However, it is distinguished from the latter by the much thinner head of its sensillus and the much shorter setae  $p_1$  of the notogaster.

#### **Nanobates clavatus sp. n.**

**Measurements.** — Length: 236–258  $\mu\text{m}$ , width: 160–172  $\mu\text{m}$ .

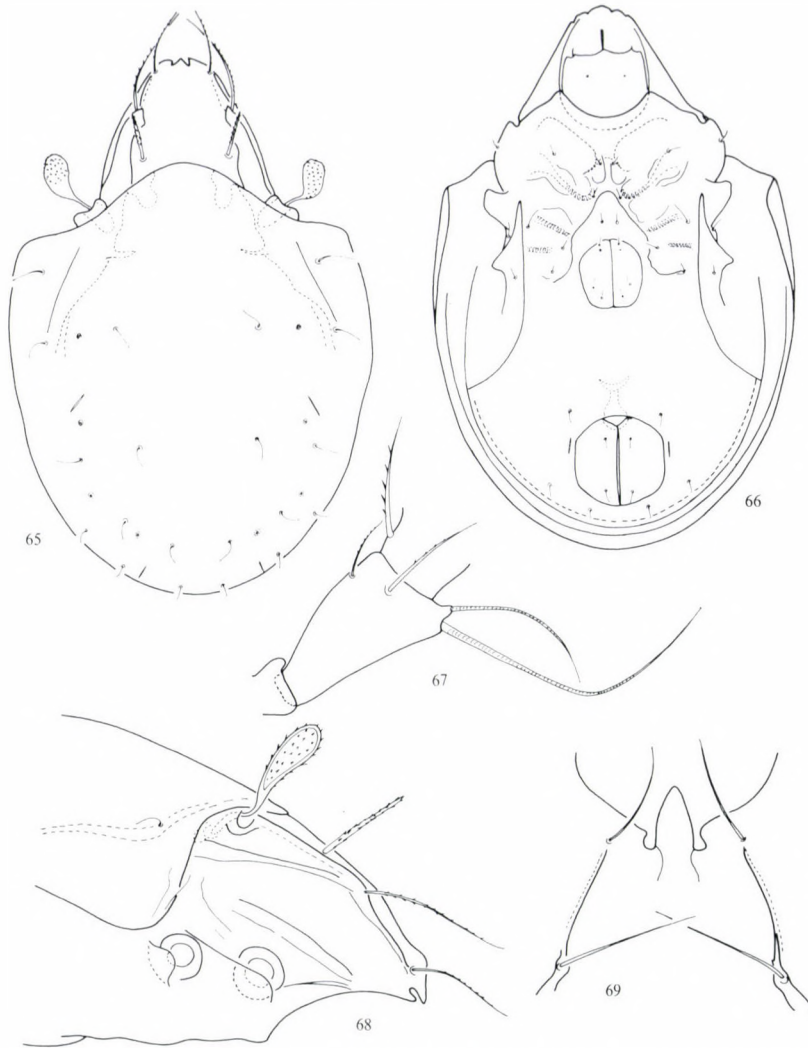
**Prodorsum:** Rostrum tripartite (Fig. 69), rostral apex very long, conical, beside it one rounded incision present on each side. Lamellae very wide, prelamellae narrower. Lamellar and rostral setae thin, setiform, but arising on the lamellae and prelamellae, respectively. Interlamellar setae thick, erectile, blunt (Fig. 65) well ciliate. Sensillus very large, clavate, its head squamose (Fig. 68). Tutorium thick.

**Notogaster:** Dorsosejugal suture strongly arching forwards, reaching far anteriorly between the bothridia (Fig. 65). Ten pairs of short, but well-observable notogastral setae and 4 pairs of small, hardly discernible sacculi present. Notogastral surface finely roughened, fine alveoli clearly visible along the immovable pteromorphae.

**Coxisternal region:** Median part of this region well excavate posteriorly, setae  $2a$  arising on its anterior margin. Apodemes short, ap. 2 strongly bent anteriorly, uncate. Epimeral borders hardly observable. Setae  $1c$  arising laterally, setae  $3c$  originating in the median fields. Discidium large, a well-developed custodium present (Fig. 66). Circumpedal carina also well visible.

**Anogenital region:** Genital apertures originating far anteriorly from the anal ones. Anogenital setal formula: 3–0–2–3; all setae short and thin.

**Legs:** All legs monodactylous. Tibia of leg I with a large process



Figs 65—69. *Nanobates clavatus* sp. n. — 65 = dorsal side, 66 = ventral side, 67 = tibia of leg I, 68 = prodorsum in lateral side, 69 = rostrum in anterior view

(Fig. 67), both solenidia arising on it. Femur of leg II much larger than femora III and IV, with a wide blade-like formation ventrally.

**Type material:** Holotype (1245-HO-87): No. 29; 7 paratypes from the same sample. Holotype and 4 paratypes (1245-PO-87) deposited in the HNHM, 2 paratypes in the CSCV and 1 paratype in the MHNG.

**Remarks:** The new species is well ranged into the genus *Nanobates* J. BALOGH et P. BALOGH, 1984. It is distinguished from the type-species by the much larger sensillus, the form of the lamellae and by the absence of the translamellae.

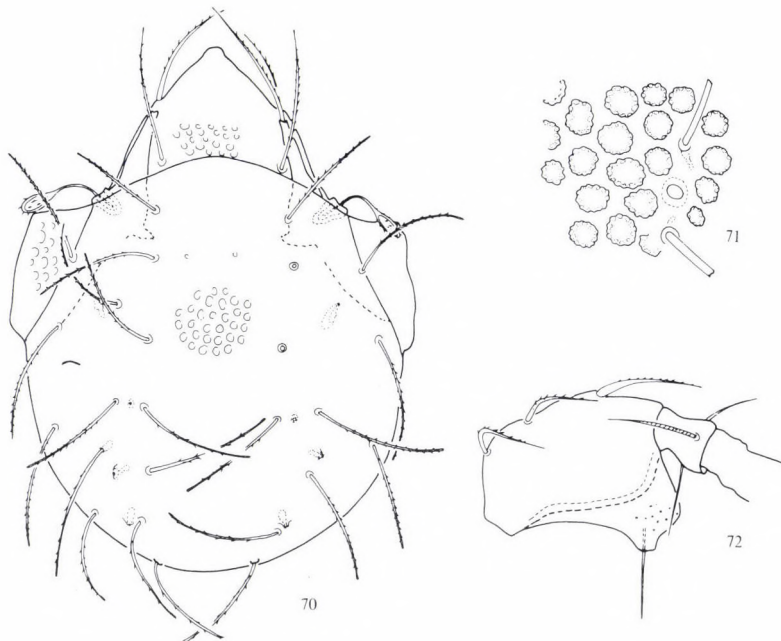
***Peloribates kaszabi* sp. n.**

Measurements. — Length: 280–324  $\mu\text{m}$ , width: 196–224  $\mu\text{m}$ .

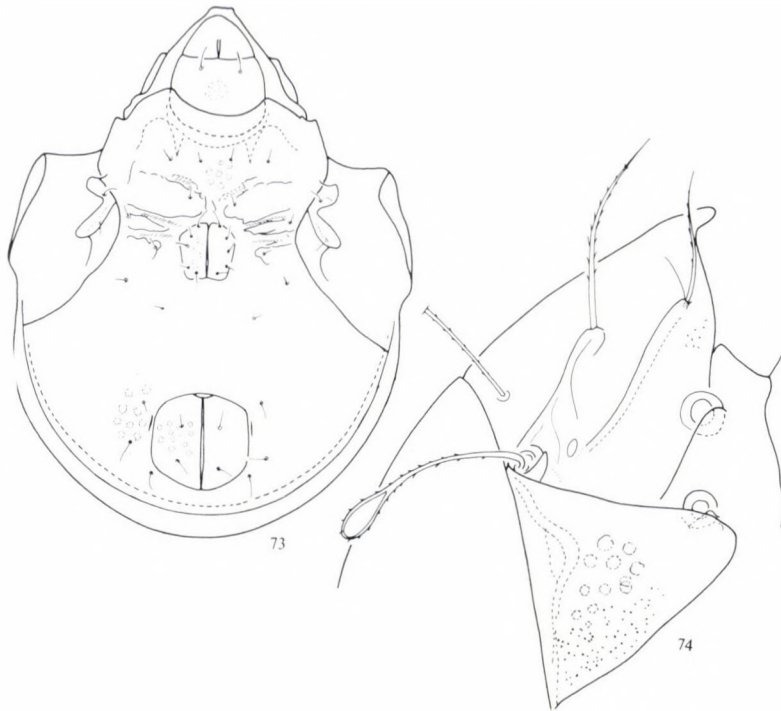
**Prodorsum:** Rostrum nasiform, blunt. Rostral, lamellar and interlamellar setae setiform, their ratio:  $in > le > ro$ . Narrow but well-developed tutorium present, rostral setae arising on their cuspis (Fig. 74). Lamellae shorter, but stronger than tutorium, lamellar setae arising on the cuspis. Prodorsal surface alveolate, all alveoli with some small foveolae marginally, resembling flower-petals (Fig. 71). Sensillus with a well-developed head, its very long peduncle and head sparsely ciliate.

**Notogaster:** Dorsosejugal suture convex medially. Surface similar to that of prodorsum, but the posterior part of the pteromorphae only punctate (Fig. 74). Fourteen pairs of long and blunt notogastral setae (Fig. 70) and four pairs of long and simple sack-shaped sacculi present.

**Coxisternal region:** Apodemes very short, epimeral borders only partly observable. Whole region ornamented by alveoli, similar to those of notogaster. Epimeral setal formula: 2–1–3–3; setae *1c* reduced. Discidium very large, disc-shaped. Circumpedal carinae running to pedotecta II–III anteriorly (Fig. 73).



Figs 70–72. *Peloribates kaszabi* sp. n. — 70 = dorsal side, 71 = sculpture of the notogaster, 72 = femur of leg II



Figs 73—74. *Peloribates kaszabi* sp. n. — 73 = ventral side, 74 = anterior part of body in lateral view

**Anogenital region:** Anogenital setal formula: 5—1—2—3; all setae thin and simple. Surface of genital plates foveolate, the ventral and anal plates ornamented by alveoli.

**Legs:** All legs tridactylous, strong heterodactylia present. Femur of leg II with a strong median process (Fig. 72) ventrally, femur of leg IV with a broad blade-like formation.

**Type material:** Holotype (1246-HO-87): No. 83, 3 paratypes from the same sample; 2 paratypes: No. 29. Holotype and 3 paratypes (1246-PO-87) deposited in the HNHM, 1 paratype in the CSCV and 1 paratype in the MHNG.

**Remarks:** The new species is well characterized by the ornamentation of the body (large alveoli) and by the form of the notogastral setae (blunt at tip). On this basis the new species belongs to the relationship of *Peloribates guttatus* HAMMER, 1980. It is distinguished from this and the related species by the sculpture of the pteromorphae and the form of the sensillus.

I dedicate the new species to the late DR. Z. KASZAB, the renown coleopterologist, who supported my research work for many years.

***Perxylobates brevisetus* sp. n.**

Measurements. — Length: 393—451  $\mu\text{m}$ , width: 172—213  $\mu\text{m}$ .

**Prodorsum:** Surface foveolate and punctate. Ratio of prodorsal setae  $in > ro > le$ ; interlamellar setae well ciliate, their cilia very long, lamellar setae smooth, rostral ones only finely ciliate. Lamellar setae originating far from the lamellae (Fig. 75). Form of lamellae are similar to that of the other species of this genus, their end gradually melting into the prodorsal surface. Rostral setae arising on small tubercles. A weak tutorium present. Sensillus (Fig. 76) long, reclinate, with long branches.

**Notogaster:** Dorsosejugal suture absent. Pteromorphae movable, very wide in lateral view (Fig. 78). Three pairs of small and round areae



Figs 75—79. *Perxylobates brevisetus* sp. n. — 75 = dorsal side, 76 = sensillus, 77 = ventral side, 78 = anterior part of body in lateral view, 79 = epimeral region

porosae present, *Aa* greater than the others. Ten pairs of notogastral setae present, three pairs ( $p_{1-3}$ ) laterally longer than the median ones, the end flagellate. Notogastral surface also punctate.

**C o x i s t e r n a l r e g i o n:** Mentum foveolate, but the median part is smooth. Pedotecta I small, its surface foveolate. Pedotecta II—III large, discidium has a wide rim covering the acetabulum of leg IV (Fig. 79). Epimeral surface ornamented by polygonate sculpture or irregular alveoli. Apodemes very short, epimeral borders scarcely discernible. Epimeral setae short, setae *3c* and *4c* were not observable (Fig. 77).

**A n o g e n i t a l r e g i o n:** Among the genital setae the anterior pair longer than the others. Aggenital setae originating nearer to each other than to setae *ad*<sub>3</sub>. Setae *ad*<sub>1</sub> in postanal, setae *ad*<sub>3</sub> in preanal position. Setae *ad*<sub>1</sub> and *ad*<sub>2</sub> much longer than *ad*<sub>3</sub>.

**L e g s:** All legs monodactylous.

**T y p e m a t e r i a l:** Holotype (1247-HO-87): No. 29, 7 paratypes from the same sample. Holotype and 4 paratypes (1247-PO-87) deposited in the HNHM, 2 paratypes in the CSCV and 1 paratype in the MHNG.

**R e m a r k s:** Owing to the position of lamellar setae the new species belongs to the alliance of *P. barbatus* HAMMER, 1973. The latter one is well characterized by its very short lamellar setae, the long and well-ciliate interlamellar setae and the ratio of the prodorsal setae. These characters readily distinguish it from all the related species.

*Pergalumna granulata* BALOGH et MAHUNKA, 1967

*Pergalumna granulatus* BALOGH et MAHUNKA, 1967: 56 (sic!).

The original description did not mention the median pori on the notogaster.

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OREOGRIA GEN. N. FROM NEW GUINEA  
(COLEOPTERA, TENEBRIONIDAE: LAGRIINI)\* \*\*

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*Oreogria* gen. n. is described from New Guinea and the 17 species included are reviewed. Sixteen species (*confragosa*, *contraricolor*, *fragilipes*, *gentilis*, *hornabrooki*, *irianica*, *kaszabi*, *larvata*, *lutea*, *nodosa*, *plicata*, *polita*, *samuelseni*, *torva*, *vermiculata*, *wauana*) are described as new. *Lagriopsis rufulipennis* BORCHMANN, 1915 is transferred to *Oreogria*. An identification key to species is given. With 78 figures.

The lagriine fauna of New Guinea and the neighbouring islands is apparently rich in species but barely investigated. The meagre information is derived only from descriptions scattered in the literature, and no comprehensive study has been published. Thus, it is not surprising to find a new genus with a considerable number of new species included; such a new genus is the subject of this paper.

MATERIAL; ACKNOWLEDGEMENTS

The following four-letter abbreviations are used in this paper for indicating repositories of the material investigated. The most important source of material was BPBM, due to the extensive collecting carried out by its staff in the mountain regions of New Guinea. It is an agreeable duty to express my sincere thanks to all those who made available to me their valuable specimens.

- AMNH** — American Museum of Natural History, New York, NY, USA. DR. L. H. HERMAN.  
**ANIC** — Australian National Insect Collection, CSIRO, Canberra, ACT, Australia. DR. J. F. LAWRENCE.  
**BMNH** — British Museum (Natural History), London, United Kingdom. DR. R. J. W. ALDRIDGE.  
**BPBM** — Bernice Pauahi Bishop Museum, Honolulu, HA, USA. DR. G. A. SAMUELSON.  
**CNCI** — Canadian National Collection of Insect, Ottawa, ONT, Canada. DR. A. SMETANA.  
**HNHM** — Hungarian Natural History Museum, Budapest, Hungary.  
**HPCW** — Hornabrook's private collection, Wellington, New Zealand. DR. R. W. HORNABROOK and DR. R. G. ORDISH.  
**MHNG** — Muséum d'Histoire Naturelle, Geneva, Switzerland. DR. CL. BESUCHET.  
**ZMUA** — Zoologisch Museum, Universiteit van Amsterdam, Amsterdam, Netherlands. DR. B. BRUGGE.

\* This paper is dedicated to the memory of ZOLTÁN KASZAB  
\*\* 4th contribution to the knowledge of Lagriini.

## PRESENTATION OF DATA

Label data of holotypes are cited in full, every label being separated by an oblique line. Data of paratypes are given as follows: locality (as written on the labels, with altitude, if possible), time of collecting, method of collecting (if presented on the label), name of collector(s), number of specimens sorted into sexes and repository of specimens (in parentheses). Holotype labels are red, paratype labels are yellow, with the text arranged as follows: "Holotype" or "Paratype", sex mark, name of genus and species, "MERKL, 1988".

**Oreogria** gen. n.

Body shape typical for *Lagriina*. Size medium to large. Head and pronotum dark reddish brown to black, elytra always bicoloured, colour pattern variable. Head and pronotum with scanty pubescence; elytra usually totally glabrous or with very reduced pubescence (short, decumbent, scattered hairs restricted to basal and epipleural part); by naked eye, elytra always glabrous. Ventral surface with fine, decumbent vestiture. Punctuation of head and pronotum rather coarse; punctures situated far from one another to subcontiguous. Elytral punctuation dense and coarse, but becoming much finer toward apex. Interspaces simple or moderately to strongly raised; sometimes forming irregular tubercles; light areas of elytra usually bearing much simpler interspaces.

Head simple, not broader than pronotum. Eyes moderately to strongly convex. Maxillary palps with last segment broadly triangular. Pronotum not longer than broad, gently convex, with shallow lateral impressions. Elytra moderately to strongly convex, often caudate, i.e. lateral margin more or less concave before apex. Epipleura ending just before apex. Hind wing: Fig. 2. Metendosternite: Fig. 3.

♂. Antennal segment I widened, but always shorter than distance between antennal sockets and shorter than segments II and III combined. Segments III to IX always longer than broad. Segment X transverse or not. Segment XI moderately to extremely elongate, as long as 3 to 9 preceding segments combined. No lobiform or dentiform modifications of segments. Tibiae modified to various extent. Fore tibiae straight to curved; weakly to strongly clavate or thickened toward apex; or sometimes tibial apex disciformly widened dorsoventrally. Middle and hind tibiae slightly widened toward apex, or narrowed at middle; sometimes toothlike, blunt to acute widening is present preapically, but tibiae never serrate or denticulate along the inner (i.e. ventral) margin. Tarsi usually simple; fore tarsi may have widened segments I and II; hind tarsi with segment I as long as, or much longer than,

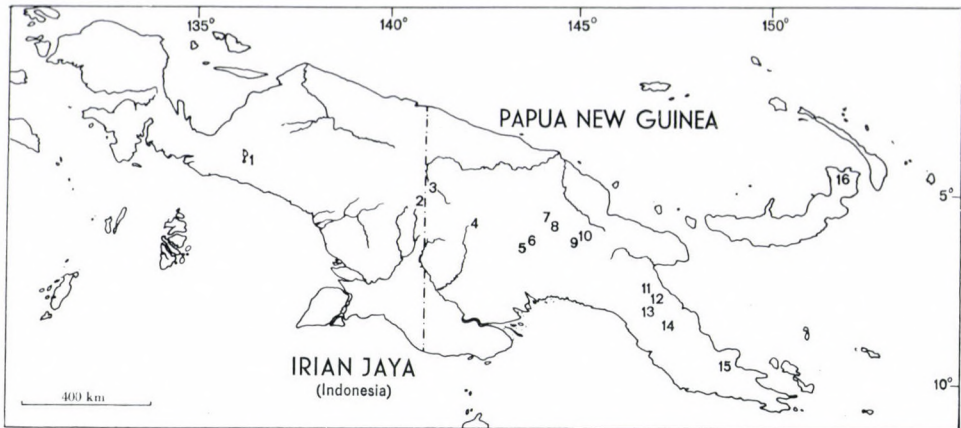


Fig. 1. Map of New Guinea, with the localities mentioned in the text. 1 = Wissel Lakes, 2 = Star Mountains (Sibil Valley), 3 = Star Mountains (Feramin and Telefomin), 4 = Betege and Koroba, 5 = Kagaba, 6 = Dimifa, 7 = Mt. Hagen Range, 8 = Kandep, 9 = Marifuanga, 10 = Mt. Wilhelm, 11 = Wau area (including Edie Creek, Bulldog Road, Mt. Missim, Mt. Kaindi), 12 = Garaina, 13 = Mt. Saint Mary, 14 = Murray Pass, 15 = Mt. Dayman, 16 = Kerawat. Versteeg, Pangia and Marawaka were not traced

segments II and III combined. Metasternum without outgrowths or impressions. Abdomen in some cases with sterna I and II impressed mesally. Last abdominal sternite rounded at apex. Aedeagus simple, of typical tenebrionoid type (Figs 4—5); of less use in separating species.

♀. Antennae with segment X never transverse; segment XI always shorter than 3 preceding segments combined. Pronotum usually sigillate (i.e. with a depressed, rugulose punctured spot mesally). Tibiae and tarsi without modification. Abdominal sterna not impressed.

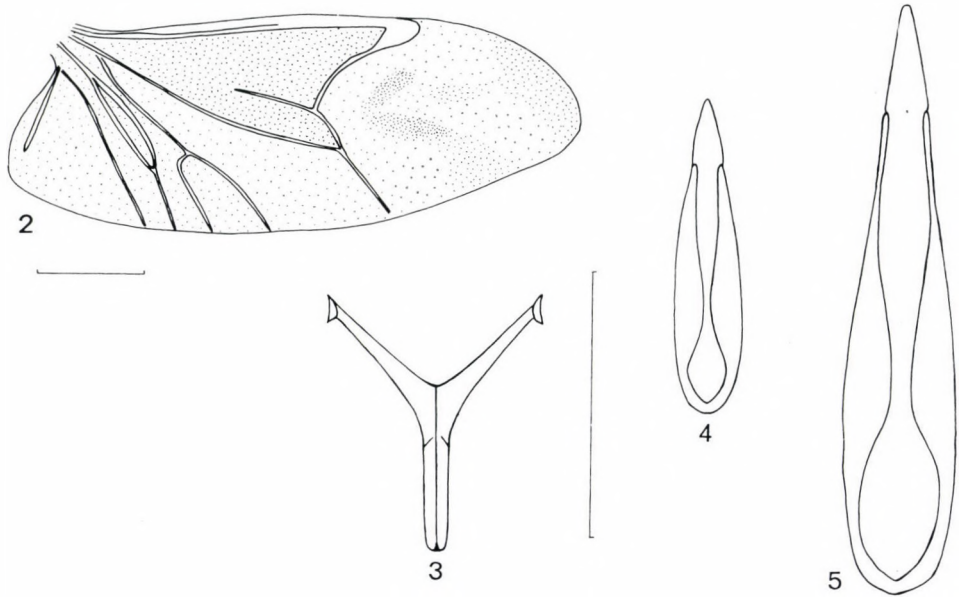
Type species: *Oreogria kaszabi* sp. n., herewith designated.

*Derivatio nominis*: The name is derived from Greek "oros" (= mountain) and "lagria" (= nominate genus of the tribe).

*Distribution*: Endemic to New Guinea. Apart from a specimen collected in New Britain, the localities fall in the various parts of the Central Divide (Fig. 1).

*Remarks*: *Oreogria* gen. n. may be separated from *Lagria* by the more or less modified tibiae of males and the extremely reduced to lacking elytral vestiture. The species with rugosely plicate elytra somewhat resemble certain undescribed species of *Bothrichara*, but the latter have dense, fine, conspicuous vestiture on the elytra and the pronotum. Moreover, the elytra of *Oreogria* are always distinctly bicoloured; this character is exceptional in the other New Guinean genera.

At the moment, this new genus comprises 17 species. Of them, 16 are described as new, and one is transferred from an other genus. Although several species are represented by only a few specimens in the material available,



Figs 2—5. 2 = hind wing of *Oreogria vermiculata* sp. n. (scale = 2 mm), 3 = metendosternite of *O. kaszabi* sp. n., 4 = aedeagus of *O. kaszabi* sp. n., 5 = aedeagus of *O. irianica* sp. n. (scale = 1 mm for 3 to 5)

and, in some cases, only one sex is known, the species are remarkable enough and easy to recognize. It is no doubt that further species are hidden in the less explored and hardly accessible parts of the New Guinean mountains.

Scarcely anything is known concerning the biology of these species. Only few specimens have little ecological data on their labels. These inform us that the beetles were collected from the vegetation or attracted by artificial light.

### Key to the species

- 1 (2) Head and pronotum largely impunctate; the few punctures on pronotum situated far from one another. Elytra blackish with a poorly defined red, ovoid, transverse spot just anterior to middle (Fig. 36). Elytral interspaces not raised at all **polita** sp. n.
- 2 (1) Head and pronotum conspicuously punctate. Elytral pattern not as above.
- 3 (24) Elytra less roughly sculptured; interspaces moderately raised, never forming tubercles.
- 4 (17) Pronotal punctation sparse, punctures distinctly separated by a distance at least equal to their diameter. Elytra brownish basally to variable extent, but at least in basal 1/3 (Figs 37—44, 65—67). Pronotum brownish.
- 5 (6) Yellowish part of elytra with a poorly defined transverse brown spot (Figs 37—38). Antennal segment XI of male about as long as 4 preceding combined (Fig. 11). Fore tibiae of male moderately widened dorso-ventrally (Fig. 13) **torva** sp. n.
- 6 (5) Yellowish part of elytra without brown spot.
- 7 (12) Antennal segment X of male not transverse; segment XI as long as 3 to 5 preceding combined (Figs 16, 21, 26). Smaller species (7.5—11.3 mm).
- 8 (9) Apex of fore tibiae of male disciformly dilated dorso-ventrally (Fig. 18). Middle tibiae of male with a small denticle (Fig. 19), hind tibiae with a prominent tooth at inner side (Fig. 20). Antennal segment XI of male as long as 3 preceding combined (Fig. 16). Pronotal punctation fine and rather dense. Legs rather short and strong **kaszabi** sp. n.

- 9 (8) Apex of fore tibiae of male less or not dilated (Figs 23, 28). Middle tibiae of male without denticle (Figs 24, 29). Antennal segment XI of male as long as 5 preceding combined (Figs 21, 26). Pronotal punctation coarser and sparser. Legs rather long and narrow.
- 10 (11) Apex of fore tibiae of male weakly dilated dorso-ventrally (Fig. 23). Hind tibiae of male without tooth (Fig. 25) **samuelseni** sp. n.
- 11 (10) Apex of fore tibiae of male not dilated (Fig. 28). Hind tibiae of male with a blunt tooth at inner side (Fig. 30) **gentilis** sp. n.
- 12 (7) Antennal segment X of male transverse; segment XI as long as 8 to 9 preceding combined (Figs 31, 45, 50). Larger species (9.8–12.1 mm).
- 13 (14) Fore tibiae of male straight and subequal in width (Figs 32–33). Elytra brownish at basal 1/3, borderline between darker and paler areas rather indistinct; surface of darker area coriaceous **fragilipes** sp. n.
- 14 (13) Fore tibiae of male somewhat curved and moderately thickened toward apex (Figs 46–47, 51–52).
- 15 (16) Elytra with basal 2/3 bronzy brown; borderline between dark and pale areas sharp (Fig. 65). Interspaces on dark area partly flattened, widened, vermiculate. Pronotum of male narrower **vermiculata** sp. n.
- 16 (15) Elytra with basal 1/3 to 2/3 dark reddish brown; borderline between dark and pale areas indistinct (Figs 66–67). Interspaces on dark area coriaceous raised. Pronotum of male broader **irianica** sp. n.
- 17 (4) Pronotum rugosely and densely punctate, punctures subcontiguous, separated by a distance much less than their diameter. Elytral base yellowish, except humeral part; if brownish, then dark colouration near to scutellum never reaching beyond the level of middle coxae (Figs 68–73). Pronotum blackish.
- 18 (19) Elytral base narrowly brownish, dark colouration extending to lateral margin and gradually narrowing (Fig. 68) **wauana** sp. n.
- 19 (18) Elytral base yellowish beside scutellum (Figs 69–73).
- 20 (21) Yellowish part of elytra with a well-defined ovoid, oblique brown spot (Figs 69–70). Antennal segment X of male not transverse; segment XI as long as 4 preceding combined (Fig. 55). Fore tibiae of male curved and strongly thickened (Figs 56–57) **larvata** sp. n.
- 21 (20) Yellowish part of elytra without brown spot (Figs 71–73).
- 22 (23) Brown colouration more extended on elytra; borderline between dark and pale areas distinct (Figs 71–72). Elytral sculpturation finer. Size smaller (9.1–11.5 mm). Antennal segment X of male transverse, segment XI as long as 7 preceding segments combined (Fig. 60). Fore tibiae of male curved and weakly thickened (Figs 61–62) **lutea** sp. n.
- 23 (22) Brown colouration on elytra restricted to antero-lateral margin (Fig. 73). Elytral sculpture coarser. Size larger (13.5 mm). (Male unknown) **rufulipennis** (BORCHMANN, 1915)
- 24 (3) Elytra (at least on dark part) very roughly sculptured; interspaces strongly and irregularly raised, often forming distinct tubercles (male unknown in all cases).
- 25 (26) Elytra with anterior half deep black, posterior half pale yellowish; borderline between black and yellow areas sharp (Fig. 74). Pronotal punctation rather sparse, with smooth areas **contricolor** sp. n.
- 26 (25) Elytral pattern not as above.
- 27 (30) Elytra predominantly black, only the very apex reddish (Figs 75–76).
- 28 (29) Size much larger (11.8 mm). Pronotal punctation dense, rugulose, subcontiguous. Red colour of elytra restricted to the caudal part; borderline between red and black colourations rather distinct **hornabrooki** sp. n.
- 29 (28) Size much smaller (9.5–10.0 mm). Pronotal punctation sparse, punctures separated by extensive smooth areas. Reddish colour of elytra more extensive; borderline between dark and pale parts totally indistinct **plicata** sp. n.
- 30 (27) Elytral pattern not as above.
- 31 (32) Elytra blackish brown in anterior half and reddish orange posteriorly. Borderline between the two colourations indistinct but well recognizable (Fig. 77). Pronotal punctures separated by a distance at least equal to diameter. Elytral interspaces not forming tubercles **confragosa** sp. n.
- 32 (31) Elytra blackish brown in anterior and reddish orange in posterior half. Borderline between the two colouration totally indistinct (Fig. 78). Pronotal punctures subcontiguous. Elytral interspaces forming blunt tubercles **nodosa** sp. n.

**Oreogria polita** sp. n. (Figs 6—10, 36)

Body moderately slender, weakly convex. Head, pronotum and elytra dark shiny blackish brown; elytra with a poorly defined transverse ovoid, reddish spot just anterior to middle. Ventral surface, legs and antennae reddish brown, last 5 antennal segments darker. Head and pronotum largely impunctate, the few pronotal punctures separated by extensive smooth areas much broader than diameter of a puncture. Elytra scarcely and not coarsely punctate, interspaces not raised at all. Elytra not caudate. Length: 7.6—7.8 mm.

♂. Interocular distance a little narrower than eye diameter. Eyes moderately convex. Antennal segment X not transverse, segment XI nearly as long as 6 preceding combined. Pronotum distinctly transverse, weakly constricted just before base, with a trace of 2 lateral impressions. Head, left antenna and pronotum: Fig. 6. Legs rather strong. Fore tibiae curved, gradually thickening toward apex; latter dilated dorso-ventrally (Figs 7—8). Fore tarsi with simple segments. Middle tibiae nearly straight, without modification (Fig. 9). Hind tibiae slightly curved, a little narrowing at middle, then weakly widening (Fig. 10). Abdominal sterna without impressions. Habitus: Fig. 36.

♀. Unknown.

**H o l o t y p e** ♂, with labels as follows: Ned. Nieuw Guinea Sibil Sterregeb. 15 Juni 1958 Coll. R. T. Simon Thomas/Hoogte: 1250 m Op lamplicht gevangen Gras-bos/[holotype label]. It is deposited in ZMUA. — **Paratype**: Irian Jaya: Star Mts., Sibil Val., 1245 m, 18. X.—8. XI. 1961, S. QUATE (1 ♂, BPBM).

**D i s t r i b u t i o n**: Irian Jaya: Star Mountains (Sibil Valley) (No. 2 in Fig. 1).

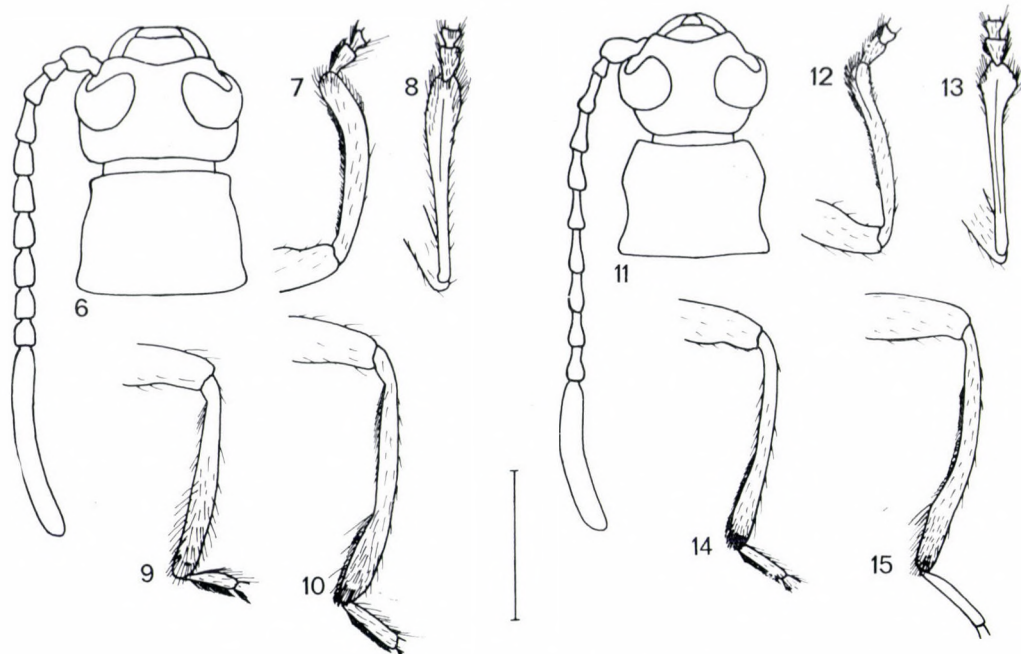
**D e r i v a t i o n o m i n i s**: Latin "*politus*" (= polished).

**R e m a r k s**: The colour pattern and the punctuation of the pronotum separate this species from all other congeners.

**Oreogria torva** sp. n. (Figs 11—15, 37—38)

Body rather slender, moderately convex. Head and pronotum blackish brown. Elytral base brown, posteriorly to the level of hind margin of metasternum; brownish colouration extending to the lateral margin; a poorly defined ovoid, transverse brown spot is present just anterior to middle; rest of elytra fulvous. Ventral surface, legs and antennae dark reddish brown. Pronotal punctuation coarse and sparse, punctures separated by distance at least equal to diameter. Elytral punctuation simple, evenly scattered, interspaces hardly raised. Elytra very weakly caudate. Length: 7.7—9.5 mm.

♂. Interocular distance narrower than eye diameter. Eyes moderately convex. Antennal segment X not transverse, segment XI about as long as



Figs 6—10. *Oreogria polita* sp. n., ♂ — 6 = head, left antenna and pronotum, 7 = fore tibia, lateral view, 8 = same, dorsal view, 9 = middle tibia, 10 = hind tibia. — Figs 11—15. *O. torva* sp. n., ♂ — 11 = head, left antenna and pronotum, 12 = fore tibia, lateral view, 13 = same, dorsal view, 14 = middle tibia, 15 = hind tibia. Scale = 1 mm

4 preceding combined. Pronotum at base broader than long, constricted posterior to middle, with 2 oblique impressions laterally. Head, left antenna and pronotum: Fig. 11. Legs moderately long and slender. Fore tibiae nearly straight, with dilated, spoon-shaped apex (Figs 12—13). Fore tarsi with segments not widened. Middle tibiae weakly widening before apex (Fig. 14). Hind tibiae weakly curved, narrowing at middle and widening at apical 1/3 (Fig. 15). Abdominal sterna I and II very shallowly impressed mesally. Habitus: Fig. 37.

♀. Interocular distance broader than eye diameter. Antennal segment XI as long as 2 preceding combined. Pronotum broader. Habitus: Fig. 38.

**Holotype** ♂, labelled as follows: New Guinea: NE. Feramin, 150—120 m May 11—12, 1959/W. W. Brandt, Collector Bishop/[holotype label]. It is deposited in BPBM. — **Paratype**: Papua New Guinea: Telefomin, 1600 m, 14. VIII. 1963, R. STRAATMAN (1 ♀, BPBM).

**Distribution**: Papua New Guinea: West Sepik province: Star Mountains (Feramin and Telefomin) (No. 3 in Fig. 1).

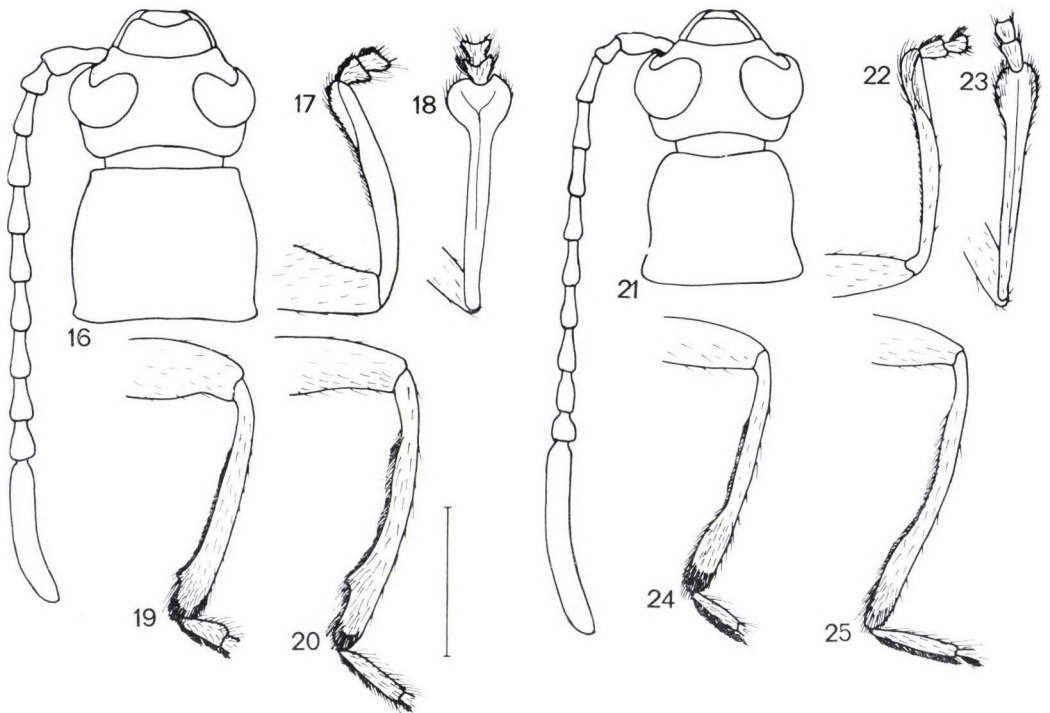
**Derivatio nominis**: Latin “*torvus*” (= cross-eyed).

**Remarks**: It is apparently allied to the three subsequent species on the account of the tibial structure of male, the pronotal punctation and the elytral colour pattern, but the obscure spots on the elytra separate it.

***Oreogria kaszabi* sp. n. (Figs 16—20, 39—40)**

Body rather slender, moderately convex. Head and pronotum blackish brown. Elytral base light brown, posteriorly to the level of hind margin of metasternum; brownish colouration extending to lateral margin; rest of elytra stramineous. Ventral surface, legs and antennae reddish brown, apex of antennal segments and the last 2 segments darker. Pronotal punctation fine and rather dense but not subcontiguous, punctures separated by a distance about equal to diameter. Elytral punctation simple, more or less evenly scattered, interspaces practically not raised. Elytra not caudate. Length: 8.1—11.3 mm.

♂. Interocular distance a little narrower than eye diameter. Eyes moderately convex. Antennal segment X not transverse, segment XI about as long as 3 preceding combined. Pronotum a little transverse, sides evenly arcuate, with 2 shallow impressions laterally. Head, left antenna and pronotum: Fig. 16. Legs rather strong. Fore tibiae weakly curved; in lateral view, feebly widening toward apex. Apex dorsoventrally strongly dilated, disciform



Figs 16—20. *Oreogria kaszabi* sp. n., ♂ — 16 = head, left antenna and pronotum, 17 = fore tibia, lateral view, 18 = same, dorsal view, 19 = middle tibia, 20 = hind tibia. — Figs 21—25. *O. samuelsoni* sp. n., ♂ — 21 = head, left antenna and pronotum, 22 = fore tibia, lateral view, 23 = same, dorsal view, 24 = middle tibia, 25 = hind tibia. Scale = 1 mm



(Figs 17—18). Fore tarsi with segments I to III considerably widened, transverse. Middle tibiae with a small denticle just before apex at inner side (Fig. 19). Middle tarsi with segments widened, segment I less than twice as long as broad. Hind tibiae with a moderately prominent tooth at apical fourth of inner side (Fig. 20). Abdominal sterna not impressed. Habitus: Fig. 39.

♀. Interocular distance a little broader than eye diameter. Antennal segment XI a little longer than 2 preceding combined. Pronotum broader.

**H o l o t y p e** ♂, labelled as follows: West New Guinea Star Mts. Sibil Val. 1245 m, 18. X.—8. XI. '61/S. Quate & L. Quate Collectors/[holotype label]. It is deposited in BPBM. — **Paratypes**. Irian Jaya: labelled as holotype (14 ♂♂, 3 ♀♀, BPBM; 2 ♂♂, 1 ♀, HNHM); id., light trap (1 ♂, 5 ♀♀, BPBM); id., S. QUATE (2 ♂♂, 1 ♀, BPBM; 1 ♀, HNHM); id., L. W. QUATE (1 ♂, BPBM); Sibil, Sterrengeb., 1250 m, 15. VI. 1958, on lamplight, R. T. SIMON THOMAS (2 ♀♀, ZMUA). — Papua New Guinea: Betege, 20 km NW of Koroba, 1600 m, 20. IX. 1963, light trap, R. STRAATMAN (2 ♂♂, BPBM); id., 23. IX. 1963 (2 ♂♂, BPBM); id., 29. IX. 1963 (2 ♂♂, BPBM; 1 ♂, HNHM); Koroba, 40 km W of Tari, 1650 m, 18. IX. 1963, light trap, R. STRAATMAN (3 ♂♂, 1 ♀, BPBM); id., 19. IX. 1963 (7 ♂♂, 1 ♀, BPBM; 2 ♂♂, HNHM).

**D i s t r i b u t i o n**: Irian Jaya: Star Mountains (Sibil Valley) (No. 2 in Fig. 1). Papua New Guinea: Southern Highlands province: Betege and Koroba (No. 3 in Fig. 1).

**D e r i v a t i o n o m i n i s**: The species is named in honour of the late DR. Z. KASZAB, the renown specialist of Tenebrionidae. It was he who suggested to me to deal with Lagriini and generously helped me in my first steps just before his sudden death.

**R e m a r k s**: Males may easily be distinguished from those of the two following species by the characteristically dilated apex of fore tibiae. Females can be separated by the much finer pronotal punctation.

### ***Oreogria samuelsoni* sp. n. (Figs 21—25, 42—43)**

Body rather slender, moderately convex. Head and pronotum blackish brown. Elytral base brown, posteriorly nearly to the level of hind margin of metasternum; brownish colouration extending to lateral margin; rest of elytra stramineous. Ventral surface, legs and antennae reddish brown, apex of antennal segments and the last 2 segments somewhat darker. Pronotal punctation coarse and sparse, punctures separated by distance at least equal to diameter. Elytral punctation simple, evenly scattered, interspaces practically not raised. Elytra very weakly caudate. Length: 7.5—10.5 mm.

♂. Interocular distance distinctly narrower than eye diameter. Eyes definitely convex. Antennal segment X not transverse, segment XI about as long as 5 preceding combined. Pronotum at base broader than long, constricted posterior to middle, surface with 2 oblique impressions laterally. Head, left antenna and pronotum: Fig. 21. Legs rather long and slender. Fore tibiae nearly straight; in lateral view, feebly widening toward apex. Apex moderately dilated, spoon-shaped (Figs 22—23). Fore tarsi with segments not widened. Middle tibiae slightly widened before apex, without tooth (Fig. 24). Middle

tarsi simple, segment I thrice as long as broad. Hind tibiae slightly curved, narrowing at middle and widening at distal 1/3 (Fig. 25). Abdominal sterna without impressions. Habitus: Fig. 43.

♀. Interocular distance distinctly broader than eye diameter. Antennal segment XI as long as 2 preceding combined. Pronotum broader. Habitus: Fig. 44.

**H o l o t y p e** ♂, labelled as follows: New Guinea: (NW) Wisselmeren Enarotadi, 1850 m. 12. VII.—4. VIII. '62/J. Sedlacek Malaise Trap Bishop/[holotype label]. It is deposited in BPBM. — Paratypes. Irian Jaya: Wisselmeren, Enarotadi, 1800—1850 m, 13. VII. 1962, J. SEDLACEK (1 ♀, BPBM); id., 1800—1900 m, 26. VII. 1962 (1 ♀, BPBM); id., 27. VII. 1962 (1 ♀, BPBM); id., 10. VIII. 1962 (1 ♀, BPBM); id., 22. VIII. 1962 (1 ♀, BPBM); id., 7—9. VIII. 1962, light trap (1 ♂, 1 ♀, BPBM); id., 1850—1900 m, 19. VII. 1962, (1 ♀, BPBM; 1 ♂, HNHM); id., 23. VII. 1962 (1 ♀, BPBM; 1 ♀, HNHM); id., 30. VII. 1962 (1 ♂, BPBM); id., 31. VII. 1962 (1 ♀, BPBM); id., 1850—2050 m, 5—6. VIII. 1962, J. W. SEDLACEK (1 ♂, BPBM); 1900—2000 m, 14. VII. 1962, J. SEDLACEK (1 ♀, BPBM); Wisselmeren, Urupura, Kamo V., 1530 m, 10. VIII. 1955, J. L. GRESSITT (1 ♀, BPBM); id., 11. VIII. 1955 (1 ♀, BPBM); Wisselmeren, Waghete, Tigi L., 1700 m, 17. VIII. 1955, J. L. GRESSITT (1 ♂, BPBM).

**D i s t r i b u t i o n**: Irian Jaya: Wissel Lakes (Enarotadi, Urupura, Waghete) (No. 1 in Fig. 1).

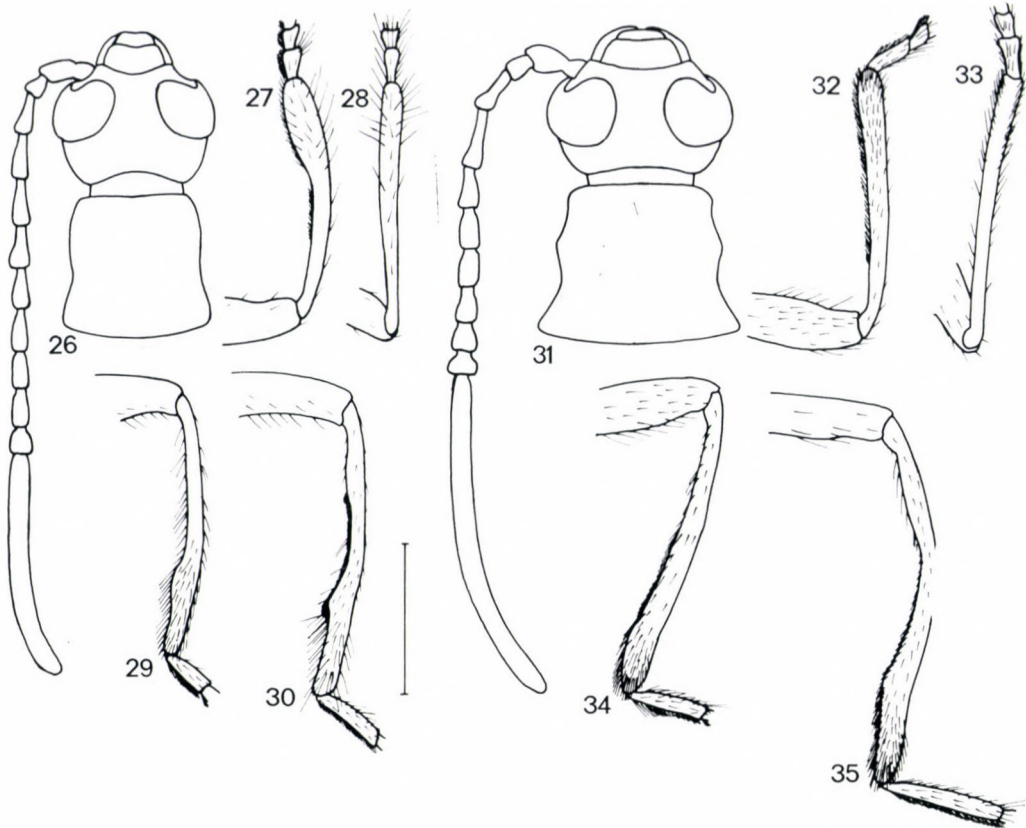
**D e r i v a t i o n o m i n i s**: The species is dedicated with pleasure to DR. G. A. SAMUELSON, coleopterist in the Bernice Pauahi Bishop Museum, Honolulu, who was so kind enough to send me the highly valuable lagriine material of his museum.

**R e m a r k s**: The apex of the fore tibiae of the males is much less dilated than that of *kaszabi*; moreover, the middle tibiae lack a small denticle typical for *kaszabi*. The hind tibiae are also untoothed; this character separates this species from *gentilis*.

### **Oreogria gentilis** sp. n. (Figs 26—30, 41)

Body rather slender, moderately convex. Head and pronotum blackish brown. Elytral base brown, posteriorly to the level of middle of metasternum; brownish colouration extending to lateral margin; rest of elytra stramineous. Ventral surface, legs and antenna reddish brown, last antennal segment darker. Pronotal punctation coarse and sparse, punctures separated by distance at least equal to diameter. Elytral punctation simple, more or less evenly scattered, interspaces slightly raised on dark part, not on pale part. Elytra not caudate. Length: 8.5 mm.

♂. Interocular distance distinctly narrower than eye diameter. Eyes moderately convex. Antennal segment X not transverse, segment XI about as long as 6 preceding combined. Pronotum at base a bit broader than long, constricted posterior to middle, with traces of 2 impressions laterally. Head, left antenna and pronotum: Fig. 26. Legs rather long and slender. Fore tibiae weakly curved, slightly claviform at apex (Figs 27—28). Fore tarsi with segments not widened. Middle tibiae with a weak widening at apical 1/3 (Fig. 29). Middle tarsi with segment I thrice as long as broad. Hind tibiae with a blunt,



Figs 26—30. *Oreogria gentilis* sp. n., ♂ — 26 = head, left antenna and pronotum, 27 = fore tibia, lateral view, 28 = same, dorsal view, 29 = middle tibia, 30 = hind tibia. — Figs 31—35. *O. fragilipes* sp. n., ♂ — 31 = head, left antenna and pronotum, 32 = fore tibia, lateral view, 33 = same, dorsal view, 34 = middle tibia, 35 = hind tibia. Scale = 1 mm

weakly prominent tooth at apical 1/3 (Fig. 30). Abdominal sterna without impressions. Habitus: Fig. 41.

♀. Unknown.

**Holotype** ♂, labelled as follows: New Guinea: (NW) Wisselmeren Moanemani, Kamo V. 1500 m, 19. VIII. 1962/J. Sedlacek Collector Bishop/[holotype label].

**Distribution:** Irian Jaya: Wissel Lakes (Moanemani) (No. 1 on the Fig. 1).  
**Derivatio nominis:** Latin "gentilis" (= gentle).

**Remarks:** From the two former species, it can easily be separated by the simple, not dilated tibiae of the males. The general appearance is much reminiscent of *samuelsoni* but *gentilis* has a tooth at the inner side of its hind tibiae.

**Oreogria fragilipes** sp. n. (Figs 31—35, 44)

Body rather slender, moderately convex. Head and pronotum dark brown. Elytra brownish at base, nearly up to the level of hind margin of abdominal sternite I and at apex; rest of elytra yellowish. Borderline between dark and pale colourations indistinct. Ventral surface, legs and antennae reddish brown, antennae darkening toward apex. Pronotal punctation coarse and scattered, punctures separated by distances at least equal to diameter. Elytral punctation coarse and sparse; on the dark part, interspaces distinctly, irregularly plicate, surface coriaceous. Elytra distinctly caudate. Length: 9.8 mm.

♂. Interocular distance distinctly narrower than eye diameter. Eyes rather strongly convex. Antennal segment X transverse, segment XI as long as 9 preceding combined. Pronotum at base broader than long, strongly constricted before base, with 2 lateral impressions. Head, left antenna and pronotum: Fig. 31. Legs long and gracile. Fore tibiae straight, practically not widened toward apex (Figs 32—33). Middle tibiae nearly straight, very weakly widening apically (Fig. 34). Hind tibiae distinctly curved, narrowest at middle, then widening in the apical 1/3 (Fig. 35). Abdominal sterna without impression. Habitus: Fig. 44.

♀. Unknown.

**H o l o t y p e** ♂, labelled as follows: New Guinea, Papua: Mt. Dayman, Maneau Range, north slope, 2230 m, Camp # 4, May 18—June 19, 1953/G. M. Tate 4th Archbold Expedition/[holotype label]. It is deposited in AMNH.

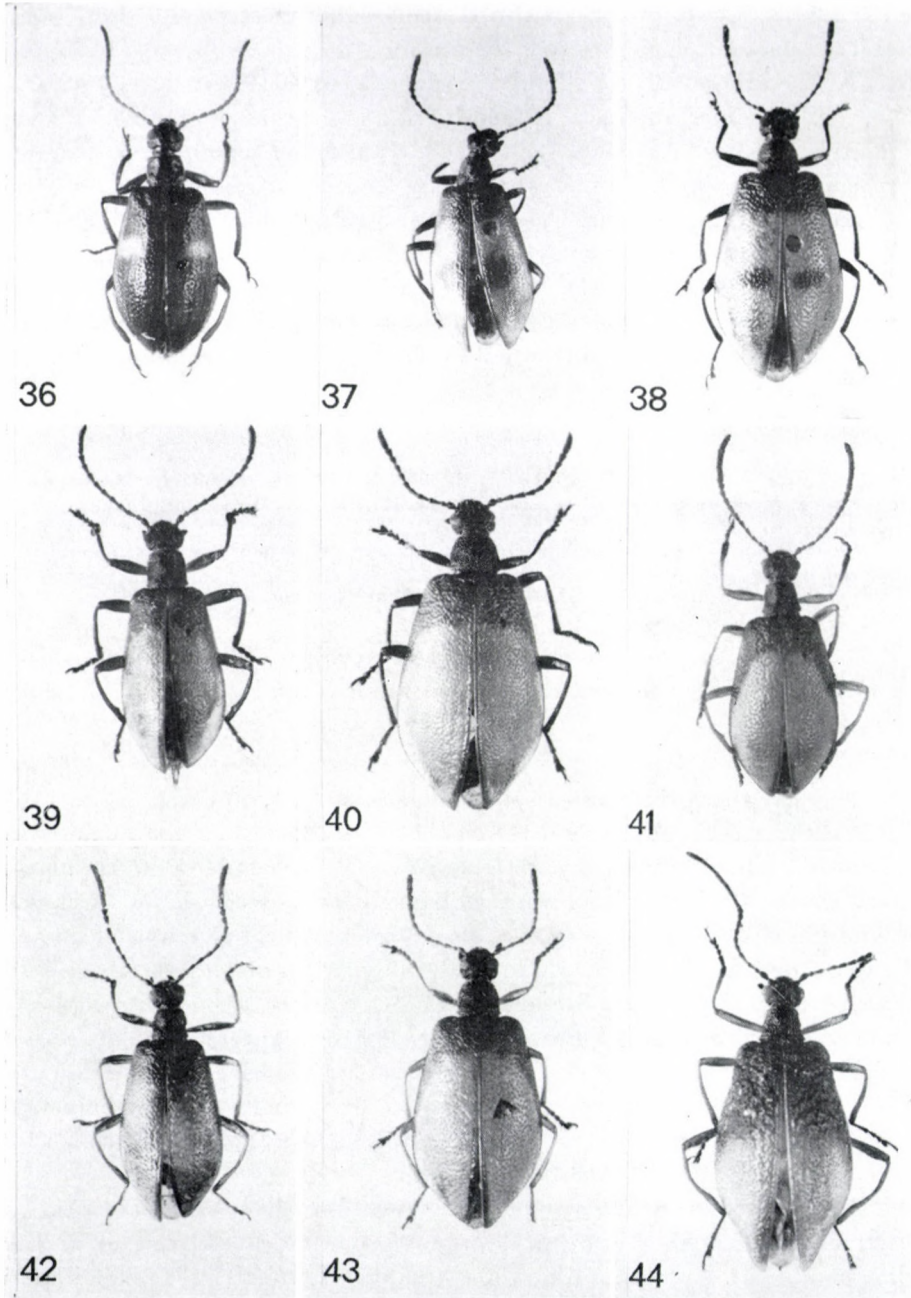
**D i s t r i b u t i o n**: Papua New Guinea: Northern province: Mt. Dayman (No. 15 in Fig. 1).

**D e r i v a t i o n o m i n i s**: Latin "*fragilis*" (= fragile) and "*pes*" (= leg).

**R e m a r k s**: On account of the antennal and tibial structure of the male, this species is related to *vermiculata* and *irianica*. From both latter species, it can be distinguished by the straight fore tibiae. Moreover, the coriaceous surface and the obscured borderline of the dark part of the elytra separate it from *vermiculata*.

**Oreogria vermiculata** sp. n. (Figs 2, 45—49, 65)

Body slender, moderately convex. Head and pronotum dark brown. Elytra dark metallic brown up to level of half of abdominal sternite II: lateral margin, apex, and preapical part of sutura brownish as well; rest of elytra yellowish. Borderline between dark and pale colourations sharp. Thoracic sterna blackish brown, abdomen reddish; legs testaceous; antennae reddish, with somewhat darkened apex. Pronotal punctation coarse and sparse, punctures separated by distance at least equal to diameter. Elytral punctation on



Figs 36–44. 36 = *Oreogria polita* sp. n., ♂, 37 = *O. torva* sp. n., ♂, 38 = same, ♀, 39 = *O. kaszabi* sp. n., ♂, 40 = same, ♀, 41 = *O. gentilis* sp. n., ♂, 42 = ♂, *O. samuelsoni* sp. n., ♂, 43 = same, ♀, 44 = *O. fragilipes* sp. n., ♂

the dark part coarse, punctures constituting small clusters and short oblique rows; interspaces unevenly raised; the broader interspaces forming meandrous, flattened elevations. Elytra slightly caudate. Length 10.2 mm.

♂. Interocular distance distinctly narrower than eye diameter. Eyes moderately convex. Antennal segment X transverse, segment XI as long as 8 preceding combined. Pronotum slightly broader at base than long, with 2 oblique lateral impressions. Head, left antenna and pronotum: Fig. 45. Hind wing: Fig. 2. Legs conspicuously long and gracile. Fore tibiae curved, slightly clavate at apex (Figs 46—47). Middle tibiae slightly curved, weakly widened at apical 1/3 (Fig. 48). Hind tibiae also curved, narrowest at middle, then slightly widened (Fig. 49). Abdominal sterna I and II with weak mesal impressions. Habitus: Fig. 65.

♀. Unknown.

**H o l o t y p e** ♂, with the following labels: New Guinea Western Highlands, Mt. Hagen Range, Murmur Pass, 8700 ft., 27. 10.—20. 12. 1961 W. W. Brandt [holotype label]. It is deposited in ANIC.

**D i s t r i b u t i o n**: Papua New Guinea: Western Highlands province: Mount Hagen area (No. 7 in Fig. 1).

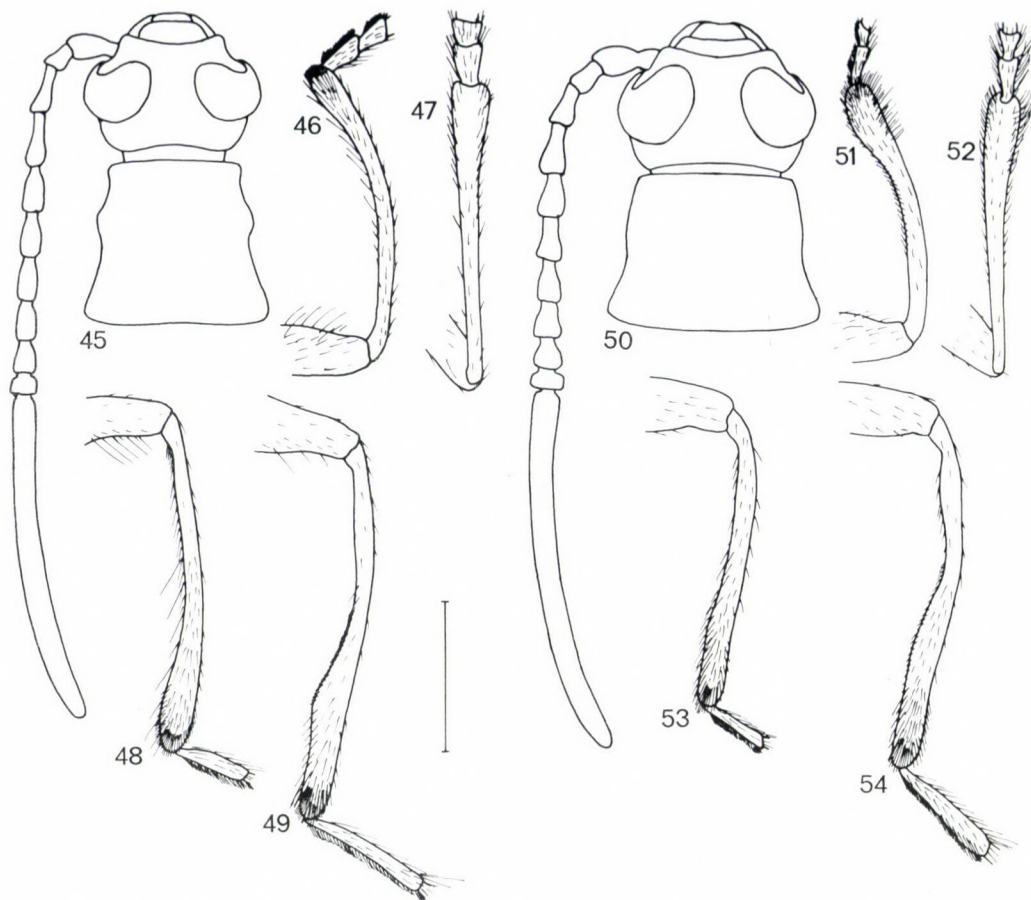
**D e r i v a t i o n o m i n i s**: Latin “*vermiculatus*” (= worm-shaped).

**R e m a r k s**: The colour pattern and sculpture of the elytra separate this species from the nearest allies: *fragilipes* and *irianica*.

### **Oreogria irianica** sp. n. (Figs 5, 50—54, 66—67)

Body rather slender, moderately convex. Head and pronotum blackish brown. Elytra dark reddish brown at basal part, posteriorly to the level of hind margin of abdominal sternite I, and at apex; rest of elytra paler brownish yellow. Borderline between dark and pale colouration indistinct. (However, on 2 male paratypes, the dark colouration is restricted to basal 1/3, and the borderline is quite distinct!) Ventral surface, legs and antennae reddish brown, thoracal sterna somewhat darker. Pronotal punctation coarse and sparse, punctures separated by a distance at least equal to diameter. Elytral punctation coarse and sparse, interspaces somewhat raised, plicate on dark part. Elytra weakly caudate. Length: 10.0—12.1 mm.

♂. Interocular distance distinctly narrower than eye diameter. Eyes rather convex. Antennal segment X transverse, segment XI as long as 9 preceding combined. Pronotum transverse, moderately constricted behind middle, with traces of 2 lateral impressions. Head, left antenna and pronotum; Fig. 50. Legs long and slender. Fore tibiae somewhat curved, a little clavate at apex (Figs 51—52). Middle tibiae slightly curved, feebly widened before apex (Fig. 53). Hind tibiae distinctly curved, narrowest at middle, weakly widened



Figs 45—49. *Oreogria vermiculata* sp. n., ♂ — 45 = head, left antenna and pronotum, 46 = fore tibia, lateral view, 47 = same, dorsal view, 48 = middle tibia, 49 = hind tibia. — Figs 50—54. *O. irianica* sp. n., ♂ — 50 = head, left antenna and pronotum, 51 = fore tibia, lateral view, 52 = same, dorsal view, 53 = middle tibia, 54 = hind tibia. Scale = 1 mm

at apical half (Fig. 54). Abdominal sterna I and II with shallow impressions. Aedeagus: Fig. 5. Habitus: Fig. 66.

♀. Interocular distance about as broad as eye diameter. Antennal segment X not transverse, segment XI as long as 2 preceding combined. Pronotum broader. Habitus: Fig. 67.

**Holotype** ♂, labelled as follows: New Guinea: (NW) Wisselmeren Enarotadi, 1850—1900 m, 31. VII. 1962/J. Sedlacek Collector Bishop/[holotype label]. It is deposited in BPBM. — **Paratypes**. Irian Jaya: Wisselmeren, Enarotadi, 1800 m, 24. VIII. 1962. J. SEDLACEK (1 ♂, HNHM); id., 1800—1900 m, 8. VIII. 1962 (1 ♀, BPBM); id., 25. VII. 1962 (1 ♀, BPBM); id., 26. VII. 1962 (1 ♀, BPBM); id., 1850—1900 m, 19. VII. 1962 (1 ♀, HNHM); id., 23. VII. 1962 (1 ♀, BPBM); id., 4. VIII. 1962 (1 ♀, BPBM); Wisselmeren, Moanemani, Kamo V., 1500 m, 19. VIII. 1962, J. SEDLACEK (1 ♂, BPBM). — Papua New Guinea: New Britain, Gazelle Pen., Kerawat, 60 m, 1. IX. 1955, J. L. GRESSITT (1 ♀, BPBM).

**Distribution:** Irian Jaya: Wissel Lakes (Enarotadi, Moanemani) (No. 1 in Fig. 1). Papua New Guinea: East New Britain province: Keravat (No. 16 in Fig. 1).

**Derivatio nominis:** The name is derived from "Irian Jaya", the present name of the western part of New Guinea.

**Remarks:** It is reminiscent of *fragilipes* from which it can be separated by the curved fore tibiae of males. The relatively broader pronotum with quite evenly scattered punctation is also characteristic. Concerning the distribution, the locality in New Britain is quite striking and needs further confirmation.

### **Oreogria wauana** sp. n. (Fig. 68)

Body rather slender, moderately convex. Head and pronotum dark brownish black. Elytra largely yellowish, base reddish brown, posteriorly to the level of anterior margin of metasternum: brown colouration broadly extending to lateral margin, but quickly narrowing. Borderline between dark and pale parts rather distinct. Ventral surface, legs and antennae dark reddish brown. Pronotal punctation coarse, subcontiguous, punctures separated by distance much less than diameter. Elytral punctation sparse and coarse, interspaces distinctly raised on darker part but flat on yellowish. Elytra weakly but distinctly caudate. Length: 12.0—12.2 mm.

♀. Interocular distance much broader than eye diameter. Eyes small and flat. Antennal segment X not transverse, segment XI longer than 2 preceding combined. Pronotum transverse, weakly constricted at middle, with 2 shallow lateral impressions. Legs slender. Habitus: Fig. 68.

♂. Unknown.

**Holotype** ♀, labelled as follows: New Guinea: NE Wau, Edie Ck. 2050—2300 m 17—18. VIII. 65/J. Sedlacek Collector Bishop/[holotype label]. It is deposited in BPBM. — **Paratype**, Papua New Guinea: Mt. Kaindi, 2350 m, 5. IV. 1968, J. L. GRESSITT (1 ♀, BPBM).

**Distribution:** Papua New Guinea: Morobe province: Wau area (Edie Creek, Mt. Kaindi) (No. 11 in Fig. 1).

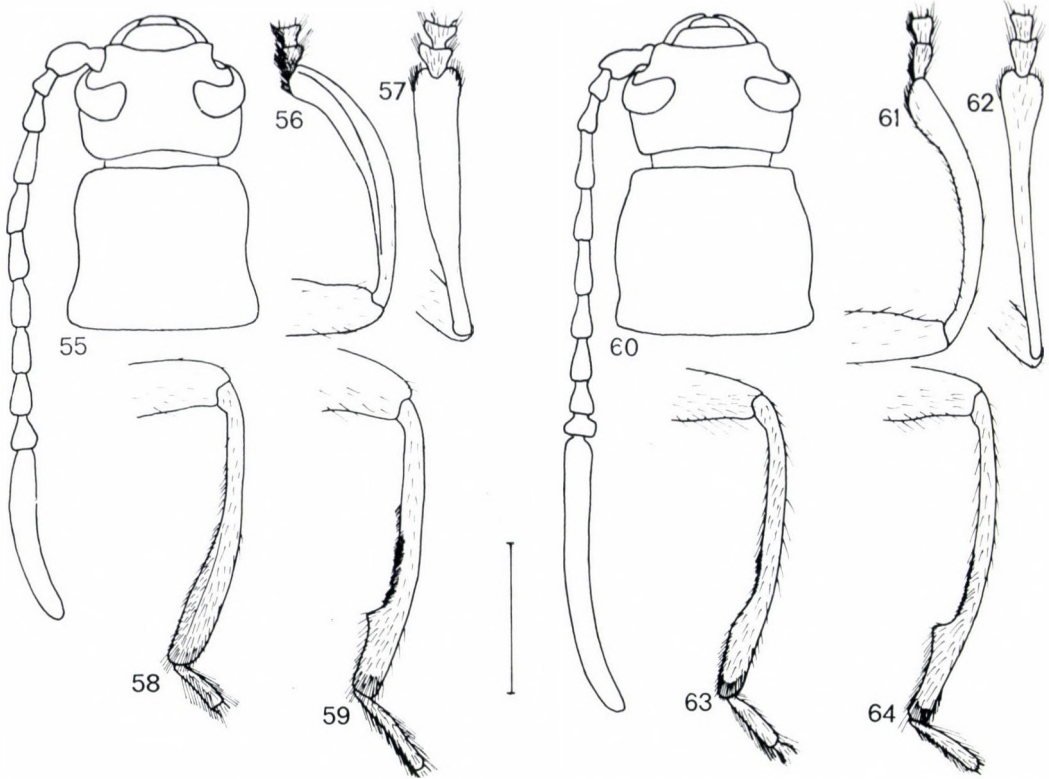
**Derivatio nominis:** The name is derived from "Wau", the type locality.

**Remarks:** On account of the subcontiguous pronotal punctation, this species is related to the 3 subsequent ones, but the colour pattern of the elytra easily separates it.

### **Oreogria larvata** sp. n. (Figs 55—59, 69—70)

Body rather slender, moderately convex. Head and pronotum dark brownish black. Elytra largely yellowish; lateral margin brown, the brownish colouration covering humerus, then with an indentation, after which the brownish colouration gradually narrowing posteriorly; apex also brownish. Sutural mar-





Figs 55—59. *Oreogria larvata* sp. n., ♂ — 55 = head, left antenna and pronotum, 56 = fore tibia, lateral view, 57 = same, dorsal view, 58 = middle tibia, 59 = hind tibia. — Figs 60—64. *O. lutea* sp. n., ♂ — 60 = head, left antenna and pronotum, 61 = fore tibia, lateral view, 62 = same, dorsal view, 63 = middle tibia, 64 = hind tibia. Scale = 1 mm

gin shortly dark behind scutellum. A large, brown, well-defined, ovoid, oblique spot is present at the level of abdominal sternite II. Ventral surface, legs, antennae dark reddish brown. Pronotal punctation coarse, subcontiguous, punctures separated by a distance much less than diameter. Elytral punctation coarse and sparse, interspaces weakly raised on darker parts. Elytra distinctly caudate. Length: 8.5—12.0 mm.

♂. Interocular distance much broader than eye diameter. Eyes small and flat. Antennal segment X not transverse, segment XI nearly as long as 4 preceding segments combined. Pronotum slightly broader at base than long, constricted behind middle, with only traces of 2 lateral impressions. Head, left antenna and pronotum: Fig. 55. Legs strong. Fore tibiae curved, gradually thickening toward apex (Figs 56—57). Fore tarsi with segment I not longer than broad. Middle tibiae curved, clavate (Fig. 58). Hind tibiae slightly curved, with a blunt, tooth-like emergence at apical 1/3 of inner edge (Fig. 59). Ab-

dominal sterna I and II with distinct mesal impressions bordered laterally by slightly elevated keel. Habitus: Fig. 69.

♀. Antennal segment XI about as long as 2 preceding combined. Pronotum broader. Habitus: Fig. 70.

**H o l o t y p e** ♂, labelled as follows: New Guinea (NE) Wau, Mt. Kaindi 24. IX. 1969/(No. NGW — M. 26) leg. Dr. J. Balogh/[holotype label]. It is deposited in HNHM. — **Paratypes**. Papua New Guinea: labelled as holotype (3 ♀♀, HNHM): Kainde, 7500', 13. I. 1969, Mrs. J. E. BENSON (1 ♂, BMNH); Mt. Kaindi, 2000—2350 m, 10—11. I. 1965, J. & M. SEDLACEK (1 ♀, BPBM); id., 2200—2350 m, 25. III. 1965, J. SEDLACEK (1 ♂, 4 ♀♀, BPBM); id., 2350 m, 31. XII. 1964 (1 ♀, BPBM); 28. III. 1968, P. COLMAN (2 ♀♀, BPBM); id., 29. III. 1968 (3 ♂♂, 3 ♀♀, BPBM; 1 ♂, 1 ♀, HNHM); id., 1—7. IV. 1968, T. C. MAA (2 ♀♀, BPBM); id., 10. V. 1968, J. L. GRESSITT & J. SEDLACEK (2 ♀♀, BPBM); id., 11. V. 1968, J. L. GRESSITT (2 ♀♀, BPBM); id., XII. 1968, H. OHLMUS (2 ♀♀, ANIC); id., 9. I. 1969, J. SEDLACEK (4 ♀♀, BPBM); id., 10. I. 1969 (5 ♀♀, BPBM; 1 ♀, HNHM); id., 13. I. 1969 (3 ♀♀, BPBM); id., 19. I. 1969 (1 ♀, BPBM); id., 21. I. 1969 (1 ♀, BPBM); id., 18—23. VIII. 1969, J. L. GRESSITT (1 ♂, BPBM); id., 2400 m, 15—16. IV. 1965, J. BALOGH & J. J. SZENT-IVÁNYI (1 ♀, HNHM); id., 8000', 20. IV. 1968, on leaf, shrub, F. R. WYLIE (1 ♀, BMNH); id., *Pipturus* sp. (1 ♀, BMNH); 9 mls Marawaka, 8. X. 1972, K. STRÖDER (1 ♀, MHNG); Mt. St. Mary, 2500 m, 15—21. VII. 1968, Mena (1 ♀, BPBM); S. Garaina, 1800 m, 8—14. I. 1968, J. & M. SEDLACEK (1 ♀, BPBM); Wau, 2400 m, 9—12. I. 1962, J., J. H. & M. SEDLACEK, G. MONTEITH & Native collectors (2 ♀♀, BPBM); Wau, Moale Plantation, 3800', 28. XII. 1968, Mrs. J. E. BENSON (1 ♂, BMNH); Wau, Mt. Kaindi, 5. II. 1966, R. W. HORNABROOK (1 ♂, HPCW).

**D i s t r i b u t i o n**: Papua New Guinea: Morobe province: Wau area (mainly Mt. Kaindi) (No. 11 in Fig. 1) and Garaina (No. 12 in Fig. 1); Central province: Mt. Saint Mary (No. 13 in Fig. 1).

**D e r i v a t i o n o m i n i s**: Latin "*larvatus*" (= masked).

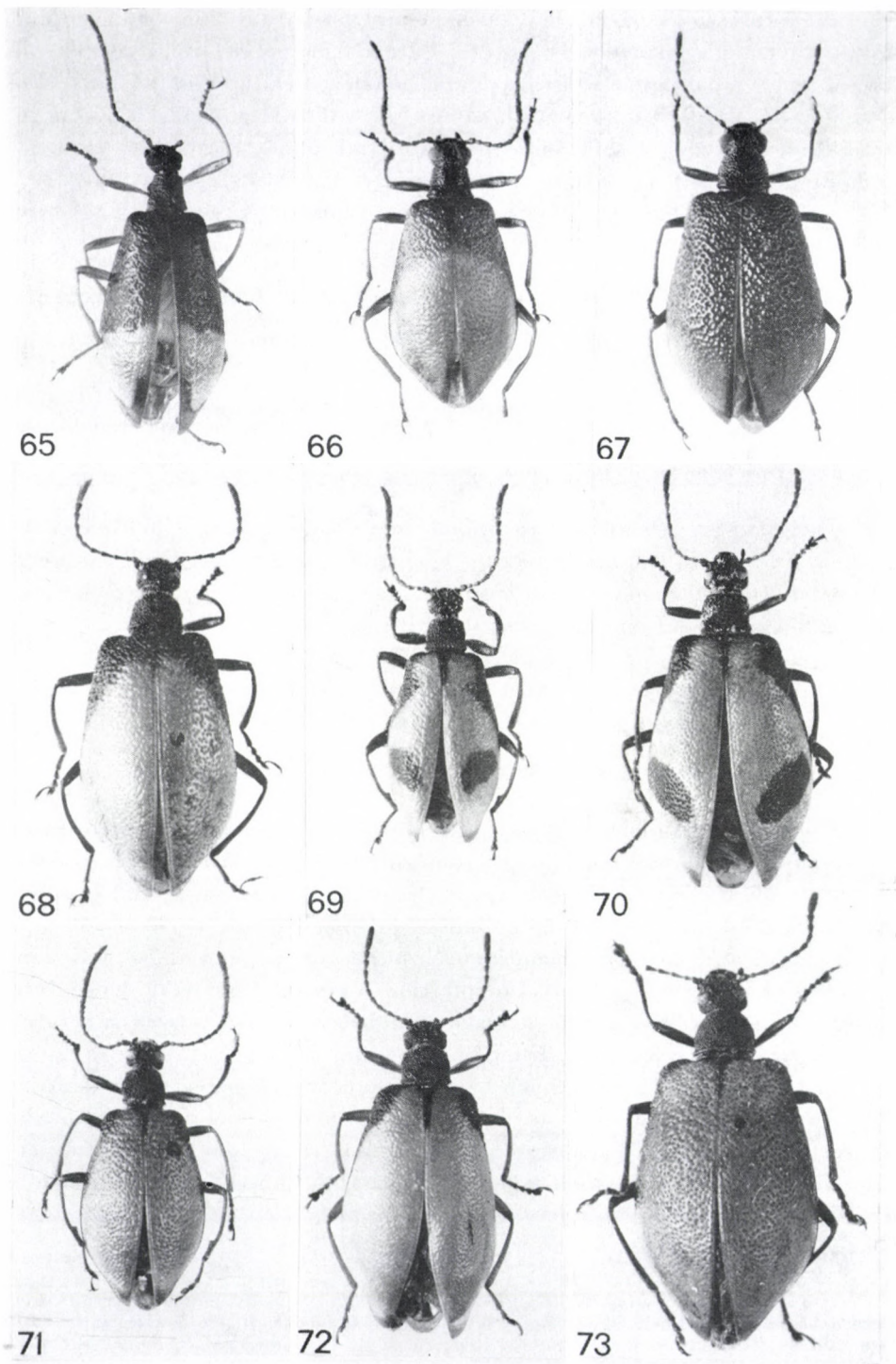
**R e m a r k s**: The oblique brown spots on the yellowish area give an odd appearance, by which the species is easily recognized even at the first glance.

### **Oreogria lutea** sp. n. (Figs 60—64, 71—72)

Body rather slender, moderately convex. Head and pronotum brownish black. Elytra largely yellow, lateral margin brown, brownish colouration widest at humerus, then gradually narrowing posteriorly, apex also brownish. Behind scutellum, sutural margin shortly dark. Borderline between dark and pale part rather distinct. Ventral surface, legs and antennae dark reddish brown. Pronotal punctation coarse and dense, subcontiguous, punctures separated by a distance much less than diameter. Elytral punctation coarse and sparse, interspaces feebly raised, particularly on anterior part. Elytra somewhat caudate. Length: 9.1—11.5 mm.

♂. Interocular distance much broader than eye diameter. Eyes small and flat. Antennal segment X transverse, segment XI as long as about 7 preceding combined. Pronotum transverse, nearly quadrate, with traces of

Figs 65—73. 65 = *Oreogria vermiculata* sp. n., ♂, 66 = *O. irianica* sp. n., ♂, 67 = same, ♀, 68 = *O. wauana* sp. n., ♀, 69 = *O. larvata* sp. n., ♂, 70 = same, ♀, 71 = *O. lutea* sp. n., ♂, 72 = same, ♀, 73 = *O. rufulipennis* (BORCHMANN), ♀



2 lateral impressions. Head, left antenna and pronotum: Fig. 60. Legs moderately long, not conspicuously slender. Fore tibiae curved, slightly thickening toward apex, apex somewhat spatulate dorso-ventrally (Figs 61—62). Fore tarsi simple. Middle tibiae curved, somewhat widened at apical 1/3 (Fig. 63). Hind tibiae curved, with a blunt, prominent tooth at apical 1/3 (Fig. 64). Abdominal sterna I and II impressed mesally. Habitus: Fig. 71.

♀. Antennal segment X not transverse, segment XI a little longer than 2 preceding combined. Pronotum a little broader. Habitus: Fig. 72.

**H o l o t y p e** ♂, labelled as follows: New Guinea: Papua S. Highlands: Dimifa SE of Mt. Giluwe, 2200 m, X—10—1958/J. L. Gressitt Collector/[holotype label]. It is deposited in BPBM. — Paratypes. Papua New Guinea: labelled as holotype (1 ♀, BPBM); Kandep, 8000', on Laiagam Rd., Western Highlands, 6. XII. 1975, R. HORNABROOK (1 ♀, HPCW); 30 mls W Mt. Hagen, 8000', 7. VII. 1974, H. HOWDEN (1 ♀, CNCI).

**D i s t r i b u t i o n**: Papua New Guinea: Western Highlands province: Mount Hagen (No. 7 in Fig. 1) and Kandep (No. 8 in Fig. 1); Southern Highlands province: Dimifa (No. 6 in Fig. 1).

**D e r i v a t i o n o m i n i s**: Latin "*luteus*" (= sulphuric yellow).

**R e m a r k s**: *Oreogria lutea* somewhat resembles *larvata* in that that it also has a tooth on the hind tibiae of the male and subcontiguously punctate pronotum. It has, however, a different colour pattern of elytra, much longer antennal segment XI and less stout fore tibiae of males.

*Oreogria rufulipennis* (BORCHMANN, 1915) comb. n. (Fig. 73)

*Lagriopsis rufulipennis* BORCHMANN, 1915, p. 139; BORCHMANN, 1936, p. 147.

Body broad, moderately convex. Head and pronotum dark brownish black. Elytra yellowish red, lateral margin anteriorly dark, obscure brown, brownish colouration covering humerus, then hardly narrowing and ending at middle. Ventral surface, legs and antennae dark piceous brown. Pronotal punctation dense and coarse, subcontiguous, punctures separated by a distance much less than diameter. Elytral punctation coarse and not very dense, interspaces distinctly raised antero-laterally, much less plicate toward sutura and apex. Elytra weakly caudate. Length: 13.5 mm.

♀. Interocular distance much broader than eye diameter. Eyes small and flat. Antennal segment X not transverse, segment XI a little longer than 2 preceding combined. Pronotum a little broader than long, moderately constricted behind middle, with traces of 2 lateral impressions. Legs slender. Habitus: Fig. 73.

♂. Unknown.

**H o l o t y p e** ♀. BORCHMANN (1915) unequivocally claimed that the description was based on a single specimen. Thus, I have labelled it as holotype. It is a female, with the following labels: Z. Nieuw Guinea, Versteeg. 1912. 13. 5. '12/*Lagriopsis rufulipennis* n. sp. [white

with black margins, BORCHMANN's handwriting]/Holotypus ♀ *Lagriopsis rufulipennis* BORCHMANN, 1915 des. O. MERKL, 1988 [red]/*Oreogria rufulipennis* (BORCHMANN, 1915) det. MERKL, 1988. It is deposited in ZMUA.

Distribution: Central New Guinea (locality was not traced).

Remarks: Considering the subcontiguous pronotal punctation and the moderately plicate elytra it is predicted that this species belongs to the *wauana-larvata-lutea* group, but this should be verified by the examination of the male. However, it is still unknown.

### ***Oreogria contraricolor* sp. n. (Fig. 74)**

Body rather slender, flattened. Head, pronotum, and anterior part of elytra (posteriorly to the level of hind coxae) coal-black; black colouration narrowly following the lateral margin; rest of elytra pale yellowish red. Borderline between black and yellow colouration sharp. Pro- and mesosternum black, metasternum, abdomen, legs and antennae reddish brown. Pronotal punctation coarse and rather sparse, punctures separated by a distance at least equal to diameter; here and there with larger smooth areas. Black part of elytra coarsely and irregularly punctate, interspaces strongly raised, forming small tubercles and rumped transverse wrinkles; yellowish part of elytra finely and sparsely punctate, interspaces not elevated at all. Elytra distinctly caudate. Length: 13.5 mm.

♀. Interocular distance about as broad as eye diameter. Eyes moderately convex. Antennal segment X not transverse, segment XI as long as 2 preceding combined. Pronotum a little broader than long, distinctly constricted behind middle, surface uneven. Legs slender. Habitus: Fig. 74.

♂. Unknown.

Holotype ♀, labelled as follows: No. 6, Pengagl Camp, east slopes Mt. Wilhelm, 2770 m. VII-7-1959/Sixth Archbold Exped. to Papua New Guinea/Eastern Highlands District LJBrass, Coll./[holotype label]. It is deposited in AMNH.

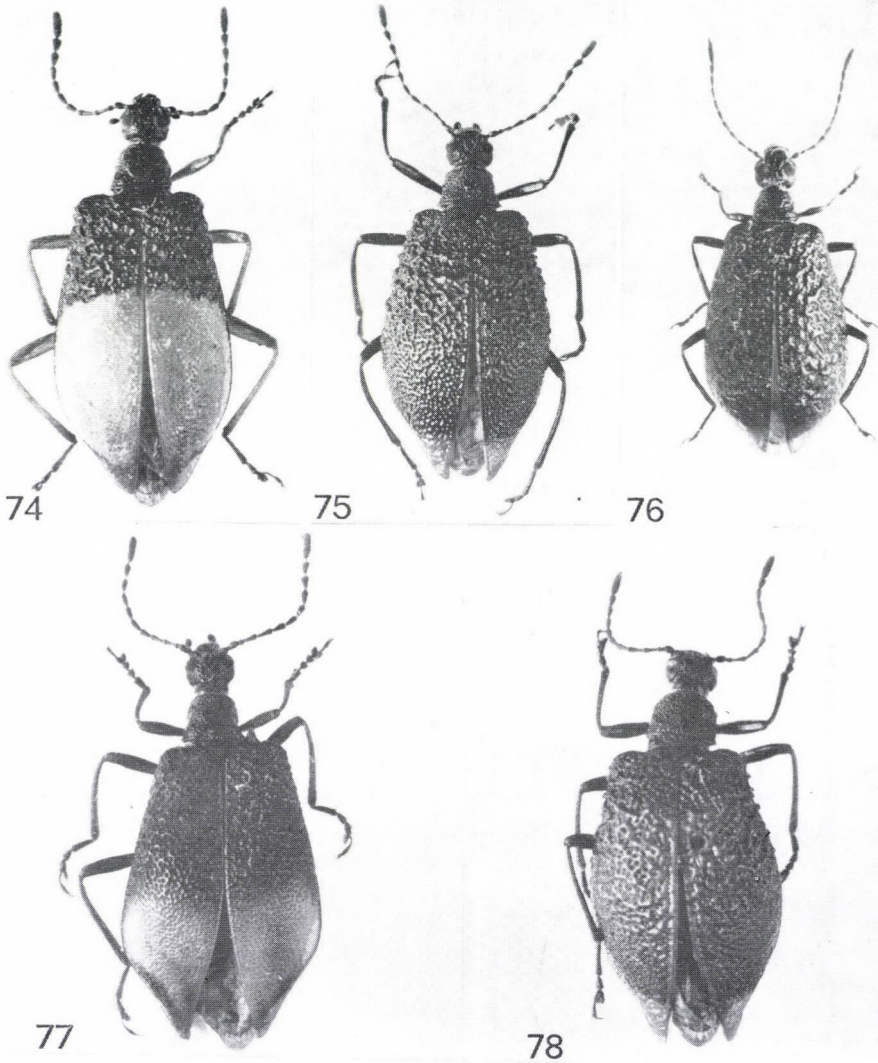
Distribution: Papua New Guinea: Eastern Highlands province: Mt. Wilhelm (No. 10 in Fig. 1).

Derivatio nominis: Latin "*contrarius*" (= contrasted) and "*color*" (= colour).

Remarks: The species is easily recognized by the elytral colour pattern and the marked difference in the sculpture of the black and yellow parts of the elytra.

### ***Oreogria hornbrookii* sp. n. (Fig. 75)**

Body broad, strongly convex. Head, pronotum and elytra (except apex), thoracic sternum, legs and antennae black. Apical area of elytra and abdomen red; borderline between black and red area of elytra rather distinct. Tibiae



Figs 74—78. 74 = *Oreogria contraricolor* sp. n., ♀, 75 = *O. hornabrooki* sp. n., ♀, 76 = *O. plicata* sp. n., ♀, 77 = *O. confragosa* sp. n., ♀, 78 = *O. nodosa* sp. n., ♀

slightly brownish. Pronotal punctation coarse and dense, subcontiguous, punctures separated by a distance much less than diameter. Elytral punctation coarse, dense and irregular on the largest part of surface; interspaces highly raised, forming blunt tubercles and transverse and oblique plicae. Interspaces less elevated, punctures finer before apex. Elytra distinctly caudate. Length: 11.8 mm.

♀. Interocular distance slightly broader than eye diameter. Eyes moderately convex. Antennal segment X not transverse, segment XI as long as 2 preceding combined. Pronotum transverse, distinctly constricted at middle, with traces of 2 lateral impressions. Legs long and slender. Habitus: Fig. 75.

♂. Unknown.

**H o l o t y p e** ♀, labelled as follows: Marifuanga 10/6/72 Asaro Chimbu Divide New Guinea R. Hornabrook [holotype label]. It is deposited in HPCW.

**D i s t r i b u t i o n**: Papua New Guinea: Chimbu province: Marifuanga (No. 9 in Fig. 1).

**D e r i v a t i o n o m i n i s**: The species is dedicated to DR. R. W. HORNABROOK, who, when working in New Guinea as a medical doctor, collected many interesting beetles, including the type of this remarkable species.

**R e m a r k s**: It is similar in some respect to *plicata*, but differs from it in being larger and darker, in having the apical reddish area of the elytra smaller. The pronotal punctation is subcontiguous, the elytral plication is much coarser and tuberculate.

### **Oreogria plicata** sp. n. (Fig. 76)

Body moderately broad and convex. Head and pronotum dark blackish brown with a faint metallic green tinge. Elytra largely dark shining brownish black, apical 1/4 gradually becoming reddish. Borderline between dark and light areas totally indistinct. Thoracal sterna, legs and antennae blackish brown, abdomen reddish. Pronotal punctation rather coarse and sparse, punctures separated by a distance much broader than diameter. Elytral punctation coarse, irregular, elytral surface with rough, levigate plicae all over the black area; reddish apical part with much weaker plicae. No tubercles. Elytra hardly caudate. Length: 9.5—10.0 mm.

♀. Interocular distance about as broad as eye diameter. Eyes moderately convex. Antennal segment XI slightly longer than 2 preceding combined. Pronotum transverse, practically not constricted at middle, with traces of 2 lateral impressions. Legs long and slender. Habitus: Fig. 76.

♂. Unknown.

**H o l o t y p e** ♀, labelled as follows: New Guinea: Haus Copper Wau, Mt. Missim, 22—24. IV. 1965/Coll. DR. J. Balogh et DR. J. J. Szent-Ivány [holotype label]. It is deposited in HNHM. — **P a r a t y p e s**: Papua New Guinea: Kaindi-Nami, 1700 m, 22. VIII. 1968, J. SEDLACEK (1 ♀, BPBM); Pangia, Southern Highlands, 15. VI. 1975, R. HORNABROOK (1 ♀, HPCW).

**D i s t r i b u t i o n**: Papua New Guinea: Morobe province: Wau area (Kuper Range, Mt. Kaindi) (No. 11 in Fig. 1); Southern Highlands province: Pangia (not located exactly).

**D e r i v a t i o n o m i n i s**: Latin "*plicatus*" (= wrinkled).

**R e m a r k s**: It is somewhat reminiscent of *hornabrooki* in having a similar colour pattern, but the red apical area is more expanded and less bordered; the pronotal punctation is much sparser; the size is smaller. The elytral sculpture does not form tubercles.

**Oreogria confragosa** sp. n. (Fig. 77)

Body broad, weakly convex. Head and pronotum black. Elytral base blackish brown, posteriorly to the level of hind coxae; dark colouration following lateral margin and widening before apex; rest of elytra reddish orange. Borderline between darker and paler areas rather indistinct. Thoracal sterna blackish brown, clothed with golden pubescence; abdominal sterna, legs and antennae reddish brown. Pronotal punctation moderately coarse and sparse, punctures separated by a distance at least equal to diameter. Elytral punctation coarse on the dark part, clustered into transversal, oblique and irregular groups, interspaces strongly elevated, constituting a contiguous network. No definite tubercles. On the pale area, punctures evenly scattered, interspaces not raised at all. Elytra distinctly caudate. Length: 11.0–14.5 mm.

♀. Interocular distance broader than eye diameter. Eyes small, moderately convex. Antennal segment X not transverse, segment XI as long as 2 preceding combined. Pronotum slightly transverse, distinctly constricted at middle, with traces of 2 lateral impressions. Legs slender. Habitus: Fig. 77.

♂. Unknown.

**H o l o t y p e** ♀, labelled as follows: N. Guinea: NE Bulldog Rd 2100–2800 m 40 km S. Wau/22–31. V. 1969/J. Sedlacek Collector Bishop Mus/[holotype label]. It is deposited in BPBM. — **Paratypes**. Papua New Guinea: labelled as holotype (1 ♀, HNHM); Mt. Missim, 2400–2800 m, 22–30. IV. 1968, J. L. GRESSITT, R. C. A. RICE & J. SEDLACEK (1 ♀, BPBM); W. slope of Murray Pass, 2750–2830 m, 10. XI. 1965, J. SEDLACEK (1 ♀, BPBM).

**D i s t r i b u t i o n**: Papua New Guinea: Morobe province: Wau area (Bulldog Road, Mt. Missim) (No. 11 in Fig. 1); Central province: Murray Pass (No. 14 in Fig. 1).

**D e r i v a t i o n o m i n i s**: Latin “*confragosus*” (= broken into fragments).

**R e m a r k s**: The depressed elytra, the absence of elytral tubercles, the characteristic elytral colour pattern and the golden vestiture of the thoracal sterna separate this species from the somewhat similar *nodosa*.

**Oreogria nodosa** sp. n. (Fig. 78)

Body broad, strongly convex. Head and pronotum black. Elytral base dark brownish black, posteriorly to the level of middle of metasternum; blackish colouration extending to lateral margin to the level of hind coxae; rest of elytra dark red. Borderline between black and red colouration totally indistinct. Pro- and mesosternum black, metasternum, abdomen, legs and antennae brown. Pronotal punctation coarse and dense, subcontiguous, punctures separated by a distance much less than diameter. Elytral punctation coarse, dense and irregular on largest part of elytra; interspaces highly elevated, basally and laterally with blunt tubercles; preapically the punctures smaller, interspaces not raised. Thoracal sterna with greyish white pubescence. Elytra definitely caudate. Length: 13.1 mm.



♀. Interocular distance broader than eye diameter. Eyes small, moderately convex. Antennal segment X not transverse, segment XI about as long as 2 preceding combined. Pronotum slightly transverse, hardly constricted at middle, with traces of 2 lateral impressions. Legs moderately slender. Habitus: Fig. 78.

♂. Unknown.

H o l o t y p e ♀, labelled as follows: New Guinea Kagaba, 2800 m, 40 km N Mendi, S. Highlands 13—18. XII. 1967/P. Colman Collector Bishop/[holotype label]. It is deposited in BPBM.

D i s t r i b u t i o n: Papua New Guinea: Southern Highlands province: Kagaba (No. 5 in Fig. 1).

D e r i v a t i o n o m i n i s: Latin "*nodosus*" (= knobbed).

R e m a r k s: It is somewhat similar to *hornabrooki* in that that it also has a roughly sculptured, tuberculate elytral surface, but the colour pattern is quite different. The elytral sculpture and the whitish pubescence of the thoracic sterna separate it from *confragosa*.

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BORCHMANN, F. (1936): Coleoptera Fam. Lagriidae. — In: Wytzman, P. (ed.): Genera Insectorum, Bruxelles, **205**: 1—561.



PERISCELIS KABULI SP. N. AND  
P. KASZABI SP. N. WITH NOTES ON LARVAE  
AND PUPAE OF THE FAMILIES AULACIGASTRIDAE  
AND PERISCOLIDIDAE (DIPTERA)\*

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*Periscelis* (*Microperiscelis*) *kabuli* sp. n. (Afghanistan) and *P. (M.) kaszabi* sp. n. (Vietnam) are described. The peculiarities of male genitalia of the *Periscelis* species (incl. the asymmetry in surstyli) are stressed. The larvae of *P. (M.) kabuli* sp. n. are described and depicted with notes and occurrence data of the larvae and pupae of *Aulacigaster leucopeza* Meig. With 31 figures.

The new Catalogue of Palaearctic Diptera includes also an introductory part to each family, where the morphological characteristics of the imago and the larvae (pupae) and some basic data for their life-habits (life cycle) are described. The present author prepared the manuscripts for several families of the acalyptrate flies, incl. the family Periscelidae (PAPP, 1984) in 1979–1980. Since the previous descriptions of the periscelidid larvae seemed doubtful, the description for the Catalogue was made on a larval material, which had been collected in Afghanistan in 1974 (see PAPP, 1975: No. 152), and which was thought to represent periscelidid larvae (and pupae), since at the very site of their collecting numerous imagos of a *Periscelis* species had been caught some days before the larva collecting. The identification of these larvae as periscelidids has been proved to be erroneous.

The dipterous family Periscelididae contains a low number of little known species. STURTEVANT (1954) formed a basic concept of the family by an inclusion of 5 genera and he gave also a list of the known species but it was HENNIG (1958), who revealed the special position of the family among the acalyptrate families. As regards the delimitation of the family he accepted STURTEVANT's view even later (HENNIG, 1969) describing some new species, HENNIG (1971) put them finally in Anthomyzoidea as "1. Teilgruppe (Periscelidea)" together with the families Aulacigastriidae, Asteiidae and Teratomyzidae. In his excellent standard work GRIFFITHS (1972) included also the genus *Somatia* (at the rank of subfamily as Somatiinae) in Periscelididae and, in accordance with this inclusion, he gave the common apomorphic characteristics of the family

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

and summarized the peculiarities of the postabdomen (genitalia) as follows: a) female 7th abdominal tergum and sternum fused, forming a ring which includes the 7th spiracles (see also in HENNIG, 1958); b) male pregenital sclerite extending ventrally and 7th spiracles are in this sclerite; c) aedeagus slender and ribbon-like in Periscelidinae (= Periscelididae sensu HENNIG), "hypandrium and aedeagal apodeme more or less fused, forming cavity into which the aedeagus is folded" (see also Figs 46, 47 of GRIFFITHS); d) large ejaculatory apodeme present. PAPP (1973, 1984) gave a characterization for the family based mainly on external morphological features. GRIFFITHS (1972) placed the family into the superfamily Nothyboidea (incl. Nothybidae, Teratomyzidae, Periscelididae, Psilidae), which does not seem to express their true phyletic relationships. The present author hopes that the description of some new features of the genitalia and of the larval morphology will contribute to a better understanding of their position in the classification of cyclorrhaphan flies.

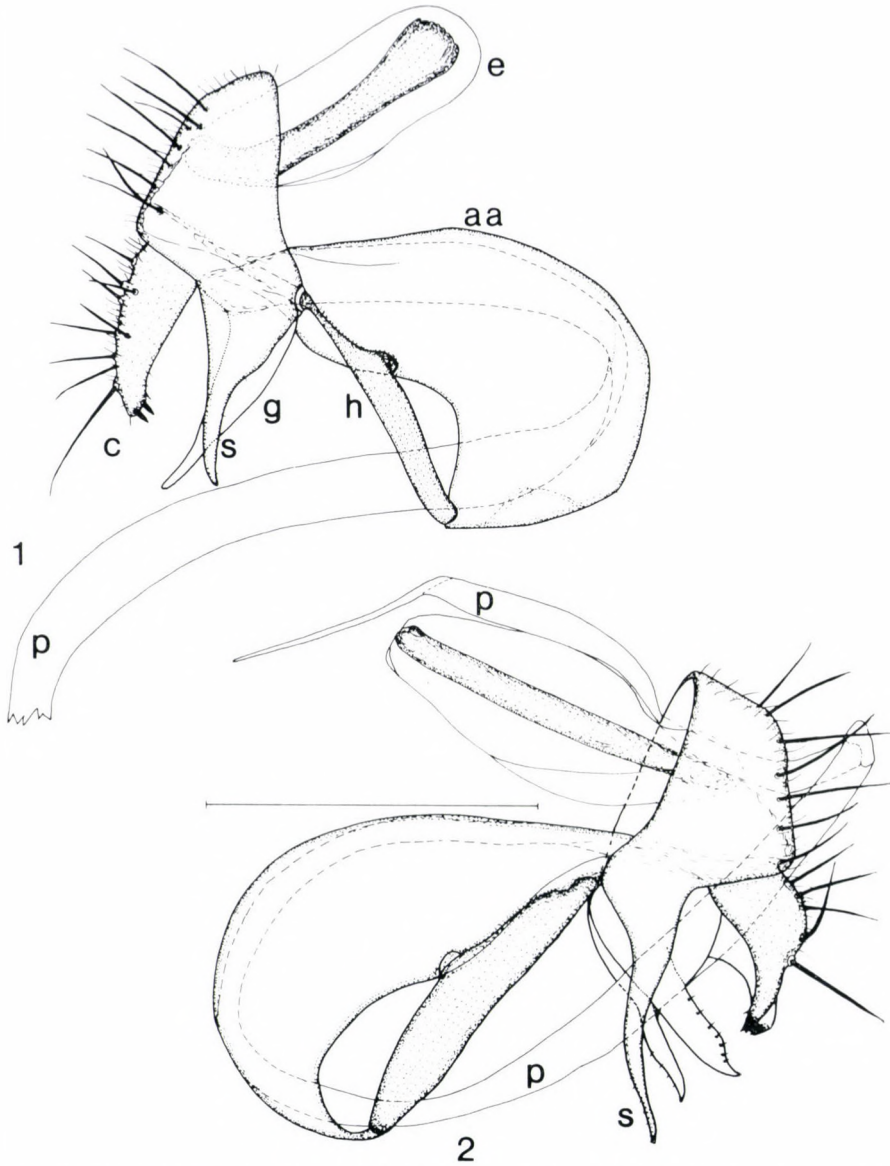
**Periscelis (Microperiscelis) kabuli** sp. n.

Measurements in mm: body length: 2.50 (holotype), 1.67—2.36 (paratype males), 1.94—2.11 (paratype females); wing length: 2.53 (holotype), 1.75—2.39 (paratype males), 2.00—2.47 (paratype females); wing width: 1.03 (holotype), 0.79—1.00 (paratype males), 0.84—1.03 (paratype females); some of the specimens are somewhat wrinkled as a consequence of their former preservation in alcohol.

Head (with small ochreous areas) and mesopleuron greyish brown, the latter with indistinct sagittal, *dc*, and *ia* longitudinal brown stripes. Upper parts of pleura each darker than their ventral parts. Legs ochreous, posterior surface of fore femora and 1 to 2 apical tarsomeres dark brown; mid and hind femora with a broad, oblique, dark subapical band, tibiae with a wide subbasal and subapical dark rings each, mid and hind metatarsi with a dark medial ring. Abdomen brown.

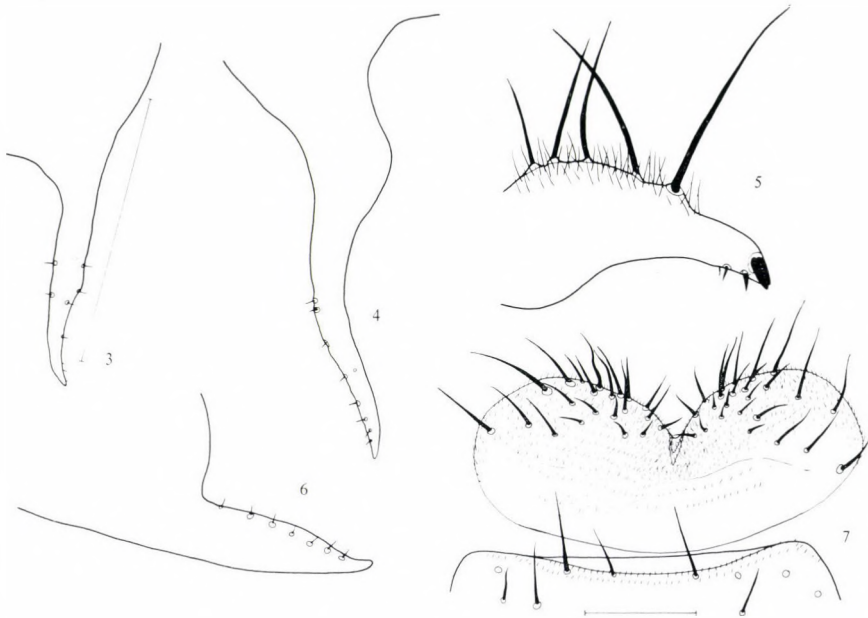
Face bulging below, with a facial keel between antennae. One pair of rows of 5 short thin upcurving facial bristles, one row of downcurving postoculars (continued in the peristomals); one row of 5 rather long and thick peristomal bristles, some additional short bristles on the posterior part of genae. Frontal "triangle" forms a dark pentagon with edges at the anterior ocellus, the widely separated ocellar pair and the postvertical pair. Arista dorsally with 4 long rays, ventrally with 3 long rays besides the short ones. Head chaetotaxy: 1 reclinate *ors*, 1 long *oc* and *vte* each, 1 very long *vti*, 1 divergent *pvt*.

Thoracic chaetotaxy: 1 *h*, 2 *np*, 1 *sa*, 1 *pa*, 0 + 2 *dc*, 1 rather strong *prsc*, 1 shorter basal and 1 very long (0.55 mm) apical *sc*, 1 short supracoxal



Figs 1—2. Genitalia of *Periscelis* males in lateral view. 1 = *P. annulata* FALL.; 2 = *P. kabuli* sp. n. (paratype) [aa: aedeagal apodeme, c: cercus, g: gonite, h: hypandrium, p: aedeagus (phallus), s: surstylus]. Scale: 0.2 mm

propleural, 2 sternopleurals. Mesopleuron bare, sternopleuron with some short bristles. *acmi* in 6—7 unarranged rows, 1 distinct *dc* and *ia* pair of microchaetal rows each. Legs robust, fore femur with long and thick bristles on posterodorsal and posteroventral surfaces (up to 0.135 mm). Mid ventro-apical

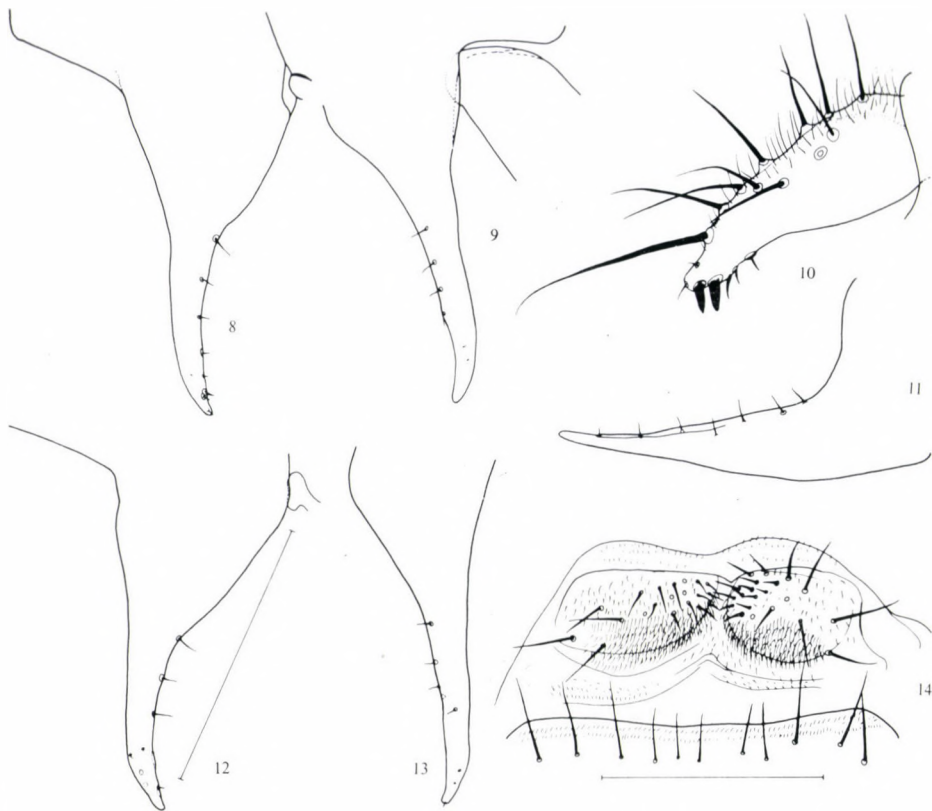


Figs 3—7. Genitalia of *Periscelis kabuli* sp. n. (paratype male). 3 = right surstylus in widest extension; 4 = left surstylus in widest extension; 5 = cercus in lateral view; 6 = gonite in lateral view; 7 = pregenital sternite. Scales: 0.1 mm

thick but short (shorter than 0.10 mm). Wings brown, darker brown on the radial area, veins darker brown, except for the light ochreous vein sections of the wing base. *ta-tp* 0.27 mm, *tp* 0.16, ratio 1.69. Halteres dirty white.

Male preabdomen of 6 segments, silvery spots on the lateral edges of tergites 2—5 (also on females). Male genitalia (of two paratypes in plastic microvials with glycerine) structurally as described by GRIFFITHS (1972). The main peculiarities of the genitalia of the species of *Microperiscelis* can be summarized as follows: pregenital (6th) sternite weakly chitinized forming two soft pads but with numerous bristles (Figs 7, 14), cerci robust apically with some thorns (Figs 5, 10), surstyli have a position, which is very close to a profile (surstyli in lateral view are almost the same as in their widest extension view: Fig. 8, cf. Fig. 12, Fig. 9, cf. Fig. 13), surstyli more (in *P. kabuli* sp. n.) or less (in *P. annulata*) asymmetrical, gonites (Figs 6, 11) simple but characteristic for species, aedeagal apodeme and hypandrium form a hemispherical case to receive the folded aedeagus when at rest (Figs 1—2), aedeagus very long, ribbon-like, ejaculatory apodeme extremely large (Figs 1—2) and must have a role also in moving the other genital parts.

**H o l o t y p e** male: Afghanistan, Kabul, Aliabad — University park, 1800 m, 1—2. 6. 1974 — No. 143a, L. PAPP (for details see PAPP, 1975). — Paratypes: imagos: 4 ♂: same as for holotype; 1 ♂, 3 ♀: *ibid.*, No. 143; larvae: 1 ex. L<sub>2</sub>, 7 ex. L<sub>3</sub>: Afghanistan, Kabul, Aliabad,



Figs 8—14. Genitalia of *Periscelis annulata* FALL. males. 8 = right surstylus in lateral view; 9 = left surstylus in lateral view; 10 = cercus in lateral view; 11 = gonite in lateral view; 12 = right surstylus in widest extension; 13 = left surstylus in widest extension; 14 = pregenital sternite. Scales: 0.1 mm

University park, 21 April 1974 leg. L. PAPP (No. 49); 1 ex. L<sub>3</sub>; *ibid.*, 13 June 1974 leg. L. PAPP (No. 152); see under discussion of the larvae. The imaginal types were minutia-pinned from alcohol, the larval paratypes are preserved in 70% alcohol; all the type specimens are deposited in the collection of the Zoological Dept., Hungarian Natural History Museum, Budapest.

*Periscelis (Microperiscelis) kabuli* sp. n. fits well in the subgenus *Microperiscelis* OLDENBERG, 1914. It is closely related to *P. (M.) annulata* (FALLÉN, 1813): small, with strong prescutellar bristles, but with bare mesopleuron, facial plate unicolorous, etc. (cf. PAPP, 1973: 79). Though one can find small differences in their wings [veins brown, upper (i.e. radial) area of wing distinctly brown], the main reliable differences are in the details of the male genitalia: pregenital sternite (Fig. 7) has somewhat less but longer bristles, the position of apical thorns of cerci is different (Fig. 5, vs. 10), gonites are

wide (Fig. 6), slender in *annulata*, surstyli are much different: left surstylus (Fig. 4) longer and more slender and curved (cf. Figs 9, 13 of *annulata*), right surstylus and ejaculatory apodeme are more slender (Fig. 3, Fig. 2, cf. Figs 8, 12, Fig. 1 of *annulata*). The life habits of these two species are essentially the same (see below).

### ***Periscelis (Microperiscelis) kaszabi* sp. n.**

Measurements in mm (holotype female): body length 1.94, length of wings 1.78, width of wings 0.76.

Mesonotum shining black (dark brown), head and abdomen lighter shining brown.

Antennae in the same form as in the other species of *Periscelis*, 3rd segment lighter greyish brown with long cilia. 3rd antennal segment comparatively short ( $0.135 \times 0.10$  mm). Arista dorsally with 8 long rays, ventrally with 4 long rays beyond terminal fork (and several additional short rays of 0.04—0.05 mm). Longest dorsal rays of arista 0.22 mm. Genae at the narrowest 0.033 mm only. One pair of upcurving facial bristles (0.16 mm long), one row of 6 long peristomals (first one exclinate, 5 downcurving ones), one row of proclinate postoculars. Head chaetotaxy: 1 exclinate *ors*, 1 widely separated *oc*, 1 very long *vti*, 1 shorter *vte* and 1 divergent *pvt* pairs. Face without facial keel, less bulging than in *P. kabuli* sp. n. Palpi dark brown.

Thoracic chaetotaxy: 1 *h*, 2 *np*, 2 long *dc* (posterior one 0.47 mm from base to tip), 1 *sa*, 1 *pa*, 1 short basal and 1 very long (0.505 mm) apical *sc* pairs (some of the head and thoracic bristles are broken). No *prsc* longer than *acmi* (? or broken off on the holotype). 2 pairs of sternopleurals, sternopleura also with some shorter bristles. Mesopleuron bare, 1 short supracoxal propleural. Legs simple, femora dark brown, tibiae and tarsi light brown, tibiae with 1 broad subapical and subbasal dark brown rings each. Fore femora with long armature (as in other species of *Microperiscelis*), mid ventro-apical of 0.10 mm. Wings light brown, veins only slightly darker light brown. Venation largely as in the other species of *Microperiscelis* (cf. PAPP, 1973: Fig. 46E, 46F) but cilia on the surface of wing longer and far less numerous (ca. half of the number of cilia as on the wings of *P. kabuli* sp. n.). Knob of halteres white, stalk wax-yellow.

Abdomen rather dark brown with silvery spots on lateral edges of tergites 4 and 5 only. Female cerci very short with several short light hairs.

H o l o t y p e female: Vietnam, Cuc phuong, Ninh binh — 12. V. 1966, leg. TOPÁL, No. 344. Preserved in the Zoological Dept., Hungarian Natural History Museum, Budapest.



*P. (M.) kaszabi* sp. n. is the first known representative of this family in the Oriental Region [cf. STURTEVANT, 1954, HENNIG, 1969 and DELFINADO, M. D. and HARDY, D. E. (eds): A catalog of the Diptera of the Oriental Region, Vol. 3]. It is a peculiar species, which — though sharing most of the features of *Microperiscelis* with the other species — has some unique characteristics: unicolours dark, shining mesonotum [as in some species of *P. (Periscelis)*], short and not bulging facial plate without facial keel between antennae, extremely narrow genae, etc.

I name this species in honour of my late master and friend, Dr. ZOLTÁN KASZAB.

#### ON THE LARVAE OF AULACIGASTRIDAE AND PERISCOLIDIDAE

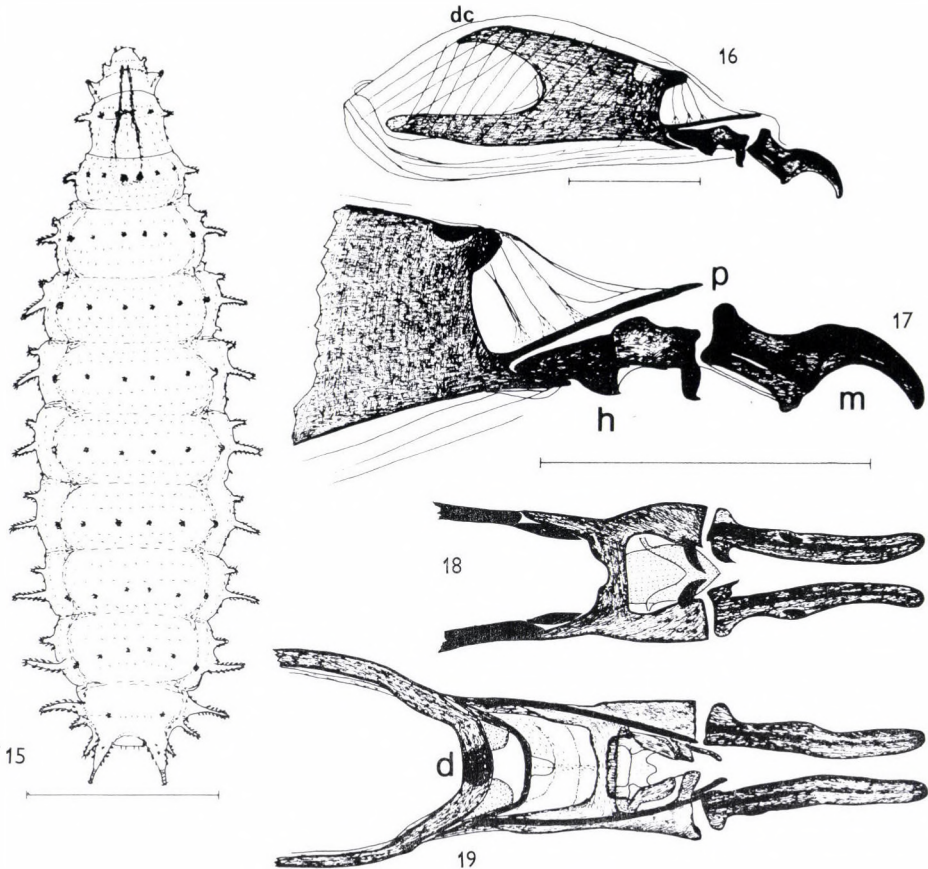
In his revision DUDA (1934: Textfig. 3) quoted HEEGER's (1852) description of "*Drosophila variegata* FALL." in excessive length and he reproduced HEEGER's drawings under the name "*Microperiscelis Heegeri* n. nom.", as the first known description of a periscelidid larva. But HEEGER's drawing on the imago was so bad and unreliable, and his larval drawing seemed to represent something closer to Fanniidae or Syrphidae rather than to any of the acalyptrates. E.g. HENNIG (1953) was in doubt whether HEEGER's drawings and description had referred to a periscelidid at all.

The old drawings on the larva and puparium of *Aulacigaster leucopeza* MEIG. (MALLOCH and MCATEE, 1924) were so poor again that one could not even take it as a caricature. KEILIN (1944) gave a drawing for the puparium of "*Aulacogaster rufitarsis*" and another one for a part of its anterior larval spiracle, which are more or less recognizable but not accurate. ROBINSON (1953) published her excellent morphological and physiological observations on the larvae of *Aulacigaster leucopeza* MEIG. but her drawings are again less accurate. In 1971 I collected some larvae in the outflowing sap of an oak tree (short larvae with large perianal pad and with black setae and black setal bases) which agreed well with ROBINSON's drawings. Contrarily, the larvae which were caught in the sap of *Morus alba* in Afghanistan (and also in Hungary, at Kunfehértó in 1982) are strongly elongated (à 7 mm vs. 6 mm of ROBINSON) clear white or transparent with a very small anal pad. Their "superficial" resemblance to my larvae from sap of the oak trees seemed to support the views on the close relationship of the families Aulacigastridae and Periscelididae. The lack of carefully made morphological investigation, a coincidence of some unfortunate circumstances (larvae and imagos collected on the very same place) and my ignorance as for the work of TESKEY (1976) resulted in a shameful misidentification.

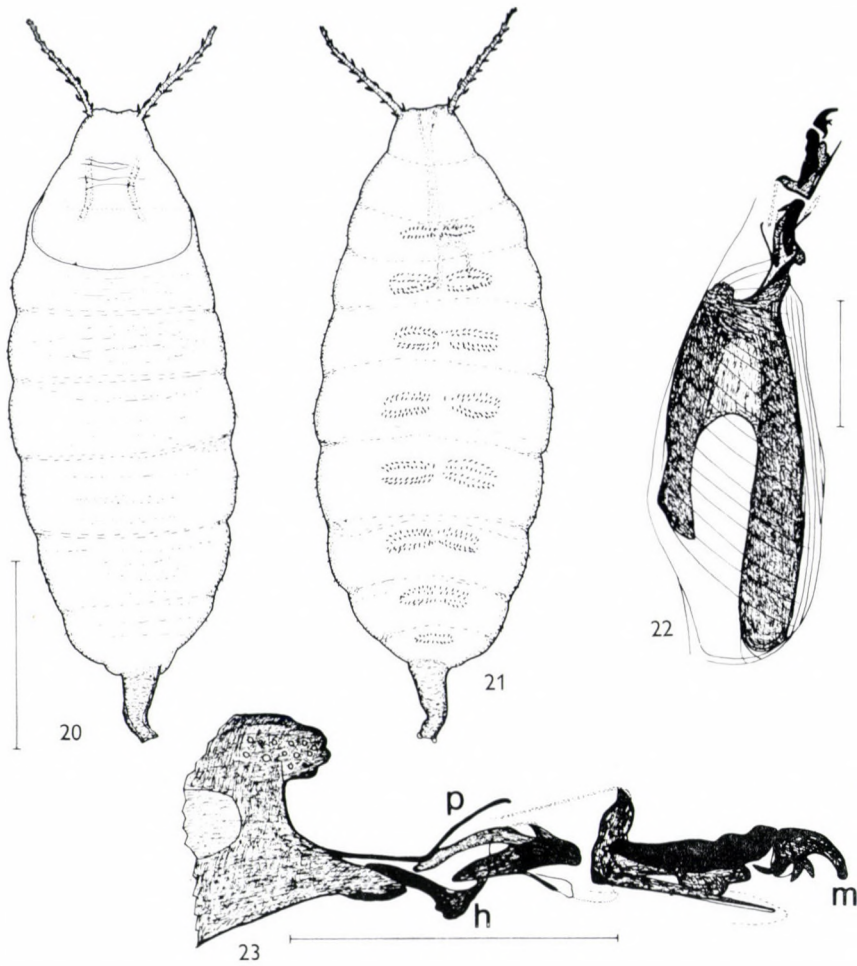
*Periscelis (Microperiscelis) kabuli* sp. n.  $L_3$  paratypes

Body 4.0—4.2 mm long, dorso-ventrally flattened (Fig. 15) with numerous long setose protuberances. Body white or partly transparent but may be coloured by tree particles glued to the setae of tubercles. Larvae 1.1—1.2 mm wide at middle (preserved formerly as “? *Acalyptrata*” in the collection of the Zoological Dept., HNHM).

Cephalic segment with 3 pairs of short, bulbous and spiculate tubercles (Figs 25—26). Anterior (prothoracic) spiracle in a big obtuse tubercle each, bearing some very short bulbous papillae [i.e. different from Fig. 5.54 of TESKEY (1981)]. First and second thoracic segments with one pair, third thoracic



Figs 15—19. *Periscelis kabuli* sp. n., paratype  $L_3$ . 15 = larva in dorsal view; 16 = cephalopharyngeal skeleton under lower magnification; 17—19, cephalic part of the cephalopharyngeal skeleton: 17 = lateral view, 18 = ventral view, 19 = dorsal view (*d*: dorsal bridge, *dc*: dorsal cornu, *h*: hypopharynx, *m*: mandible, *p*: parastomal bar). Scales: 1.0 mm for Fig. 15, 0.2 mm for Fig. 16 and Figs 17—19, respectively



Figs 20—23. *Aulacigaster leucopezae* MEIG. 20 = puparium in dorsal view; 21 = puparium in ventral view; 22 = cephalopharyngeal skeleton laterally; 23 = cephalic part of the cephalopharyngeal skeleton in lateral view (*h*: hypopharynx, *m*: mandible, *p*: parastomal bar). Scales: 1.0 mm for Figs 20—21, 0.2 mm for Fig. 22 and Fig. 23, respectively

and abdominal segments with 2 pairs each of setiferous lateral tubercles (Fig. 15). First thoracal segment with 2 pairs, second and third thoracal segments and six abdominal segments with 3 pairs each of dorsal setiferous bulbs (one pair on the 7th abdominal segment) (Fig. 15). Posterior (postabdominal) spiracles (Fig. 24) each on a long slender spiculate tuberculate process arising caudally (and somewhat dorsally) on terminal abdominal segment. Other spiculate tubercles on body differing from spiracular tubercle only in the latter being longer but their tracheal structure visible also without dissecting them. Tip of spiracle with short lateral hairs.

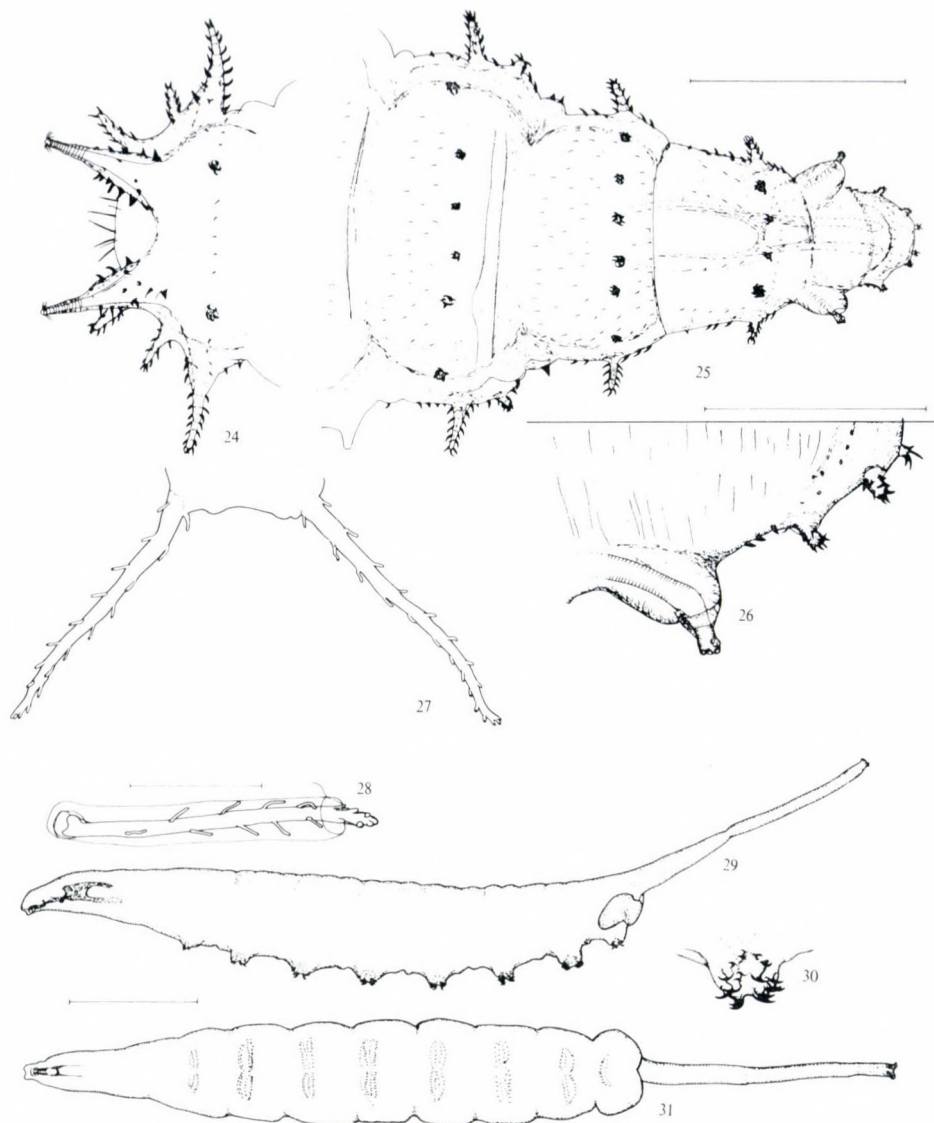
Cephalopharyngeal skeleton (Figs 16—19) rather characteristic: body robust, dorsal cornu obviously shorter than ventral one, parastomal bar long thin and almost straight (Figs 17, 19), only slightly inclinate in dorsal view; hypopharynx robust but tapering posteriorad in ventral view (Fig. 18), with weakly chitinized labial sclerite medially (? or lateral parts of labial sclerite fused with hypopharynx, see Figs 17—18), hypopharyngeal region is a complex structure in any case; dental sclerite fused with mandible, mandible itself with robust posterior part, i.e. one can regard not only the shape of larvae but also this cephalopharyngeal skeleton as unique among the acalyptrate families (cf. TESKEY, 1981: Fig. 5.55).

DESCRIPTION OF THE THIRD INSTAR LARVA AND PUPARIUM  
OF AULACIGASTER LEUCOPEZA MEIG. FOUND IN SAP OF MORUS ALBA

Third instar. Fully grown larvae of 7.1 mm (6.0 mm in ROBINSON). Extremely elongate, slender (0.7 mm at the thickest), white, partly transparent larvae (Figs 29, 31). Abdominal segments with a ventral spiniferous locomotory pad each (Fig. 31). Last abdominal segment with a small yellow perianal pad. Anterior (prothoracic) spiracles (Fig. 28) retractible into a pair of deep narrow pockets, consequently, prothoracic spiracles are not detectable in most of the specimens (only under higher magnification). Anterior spiracle with 5 pairs of twig-like processes (with 11 pairs in Fig. 6 of ROBINSON, 1953), plus additional bulbs on their apical part. Posterior spiracles on a long bipartite respiratory tube, left and right spiracles not separated but in a section of their half width only (Fig. 31). Cephalopharyngeal skeleton of a very characteristic but rather intricate form (Figs 22—23): mandible well developed with 2 pairs of accessory teeth, dorsal cornu much shorter than ventral one, parastomal bar long, thin and angulately dorsally curved at its middle, hypopharynx supported by an intricate structure of sclerites (Fig. 23), between hypopharyngeal and mandibular regions a complex of ca. 3 pairs of fused sclerites (hardly discernible in Fig. 10 of ROBINSON). Puparium light ochreous brown, 4.0 mm long, 1.2—1.4 mm wide, posterior spiracular tube strongly retracted (Figs 20—21), prothoracic spiracles extruded into a pair of 0.65—0.70 mm long horns, each with ca. 8 pairs of twig-like papillae (and additional apical bulbs).

OCCURRENCE AND HOST-TREE DATA  
FOR AULACIGASTER LEUCOPEZA (MEIGEN, 1830)

Imagos: Afghanistan: 6 ♂, 3 ♀: Kabul, Aliabad — University park, 1800 m, 1—2. 6. 1974 — No. 143a, L. PAPP; 1 ♀: *ibid.*, 9—11. 4. 1974, No. 16; 10 ♂, 11 ♀: *ibid.*, 21. 4. 1974, No. 49; 1 ♀: Prov. Parwan, Estalef, 1950 m, 15. 4. 1974, No. 33, L. PAPP.



Figs 24—31. 24—26. *Periscelis kabuli* sp. n., paratype  $L_3$ : 24 = postabdominal part in dorsal view, 25 = cephalic and thoracic part, 26 = prothoracic spiracle. — 27—31. *Aulacigaster leucopeza* MEIG.: 27 = pupal prothoracic spiracles, 28 = larval prothoracic spiracle, 29 = larva in lateral view, 30 = ventral locomotory pad of the 5th abdominal segment, 31 = larva in ventral view. Scales: 1.0 mm for Figs 29, 31, 0.5 mm for Figs 24, 25 and 30, 0.2 mm for Fig. 26 and 0.1 mm for Fig. 28

Larvae: Afghanistan: 4 ex.  $L_3$ : Kabul, Aliabad, 21 April, 1974, University park, singled on oozing sap of *Salix* and *Populus* trees, leg. L. PAPP (No. 49); 2 ex.  $L_2$ , 17 ex.  $L_3$  (of various size), 2 pupa: *ibid.*, 13 June 1974, fly larvae from oozing, fermenting sap of *Morus alba*, sap for Berlese extraction (No. 152). Hungary: 8 ex.  $L_3$  and 2 skins of  $L_2$ : Kiskunsági National Park, Kunfehértó, 21 July 1982, from outflowing sap of *Morus alba*, leg. L. PAPP;

6 ex. L<sub>3</sub>: Börzsöny-hg., Verőcsemaros, Magyarkút, from oozing sap of an oak tree, 20 Aug 1971, leg. Zs. BAJZA—L. PAPP; 1 pupa: Börzsöny-hg., Szokolya, from sap of a maple tree (*A. pseudoplatanus*), 21 Aug 1972, leg. BAJZA—L. PAPP; 1 pupa: Aranyosgadány, 17 May 1971, from outflowing sap of an oak tree, leg. L. PAPP. For life habit data see ROBINSON (1953), DAVIS and ZACK (1978) and TESKEY (1976).

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TWO NEW ONCOCNEMIS LEDERER, 1853 SPECIES  
FROM CENTRAL ASIA  
(LEPIDOPTERA, NOCTUIDAE)\*

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The description of *Oncocnemis kaszabi* sp. n. from Mongolia and Transbaicalia and *O. mysterica* sp. n. from Mongolia; the redescription of *O. x-signata* (STAUDINGER, 1897) nec BOURSIN, and *O. boursini* nom. n. for *O. x-signata* BOURSIN, 1968. Taxonomic comments on the relationship and the probable synonymy of the genera *Sympistis* HÜBNER and *Oncocnemis*.

In July 1986 four Hungarian lepidopterists, GY. FÁBIÁN, M. HREBLAY, L. PEREGOVITS and G. RONKAY went on an expedition to Mongolia and collected a very interesting material in the vicinity of Ulaan-Baatar, the Mts. Hangayn, the Gobi Altai and in various places of the Gobi Desert. This material contains four species of the genus *Oncocnemis* of which one has a very unusual appearance — both in colouration and in the elements of wing pattern — as compared with the whole Palearctic Cuculliine fauna. The detailed study of the genitalia of both sexes of these species revealed that — beside the two species previously known from Mongolia, *campicola* LEDERER, 1853, and *mongolica* STAUDINGER, 1897, — the mysterious species is new for science, closely related to the species “*Acronicta*” *x-signata* STAUDINGER, 1897. As the two species described as *x-signata* represent two distinct and good species, there is only a single homonymy to be solved. I propose therefore the replacement name *O. boursini* nom. n. for the junior secondary homonym. The fourth species mentioned as *nigricula* (EVERSMANN, 1847) by STAUDINGER and REBEL (1901), WARREN in SEITZ (1910), VARGA (1976), etc., from Central Asia and Mongolia also represents an undescribed species not conspecific with *nigricula*. The description of these new species, the redescription of *O. x-signata* (STAUDINGER, 1897) and the discussion on their relationships are given below.

***Oncocnemis kaszabi* sp. n. (Plate: 1)**

H o l o t y p e: male, Mongolia, 102°49' E; 46°12' N, Övörhangay aimak, Mts. Hangayn, Harhorin, 2300 m, 28. VII. 1986, leg. FÁBIÁN, HREBLAY, PEREGOVITS and RONKAY, slide No. 1995 L. RONKAY; deposited in coll. HNHM Budapest. Paratypes: 1 ♂ from same

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

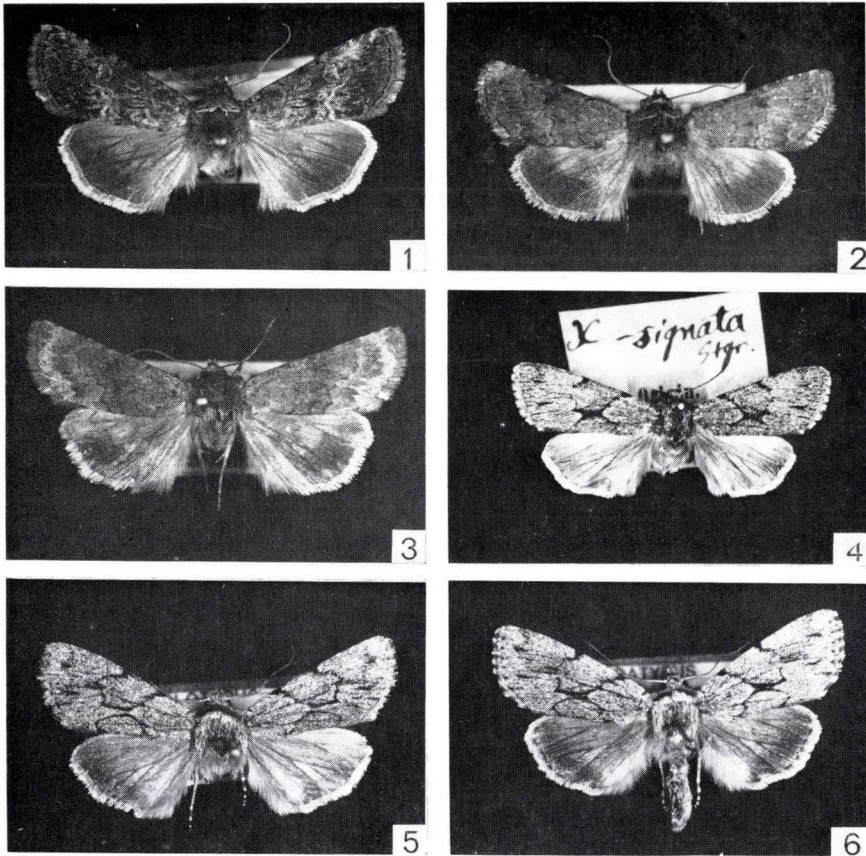


Plate I

1 = *Oncocnemis kaszabi* sp. n., holotype, Mongolia. — 2 = *O. nigricula* (EVERSMANN), Uralsk. — 3 = *O. nigricula* (EVERSMANN), Rossia mer. — 4 = *O. x-signata* (STAUDINGER), holotype, Apfelgebirge (Yablonovski Mts.) — 5 = *O. mysterica* sp. n., holotype, Mongolia. — 6 = *O. mysterica* sp. n., paratype, Mongolia

locality and data; 8 ♂♂, Mongolia, 106°58' E; 48°06' N, Central aimak, Tsagandavaa, at the vicinity of the tungsten mine, 1400 m, 2. VIII. 1986, leg. by the collectors mentioned above; 1 ♂, Mongolia, Chentey aimak, between Somon Tsenchermandal and Zhargaltchaan, 1400 m, 22. VIII. 1965, No. 467, Exp. DR. Z. KASZAB; 1 ♀, Werchne-Udinsk (= Ulaan-Ude), Transbaicalia. Slides Nos 2024, 2042, 2043 (males), 2041 (female). The specimens are deposited in coll. HNHM, Budapest, coll. FÁBIÁN, HREBLAY and G. RONKAY.

**Description:** alar expanse 27—31 mm, length of fore wing 12—14 mm. Head blackish with fine whitish annulus around eyes, palpi dark grey with blackish scales. Collar dark brown with two ochreous stripes and a whitish tip. Thorax blackish, unicolorous excepting some whitish hairs on tegulae. Abdomen dark plumbeous-grey without dorsal crest. Fore wing narrow, elongate and pointed. Ground colour smoky black with relatively inten-

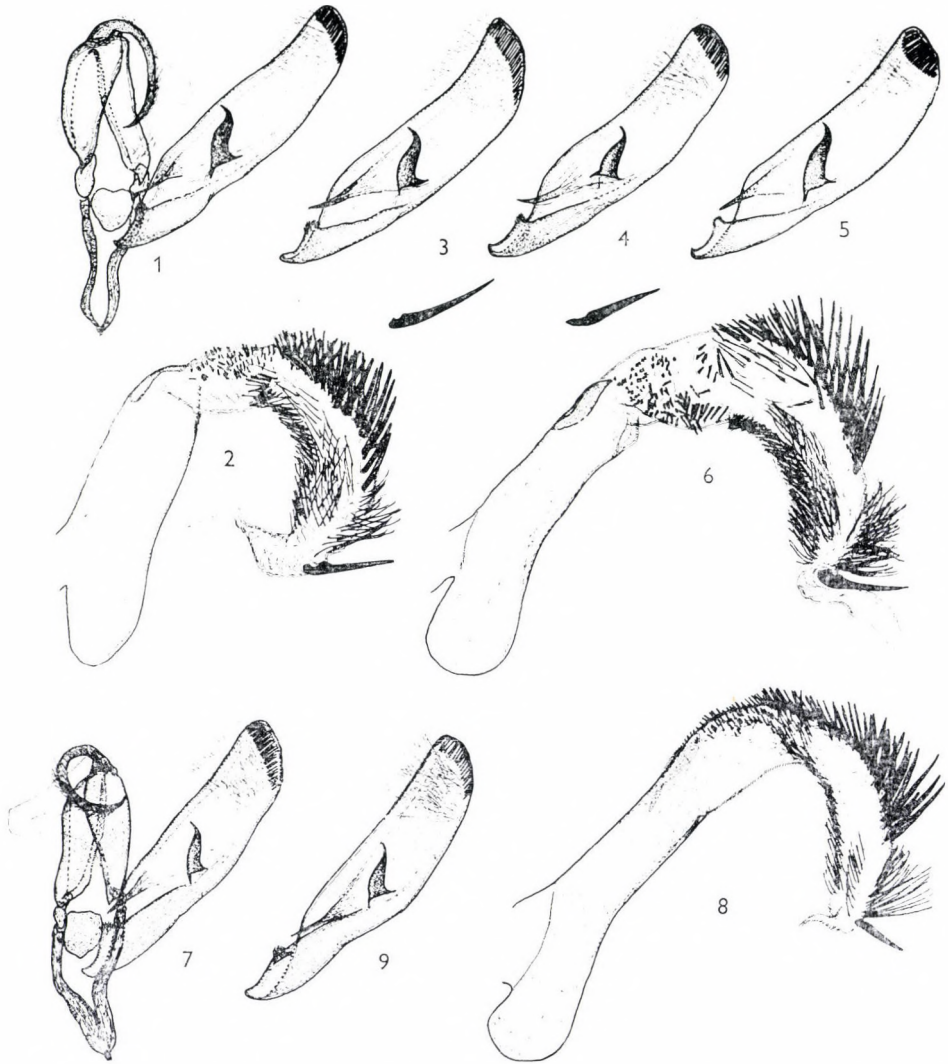


sive light ashy grey irroration, mostly in median area and at postmedial line. Basal line absent, antemedial line double, consisting of fine arches, filled with light grey and sometimes defined with grey on both sides. Orbicular and reniform spots sharply defined, black with greyish annulus, their filling usually lighter than ground colour. Claviform present and robust, lentiform, filled with light grey. Postmedial line double, sinuous, filled and defined with light grey subterminal line fine and pale grey with strong blackish arrowhead-spots. Terminal line a row of black spots and some greyish scales, cilia blackish grey with somewhat darker inner side. Hind wing light ochreous grey with a more or less intensive dark brownish grey irroration, marginal area wide, dark, cellular lunule pale and diffuse. Terminal line dark brown, cilia white with brown inner line. Underside of fore wing dark fumous grey with some lighter scales at margins and at apex, upper arch of transversal line usually well visible. Terminal line a row of blackish spots, cilia dark grey. Underside of hind wing light grey, more or less strongly covered with dark brown scales, cellular lunule a rounded spot with a fine line decurrent to base of wing, marginal area wide and dark, blackish brown. Terminal line black, cilia white with brown inner line.

Male genitalia (Figs 1—6): uncus long and pointed, slender. Tegumen high and narrow, fultura inferior a rounded plate, vinculum relatively strong and pointed. Valvae elongate, medially slightly dilated, apically constricted and pointed at apex. Clavus short, rounded, sacculus less sclerotized and narrow, harpe strong, wide at base, upper part arcuate with a strong, pointed and curved apex. Aedoeagus thick and relatively long, distal dorsal lamina narrow, finely spinulose, vesica everted ventrally, strongly arcuate and recurved, with a complex of numerous cornuti. This armature consists of long cornuti on dorsal surface, many fine cornuti at base becoming longer and slender from base to end of ventral surface; terminal cornutus long and spiculiform, terminal bundle of spinules composed of very long and fine items.

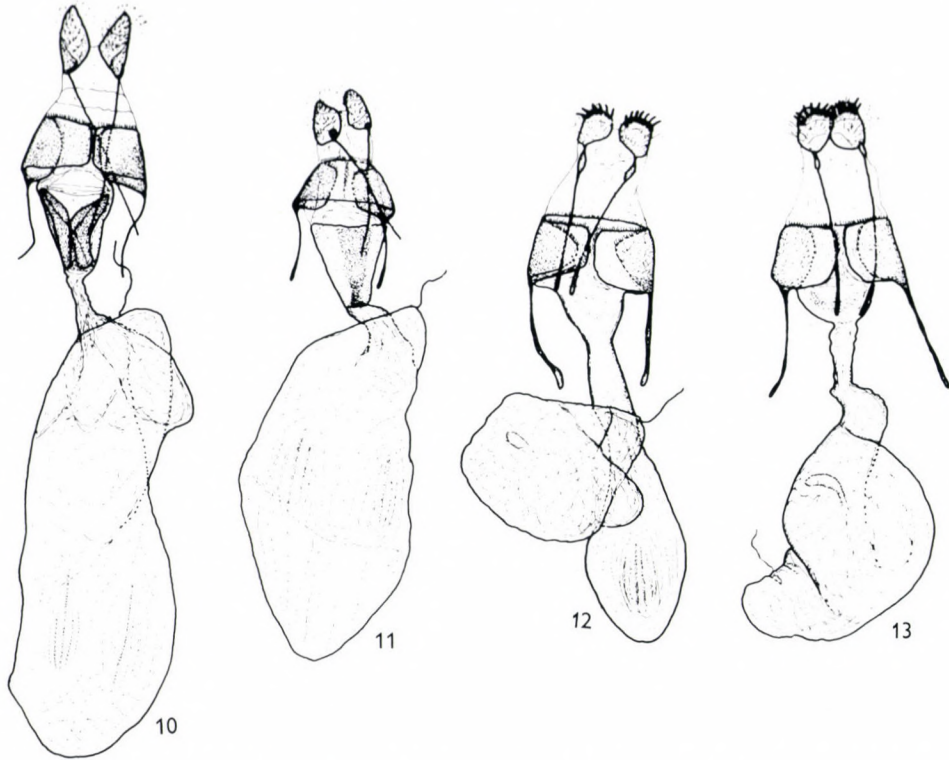
Female genitalia (Fig. 12): posterior lobe of ovipositor short and rounded, with a ring of hooked, short spiculi, apophyses long; anterior lobe wide with long apophyses. Ostium bursae wide and membranous with only a slightly sclerotized lip. Ductus bursae membranous, proximally dilated. Bursa copulatrix bilobate consisting of a large, more or less rounded sac and an elongate, finely rugulose one with two slightly sclerotized signa.

Specific differences and taxonomic position: this new species was published in different works (see the introduction) as *nigricula* (EVERSMANN, 1847), but the true *nigricula* occurs in the southern part of the Ural Region and — as a distinct, undescribed subspecies — in the Caucasus and E Turkey, while the new species occurs in Central Asia. It is a possibility that *kaszabi* represents only an allopatric subspecies of *nigricula*, but the series of morphological differences, both in the external and genitalic features,



Figs 1—9. 1—6 = *Oncocnemis kaszabi* sp. n., Mongolia; 1—2 = holotype, 3—6 = paratypes (with shape and size of terminal cornutus). 7—9 = *O. nigricula* (EVERSMANN), 7—8 = Uralsk, 9 = Ross. mer.: with the terminal cornutus of the vesica

principally the very different female genitalia showed that *nigricula* and *kaszabi* are two distinct species having an allopatric distribution. The main distinctive characteristics are as follows: the wing pattern of *kaszabi* is much more contrasting than that of *nigricula* (Plate: 2—3), the transversal lines and spots are stronger, well defined with light grey, the well-developed and light claviform of *kaszabi* is reduced in the case of *nigricula*, the inner area of the hind wing is covered with dark scales more intensively in the case of *kaszabi*.



Figs 10—13. 10 = *Ongocnemis mysterica* sp. n., paratype, Mongolia. 11 = *Sympistis funesta* (PAYKULL), Lapponia. 12 = *Ongocnemis kaszabi* sp. n., paratype, Werchne-Udinsk (= Ulaan Ude). 13 = *O. nigricula* (EVERSMANN), Uralsk.

In the configuration of the male genitalia the valvae of *kaszabi* are longer and narrower than those of *nigricula*, the harpe more arcuate with stronger and more pointed tip; the terminal cornutus in vesica is about twice longer and stronger in case of *kaszabi* than in *nigricula* (see Figs 7—9). The female genitalia of the two species are highly different as *kaszabi* has a bilobate bursa copulatrix with signa in one of the two sacs, while *nigricula* (Fig. 13) only a single bursa copulatrix without signa.

#### *Ongocnemis mysterica* sp. n. (Plate: 5—6)

**H o l o t y p e:** male, Mongolia, 102°49' E, 46°12' N, Övörhangay aimak, Mts. Hangayn, Harhorin, 2150 m, 29—30. VII. 1986, leg. FÁBIÁN, HREBLAY, PEREGOVITS and RÓNKAY, slide No. 2008 L. RÓNKAY; deposited in coll. HNHM, Budapest. Paratypes: 6 ♀♀, from same locality and data, the specimens are deposited in the collections of the collectors and in the HNHM, Budapest. Slide No. 2050 L. RÓNKAY (female).

**D e s c r i p t i o n:** alar expanse 33—36 mm, length of fore wing 15—16 mm. Head dark grey with blackish stripe on frons, palpi dark grey with

some whitish hairs; short and slightly upturned. Collar dark grey with a wide blackish grey ribbon and a fine ochreous line at middle, tip of collar whitish grey. Antennae minutely ciliate, dark brown with whitish grey scales and tuft at base. Thorax dark grey mixed with blackish and whitish hairs, medially somewhat darker. Ground colour of fore wing nearly unicolorous bluish grey with some darker irroration. Wing pattern black or blackish, very unusual, antemedial and postmedial lines modified to two sinuous or serrated semi-circular lines more or less, or strongly conjoined to a black bar at place of claviform. Orbicular and reniform spots absent, subterminal line reduced to a more or less complete row of blackish arrowheads, terminal line consisting of small black spots. Inner side of cilia greyish, outer part whitish with some dark spot. Hind wing light ochreous grey, more or less covered with greyish scales, veins darker, marginal field wide, dark brownish grey, cellular lunule absent or very pale. Cilia whitish with brown inner line. Underside of fore wing dark grey with lighter costal and outer margins, upper part of transversal line sometimes well visible, cilia as on upper side. Underside of hind wing white or whitish with some greyish irroration at costal and outer margins, transversal line and cellular lunule pale, small, cilia white with darker inner side.

Male genitalia (Figs 14—15): uncus relatively long and pointed, slender tegumen high, strong. Fultura inferior more or less quadrangular and elongate, vinculum long, V-shaped, strongly pointed. Valvae wide, apically slightly dilated, cucullus wide, apex pointed and finely curved, sacculus narrow, clavus short, nearly conical. Harpe wide-based, long and slender, strongly pointed, apically finely curved, originating from near ventral margin. Aedoeagus moderately long and thick, vesica everted ventrally, wide, elliptical-semiglobular with a small diverticle at distal end of aedoeagus. Main part of vesica densely covered with long and fine peaked cornuti. Terminal cornutus very large, robust with wide base, slightly S-shaped.

Female genitalia (Fig. 10): posterior lobe of ovipositor without strong, hooked spines, apophyses long, anterior lobe with long apophyses. Ostium bursae large, triangular with relatively strong, Y-shaped sclerotization on both surfaces. Ductus bursae short and membranous, apex bursae with two rugulose, elliptical lobes, corpus bursae elongate, finely rugulose with two long, sclerotized signa. Ductus seminalis originating from one of the two apical lobes.

**Specific differences and taxonomic position:** the new species strongly differs from all of the previously mentioned Palearctic relatives by its external and genitalic characters (but a species with somewhat similar colouration and wing pattern, *figurata* (HARVEY, 1875), occurs in the USA, in Colorado and Sierra Nevada.

While studying the Central Asian *Cucullia* species, quite accidentally the description of a very similar species was discovered in STAUDINGER's paper



Figs 14—20. 14—15 = *Oncocnemis mysterica* sp. n., holotype, Mongolia. 16—17 = *Sympistis funesta* (PAYKULL), Lapponia. 18 = *S. heliophila* (PAYKULL), Fennia. 19—20 = *Oncocnemis x-signata* (STAUDINGER), holotype, Apfelgebirge (= Mts. Yablonoviy)

on the fauna of the "Apfelgebirge" (1897). But this species was described as "*Acronicta*" and it was considered as an *Acronicta* even in the Seitz Volumes with some notes only on the dubious relegation of this taxon. Moreover, this species was named as "*x-signata*" while there is a well-known species described as *Oncocnemis x-signata* BOURSIN, 1968, from Afghanistan! The study of the unique type specimen revealed that the STAUDINGER's species should be placed into the genus *Oncocnemis* and that it is closely related to *mysterica*. The further two similar species, *senica* (EVERSMANN, 1856) and *literata* (BREMER, 1864) — should, by the description and the figures also, be considered as members of this genus, but not synonymous with *x-signata* or *mysterica*. Finally, because of the homonymy, a new replacement name must be given to *O. x-signata* BOURSIN, and I propose the name *boursini* **nom. n.** for this species.

*Oncocnemis x-signata* (STAUDINGER, 1897) comb. n. (Plate: 4)

(Iris X: 329, t. 9, f. 24. — *Acronycta*)

**H o l o t y p e:** male, "Apfelgeb., Sibir. or., 96 Dörr.", "*x-signata* STGR." slide No. 2087 L. RONKAY. The specimen is deposited in coll. STAUDINGER, Zoological Museum, Humboldt Univ., Berlin.

**R e d e s c r i p t i o n:** alar expanse 35 mm, length of fore wing 18.5 mm. Head and thorax dark bluish grey, with blackish hairs, frons and collar with a blackish brown stripe. Abdomen lighter grey. Fore wing narrow and elongate, apex slightly pointed. Ground colour of fore wing bluish grey, strongly covered with dark grey and blackish brown scales. Subbasal line reduced to a spot at costa, antemedial line blackish brown, arcuate and slightly sinuous, at place of claviform conjoined with postmedial line forming a strong x-mark. Median area somewhat darker than other fields of wing. Postmedial line more or less obsolescent, serrate, subterminal line represented by some arrowhead-shaped blackish spots. Marginal field with fine blackish lines on veins, terminal line obsolete, cilia white with darker brownish grey inner side and dark spots at veins. Hind wing whitish, strongly covered with cupreous brown, cellular lunule absent, transversal line very pale and diffuse, marginal area wide and relatively dark. Terminal line brown, cilia white with brown inner line. Under-side of fore wing dark greyish brown with lighter grey irroration at costa and apical field, upper part of postmedial line a wide and diffuse stripe, its lower part deleted, cilia as on upper side. Hind wing whitish, finely covered with brown, mostly on veins and in marginal field. Terminal line brown, cilia white with fine brown inner line.

Male genitalia (Figs 19—20): uncus long and narrow, pointed, tegumen wide and high. Fultura inferior rounded with a fine medial crest. Vinculum moderately long, more or less V-shaped. Valvae long and wide, arcuate, cucul-

lus wide, apex pointed. Sacculus short, relatively strong, clavus triangular. Harpe large and strong, wide-based, its apex acute, long, finely arcuate. Aedoeagus thick and long, vesica a broad, curved sac with great number of cornuti of diverse shape and size, terminal cornutus very strong and large.

The two species, *mysterica* and *x-signata*, are very closely related, but they differ in several characteristics: the fore wing of *mysterica* is broader, the ground colour of the wing is lighter with intensive bluish shade. In the configuration of the male genitalia the new species has much shorter and slender uncus, less wide and arcuate valvae, the harpe has a narrower basal part, the fultura inferior is less rounded. The vesica of *mysterica* has a nearly continuous field of cornuti from the distal end of the aedoeagus to the terminal cornutus on the dorsal surface, while in the case of *x-signata* there is a membranous field at the distal end of aedoeagus without spines.

The two species discussed above form — with the two other relatives — a very special group distributed from the Ural Range to Mongolia and E Siberia. This species group represents a very interesting transitional stage between the species of the genera *Oncocnemis* and *Sympistis* HÜBNER (1823), posing the question: are these genera distinct or not? The genus *Sympistis* — which was placed for a long time into the subfamily Heliiothidinae — differs externally considerably from *Oncocnemis* by small, elliptical eyes with well-developed, sclerotized rings and the absence of a strong, claw-like spine on the fore tibia, while the species of the genus *Oncocnemis* have large and rounded eyes and a strong spine on the fore tibia (and the shape of the fore wing is much more elongate and narrower). In the characteristics of the male genitalia the differences are very slight and show a more or less gradational series for every important feature. The species of *Sympistis* usually have a wide, pointed and curved cucullus (Figs 16—18), the valvae becoming wider continuously from base to cucullus; the vesica shorter and more globular with a large terminal cornutus. The species of *Oncocnemis* usually have narrower and less pointed cucullus, the widest part of valvae is at the middle, the vesica longer and more cylindrical, the terminal cornutus much finer (or absent). However, the valvae of *O. campicola* are similar in shape to those of *Sympistis* species with a wide and pointed, slightly upturned cucullus; in the case of *nigricula* and *kaszabi* the terminal cornutus is relatively robust. The species group under consideration — externally with large, rounded eyes and a strong spine on the fore tibia, therefore, assignable to the "true" *Oncocnemis* species — has a very wide and upturned, pointed cucullus, a relatively long but semi-globular vesica with a huge terminal cornutus.

As for the female genitalia, the situation is similar. The species of the genus *Sympistis* have elongate and fine posterior lobe of ovipositor without strong, hooked spines, the ostium bursae is strong, the bursa copulatrix elongate and not bilobate, with two long, weakly sclerotized signa (Fig. 11).

The species of the genus *Oncocnemis* may have either a single or a bilobate bursa copulatrix, but the shape and size of the ostium is very variable, the posterior lobe of ovipositor short with a ring of strong spines (excepting *O. erythropis* BRANDT, 1938). If the bursa copulatrix is single, the signa are absent, but a bilobate bursa has similar signa in one of the sacs. The new species, *mysterica*, possesses an elongate and single bursa copulatrix with signa and fine, elongate posterior lobe of ovipositor; the ostium bursae is large and sclerotized, in these characteristics this species also resembles *Sympistis*! (No female of *x-signata* was available in the material.)

To sum up, with the exception of the claw-like spines of the fore tibiae (very dubious in taxonomic valuation!) and the shape and size of eyes (which may be the result of the adaptation to diurnal flying; see the related pair of the *Hadenine* genera *Anarta* and *Discestra*; VARGA, MIKKOLA, pers. comm.) there are no distinct limits between the genera *Sympistis* and *Oncocnemis*. Moreover, one of the species of *Oncocnemis mysterica* sp. n., has the genitalic configuration of both sexes much more "characteristic" to *Sympistis* than to *Oncocnemis*, while externally it is a modified but well recognizable *Oncocnemis*. Since these genera have a Holarctic distribution and since the majority of the species occur in N America, I desist, before the study of the Nearctic taxa (and related studies on closely akin endemic Nearctic genera), to synonymize them (or downgrade *Oncocnemis* as a subgenus of *Sympistis*). There is no doubt in my mind that they are referable to a common ancestor and the species of *Sympistis* have adapted themselves to the tundral-alpine habitats (and the diurnal flying) with a circumpolar-alpine distribution, while the overwhelming majority of the species of *Oncocnemis* have specialized to inhabit the xeromontane-eremial territories of Asia and N America. It is an interesting fact that in the Mts. Hangayn, Mongolia, three species of *Oncocnemis*: *campicola*, *kaszabi* and *mysterica*, occur sympatrically with a "true" *Sympistis* species: *S. nigrita zetterstedti* (STAUDINGER, 1857) ("var. *sibirica* ALPHÉRAKY, 1895).

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## SOME NEW DERMAPTERA TAXA FROM WEST IRIAN (NEW GUINEA)\*

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Descriptions of *Anisolabis diana* sp. n., *Auchenomus blumi* sp. n., *A. kaszabi* sp. n., and *A. fragilis* sp. n., *Spinocordax excelsior* gen. et sp. n. from West Irian (New Guinea).

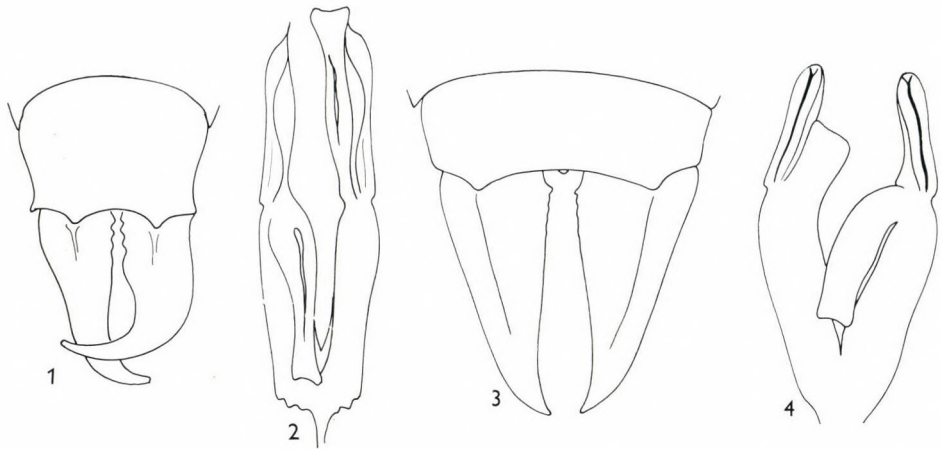
By the kind mediation of DR. PAUL BLUM (Freiburg, GFR) I received for elaboration a Dermaptera material from West Irian ("Das interdisziplinäre West-Irian Projekt"), New Guinea. The highly interesting material consisted of 7 known species (Pygidicranidae: *Tagalina semperi* DOHRN, 1863, *T. hincksi* BRINDLE, 1975. — Labiduridae: *Labidura riparia* (PALLAS, 1773). — Labiidae: *Spongovostox doddi* (BURR, 1914), *Auchenomus proprius* STEINMANN, 1984. — Forficulidae: *Cosmiola simplex* BEY-BIENKO, 1959, and *Hypurgus fulvus* BURR, 1911), as well as some new species.

### CARCINOPHORIDAE

#### *Anisolabis diana* sp. n.

Male shining, dark reddish-brown; head and pronotum reddish-black, but pronotum with yellowish margins laterally; antennae brown, unicolorous; forceps dark red. Head transverse; postfrontal and coronal sutures distinct. Eyes relatively long, but shorter than length of head behind eyes. First antennal joint well developed, about as long as the distance between antennal bases; second joint quadrate, third longer than fourth. Pronotum quadrate, about as long as wide, lateral margins more or less straight, but a little expanded posteriorly; median longitudinal furrow present; posterior angles rounded, last margin faintly convex. Cuticle of pronotum almost smooth, but with a slightly irregular coriaceous portion posteriorly. Tegmina and wings entirely absent. Meso- and metanotum partially punctured. Abdomen weakly widened and depressed; tergites strongly and closely punctured; tergites 6–8

\* This paper is dedicated to the memory of ZOLTÁN KASZAB



Figs 1—4. 1 = Male ultimate tergite with forceps of *Anisolabis diana* sp. n., and 2 = male genitalia. — 3 = Male ultimate tergite with forceps of *A. baloghi* STEINMANN, 1979, and 4 = male genitalia

not rugose laterally, but each with a short lateral longitudinal ridge on each side. Ultimate tergite transverse, almost impunctate, with a faint median longitudinal sulcus. Forceps (Fig. 1) with branches trigonal at base, cylindrical distally; inner margin with a larger crenulation basally, branches not widely separated, but strongly asymmetrical. Penultimate sternite simple, broadly rounded apically; cuticle finely and closely punctured at base, distal part with very weak and shallow punctures and striations. Genitalia (Fig. 2) characteristic; central parameral plate well developed, broad, strongly narrowed basally; median incision deep and wide. Genital lobes fully developed, with narrow sclerotized sclerites. External parameres elongate with acuminate apices.

Length of body with forceps: 12 mm.

Female unknown.

**H o l o t y p e** male: New Guinea, West Irian, Jaya, Eipomek Valley, 1800 m, VI. 1979, gen. prep. No. 1012, det. DR. H. STEINMANN; deposited in the Coll. P. BLUM, Freiburg, GFR.

Its nearest ally is *Anisolabis baloghi* STEINMANN, 1979, with the following differences:

	<b>diana</b> sp. n.	<b>baloghi</b> STEINMANN
1. Male forceps	asymmetrical (Fig. 1)	more or less symmetrical (Fig. 3)
2. Branches of forceps	trigonal only basally	trigonal basally and medially
3. Apex of external paramere	acuminate (Fig. 2)	broadly rounded (Fig. 4)
4. External parameres	without sclerotized sclerite	with sclerotized sclerite
5. Genital lobes	with sclerotized sclerite	without sclerotized sclerite.

## LABIIDAE

*Auchenomus* KARSCH, 1886

Berl. ent. Z., 30: 89

Long or sometimes very long, strongly depressed and narrow species. General colour brownish yellow or yellowish-red. Head flattened, postfrontal and coronal sutures well marked. Eyes comparatively small, more or less shorter than length of head behind eyes. Antennae multisegmented. Pronotum characteristic, either longer or shorter; antero-lateral angles with a pair of long piliform spines. Tegmina and wings normal or well developed. Abdomen elongate, depressed; glandular folds on tergites 3—4 present, but generally small. Male forceps various, more or less symmetrical, female forceps contiguous, tapering.

Distribution: Malagasy, Oriental and Indo-Australian Regions.

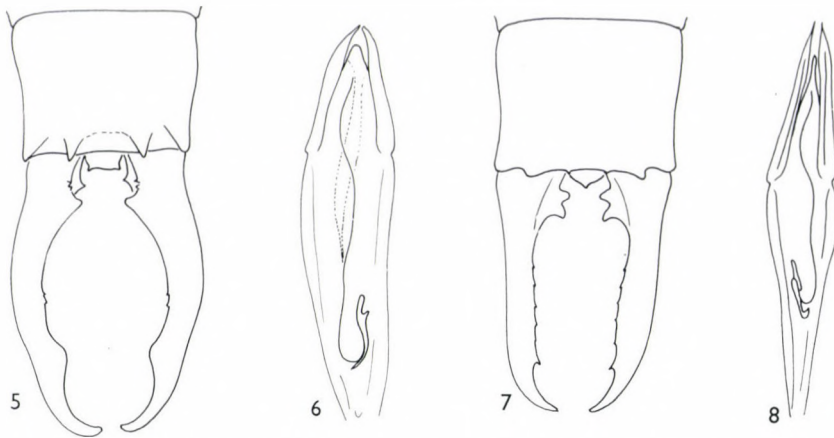
**Identification key to the Indo-Australian species**

- 1 (2) Pygidium large, broad, and bifurcate, strongly flattened; posterior margin with two specific tubercles. Male genitalia with comparatively large external parameres; virga within genital lobe of the male genitalia with characteristic basal section. Australian species **bifureus** STEINMANN, 1984
- 2 (1) Pygidium smaller or hidden. Not Australian species.
- 3 (12) Posterior margin of ultimate tergite with paired smaller or larger dentiform tubercles; directed backwards.
- 4 (5) Posterior margin of male ultimate tergite with two tubercles; forceps simple, inner margins with bifid denticles basally. Male genitalia comparatively wide, virga within genital lobe with specific basal section **javanus** (BORMANS, 1883)
- 5 (4) Posterior margin of male ultimate tergite with four or six tubercles.
- 6 (11) Posterior margin of male ultimate tergite with four tubercles. Male forceps with or without denticles on inner margins.
- 7 (10) Branches of male forceps with paired, characteristic denticles on inner margins.
- 8 (9) Branches of male forceps very long and slender; inner margins ornamented by a larger, paired basal, and smaller, unpaired medial and apical denticles; basal paired denticles with broadly rounded apices. Central paramere of male genitalia very long, but narrowed medially; external parameres comparatively short **rapidus** STEINMANN, 1984
- 9 (8) Branches of male forceps comparatively stout; inner margins ornamented by a sharp, paired basal, and a large, obtuse apical denticles (Fig. 5). Central paramere of male genitalia (Fig. 6) normally developed, slightly narrowed basally; external parameres moderately long; virga with a specific sclerotized plate basally **blumi** sp. n.
- 10 (7) Branches of male forceps without denticles on inner margins. Male genitalia unknown. Female forceps very similar to those of male, but inner margins serrated **pandani** HINCKS, 1960
- 11 (6) Posterior margin of male ultimate tergite with six tubercles; forceps characteristic, inner margins with similar, longer or shorter, dentiform denticles **elongatulus** BRINDLE, 1970
- 12 (3) Posterior margin of ultimate tergite without paired dentiform tubercles.
- 13 (24) Pronotum slightly longer than broad.
- 14 (15) Posterior margin of pygidium straight. Male forceps simple, with a larger tooth basally, and a smaller one medially **insularis** BRINDLE, 1976

- 15 (14) Posterior margin of pygidium more or less concave.  
 16 (23) Branches of male forceps with double basal denticles on inner margins.  
 17 (20) Basal denticles of male forceps larger; branches depressed, oval in cross-section.  
 18 (19) Branches of male forceps regularly narrowed apically; inner margins with a single, obtuse, blunt tooth at distal portion. Male genitalia with comparatively short central parameral plate; external parameres normally developed, not elongated; sclerotized plate moderately large, virga short **forcipatus** RAMAMURTHI, 1967  
 19 (18) Branches of male forceps (Fig. 7) with a parallel section medially; inner margins ornamented by a sharp distal tooth. Male genitalia (Fig. 8) elongated, central parameral plate strongly narrowed basally; external parameres fully developed, elongated; sclerotized plate moderately small, virga long **kaszabi** sp. n.  
 20 (17) Basal denticles of male forceps smaller; branches cylindrical in cross-section.  
 21 (22) Male pygidium comparatively large, posterior margin concave. Branches of male forceps with a smaller apical tooth. Male genitalia moderately small, central parameral plate short and oval; virga short; external parameres normally developed **heros** STEINMANN, 1984  
 22 (21) Male pygidium comparatively small, posterior margin undulate. Branches of male forceps with a very large median denticle (Fig. 9). Male genitalia (Fig. 10) fully developed, slender, central parameral plate long and narrow; virga within genital lobe very long, slender; external parameres characteristic, as in Fig. 10 **fragilis** sp. n.  
 23 (16) Branches of male forceps with a single basal denticle (Fig. 11), inner margins crenulate medially, and apically. Male genitalia (Fig. 12) comparatively narrow, virga within genital lobe long, basal vesicle specific, as in Fig. 12 **proprius** STEINMANN, 1984  
 24 (13) Pronotum relatively short, about as long as wide, not of *Auchenomus*-type.  
 25 (26) Inner ventral margin of male forceps with a longitudinal ridge; ventral part of female pygidium strongly projecting **variabilis egoloensis** BRINDLE, 1970  
 26 (25) Inner ventral margin of male forceps with a tooth at about mid-point; female pygidium with ventral part less projecting.  
 27 (28) Basal part of male forceps not produced into a large inner tooth; ventral part of female pygidium not visible **variabilis variabilis** BRINDLE, 1970  
 28 (27) Basal part of male forceps with a large inner tooth; ventral part of female pygidium projecting **variabilis guadalcanalensis** BRINDLE, 1970

### *Auchenomus blumi* sp. n.

Male long and slender. General colour yellowish-brown, except wings and anterior abdominal tergites, brown. Cuticle shining and smooth. Head depressed, large; postfrontal and coronal sutures faintly marked. Eyes very small, essentially shorter than length of head behind eyes. Antennae broken in holotype; first joint well developed, long, about as long as distance between antennal bases. Pronotum of *Auchenomus*-type, lateral margins undulate, a little narrowed anteriorly; posterior angles and margin broadly rounded. Median longitudinal furrow present. Tegmina and wings well developed. Abdomen slender, strongly depressed, a little expanded to last tergite. Ultimate tergite simple, smooth, but posterior margin with two pairs of spines. Pygidium transverse, posterior angles with a small tubercle. Branches of forceps (Fig. 5) very long, symmetrical, depressed basally, faintly trigonal medially and cylindrical apically. Inner margin with larger dorsal denticle basally, and a sharp ventral tooth near pygidium. Branches ornamented by two smaller teeth medially, and a large, blunt, obtuse tooth apically. Genitalia (Fig. 6) well developed; central parameral plate broad, but a little narrowed basally;



Figs 5—8. 5 = Male ultimate tergite with forceps of *Auchenomus blumi* sp. n., and 6 = male genitalia. — 7 = Male ultimate tergite with forceps of *A. kaszabi* sp. n., and 8 = male genitalia

virga within genital lobe very long, with a characteristic, strongly sclerotized plate basally. External parameres moderately long, with acuminate apices. Length of body with forceps: 13 mm.

Female unknown.

**H o l o t y p e** male: New Guinea, West Irian, Mt. Hagen, IV. 1975, leg. P. BLUM, Freiburg, gen. prep. No. 1032, det. DR. H. STEINMANN; deposited in the Coll. P. BLUM, Freiburg, GFR.

#### ***Auchenomus kaszabi* sp. n.**

Male long and slender, body depressed. Bicolour species: First antennal joint, head, pronotum, legs and anterior portion of tegmina yellow, antennal joints (except scape), posterior portion of tegmina, wings and abdomen with forceps dark brown combined with brownish-black or brownish-red. Head strongly flattened, broad, smooth. Eyes very small, considerably shorter than length of head behind eyes. Antennae broken in holotype. First joint well developed, about as long as distance between antennal bases; second quadrate, third a little shorter than fourth. Lateral margins of head narrowed posteriorly, postero-lateral angles broadly rounded. Pronotum of *Auchenomus*-type, lateral margins strongly narrowed anteriorly, more or less parallel medially, and slightly narrowed posteriorly; posterior margin transverse, straight; median longitudinal furrow present. Tegmina and wings normally developed. Abdomen slender and long, ultimate tergite simple. Branches of forceps (Fig. 7) comparatively short; strongly trigonal in cross-section basally, faintly depressed medially, and cylindrical apically. Inner margin of branch with a large, bifid basal tooth or denticle. Anterior spine of denticle directed ventrally,

posterior one dorsally. Median portion of forceps more or less parallel, inner margin of parallel portion ornamented by smaller or larger teeth. Genitalia (Fig. 8) characteristic; central parameral plate elongate, strongly narrowed basally; virga within genital lobe very long and narrow, with a specific and strongly sclerotized basal vesicle. External parameres fully developed, narrow, slender with acuminate apices.

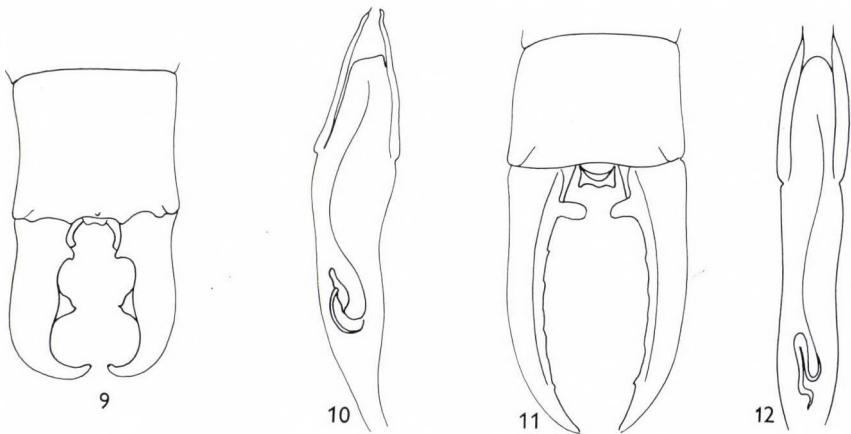
Length of body with forceps: 12 mm.

Female unknown.

**H o l o t y p e** male: New Guinea, Irian, Jaya, Bime-Tal, Calap, V. 1975, leg. P. BLUM, gen. prep. No. 1034, det. DR. H. STEINMANN; deposited in the Coll. P. BLUM, Freiburg, GFR.

### *Auchenomus fragilis* sp. n.

Male body depressed. Head, first antennal joint, pronotum and legs yellowish, tegmina, and medial abdominal tergites reddish, wings, anterior and posterior abdominal tergites with forceps brownish-black. Cuticle shining and smooth. Head strongly flattened, lateral margins behind eyes narrowed posteriorly, last angles broadly rounded. Eyes small, essentially shorter than length of head behind eyes. Antennae broken in holotype; first joint about as long as distance between antennal bases; second transverse. Pronotum of *Auchenomus*-type, lateral margins strongly narrowed anteriorly, median portion parallel, and posterior part broadly rounded. Median longitudinal furrow present. Tegmina and wings normally developed. Abdomen flattened, simple, a little expanded posteriorly. Ultimate tergite large, with a faint median longitudinal sulcus. Pygidium small. Branches of forceps (Fig. 9) compara-



Figs 9—12. 9 = Male ultimate tergite with forceps of *Auchenomus fragilis* sp. n., and 10 = male genitalia. — 11 = Male ultimate tergite with forceps of *A. proprius* STEINMANN, 1984, and 12 = male genitalia



tively short, specific; depressed basally and medially, more or less cylindrical apically. Inner margin with a well-developed, bifid basal denticle median portion ornamented by a large, trigonal tooth, directed ventrally. Genitalia (Fig. 10) fully developed, slender; central parameral plate long and narrow, expanded anteriorly; virga within genital lobe very long, slender with a characteristic, and strongly sclerotized basal vesicle. External parameres specific, very narrow, as in Fig. 10.

Length of body with forceps: 14 mm.

Female unknown.

**H o l o t y p e** male: New Guinea, Irian, Jaya, Eipomek-Tal, Munggona, IV. 1976, leg. P. BLUM, gen. prep. No. 1033, det. DR. H. STEINMANN: deposited in the Coll. P. BLUM, Freiburg, GFR.

#### *Auchenomus proprius* STEINMANN, 1984

*Auchenomus proprius* STEINMANN, 1984, Acta zool. hung., **30**: 518.

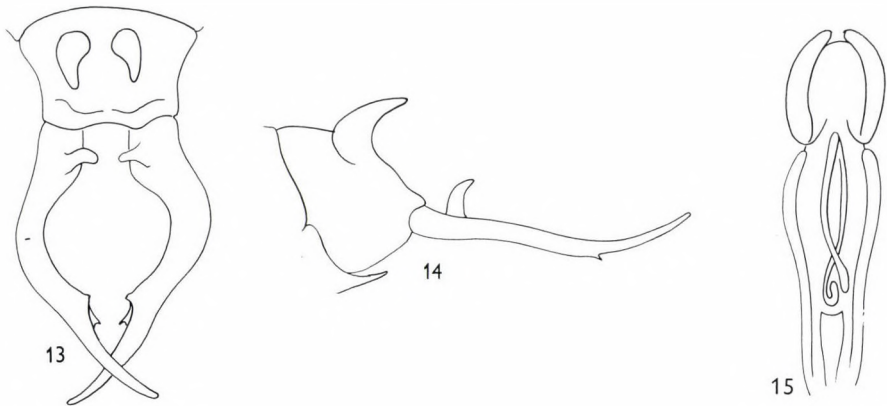
Male ultimate tergite depressed, smooth, shining; posterior margin a little convex medially. Pygidium comparatively large, with rounded dorsal and angular ventral portions. Branches of forceps (Fig. 11) symmetrical (left branch of the examined specimen is undeveloped); inner margin ornamented by a large, blunt, conspicuous projection. Genitalia (Fig. 12, gen. prep. No. 806, det. DR. H. STEINMANN) comparatively narrow, external parameres fully developed; virga within genital lobe very long with specific basal section.

**M a t e r i a l e x a m i n e d**: New Guinea, Irian, Jaya, Eipomek-Tal, 1800 m, VI. 1979, leg. P. BLUM, male.

### FORFICULIDAE

#### Identification key to the New Guinean genera

- 1 (6) Ultimate tergite of male transverse trapezoid, rather depressed, not strongly sloping; male forceps widely separated at base.
- 2 (3) Pronotum much longer than broad, and broadly rounded posteriorly. Neotropical, Oriental, and Indo-Australian species **Opisthocosmia** DÖHRN, 1865
- 3 (2) Pronotum transverse or subquadrate, more or less as long as wide, sometimes faintly longer than broad.
- 4 (5) First tarsal joint slender, considerably longer than second and third together; pronotum concave anteriorly; metasternal lobe short, transverse, rectangular; sides of abdominal tergites simple or with smaller recurved angles. Widely distributed in the African, Malagasy, Oriental and Indo-Australian faunal regions **Hypurgus** BURR, 1907
- 5 (4) First tarsal joint about equal with the third. External parameres of male genitalia with visibly widened median sections; genital lobe at rest projecting beyond base of external parameres, when erected approaching or considerably projecting beyond apices of external parameres. Distributed in the Oriental Region, and Papua New Guinea **Paratimomenus** STEINMANN, 1974
- 6 (1) Ultimate tergite of male narrowing and sloping to about half abdominal width; forceps subcontiguous.



Figs 13—15. Male ultimate tergite with forceps of *Spinosocordax excelsior* sp. n., 14 = ditto, laterally, and 15 = male genitalia

- 7 (8) First tarsal joint long and slender; pronotum about as long as wide, truncate anteriorly and generally rounded posteriorly. Oriental and Indo-Australian species  
**Eparchus** BURR, 1907
- 8 (7) First tarsal joint about equal in length to the third.
- 9 (10) Pronotum without lateral spines at anterior angles. African and Oriental species  
**Cordax** BURR, 1910
- 10 (9) Pronotum ornamented by a pair of sharp and conspicuous lateral spines at anterior angles.
- 11 (12) Male ultimate tergite simple, without paired, sharp and strongly curved spiniform denticles medially. Distributed in New Guinea and Bismarck Archipelago  
**Acanthocordax** GÜNTHER, 1929
- 12 (11) Male ultimate tergite characteristic, with paired sharp and strongly curved spiniform denticles medially. New Guinean species  
**Spinosocordax** gen. n.

### **Spinosocordax** gen. n.

Body slender, elongated, very similar in external characters to *Acanthocordax* GÜNTHER. Head large, broader than pronotum. Eyes normally developed. First antennal joint very long, about twice as long as distance between antennal bases. Pronotum of *Acanthocordax*-type; narrow, small, with a sharp and acuminate anterior tooth laterally. Tegmina and wings well developed. Abdomen elongated, slender; ultimate tergite characteristic, with two very large, tusk-like spines, directed backwards (Fig. 14). Male forceps a little undulate in lateral view, branches armed with a pair of large dorsal tooth basally, a very small inner, and a larger ventral tooth apically (Fig. 13).

Type-species: *Spinosocordax excelsior* sp. n.

### **Spinosocordax excelsior** sp. n.

Male general colour dark brownish-black; vertex reddish, basal part of femora dark brown. Head large, broad, frons tumid, postfrontal and coronal sutures distinct; posterior margin of head concave in the middle. Eyes pro-

minent, normally developed, shorter than the length of head behind eyes. First antennal joint very long, about twice as long as the distance between antennal bases; second joint quadratic (rest missing in holotype). Pronotum of *Acanthocordax*-type; narrower than head; lateral margins more or less straight, faintly narrowed posteriorly; disc much longer than broad; anterior angles with a sharp, acuminate tooth; posterior margin rounded; median longitudinal furrow present. Tegmina and wings fully developed. Legs very long, slender, medial tarsomere with comparatively small lobe. Abdomen elongate; lateral glandular folds on tergites 3—4 distinct. Ultimate tergite conspicuous (Figs 13—14), dorsal surface with two sharp, large spines directed backwards. Penultimate sternite broadly rounded posteriorly. Each branch of forceps somewhat resembling the *Anechura*-type, depressed basally, cylindrical medially and apically; branches with a sharp and large dorsal tooth basally, latter directed upwards; median section of branches strongly curved, apical portion with a sharp dorsal and an acuminate ventral tooth. Genitalia (Fig. 15) characteristic; central parameral plate comparatively narrow and small, virga within genital lobe of median size, with an unpaired sclerotized plate; external parameres moderately large, rounded apically.

Length of body with forceps: 14—15 mm.

Female unknown.

**Holotype** male: New Guinea, Irian, Jaya, Eipomok-Valley, 1800 m, VI. 1979, leg. P. BLUM, gen. prep. No. 1008, det. DR. H. STEINMANN; deposited in the Coll. P. BLUM, Freiburg, GFR. — **Paratype** male: ditto, gen. prep. No. 1009, det. DR. H. STEINMANN; deposited in the Hungarian Natural History Museum, Budapest, 1 ex.

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TWO NEW NOTOPLOCAPTERA SPECIES  
(HETEROPTERA, ARADIDAE)\* \*\*

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(Received 6 March, 1987)

*Notoplocaptera kaszabi* sp. n. (Vietnam) and *N. draco* sp. n. (Borneo) are described. With 11 figures.

**Notoplocaptera kaszabi** sp. n. (Figs 1-5)

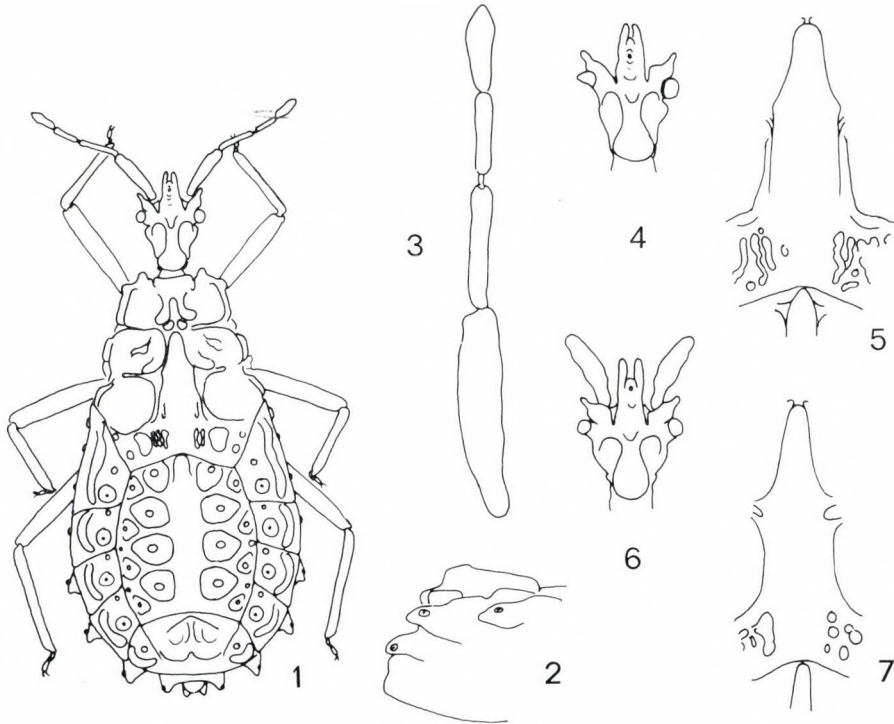
Female, apterous, under greyish incrustation shiny blackish brown, dorsal side with scattered, mostly curled hairs being about as long as diameter of antennal joint 2.

Head long, 1.5 times as long as wide across eyes. Genae long, much surpassing clypeus, slightly bent inwards, reaching about 2/5 of antennal joint 1. Antenniferous tubercles strong with dentiform apex, tip slightly surpassing the protruding small tubercle of clypeus. Antennae long, relative length of antennal joints 1 to 4 as 39 : 24 : 19 : 18. Vertex with a median, longitudinal, irregularly rugose ridge broadening posteriorly. Eyes much protruding, in fact stylate. Postocular, flattened, blunt tubercle obvious.

Thoracal segments fused in the way characteristic of the genus but hind part of the median ridge is not delimited by continuous furrows. Pronotum with lateral bulbous lobes anteriorly surpassing collar, lateral borders parallel. Median part posteriorly in more than half of its length separated by a deep, narrow, longitudinal furrow, hind border medially with two black spherical tubercles. Median shiny, continuous ridge reaching from mesonotum to tergites 1 + 2, lateral borders anteriorly subparallel, then widening at the border of meso- and metanotum, on metanotum wider, subparallel, with two shallow longitudinal depressions, on fused abdominal tergites median, flat part narrower, laterally bordered by longitudinal depressions. Lateral portion of pro- and mesonotum with flattened median and irregularly rugose, bulbous lateral part, metanotum is irregularly rugose mediolaterally and more or less longitudinally rugose laterally. Lateral border of thoracal segments marked by

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

\*\* Hungarian zoological studies in Vietnam, No. 7.



Figs 1—7. 1—5 = *Notoplocyptera kaszabi* sp. n., 6—7 = *N. sternalis* VÁS., 1 = habitus, 2 = tip of abdomen, lateral view, 3 = antenna, 4 = teratological head of paratype, 5, 7 = median ridge of thorax, 6 = head

flattened carina, shortest on pronotum, increasingly long on meta- and mesonotum, its margin straight. Laterotergites continuous to tergite 3. Tergal disc even, median ridge slightly emerged. Apodemal impressions clearly depressed, punctuate marginally, central opaque (hexagonally sculptured) areas somewhat elevated. Median ridge delimited on both sides by a strip of uneven punctuation in the whole length. Laterotergites with emerging, longitudinal, slightly bent tubercles laterally to apodemal impressions. Tip of abdomen as in Figs 1, 2.

All spiracles on tubercles, 2—4 apical, 5—8 preapical. Spiracles 2—4 ventral, not visible from above, tubercle of spiracles 2—4 is not or slightly visible.

Legs long, femora and tibiae cylindrical, latter not or very slightly bent inwards apically.

The head of the paratype female is teratological (Fig. 4), i.e. postocular tubercle is not protruding laterally on left side and the eye is conical. The right side of the head is, however, similar to that of the holotype.

Measurements: total length of body 8.46 mm, length of head 1.74 mm, width of head across eyes 1.13 mm, length of antenna 2.4 mm, length of

pronotum 0.84 mm, width of pronotum between lateral borders 1.63 mm, width of mesonotum 2.32 mm, width of metanotum 2.8 mm, maximum width of abdomen across tubercles 5 3.72 mm, length of median ridge of thorax 2.03 mm, length of tergal disc 2.53 mm.

*H o l o t y p e* female, and paratype, female: Vietnam, Cuc Phuong, 400 m, 17. X. 1986, No. 66. leg. T. VÁSÁRHELYI. Deposited in the Hungarian Natural History Museum, Budapest.

The specimens were singled from under bark of a large, decaying tree lying across a small brook in the Cuc Phuong National Park. Practically the whole bark and debris of the trunk and also of the neighbouring smaller trunks and branches were removed for further specimens, especially for males, without result. It is interesting to note that so far only *N. malaisei* (DRAKE, 1956) is known in both sexes in this genus of 8 species. The new species, which is very closely related to *N. sternalis* (VÁSÁRHELYI, 1976) might represent its female sex, but some attributes are unprobable to be of sexual origin. Thus, e.g. anterior process of head is longer in *sternalis*, or the antenniferous tubercles are longer in *kaszabi* (Figs 1, 4, 6). There is difference in the shape of the median ridge of the thorax, especially posteriorly (Figs 5, 7). All the spiracles of *sternalis* are clearly visible from above, while spiracles 2—4 are not visible in *kaszabi*.

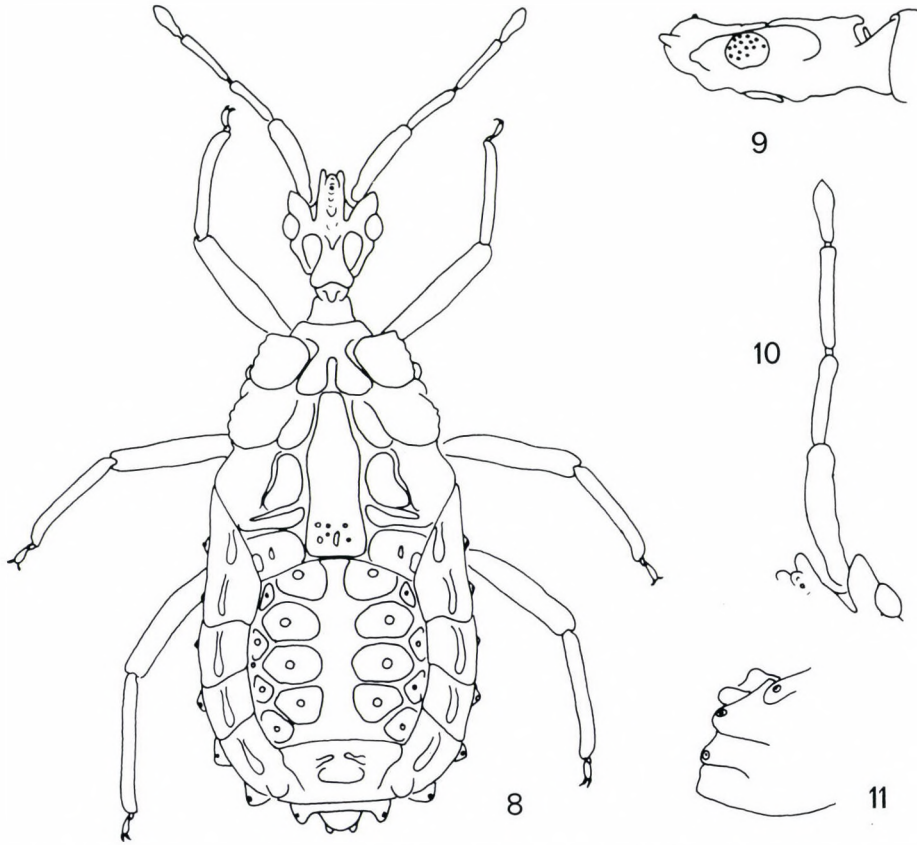
The new species is dedicated to DR. ZOLTÁN KASZAB (1915—1986) former director-general of the Hungarian Natural History Museum, highly reputed coleopterist.

### ***Notoplocaptera draco* sp. n. (Figs 8—11)**

Female, apterous, under incrustation shiny auburn.

Head long, 1.7 times as long as wide across eyes. Genae slightly surpassing clypeus, reaching about 1/3 of antennal joint 1, slightly diverging anteriorly. Antenniferous tubercles strong, conical, tip reaching protruding small tubercle of clypeus. Antennae long, relative length of antennal joints 1 to 4 as 35 : 22 : 26 : 17. Vertex with a median longitudinal ridge broadening posteriorly. Posteriorly on this ridge a short dentiform, longitudinal tubercle reaching above the subvertical tubercle of the flattened hind portion of the head (best seen on Fig. 9). Eyes lentiform, not much protruding.

Thoracal segments fused in the characteristic way of the genus. Pronotum with a collar much surpassing lateral lobes anteriorly, median part in posterior half separated by a deep narrow furrow. Median shiny continuous ridge reaching from mesonotum to tergites 1 + 2, posterior part with a few depressions but all around bordered by a deep, narrow furrow. Lateral part of



Figs 8—11. *Notoplocaptera draco* sp. n., 8 = habitus, 9 = head, lateral view, 10 = antenna, 11 = tip of abdomen, lateral view

pro-, meso- and metanotum consisting of two portions, mediolaterally of a flattened, shiny, tri- or quadrangular area and laterally of a more elevated, roughly rugose bulbous part. Lateral margin dentate. Tergites 1 and 2 represented by two transversal shiny areas, latter with two depressions posterolaterally. Laterotergites continuous to segment 3. Tergal disc even, median ridge slightly emerged. Apodemal impressions clearly depressed, punctate marginally, shiny, only central, rounded part (with hexagonal structure) somewhat opaque. Median ridge anteriorly much narrower than posterior width of thoracal ridge. Laterotergites with distinct, longitudinal, bent tubercle laterally bordering apodemal impressions. Tip of abdomen as in Figs 8, 11.

All spiracles visible from above, spiracles 2—4 situated apically on smaller (especially 3—4) tubercles, 5—8 preapical on increasingly protruding and strong tubercles.

Legs long, femora subcylindrical, tibiae cylindrical, bent inwards in apical 3/5.



Measurements: total length of body 5.16 mm, length of head 1.18 mm, width of head across eyes 0.71 mm, length of antenna 1.99 mm, length of pronotum 0.53 mm, width of pronotum across carinae 1.18 mm, width of mesonotum 1.63 mm, width of metanotum 1.88 mm, maximum width of abdomen 2.16 mm, length of median ridge of thorax 1.28 mm, length of tergal disc 1.44 mm.

H o l o t y p e female: Borneo, Sabah, Sandakan, 3. V. 1982. leg. B. HAUSER, Sab-82/27. Deposited in the Muséum d'Histoire Naturelle, Genève.

The specimen was collected with a Winkler apparatus from decaying debris of the forest.

The new species runs in my key (VÁSÁRHELYI, 1985) to *N. mystica* KORMILEY, 1968 (neck = collar reaching far beyond lateral lobes of pronotum) but differs from it e.g. in the following: length and shape of head are different, thoracal ridge anteriorly pointed, posteriorly as wide as anterior margin of abdominal ridge in *mystica*, antennal joint 1 is shorter in *mystica*.

I express here my sincere gratitude to DR. B. HAUSER for providing a small but interesting material of his own collectings in Borneo.

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NEUE GLOSSODRILUS ARTEN AUS EKUADOR  
(OLIGOCHAETA, GLOSSOSCOLECIDAE)\*  
REGENWÜRMER AUS SÜDAMERIKA 4.

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(Eingegangen am: 18. März, 1987)

From the genus *Glossodrilus* COGNETTI, 1905 three species new for science are described, found in Ecuador: *G. kaszabi* sp. n., *G. landeszi* sp. n., and *G. baloghi* sp. n.

Im vorliegenden Aufsatz soll ein Teil der 1986 von uns in Ekuador gesammelten Regenwürmer bekanntgegeben werden. Da die Vertreter der Gattung *Glossodrilus* in Ekuador der Größe und Form nach eine einheitliche Gruppe bilden und so leicht zu separieren waren, wurde die Bearbeitung der Arten dieser Gattung vorgenommen.

Der taxonomischen Bekanntmachung vorausgehend sei erwähnt, daß auch in der Lebensweise dieser Arten eine gewisse Ähnlichkeit besteht insofern diese Tiere größtenteils in sehr bindigen Böden in einer Tiefe von 15–25 cm vorkommen, meistens nur beim zweiten Spatenstich erfaßt werden konnten. Mit der Formolmethode ließen sich diese Tiere nicht aus dem Boden treiben. Es ist eventuell den Schwierigkeiten beim Sammeln zuzuschreiben, daß bisher nur so wenige Arten im Andengebiet gefangen werden konnten.

Gattung *Glossodrilus* COGNETTI, 1905

emend. RIGHI, 1975, 1982

*Glossodrilus* COGNETTI, 1905: 5, 1906: 237; *Glossoscolex* part MICHAELSEN, 1918: 256. *Andioscolex* MICHAELSEN, 1927: 373; *Glossodrilus* (*Tonperoge*) RIGHI & AYRES, 1975: 313; *Glossodrilus* RIGHI, 1975: 86, 1982: 63.

RIGHI (1975) erwies, daß *Andioscolex* MICHAELSEN, 1927 ein subjektives Synonym von *Glossodrilus* ist. Bei der Revision der Gattung wird auch ein Bestimmungsschlüssel der bisher bekanntgewordenen Arten angeführt (RIGHI, 1970, 1982). Seither ist ein Zurechtfinden in dieser Gattung, die über 31 Arten und Unterarten verfügt, verhältnismäßig vereinfacht worden. Den bisherigen Angaben nach sind aus dem Andengebiet bisher 8 Taxa beschrieben worden,

\* This paper is dedicated to the memory of ZOLTÁN KASZAB

die leider z. T. aufgrund eines einzigen Exemplares, wie die Arten aus Ekuador [*G. perrieri perrieri* (COGNETTI, 1904), *G. excelsus* (COGNETTI, 1904) und *G. schuetti* (MICHAELSEN, 1918)] oder anhand von schlecht erhaltenem Material [*G. hondaensis* (MICHAELSEN, 1900)] beschrieben wurden. Aber auch von den anderen aus dem Andengebiet beschriebenen Arten [*G. paoletti* RIGHI, 1984, *G. marabora* RIGHI, 1984 und *G. geayi* (ČERNOSVITOV, 1935)] liegen nicht mehr als zwei Exemplare vor. Zweifelsohne erschwert dieser Umstand das Einreihen der neuen Arten.

**Gattungsdiagnose:** Borsten in 8 Längslinien. Männliche Poren intraclitellar. Ein Paar Chylustaschen, Kompositenschlauchtaschen, im 11. Segment. Geschlechtsapparat metandrisch, metagn. Samentaschen vorhanden, Kopulationstaschen fehlen.

Typus Art: *Glossodrilus parvus* COGNETTI, 1905.

#### BESCHREIBUNG DER ARTEN

##### *Glossodrilus kaszabi* sp. n.

Länge des Holotypus: 60 mm, Breite 1 mm, Segmentzahl 154. Bei den übrigen Exemplaren Länge: 55—75 mm, Breite 0,9—1,1 mm, Segmentzahl: 134—176.

Farbe: Pigmentlos, weiß.

Kopflappen eingezogen. Segmente vor und hinter dem Gürtel nicht geringelt. Borsten zart, eng gepaart. Borstendistanz hinter dem Gürtel  $aa : ab : bc : cd : dd = 20 : 2 : 15 : 20 : 30$ . Borsten *ab* des 9.—15. Segmentes auf winzigen Drüsenpapillen angeordnet. Weibliche Poren auf dem 14. Segment, winzig kleine Öffnungen zwischen den Borsten *aa*. Männliche Poren auf Intersegmentalfurche 16/17, ebenfalls sehr kleine Öffnungen auf dem Pubertätsfeld.

Gürtel vom 15.—21. Segment, bei einem Exemplar auch bis 1/4 22. Pubertätsfeld bandförmig gestreckt vom 16., 1/2 16.—18. Segment (Abb. 1A).

Samentaschenporen 1 Paar auf Intersegmentalfurche 8/9, in Höhe der Borstenlinie *cd*.

Innere Organisation: Dissepimente 6/7—10/11 zart, nicht verdickt. Großer Muskelmagen im 6. Segment. Lateralherzen im 7.—9. Segment, Intestinalherzen im 10. und 11. Segment. Chylustaschen (Kompositenschlauchtaschen) entspringen beiderseits auf einem kleinen Stiel im 11. Segment und reichen bis ins 12. Segment. Sie sind länglich gestreckte Gebilde, am Ende etwas zugespitzt. Ein Blutgefäß tritt vorne in jede Chylustasche ein und löst sich zwischen den Chylusschläuchen verlaufend in dünne Gefäße auf. Am hinteren, zugespitzten Ende der Chylustasche, im 12. Segment tritt ein wieder nach vorne gerichtetes Blutgefäß aus den Chylustaschen aus.

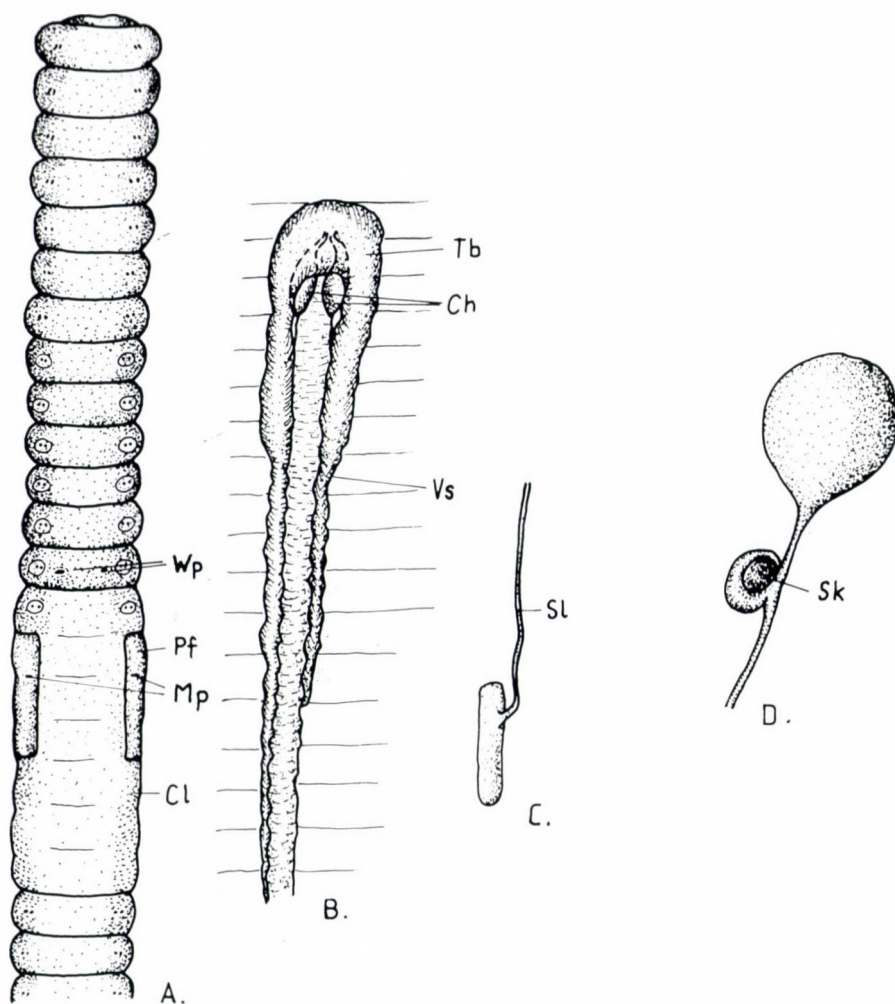


Abb. 1. *Glossodrilus kaszabi* sp. n. — A = Ventralansicht (*Wp* = Weibliche Poren, *Mp* = Männliche Poren, *Pf* = Pubertättsfeld, *Cl* = Clitellum) — B = Männlicher Geschlechtsapparat (*Tb* = Testikelblase, *Ch* = Chylustaschen, *Vs* = Samensäcke) — C = Samenleiter (*Sl*) — D = Samentasche (*A* = Ampulle, *Sk* = Samenkammerchen)

Die Herzen des 10. und 11. Segmentes sowie die Chylustaschen des 11. Segmentes sind von einer unpaarigen, dorsomedial liegenden, mächtigen Testikelblase umgeben, die lateral und ventral die Hoden und Samentrichter einschließen. Aus den Testikelblasen gehen lateral beiderseits langgestreckte Samensäcke hervor, die verschieden weit nach hinten reichen (16.—19., 24.—26., oder 14.—30. Segment) (Abb. 1B).

Samenleiter verläuft an den Innenwand und mündet in das drüsige Gebilde des Pubertättsfeldes in Höhe des 16. Segmentes ein (Abb. 1C).

Weibliche Geschlechtsorgane normal, Ovarien im 13. Segment.

Samentaschen 1 Paar im 9. Segment, runde Ampulle, mit langem gewundenem Stiel und einem Samenkämmerchen (Abb. 1D).

Die neue Art unterscheidet sich von allen anderen Arten die über ein Paar Samentaschen verfügen durch die Lage des Gürtels und des Pubertätsfeldes, und durch die Lage des männlichen Porus. Ferner unterscheidet sie sich noch von allen Arten durch das Vorhandensein von Samenkämmerchen. Ansonst steht sie der *G. baloghi* sp. n. am nächsten, von dieser unterscheidet sie sich jedoch, durch die Zahl der Samentaschen und durch das Vorhandensein des Samenkämmerchens.

Die neue Art wird zum Andenken an den bekannten Tenebrioniden-Spezialisten Dr. Z. KASZAB, Generaldirektor des Naturwissenschaftlichen Museums, Budapest benannt, der sich in der Förderung der Tiersystematik in Ungarn große Verdienste erworben hat.

F u n d o r t: Prov. Pastaza. Holotypus AF/366. Puyo 870 m. Urwald 15. II. 1986. leg. ZICSI & LOKSA & BENAVIDES. — Paratypen AF/367. 5 Ex. Fundort wie beim Holotypus.

### *Glossodrilus landeszi* sp. n.

Länge des Holotypus: 79 mm, Breite 3 mm, Segmentzahl 129. Bei den übrigen Tieren: Länge 50—70 mm, Breite 2,5—2,8 mm, Segmentzahl 116—118.

Farbe: Pigmentlos, Darm schwarz durchschimmernd.

Kopflappen eingezogen. Segmente vor dem Gürtel nicht geringelt, hinter dem Gürtel doppelt-geringelt. Epidermis äußerst dünn, innere Organe durchscheinend. Borsten sehr eng gepaart, sehr schwer zu erkennen. Borsten am Hinterkörper  $aa : ab : bc : cd = 20 : 0,5 : 15 : 0,5$ . Nephridialporen in Borstenlinie *cd*. Schwanz abgestutzt (Abb. 2D).

Weibliche Poren in der Mitte des 14. Segmentes auf kleinen Papillen in Höhe der Borsten *a*. Männliche Poren auf Intersegmentalfurche 17/18, auf winzigen Papillen, ungefähr in der Mitte des Pubertätsfeldes.

Gürtel vom 15.—22. Segment, weiß, sattelförmig. Pubertätsfeld eiförmig vom 16.—1/4 19. Segment (Abb. 2B). Samentaschenporen ein Paar auf Intersegmentalfurche 8/9 in der Borstenlinie *cd*.

Innere Organisation. Dissepimente 6/7—10/11 zart, nicht verdickt. Muskelmagen im 6. Segment, verhältnismäßig groß. Ein Paar dicke eiförmige, aber am Ende etwas zugespitzte Chylustaschen, die beiderseits dorsolateral vom Oesophagus am 11. Segment entspringen und bis ins 12. Segment reichen. Ein Blutgefäß tritt vorne im 11. Segment in jede Chylustasche ein, im 12. Segment tritt wieder ein nach vorne gerichtetes Blutgefäß aus der Chylustasche hervor. Schlingenförmige Lateralherzen im 7.—9. Segment, große Intestinalherzen im 10. und 11. Segment.

Exkretionsorgane meganephridisch.

Männliche Geschlechtsorgane. Unpaarige Testikelblasen im 11. Segment die ventral miteinander verbunden sind und je ein Paar Hoden und Samen-

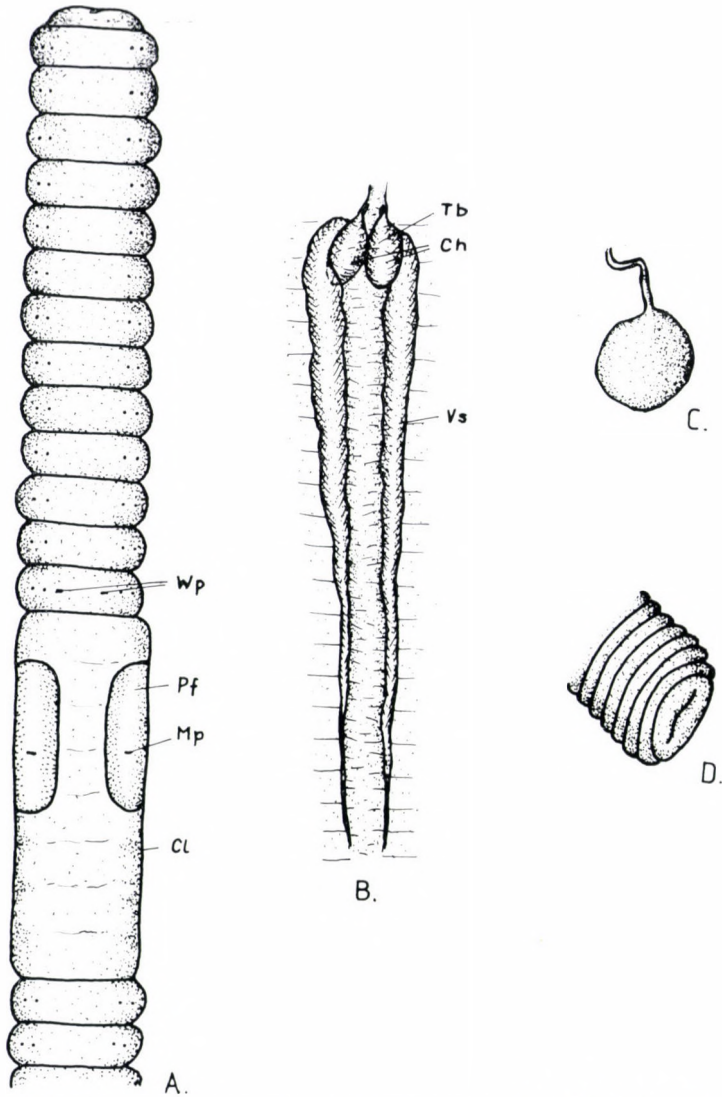


Abb. 2. *Glossodrilus landeszi* sp. n. — A = Ventralansicht (*Wp* = Weiblichen Poren, *Pf* = Pubertätsfeld, *Mp* = Männliche Poren, *Cl* = Clitellum) — B = Männlicher Geschlechtsapparat (*Tb* = Testikelblase, *Ch* = Chylustaschen, *Vs* = Samensäcke) — C = Samentasche — D = Form des Körperendes

trichter einschließen. Seitlich von der Testikelblase geht beiderseits ein schlauchförmiger Samensack hervor, der sich am Darm entlangzieht und bis ins 28.—30. Segment reicht. Die Samensäcke sind dem Ende zu stark verdünnt (Abb. 2B).

Weibliche Geschlechtsorgane in normaler Lage, Ovarien gelappt.

Samentaschen ein Paar, runde Ampulle mit mäßig langem Stiel (Abb. 2C).

Die neue Art unterscheidet sich von sämtlichen Arten mit 1 Paar Samentaschen im 9. Segment, durch die Lage des Pubertätswalles und durch die Lage der männlichen Poren. Von den übrigen Arten dadurch daß sie nur ein Paar Samentaschen besitzt.

Die neue Art wird zu Ehren nach Herrn DR. P. LANDESZ benannt, der die Verwirklichung unserer Sammelreise in Ekuador weitgehend förderte.

F u n d o r t. Holotypus AF/356. Prov. Cotopaxi. Zwischen Pujili und Zumbaqua 4000 m, 16. II. 1986. leg. ZICSI & LOKSA. Paratypen AF/358. 2 Ex. Fundort wie beim Holotypus. AF/357. 1 Ex. Zwischen Pujili und Zumbaqua bei Pueblo Quemada 4200 m, 16. II. 1986. leg. ZICSI & LOKSA.

### **Glossodrilus baloghi sp. n.**

Länge des Holotypus: 57 mm, Breite 1,7 mm, Segmentzahl 163. Bei den übrigen Tieren: Länge 37—60 mm, Breite 1,5—2,1 mm, Segmentzahl 112—167.

Farbe: pigmentlos, Darm braun durchschimmernd.

Kopflappen eingezogen. Borsten sehr zart, eng gepaart. Borstendistanz hinter dem Gürtel  $aa : ab : bc : cd : dd = 30 : 2 : 10 : 2 : 40$ . Nephridialporen etwas oberhalb der Borstenlinie *b*. Segmente ungeringelt. Schwanz etwas abgerundet (Abb. 3D).

Weibliche Poren auf dem 14. Segment, innerhalb der Borsten *a*. Männliche Poren ganz hinten auf dem 16. Segment, in der Nähe der Intersegmentalfurche 16/17.

Gürtel vom 15.—21. Segment, Pubertätsfeld vom 16.—18. Segment, bei einem Exemplar auch etwas 1/2 19. Segment (Abb. 3A). Samentaschenporen 2 Paar in Intersegmentalfurche 8/9 und 9/10 in der Borstenlinie *cd*.

Innere Organisation. Dissepimente 6/7—9/10 zart, kaum verdickt. Muskelmagen im 6. Segment, groß. Lateralherzen im 7.—9. Segment. Intestinalherzen im 10. und 11. Segment. Herzen im 10. und 11. Segment sowie Chylustaschen im 11. Segment von einer unpaarigen, dorsomedial liegenden Testikelblase umgeben, die lateral und ventral die Hoden und Samentrichter einschließen. Aus den Testikelblasen gehen lateral beiderseits langgestreckte Samensäcke hervor die entweder an den Darm angeschmiegt bis ins 16.—19. Segment reichen, oder auch zurückgebogen sein können (Abb. 3B). Chylustaschen (Kompositenschlauchtaschen) entspringen beiderseits auf einem kleinen Stiel im 11. Segment und gehen länglich gestreckt bis ins 12. Segment. Ein Blutgefäß tritt vorne im 11. Segment in jede Chylustasche ein und löst sich zwischen den Chylusschläuchen verlaufend in dünne Gefäße auf. Am hinteren Ende der Chylustaschen, also im 12. Segment tritt ein wieder nach vorne gerichtetes Blutgefäß aus den Chylustaschen aus.

Weibliche Geschlechtsorgane normal, Ovarien im 13. Segment.

Samentaschen 2 Paar im 9. und 10. Segment, runde Ampulle auf einem langen gewundenen Stiel, der zweimal-dreimal länger ist als die Ampulle (Abb. 3C).



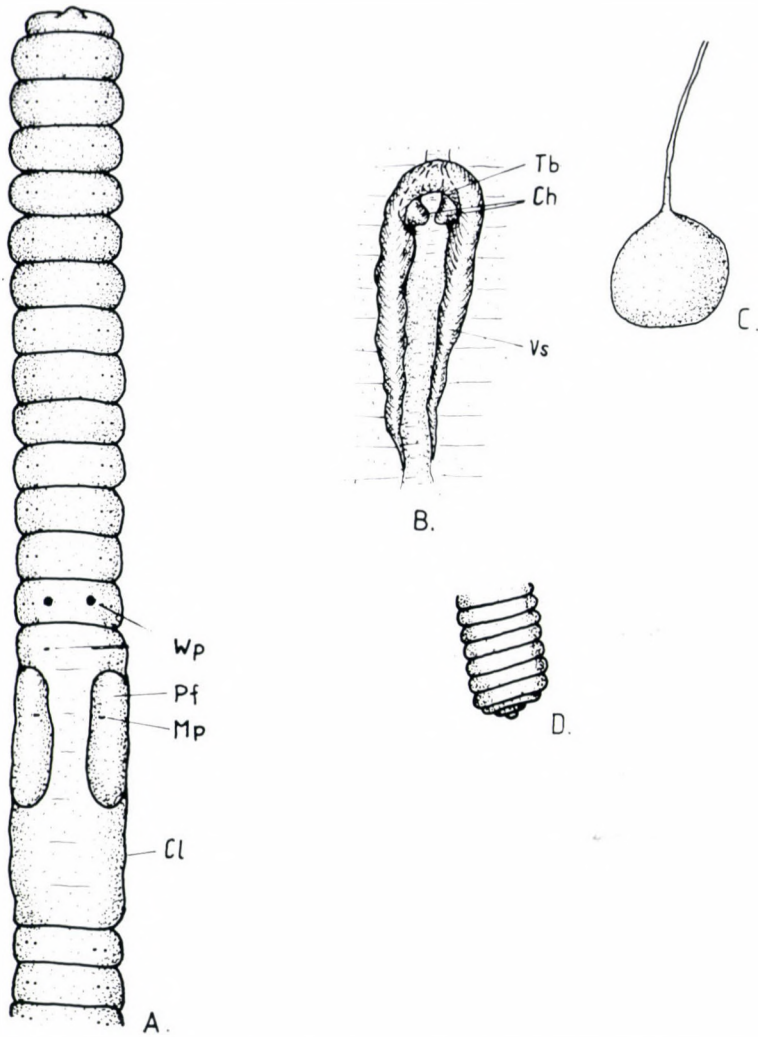


Abb. 3. *Glossodrilus baloghi* sp. n. — A = Ventralansicht (*Wp* = Weibliche Poren, *Pf* = Pubertätsfeld, *Mp* = Männliche Poren, *Cl* = Clitellum) — B = Männlicher Geschlechtsapparat (*Tb* = Testikelblasen, *Ch* = Chylustaschen, *Vs* = Samensäcke) — C = Samentasche — D = Form des Körperendes

Die neue Art unterscheidet sich von allen anderen Arten mit 2 Paar Samentaschen, durch die Lage des Pubertätsfeldes, von *G. paolettii*, die ebenfalls einen Gürtel vom 15.—21. Segment besitzt durch die Form der Samentaschen, die nicht nierenförmig sondern mehr keulenförmig sind.

Die neue Art wird zu Ehren mit bestem Dank nach Herrn Prof. DR. J. BALOGH benannt, der uns bei der Verwirklichung unserer Sammelreise in Ekuador weitgehend unterstützte.

F u n d o r t e: Prov. Napo Holotypus AF/364. Puerto Misahuali 250 m Urwald. 14. II. 1986. leg. ZICSI & LOKSA & BENAVIDES. Paratypen AF/365. 7 Ex. Fundort wie beim Holotypus, AF/368. 1 Ex. 2 Km entfernt von Puyo, Prov. Pastaza, Urwald. 15. II. 1986. leg. ZICSI & LOKSA & BENAVIDES.

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## ORIBATID MITES FROM ECUADOR (ACARI)\*

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(Received 13 November, 1987)

One new Oribatid genus, one new subgenus, ten new species and one new subspecies described from Ecuador (South America); other ten species are recorded and the distribution of some interesting genera and species discussed.

Prior to 1958 the Oribatid fauna of the Neotropical Region — apart from some scattered data — was almost unknown. However, beginning with 1958 a favourable change developed in the Oribatid survey of this region. First DR. MARIE HAMMER published four voluminous and valuable papers discussing the results of her collectings in Argentina, Bolivia, Peru and Chile; there more than 300 Oribatid species were described as new to science. Thereafter, L. BECK made scientific investigations but unfortunately a small part of his material has only been identified, so only generic names (or even family names) were published passim in his comprehensive work (BECK, 1962), instead of true specific identifications. Similar gaps characterized R. SCHUSTER's (1969) "Die terrestrische Milbenfauna Süd-Americas in zoogeographischer Sicht". Partly these two articles plainly demonstrated the impossibility of drawing up synthesis of that kind without a detailed knowledge of the *species* in the Neotropical fauna, partly these two works served as guidelines for subsequent explorations. Thus, first of all, transect collecting series, taken by L. BECK in Peru, demonstrated excellently that a very diverse Oribatid fauna exists in the horizontal vegetation zones, which is (or may be) different from zone to zone.

All the circumtropical collecting program launched in 1963 by J. BALOGH was planned and organized with the help of those results. He and his co-workers concentrated the collectings partly in the Andes mountain range, partly in the Amazonian Basin. They endeavoured to collect in all the vegetation zones and these collectings were extended to the present days with the aim to visit every country in South America. First of all, numerous species new to science were hitherto described from their vast material.

\* Results of soil-zoological collectings of DRs IMRE LOKSA and ANDRÁS ZICSI in South America

A third period of the survey of the Neotropical Region started some years ago: more and more South American zoologists have realized that this kind of faunistic survey is above all their own task. Argentina, Brazil, Chile, Cuba, Ecuador and Mexico have commenced that work. We think, the proper way of development will be if the bulk of the survey and its management fall within the competence of the South American states.

The present paper is connected with the second period mentioned above. Hungarian soil-zoologists concentrated in their collecting work to Colombia and Ecuador in the last couple of years. In 1986 DRS I. LOKSA and A. ZICSI gathered Berlese samples in the wet season. Although this material is largely from the same areas where J. BALOGH made collectings for similar samples in 1983, 1984 and in 1985, and contrarily to the fact that the two collectors used the very same method, their results are markedly different. In DRS LOKSA's and ZICSI's material several rare species and species new to science have been found. Consequently, it has been decided to pay more attention to sampling in the wet season. This paper publishes the material elaborated hitherto.

#### LIST OF COLLECTING SITES

Between quito and Nono (Prov. Pichincha), 8 km to Nono, 3280 m. B. 1 — B. 7.

- B. 1. Wet grass from the banks of a creek.
- B. 3. Moss from the vertical walls of a gorge hollowed out by a creek.
- B. 4. Moss from the stems of shrubs at the gorge entrance.
- B. 5. Detritus from fern stems from about 30 m above the water level of the creek.
- B. 6. Moss from stems of shrubs from about 30 m above creek level.
- B. 7. Detritus from below shrubs, about 30 m above the creek.

Riverbanks of Rio Alamo, 6 km leaving Nono, 2250 m B. 8—B. 15.

- B. 8. Moss from a tree-stump on the riverbank.
- B. 9. Moss and fern stems from riverside rock.
- B. 10. Forest litter and soil from 10 m above the water level of the river.
- B. 11. Moss hanging from shrubs and tree branches, from about 10 m above the river.
- B. 12. Moss from tree trunks, from about 10 m above the river.
- B. 13. Horsetail and moss from forest edge, about 50 m above the river.
- B. 14. Moss hanging from rock at a small waterfall, about 50 m above the river.

Riverbank of Rio Alamo, 3 km leaving Nono, 2750 m. B. 16—B. 18.

- B. 16. Litter and soil from a forest patch.
- B. 18. Debris of decomposing tree stump and moss from near the riverbank.

Pasochoa National Park, 2800—2850 m B. 19—B. 34.

- B. 19. Scale-moss hanging from vertical bank of a creek, 3 m above water level.
- B. 20. Litter of dense creeping reed and soil from the bank of the creek.
- B. 21. Rock-trough filled with water above stream level, moss hanging from the wall above the trough.
- B. 22. Hillside 150 m above the stream (3000 m); fern stems from shrubby secondary forest.
- B. 25. Moss and soil from below closed shrubs of the shrubby secondary forest.
- B. 26. Moss and soil from a small clearing of the shrubby secondary forest.



Naranhito (Prov. Cotopaxi) (on the way to San Francisco de las Pampas), cca 2200 m.

- B. 35.** Forest patch, litter and soil.  
**B. 36.** Debris and moss cover of decomposing tree stump.  
**B. 37.** Moss hanging from tree branches.

#### LIST OF COLLECTED ORIBATID SPECIES

(The first number after the names: the number of collecting sites; second number between parentheses: the number of collected specimens.)

#### CROTONIIDAE

*Crotonia pulchra* (BECK, 1962) 22 (7), 25 (5)

#### ANDEREMAEIDAE

*Carabodoides granulatus andicola* ssp. n. 35 (2)

*Carabodoides longiseta* sp. n. 12 (2)

#### DAMAEOLIDAE

*Caudamaeolus petalus* gen. et sp. n. 6 (5), 16 (2), 17 (3)

#### CARABODIDAE

*Carabodes ecuadoriensis* sp. n. 8 (6), 9 (2), 17 (1)

#### OPPIIDAE

*Borhidia andina* sp. n. 10 (2), 11 (1)

*Chavinia paradoxa* HAMMER, 1961 6 (1), 19 (3), 20 (2), 22 (2), 26 (2), 37 (1)

*Lyroppia neotropica* BALOGH et MAHUNKA, 1974 16 (5), 19 (1), 21 (4)

*Quadroppia circumita* HAMMER, 1961 11 (3), 26 (1)

#### RHYNCHORIBATIDAE

*Rhynchoribates ecuadoriensis* sp. n. 10 (1), 13 (2), 16 (2)

#### ARCEREMAEIDAE

*Arceremaeus incaensis* HAMMER, 1961 22 (1)

*Tectereemaeus cornutus* HAMMER, 1961 6 (2), 14 (1), 16 (2), 22 (3)

#### MACHADOBELBIDAE

*Machadobelba neotropica* sp. n. 21 (1)

## ORIBATULIDAE

**Paraphauloppia (Monophauloppia) planissima** sp. n. 19 (1)

## SCHELORIBATIDAE

**Ischeloribates setiger** sp. n. 22 (2)

## CERATOZETIDAE

*Ceratozetes plarhinooides* HAMMER, 1961 3 (1), 4 (4), 12 (1)

## PELOPSIDAE

**Eupelops ecuadoriensis** sp. n. 1 (2), 4 (11), 5 (2), 7 (1), 10 (1), 13 (3), 17 (17), 25 (1)  
*Peloptulus foveolatus* HAMMER, 1961 1 (9)

## CERATOKALUMMIDAE

*Arcozetes bicuspidatus* HAMMER, 1958 11 (2), 35 (1), 36 (13)  
*Truncozetes sturmi* P. BALOGH, 1984 10 (3)

## GALUMNIDAE

**Galumna nonoensis** sp. n. 4 (1)

The high number of new species is remarkable in the above list. Though more than 1000 species are included in our "Oribatid Mites of the Neotropical Region" just published, the Oribatid fauna of this region has still to be regarded as inadequately known. First of all, the species collected in the wet season are proposed to be identified in the future. The species listed represent some interesting trends of distribution.

1) Endemisms without closer relationships. They live above all in the montane tropical forests and in the moss forest region. These regions seem to promote the most expressed manifestation of speciation. Two species of the group have been found: both species represent a new genus each. The species *Caudamaeolus petalus* resembles *Fosseremus* at first glance but it has only one pair of aggenital setae, it is of an eupherederme type and its adult bears nymphal scalps (like *Licnobelba* or some species of *Pedrocortesia*) on its dorsum. Furthermore, the presence of a pair of peculiar lateral protuberances is rather striking, which in a way seems analogous with those of Plasmobatidae or Hermanniellidae at first glance.

2) The species whose distribution is restricted to the past Gondwanaland can be named as "Gondwana-species". The species of the family Crotoniidae are almost exclusively falling into this group. The genus *Holonthrus* WALLWORK, 1963 is similar in distribution: two of its four species live on the suban-

tartic islands, one species on New Zealand and one species inhabits the moss forests in Papua New Guinea. The only species of *Austronotus* HAMMER, 1966, *A. curviseta* HAMMER, 1966 lives in New Zealand. There are 16 adequately described species and three species inquirenda of *Crotonia* THORELL, 1876 known hitherto; among them 9 species inhabit New Zealand, two species live in the southern parts of South America, two species in St. Helena Is., two species in the East African mountains, one in New Caledonia, one in the Campbell Is. and one species occurs in Polynesia and Melanesia. After LUXTON (1982) the species *Crotonia pulchra* (BECK, 1962) with its deficient notogastral, coxisternal and anal chaetotaxy might well be a separate genus. L. BECK collected it in 14 specimens in Eastern Peru from the height of 1820—2180 m a.s.l. in moss forest litter. It seems rather common in Ecuador between 3000 m to 3280 m a.s.l. in moss forest litter.

3) The species of the genera restricted in their distribution to the Neotropical Region: those are e.g. *Arcozetes bicuspidatus* HAMMER, 1958, *Chavinia paradoxa* HAMMER, 1961, *Quadroppia circumita* HAMMER, 1961, *Lyroppia neotropica* BALOGH et MAHUNKA, 1973, 1985, *Truncozetes sturmi* P. BALOGH, 1984.

4) The species of the genera of circumtropical distribution; e.g. *Rhynchorribates ecuadoriensis* sp. n., *Carabodoides longiseta* sp. n., *Carabodoides granulatus andicola* ssp. n., *Machadobelba neotropica* sp. n. This latter species is the first known Neotropical representative of its genus.

5) The species of the genera whose distribution covers the boreal and the tropical montane regions; the distribution of these genera show some analogy to the distribution of the plant genera discussed in W. BADER's (1960) comprehensive work. This type of distribution is typical for the genus *Eupelops*, which is widely distributed in the Holarctic Region but occurs also in the montane zones of the tropical regions, in Africa down to South Africa. Some species of the genus *Peloptulus* BERLESE, 1908 inhabit the Holarctis, its single Neotropical species lives in the Andes Mountains.

#### DESCRIPTIONS OF THE NEW TAXA

##### ***Carabodoides longiseta* sp. n. (Figs 1—5)**

Length: 449—500  $\mu\text{m}$ ; width: 287—291  $\mu\text{m}$ .

**P r o d o r s u m:** Sensillus medium long, fusiform, with a gradually dilated rounded head. The surface of head smooth, inner part with dark, pointed spines covered by hyaline matter. Interlamellar setae very short, thick, spiniform, smooth. Lamellar setae setiform, straight, diverging. Rostral setae setiform, smooth, parallel.

**N o t o g a s t e r:** Ten pairs of notogastral setae. Setae *c* (i.e. the humeral setae) long, bacilliform, straight with short, scattered cilia, directed forward, originate on large lateral crista of notogaster; the remaining notogastral setae more or less plumose but different in size. Setae *la* medium long, *lm* long and on their apical half densely plumose, *lp* very small but plumose. Setae *h*<sub>1</sub> and *h*<sub>2</sub> a little smaller than *la*, *h*<sub>3</sub> very long and less plumose than *lm*. Setae *p*<sub>1</sub> to *p*<sub>3</sub> extremely short, plumose. Two pairs of very short disappearing crista on the anterior part of notogaster. Parallel with the outline of notogaster there is a sclerotized line issued from lateral crista. Surface of notogaster with some irregular lines.

**V e n t r a l s i d e:** Type of *Carabodoides*. Six pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. All ventral setae short and smooth.

**M a t e r i a l e x a m i n e d:** Ecuador, riverbanks of Rio Alamo, 6 km leaving Nono, 2250 m, moss from tree trunks, from about 10 m above the river: holotype, 1 paratype.

### ***Carabodoides granulatus andicola* ssp. n. (Figs 6—10)**

Length: 365—406  $\mu\text{m}$ ; width: 189—205  $\mu\text{m}$ .

Very similar to *Carabodoides granulatus granulatus* (BALOGH et MAHUNKA, 1979 (Cuba)). The differences are as follow:

- 1) Lamellar setae setiform, diverging, medially with short cilia (*C. granulatus granulatus*: lamellar setae parallel, densely plumose)
- 2) Adanal setae smooth (*C. granulatus granulatus*: adanal setae ciliate).

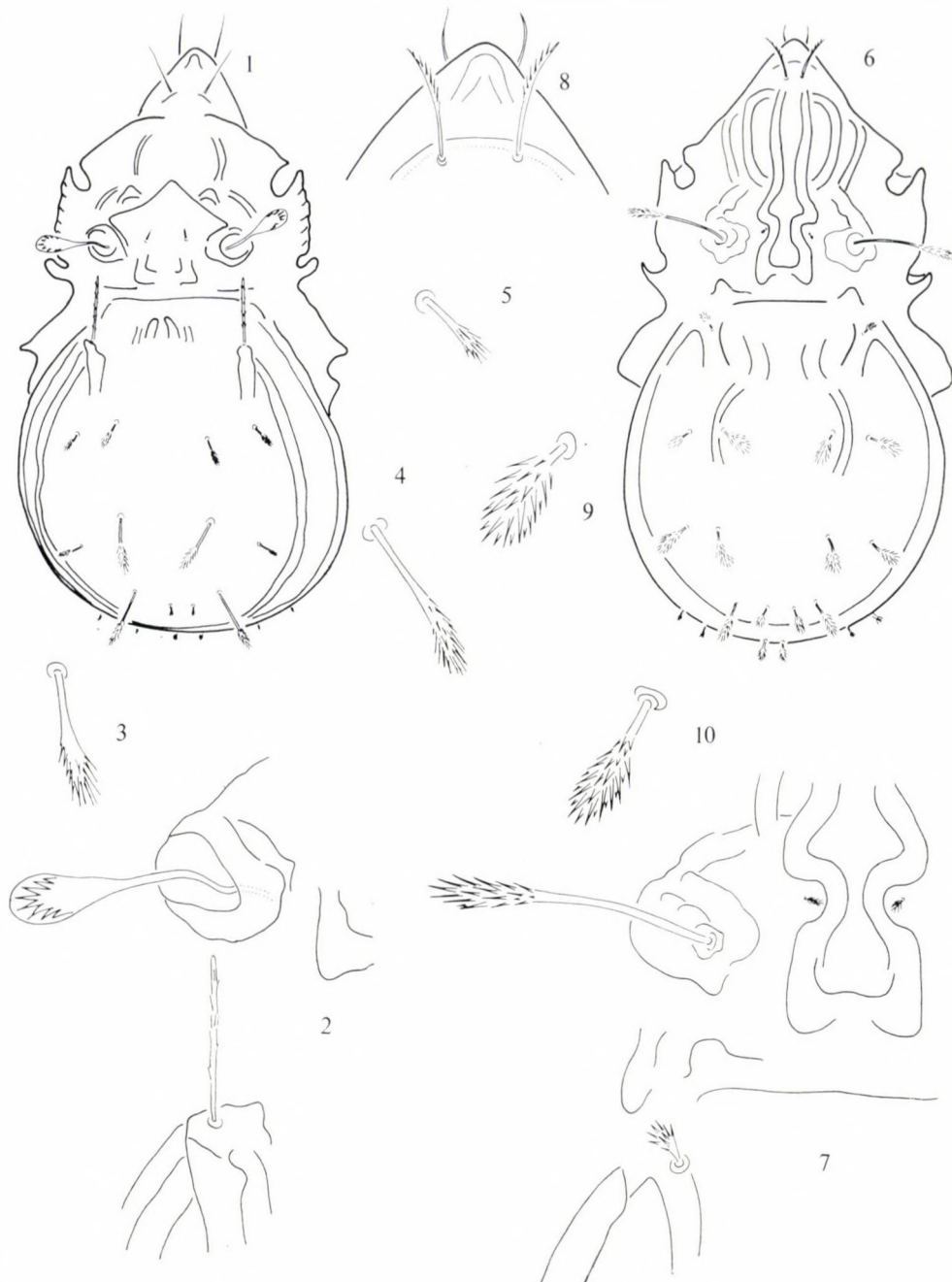
**M a t e r i a l e x a m i n e d:** Ecuador, Naranhito (Prov. Cotopaxi) (on the way to San Francisco de las Pampas), cca 2200 m; forest patch, litter and soil: holotype, 1 paratype.

### ***Caudamaeolus* gen. n.**

Fam. Damaeolidae. Eight pairs of notogastral setae; two pairs on posterior apophyses. Type of eupheredermes; larval and nymphal scalps fixed concentrically in the notogaster. Lateral part of notogaster each with a rosette-like protuberance. Six pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. Anterior margin of genital, posterior margin of anal plates with semicircular tectum. Prodorsum, mouthparts and legs of Damaeolidae type.

Type-species: *Caudamaeolus petalus* sp. n.

**R e m a r k s:** The presence of posterior apophyses and the rosette-like protuberances and the absence of two pairs of accessory aggenital setae are quite unique in the family of Damaeolidae.



Figs 1—5. *Carabodoides longiseta* sp. n. — 1 = dorsal aspect, 2 = bothridium and crista, left side, 3 = seta *lp*, left side, 4 = seta *h*<sub>2</sub>, right side, 5 = seta *la*, right side. — Figs 6—10. *C. granulatus andicola* ssp. n., 6 = dorsal aspect, 7 = bothridium and crista, left side, 8 = rostral and lamellar setae, 9 = seta *h*<sub>3</sub>, left side, 10 = seta *h*<sub>2</sub>, left side



Figs 11–17. *Caudamaeolus petalus* gen. et sp. n. — 11 = dorsal aspect, 12 = sensillus, 13 = ventral aspect, 14 = posterior apophyses of notogaster, 15 = lateral aspect, 16–17 = rosette-like protuberance of notogaster

**Caudamaecolus petalus** sp. n. (Figs 11—17)

Length: 267  $\mu\text{m}$ ; width: 131  $\mu\text{m}$ .

**Prodorsum:** Sensillus long, fine, setiform, at the distal half gradually fusiform with long, flagellate end (the flagellum sometimes broken). Bothridium large. Interlamellar setae medium long, setiform, smooth. Lamellar and rostral setae almost on the rostrum. Interlamellar region with small, scattered tubercula. Before bothridia a transversal, medially interrupted crest present.

**Notogaster:** Eight (?) pairs of notogastral setae; one pair on the shoulder region, two pairs on the posterior part of notogaster; two pairs (long, flagellate) on the ventral side of notogaster ( $p_1$ — $p_3$ ).

**Ventral side:** Six pairs of short genital, one pair of aggenital (represented only by alveoli), two pairs of anal (only alveoli), three pairs of short and fine adanal setae. Anal plates with longitudinal crest.

**Material examined:** Ecuador, between Quito and Nono (Prov. Pichincha), 8 km to Nono, 3280 m, moss from stems of shrubs from about 30 m above creek level: holotype, 4 paratypes; riverbank of Rio Alamo, 3 km leaving Nono, 2750 m, litter and soil from a forest patch: 2 paratypes; debris of decomposing tree stump and moss from near the riverbank: 3 paratypes.

**Carabodes ecuadoriensis** sp. n. (Figs 18—23)

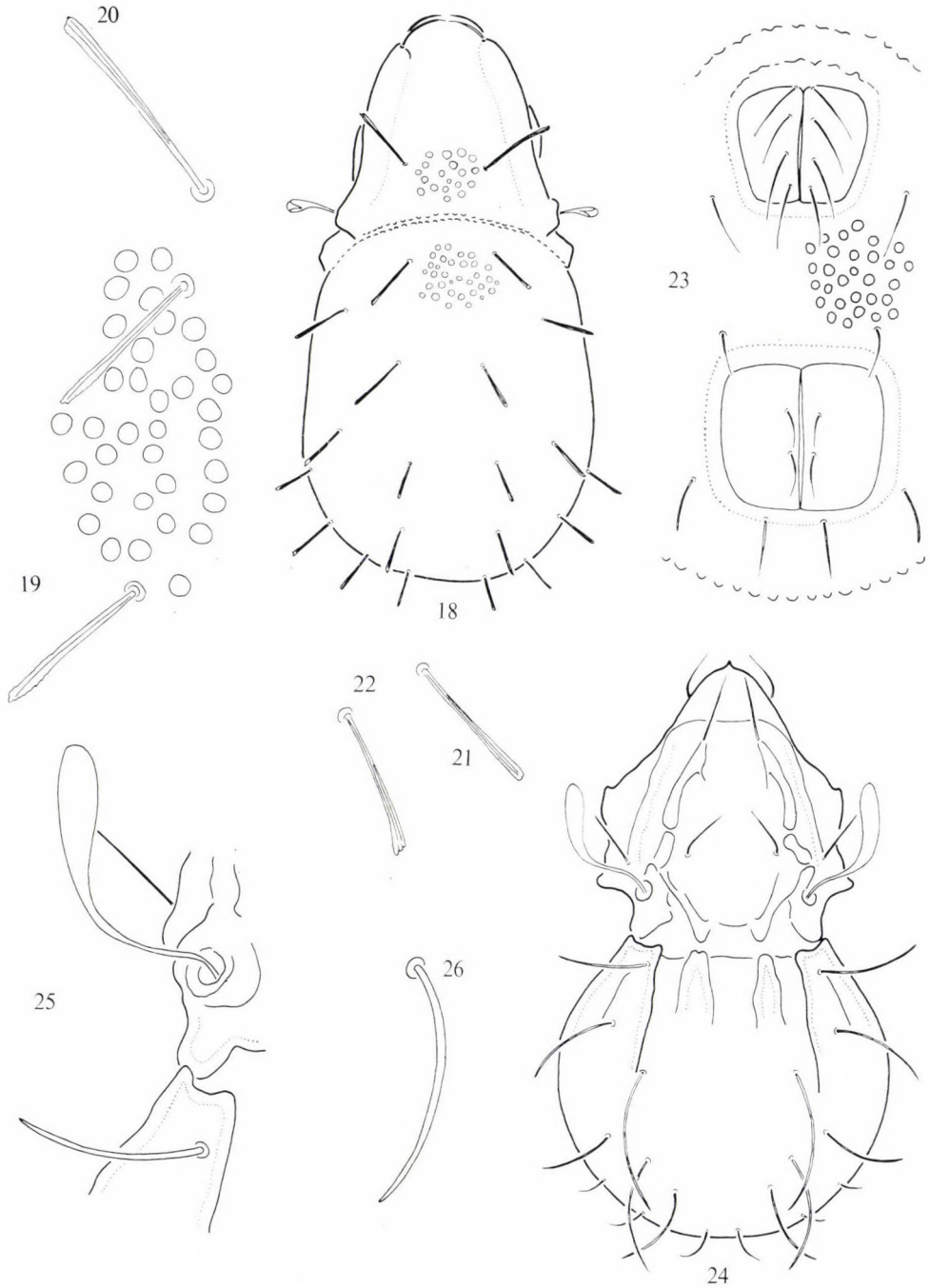
Length: 537—615  $\mu\text{m}$ , width: 371—381  $\mu\text{m}$ .

**Prodorsum:** Sensillus medium long, with dilated, fusiform, finely aciculated head. Interlamellar setae long, rigid, straight, bacilliform, their apical part obliquely truncate. Lamellar and rostral setae originate on the rostral region almost on the same level, curved inward, parallel, smooth. Lamellae marginal, slightly converging, cuspides truncate, bearing lamellar setae. Surface of prodorsum with large, irregular, rounded tubercula.

**Notogaster:** Ten pairs of notogastral setae similar to interlamellar setae; four pairs on posterior margin somewhat shorter. Tubercula similar to those of prodorsum.

**Ventral side:** Four pairs of long, fine genital, one pair of fine, setiform aggenital, two pairs of fine, setiform anal, three pairs of adanal setae. Adanal setae  $ad_1$  setiform, straight, pointed,  $ad_2$  bacilliform, slightly curved, obtuse,  $ad_3$  setiform, pointed, type of  $ad_1$ , in preanal position. Ventral plate tuberculate.

**Remarks:** The new species resembles *Carabodes borhidii* BALOGH et MAHUNKA, 1979 (Cuba), but the notogastral setae of the new species are much longer, their sensillus longer and thinner, the epimeral and genital setae setiform and long.



Figs 18–23. *Carabodes ecuadoriensis* sp. n. — 18 = dorsal aspect, 19 = left part of notogaster with setae  $1m$  and  $1p$ , 20 = interlamellar seta, left side, 21 = seta  $p_3$ , right side, 22 = seta  $h_1$ , right side, 23 = ano-genital region. — Figs 24–26. *Borhidia andina* sp. n. — 24 = dorsal aspect, 25 = bothridium and crista, left side, 26 = seta  $h_2$



**Material examined:** Ecuador, riverbanks of Rio Alamo, 6 km leaving Nono, 2250 m; moss from a tree-stump on the riverbank: holotype, 5 paratypes; moss and fern stems riverside rock; 2 paratypes; the same locality, 2750 m, debris of decomposing tree stump and moss from near the riverbank; 1 paratype.

***Borhidia andina* sp. n.** (Figs 24—26)

Length: 197—201  $\mu\text{m}$ ; with: 103—115  $\mu\text{m}$ .

**Prodorsum:** Sensillus long, exteriorly and anteriorly directed, with gradually thickened, fusiform, rounded, smooth head. Interlamellar and lamellar setae medium long, setiform, smooth, rostral setae shorter, curve inwards, smooth. Exobothridial setae long, straight, exteriorly and anteriorly directed. Lamellar costulae well developed, at their basal third interrupted, slightly converging; cuspides pointed, bearing lamellar setae. Posterior margin of bothridia opposite to the lateral crista of notogaster with a large condylius each. Rostrum with small, pointed nasus. Medial condyli of prodorsum smaller.

**Notogaster:** Ten pairs of normal, non-spatulate notogastral setae. The *p* setae shorter than the remaining notogastral setae, *lam* and *lp* longer than *c* and *la* setae. Notogaster with two pairs of cristae, lateral ones longer than medial ones.

**Ventral side:** Five pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. Genital and anal plates of about the same length.

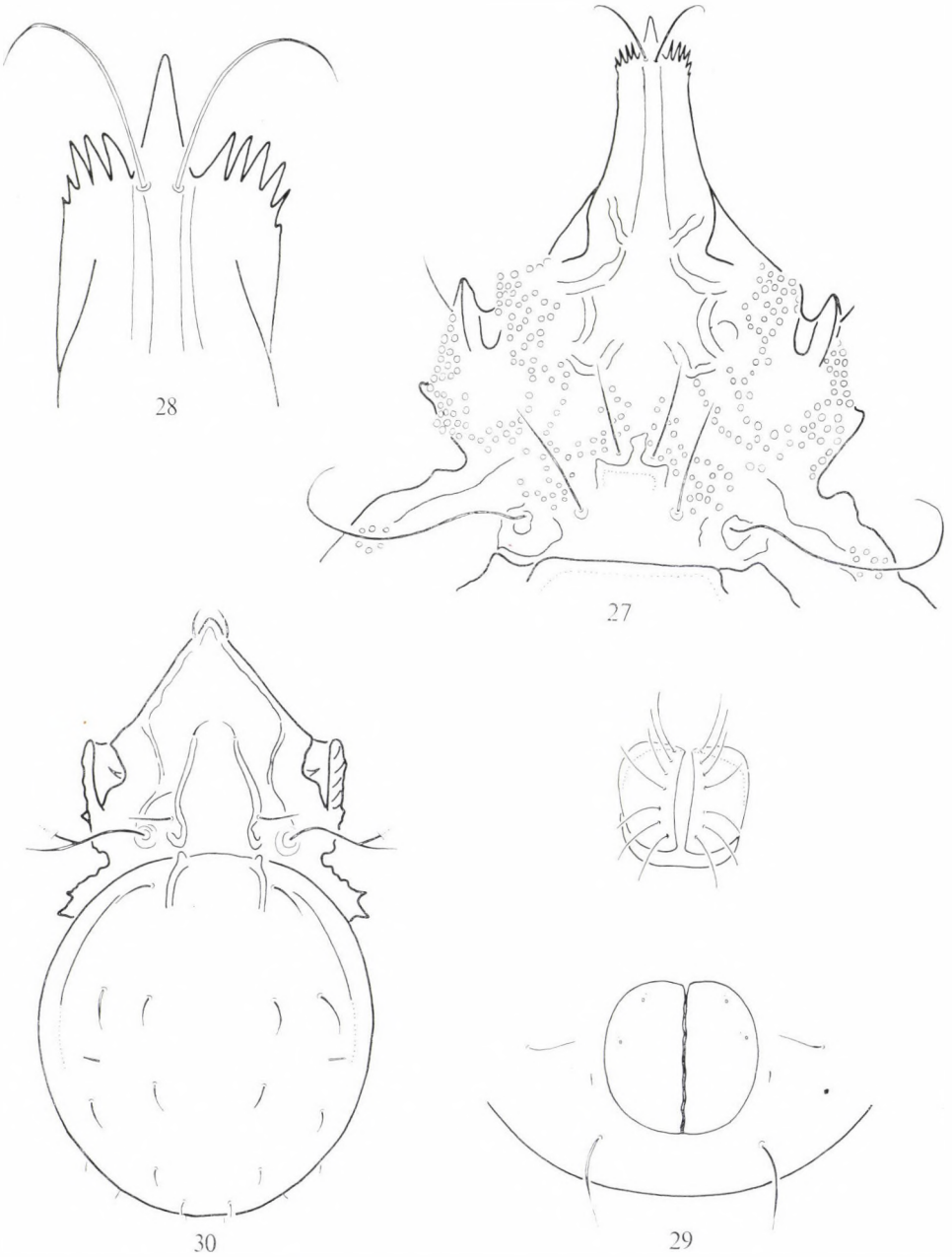
**Remarks:** The single known species: *Borhidia cubana* BALOGH et MAHUNKA, 1974 has slightly fusiform notogastral setae (with the exception of posteromarginal *p* setae) and their lateral and medial cristae on notogaster fused.

**Material examined:** Ecuador, riverbanks of Rio Alamo, 6 km leaving Nono, 2250 m, forest litter and soil from 10 m above the water level of the river: holotype, 1 paratype; moss hanging from shrubs and tree branches, from about 10 m above the river: 1 paratype.

***Rynchoribates ecuadoriensis* sp. n.** (Figs 27—29)

Length: 771—898  $\mu\text{m}$ ; width: 463—574  $\mu\text{m}$ .

**Prodorsum:** Rostral margin dentate: posteriorly to rostral apex there are 5—6 small lateral teeth arranged in a short, transversal row. Rostral setae diverging, curved outwards. Interlamellar knob transversal, with a medial apophysis. Interlamellar and lamellar setae long, setiform, fine. Sensillus of *Rynchoribates* type, i.e. setiform, S-shaped. Surface of prodorsum with some sclerotized laths and irregularly scattered round tubercula, sometimes arranged into large, irregular polygons.



Figs 27—29. *Rhynchoribates ecuadoriensis* sp. n. — 27 = prodorsum, 28 = rostrum, 29 = ano-genital region. — Fig. 30. *Machadobelba neotropica* sp. n. — 30 = dorsal aspect

**N o t o g a s t e r:** Ten pairs of bacilliform, slightly curved notogastral setae. Dorsosejugal suture opposite to bothridia each with two small, obtuse condyli.

**V e n t r a l s i d e:** Seven pairs of long, fine genital setae. Aggenital setae absent, only their alveoli observable. Two pairs of anal alveoli in submarginal position on the anterior half of anal plates. Adanal setae  $ad_1$  and  $ad_2$  long, fine,  $ad_3$  represented only by their alveoli.

**R e m a r k s:** species-group of *R. dilatatus* (i.e. species with dentate rostral margin) has four species in the Neotropical Region but none of them has transversal interlamellar knob combined with irregularly scattered round tubercula arranged into large, irregular polygons.

**M a t e r i a l e x a m i n e d:** Ecuador, riverbanks of Rio Alamo, 6 km leaving Nono, 2250 m, forest litter and soil from 10 m above the water level of the river: holotype; horsetail and moss from forest ridge, about 50 m above the river; riverbank of Rio Alamo, 3 km leaving Nono, 2750 m, litter and soil from a forest patch.

#### ***Machadobelba neotropica* sp. n. (Fig. 30)**

Length: 463  $\mu\text{m}$ ; width: 299  $\mu\text{m}$ .

**P r o d o r s u m:** Sensillus long, setiform bifurcate (the unique specimen damaged; apical part of bifurcated sensillus broken). Interlamellar setae originate on the outer side of costulae, directed outwards, straight, smooth. Costulae lyriform, lamellar setae originate on the tip of costulae, curved inwards. Costulae as long as half the length of prodorsum or a little longer. Rostral setae short, inwards curved, smooth.

**N o t o g a s t e r:** Ten pairs of short, smooth notogastral setae. One pair of crista on the dorsosejugal suture.

**V e n t r a l s i d e:** Six pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. Lateral to genital plates there is a trapezoid dark sclerotized plate.

**R e m a r k s:** This is the first species of the family in the Neotropical Region. Two species occur in Tropical Africa, four in Indonesia, one in Sri Lanka. The new species is similar to *M. symmetrica* BALOGH, 1958 (Tropical Africa), both their crista is duplicated and the notogastral setae are shorter.

**M a t e r i a l e x a m i n e d:** Ecuador, Pasochoa National Park, 2800–2850 m, Rock-trough filled with water above stream level, moss hanging from the wall above the trough: holotype.

**Paraphauloppia (Monophauloppia) subgen. nov.**

Three (or four?) pairs of evanescent, small, round, hardly observable areae porosae. Pteromorphae reduced. Dorsosejugal suture absent. Three pairs of genital setae, one pair of aggenital setae, two pairs of anal, three pairs of adanal setae. Ten pairs of short, fine notogastral setae. Legs monodactyl. Sensillus short with very short stalk and dark, spherical head. Body very flat.

Type-species: *Paraphauloppia (Monophauloppia) planissima* sp. n.

R e m a r k s: With the exception of monodactyly this combination of characters relegate it to the *Gerloubia*-group.

**Paraphauloppia (Monophauloppia) planissima** sp. n. (Figs 31—34)

Length: 394  $\mu\text{m}$ ; width: 172  $\mu\text{m}$ .

P r o d o r s u m: Sensillus short, with very short stalk and spherical, dark head. Interlamellar, lamellar and rostral setae medium long, setiform, fine, with some short cilia. Lamellae linear straight; lamellar setae originate on the lamellar cusps.

N o t o g a s t e r: Abnormally elongate and flat. Dorsosejugal suture absent. Ten pairs of fine, short notogastral setae. Three pairs (or four?) of small, round, hardly observable areae porosae.

V e n t r a l s i d e: Three pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. All setae of the ventral side short and extraordinarily fine. Alveoli large. Apodemata almost reduced. Lyrifissures *iad* near to anal plates.

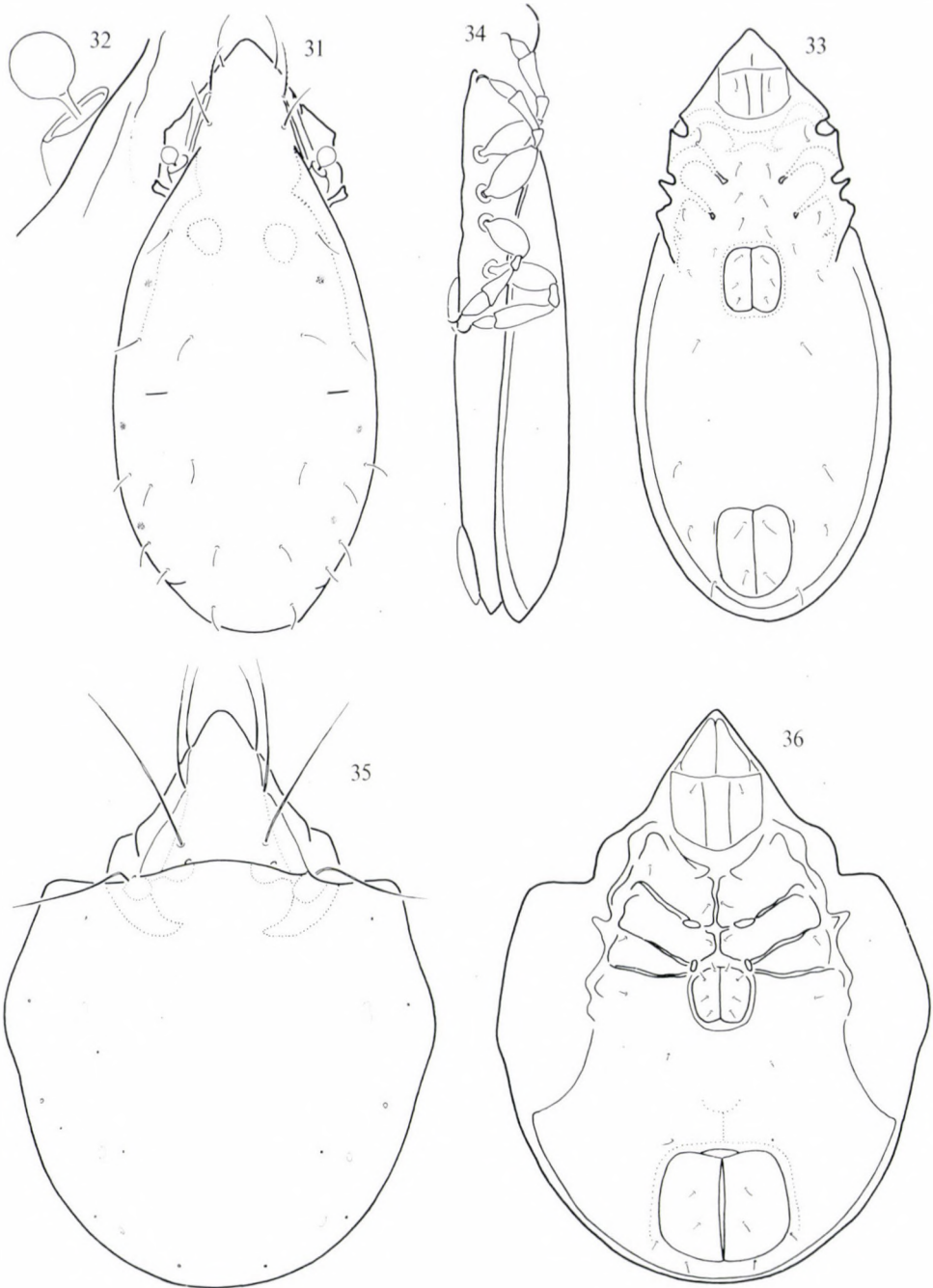
M a t e r i a l e x a m i n e d: Pasochoa National Park, 2800—2850 m, scale-moss hanging from vertical bank of a creek, 3 m above water level: holotype.

**Eupelops ecuadoriensis** sp. n. (Figs 37—41)

Length: 615—636  $\mu\text{m}$ ; width 459—500  $\mu\text{m}$ .

P r o d o r s u m: Sensillus medium long, fusiform with short cilia. Interlamellar setae long, phylliform. Lamellar setae covered, rostral setae finely ciliate.

N o t o g a s t e r: Medial part of dorsosejugal suture straight. Eight pairs of long, bacilliform, smooth notogastral setae; two pairs of posteromarginal setae ( $p_1$  and  $p_2$ ) very small, sometimes hardly observable. Areae porosae *Aa* very small and round,  $A_1$ — $A_3$  almost reduced represented only by small pori.



Figs 31–34. *Paraphauloppia (Monophauloppia) planissima* sp. n. — 31 = dorsal aspect, 32 = sensillus, 33 = ventral aspect, 34 = lateral aspect. — Figs 35–36. *Ischeloribates setiger* sp. n. — 35 = dorsal aspect, 36 = ventral aspect

**Ventral side:** Type of *Eupelops*. Six pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. Aggenital setae near to genital plates. Adanal setae in asymmetrical position. Setae  $ad_1$  much longer than  $ad_2$  and  $ad_3$ .

**Remarks:** *Eupelops ecuadoriensis* sp. n. resembles *Eupelops suramericanus* (HAMMER, 1961) from Bolivia, but *E. suramericanus* has three arches on the dorsosejugal suture, their notogastral setae shorter and pointed.

**Material examined:** Ecuador, between Quito and Nono (Prov. Pichincha), 8 km to Nono, 3280 m, detritus from fern stems from about 30 m above the water level of the creek, holotype, and 1 paratype. About 200 paratypes from different habitats between 2250 and 3280 m: wet grass, moss, detritus of fern stems, forest litter, decomposing tree stumps, etc.

### ***Ischeloribates setiger* sp. n. (Figs 35—36)**

Length: 554—586  $\mu\text{m}$ ; width: 422—459  $\mu\text{m}$ .

**Prodorsum:** Sensillus medium long, setiform, smooth, pointed, directed outward. Interlamellar setae longer than prodorsum, setiform, smooth. Lamellar setae directed forward, smooth, parallel with rostral setae. Both setae smooth. Rostrum protruding, almost parabolic.

**Notogaster:** Ten pairs of notogastral alveoli, notogastral setae reduced. Four pairs of sacculi; *Sa* almost crescent-shaped with rounded ends,  $S_1$  —  $S_3$  gradually reducing in size.

**Ventral side:** Epimeral region of *Ischeloribates* type. Four pairs of genital, one pair of aggenital, two pairs of anal, three pairs of adanal setae. All setae on ventral side very short and fine. Anal plates much larger than genital plates.

**Remarks:** This is the first *Ischeloribates* with setiform sensillus and with parabolically protruding rostrum.

**Material examined:** Ecuador, Pasochoa National Park, 2800—2850 m, Hillside 150 m above the stream (3000 m); fern stems from shrubby secondary forest: holotype, 1 paratype.

### ***Galumna nonoensis* sp. n. (Figs 42—45)**

Length: 820  $\mu\text{m}$ ; width: 586  $\mu\text{m}$ .

**Prodorsum:** Basal half of sensillus S-shaped, apical half straight, slightly dilated with truncate end. Interlamellar setae represented only by their alveoli. Lamellar and rostral setae medium long, rostral setae unilaterally ciliate. Dorsosejugal suture present. Areae porosae dorsosejugales small transversally oval.

**Notogaster:** Three pairs of small areae porosae; *Aa* oval,  $A_2$  and  $A_3$  almost circular. Areae porosae surrounded by disappearing rings. Porus medialis present.



Figs 37–41. *Eupelops ecuadoriensis* sp. n. — 37 = dorsal aspect, 38 = sensillus, 39 = notogastral seta *Im*, left side, 40 = seta *Ip*, right side, 41 = anal region. — Figs 42–45. *Galumna nonoensis* sp. n. — 42 = prodorsum, 43 = sensillus, apical part, 44 = prodorsum lateral, 45 = notogaster

Ventral side: Of Galumnidae type.

Remarks: This is the first *Galumna* species in the Neotropical Region with three pairs of areae porosae, dorsosejugal suture, fusiform sensillus and reduced interlamellar setae.

Material examined: Ecuador, between Nono and Quito (Prov. Pichincha), 8 km to Nono, 3280 m, moss from the stems of shrubs at the gorge entrance: holotype.

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FRIDERICIA BERNINII SP. N. UND WEITERE  
ANGABEN ÜBER DIE ENCHYTRAEIDEN-FAUNA  
(OLIGOCHAETA) DER BALEAREN

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The description of a species of Enchytraeidae: *Fridericia berninii* sp. n., new for science, originating from the island of Mallorca is given. Additional data to the Enchytraeid fauna of Mallorca, and a complementary description of *F. caprensis* BELL, 1947, are presented.

Im Rahmen der von Prof. DR. P. OMODEO 1986 in Marokko geleiteten zoologischen Expedition wurden von Prof. DR. F. BERNINI (Siena) auch Bodenproben gesammelt, die mir freundlicherweise auf Nachweis von Enchytraeiden übersandt wurden. Für die Überlassung des Materials spreche ich beiden oben erwähnten Herren auch an dieser Stelle meinen besten Dank aus.

In vorliegender Arbeit werden die Enchytraeiden zweier Bodenproben die in Mallorca auf den Balearen gesammelt wurden, bekanntgegeben.

MATERIAL UND METHODE

Wegen der geringer Menge der zugesandten Bodenproben (cca 50 cm<sup>3</sup>) wurde der Boden in kleinen Mengen auf einem Planktonnetz ausgewaschen. Mit Hilfe eines Mikroskopes wurden die Enchytraeiden ausgelesen und in vivo bestimmt. Nach einer Fixation in 70% Alkohol bzw. Bouen-Lösung wurden die Tiere in 70% Alkohol aufbewahrt. Die juvenilen Tiere, die auch ansonst nur bis zur Gattung bestimmt werden können, wurden versucht auch weiter am Leben zu erhalten um sie bis zur Geschlechtsreife zu bringen. Dies ist mir im Falle von *F. berninii* sp. n. auch gelungen, die Tiere haben sich sogar vermehrt, so dass diese Individuen bei der Beschreibung der Art auch herangezogen werden konnten. Diese Tiere wurden ebenfalls in vivo bestimmt, nachher in 70% Alkohol fixiert. Zwei Exemplare wurden nach Färbung als Präparate in Kanadabalsam aufbewahrt.

Fundorte und Arten: I. Balearen, Mallorca, Schloss bei Palma, 150 m, Streu und Humus unter Pinus Pistacea lentiscus; 16. IV. 1986, leg.: BERNINI. — *Fridericia caprensis* BELL, 1947: 3 Ex., *Fridericia* sp.: 1 Ex., *Fridericia* juv.: 4 Ex., *Fridericia berninii* sp. n.: 1 Ex., *Achaeta* juv.: 1 Ex. — II. Balearen: Mallorca, Schloss bei Palma, 150 m, Humus und Moos zwischen Pinus Bäumen; 16. IV. 1986, leg.: BERNINI. — *F. caprensis*: 3 Ex., *F. berninii* sp. n.: 2 Ex., *Fridericia* juv.: 6 Ex., *Enchytraeus buchholzi* VEJD., 1879: 1 Ex.

### **Fridericia berninii** sp. n.

(Abb. 1:a—i)

Kleine Art. Holotypus: Länge lebend: 7,3 mm, Breite 0,3 mm, Segmentzahl 38. Parotypen: Länge lebend: 5—9 mm, Breite 0,20—0,32 mm, am Gürtel etwas breiter. Segmentzahl 33—39.

Kopfforus O/I, Dorsalporen im VII. Segment beginnend. Farbe weisslich. Borsten gerade, mit einem schwach entwickelten entalen Haken, innerer kürzer: 2,3,4—2 : 3,4—2. Vom XIV. Segment beginnend nur zwei Borsten in den Bündeln vorhanden. Länge der Borsten am Vorderkörper 42  $\mu$ m, hinter dem Clitellum 32  $\mu$ m, am Ende des Körpers vom XXIII—XXVI. Segment beginnend erreichen sie wieder eine Länge von 42—46  $\mu$ m. Hautdrüsen in 3—4 Querreihen wohl entwickelt. Clitellum von XII—1/2 XIII. Segment ebenfalls gut entwickelt, Drüsen unregelmässig angeordnet.

Gehirn 1 1/2—2-mal grösser als breit. (Abb. 1:a). Vorne konvex, Hinterrand gerade, etwas eingeschnitten. Peptonephridien (Abb. 1:b) lang, aufgewickelteres Rohr, welches bis zum V.—VI. Segment hinunterreicht, b-Typ nach NIELSEN und CHRISTENSEN (1959). Lymphociten entsprechend der Gattung zweiartig: grosse Zellen mit Kerne (17—29  $\mu$ m) a-Typ nach MÖLLER (1971) und kleine (4—5  $\mu$ m) hyaline, kernlose, längliche Körperchen. Die Septaldrüsen (3 primäre und 3 sekundäre) sowie der ventral bzw. posteroventral ausführende Ductus der Nephridien sind kennzeichnend für die Gattung *Fridericia*. Die Cölomflüssigkeit enthält keine abgestossenen Borsten, Rückengefäss entspringt im XIII. Segment, Blut farblos. Chloragogenzellen (10—16  $\mu$ m) sind vom V. Segment beginnend vorhanden, vom VII. Segment sind sie auffälliger.

Vesicula seminalis fehlen. Samentrichter (Abb. 1:e) 2—3-mal länger als breit, beinahe so lang wie der Durchmesser des Körpers. Kragen gut zu erkennen, halb so breit wie der Körper des Trichters. Samenleiter mittelmässig lang, ungefähr 28—30  $\mu$ m breit, etwas gewunden. Penialbulbus sehr gross, beträgt nahezu 1/2 des Körperdurchmessers (Abb. 1:i).

Spermatheken (Abb. 1:f—h) bestehen aus einer runden Ampulle und 2—4 runden, schwach erkennbaren Divertikeln. Weder in den Ampullen, noch in den Divertikeln sind Spermafäden zu erkennen, auch gefärbt liessen sich nur wenige Fäden nachweisen. Öfters konnten in den Divertikeln und in den Ampullen leere Kugeln erkannt werden (Abb. 1:f—g). In mehreren Fällen,

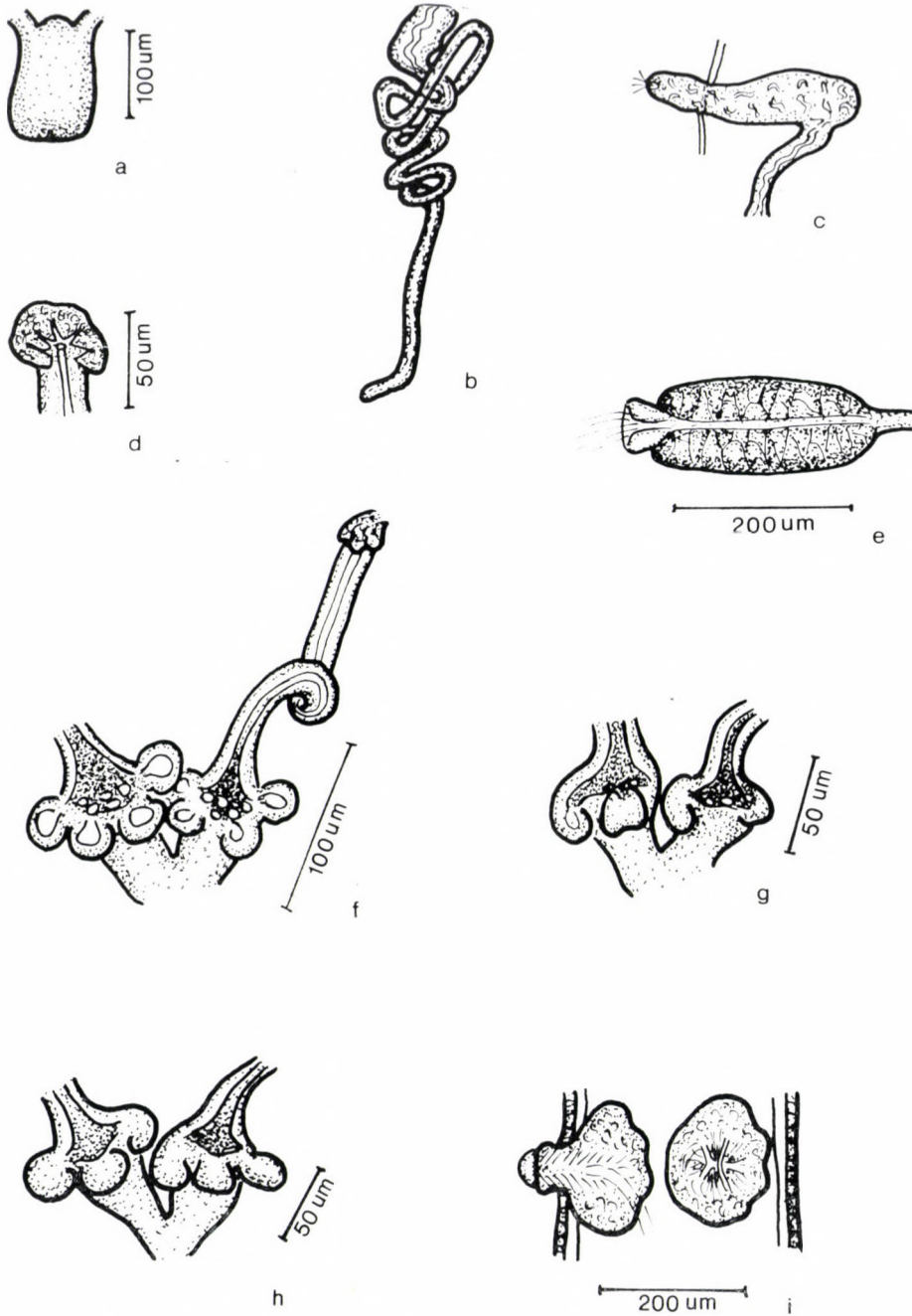


Abb. 1: a—i. *Fridericia berninii* sp. n. a = Gehirn, b = Peptonephridium, c = Nephridium, d = Drüsen an der Öffnung des Spermathekaductus, e = Samentrichter, f—h = Variationen von Spermatheken, f = Spermatheka des Holotypus, i = Penial bulb

wenn nur zwei Divertikeln vorkamen, waren diese nur an einer Seite der Ampulle untergebracht (Abb. 1:g). Beim Holotypus konnten 4 Divertikeln nachgewiesen werden (Abb. 1:f). Der kurze entale Ductus der beiden Spermatheken ist miteinander verbunden, und mündet so in den Oesophagus. Ektaler Ausführungsgang mittelmässig lang (ungefähr 210–280  $\mu\text{m}$ ), ziemlich dick (20–25  $\mu\text{m}$ ), an der Öffnung mit einer gut entwickelten Drüse die den Ductus umringt. (Abb. 1:d).

Zahl der untersuchten Individuen: 13.

Zwei Exemplare sind zugrunde gegangen.

F u n d o r t: Balearen, Mallorca, I. und II. Fundort, 16. IV. 1986, leg.: F. BERNINI, sowie Individuen die vom II. Fundort gezüchtet wurden.

Holotypus: F. 9. Gezüchtet vom II. Fundort, abgetötet 16. XI. 1987, in 70% Alkohol aufbewahrt. — Paratypen: Fundort I.: P. 16.1. Ein Exemplar, abgetötet 1. VII. 1986 in Bouen-Lösung, und 70% Alkohol aufbewahrt. Fundort II.: P. 16.2. Ein Exemplar, abgetötet 27. VI. 1986, nach Bouen-Lösung in 70% Alkohol aufbewahrt. Weitere Paratypen aus der Zucht des II. Fundortes: P. 16.3. Sechs Exemplare, abgetötet 16. XI. 1987, in 70% Alkohol aufbewahrt; P. 16.4. Ein Exemplar, 7. XI. 1987, mit Essigsäure-Orzein gefärbt, Präparat in Kanadabalsam; P. 16.5. Ein Exemplar, 14. X. 1987 abgetötet, mit Haemotoxylen-Eosin und Essigsäure-Orzein gefärbt, Präparat in Kanadabalsam. Das Typenmaterial wird in der Sammlung des Lehrstuhls für Tiersystematik und Ökologie der Loránd-Eötvös-Universität, Budapest, aufbewahrt.

Die neue Art steht bezüglich der Spermatheken *F. profundicola* DÓZSA-FARKAS, 1988 am nächsten. Bei beiden sind die zwei Spermatheken verbunden, der Ausführungsductus ist verhältnismässig dick, Peptonephridien vom *b*-Typ, und auch die Zahl der Borsten ist ähnlich. Zugleich sind bei *F. profundicola* des öfters zwei grössere, nach unten gerichtete, und einige weniger entwickelte kleinere Divertikel, bei *F. berninii* sp. n. zwei, drei oder vier, grösstenteils gleichgrosse und gleichförmige, schwer sichtbare, runde Divertikel vorhanden. Weiterhin unterscheidet sich die neue Art auch dadurch, dass die Drüse beim Ausführungsgang des Ductus viel grösser und anders gestaltet ist, der Samentrichter grösser, der Kragen schmaler, und der Penialbulbus sehr gross ist. Die Lymphociten sind in gewöhnlicher Grösse und Menge, wie dies für die Arten der Gattung *Fridericia* kennzeichnend ist, vorhanden.

Die neue Art wird zu Ehren mit bestem Dank nach Herrn Prof. DR. F. BERNINI (Universität, Siena) benannt.

### *Fridericia caprensis* BELL, 1947

(Abb. 2:a–g)

Kleine Art. Länge lebend: 7–9 mm, Breite 0,34–0,38 mm, am Gürtel 0,43–0,50 mm. Segmentzahl 36–39.

Kopfporus O/I, Dorsalporen im VII. Segment beginnend, gut sichtbar. (Nach BELL bei lebenden Exemplaren sehr schwer zu erkennen.) Farbe weiss. Borsten gerade mit einem entalen Haken: 2,3,4–4,3 : 3,4,5,6–4,3. Haut-

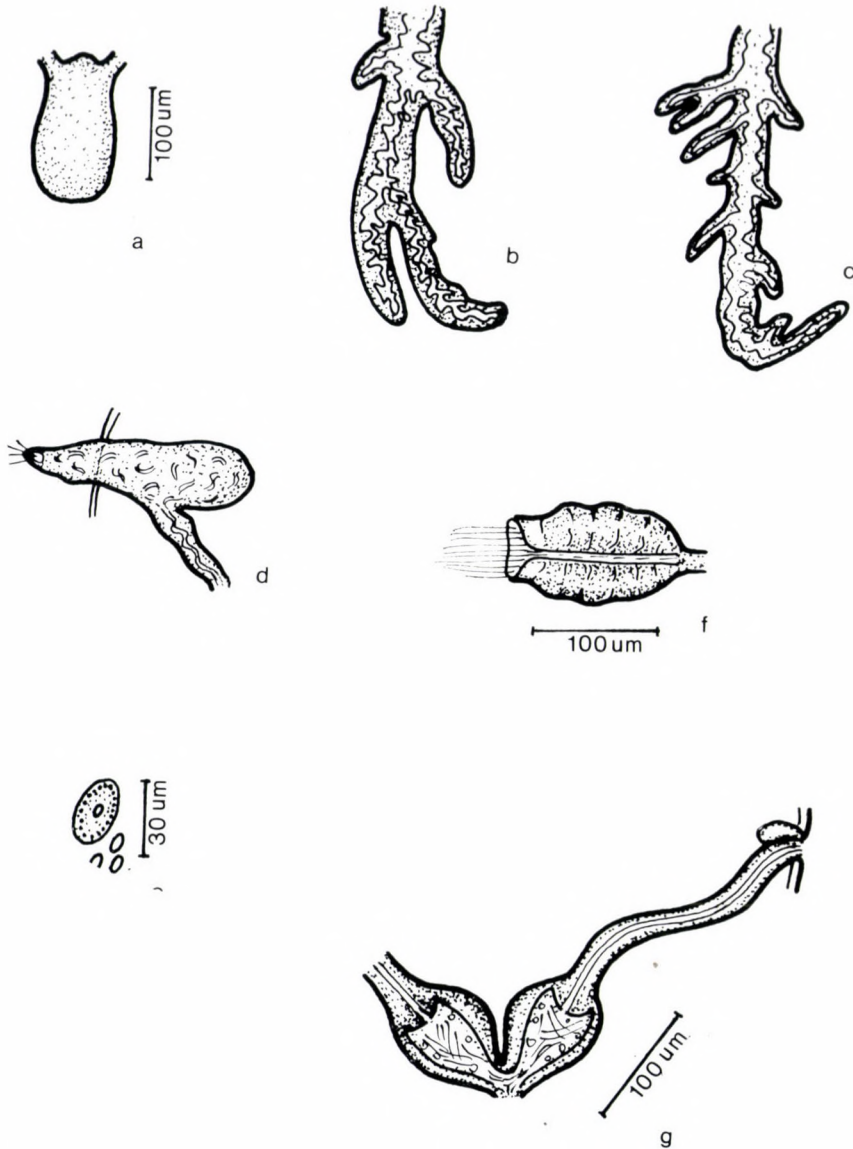


Abb. 2: a–g. *Fridericia caprensis* BELL 1947. a = Gehirn, b–c = Peptonephridien, d = Nephridium, e = Lymphocyten, f = Samentrichter, g = Spermatheken

drüsen in 3–4 (in einem Fall 5–7) Querreihen wohl entwickelt, bräunlich im durchschimmernden Licht. Clitellum gut entwickelt, XII.–1/2 XIII. (wie bei NIELSEN und CHRISTENSEN, 1963) bei Bell 1/2 XI. – 1/2 XIII. Drüsen in 30–36 Querreihen geordnet, gut entwickelt.

Gehirn zweimal grösser als breit (Abb. 2:a) 161 : 70  $\mu\text{m}$  (bei Bell 120 : 85 und 133 : 90  $\mu\text{m}$ ). Peptonephridien (Abb. 2:b—c) verzweigt mit einigen nicht zu langen Zweigen. Lymphociten (Abb. 2:e) entsprechend der Gattung zweierartig, die grossen Zellen sind *b*-Typ von MÖLLER (1971), Länge 20—33  $\mu\text{m}$ . Von den drei primären und drei sekundären Septaldrüsen letzteres Paar dorsal nicht kommunizierend. Ausführungsductus der Nephridien liegt ventral (Abb. 2:d), Rückengefäss entspringt im XIII.—XIV. Segment. Blut farblos, Chloragogenzellen sind vom V. Segment beginnend vorhanden. Vom VII. Segment sind sie sehr auffällig, obwohl eine durchschimmernde, mit Granulen dick gefüllte Schicht am Darm bildend den Körper sozusagen undurchsichtig erscheinen lässt.

Vesicula seminalis fehlen. Samentrichter (Abb. 2:f) 1 1/2—2-mal länger als breit, ungefähr 1/3 des Körperdurchmessers. Kragen schmaler als der Körper des Trichters. Samenleiter mittelmässig lang, 10—14  $\mu\text{m}$  breit, etwas gewunden. Penialbulbus gross (130 : 110  $\mu\text{m}$ ).

Spermatheken (Abb. 2:g) bestehen aus zwiebel förmigen Ampullen, die sehr scharfe Konturen besitzen, weiter eine grosse Aushöhlung haben in der sich Spermafäden befinden. Ferner besitzen die Spermatheken einen ziemlich dicken (21  $\mu\text{m}$ ) Ausführungsgang, mit einer kleinen Drüse an der Öffnung (bei BELL und NIELSEN & CHRISTENSEN sind zwei Drüsen vorhanden). Die Spermatheken sind miteinander verbunden und münden so in den Oesophagus.

Zwei Exemplare sind in 70% Alkohol aufbewahrt, ein Exemplar ist zugrunde gegangen, zwei weitere Exemplare wurden versucht in Zucht gebracht zu werden. Diese sind zwar ein Jahr hindurch am Leben geblieben (August 1987), haben sich aber nicht vermehrt, und zeigten dann Veralterungs- und Degenerationserscheinungen. Ein Exemplar wurde so in Alkohol aufbewahrt.

Verbreitung der Art: Italien: Capri (BELL, 1947), Spanien: San Felice bei Barcelona (NIELSEN und CHRISTENSEN, 1963), Balearen, Mallorca, Fundort I. und II.

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## THE ORIBATID FAUNA OF TANZANIA (ACARI), I.

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The study of Oribatid mites collected mainly in the environs of Amani, Tanzania is presented. The list of 19 species, of which are new to science is given. The erection of new genera and 2 new subgenera.

I have already published a number of papers on the Oribatids of the Ethiopian Region, especially of its East African subregion. The final aim of this series of communications is a comprehensive work in the serial "The Oribatids of the World".

One of the most interesting areas of this subregion is Tanzania, where we find the wooded savanna, the rather isolated island mountains, the high cone of volcanic origin, the remnants of rain forests along the sea coast and other special regions. The peculiarity of the fauna has already been justified by the work of DR. T. PÓCS, professor of botany (Budapest/Morogoro). He has made extensive collectings in the Uluguru Mountains and in the environs of Mt. Kilimanjaro. His soil samples have been elaborated by me continuously, and I published a large number of new taxa (MAHUNKA 1982—1987).

The preliminary studies made it quite obvious that regular collectings will have to be made. So when I was offered the opportunity by the Hungarian Academy of Sciences and by the personal invitation of DR. T. PÓCS along with the commission of the NORAD, I happily accepted. With DR. A. ZICSI, who had a grant, I travelled to Tanzania to carry out a one-month collecting tour. The report on our soil zoological work was published elsewhere (MAHUNKA, ZICSI and PÓCS, 1987). In the present series of papers I should like to publish the taxonomical results of this trip and of those completed previously.

The results surpassed our rather intensified expectations too. Thus, first I started to work with the samples commissioned by the NORAD comprising the untouched rain forest fauna and that of the Maeopsis forest. The fauna changes that could be demonstrated were published elsewhere (MAHUNKA and ZICSI, 1987). These mainly concerned the East Usambara Mts and the environs of Amani.

The framework of the present contribution is rather limited owing to shortage in publication capacity. The present paper proposes to discuss a total

of species, of which are new to science. Several species represent a number of new genera (*Tectocarabodes* — Carabodidae, *Tanzoppia* — Oppiidae, and *Scheloribatooides* — Oribotritiidae) and one subgenus (*Afrotritia* — *Indotritia*, Oribotritiidae). Furthermore, I also describe, on the basis of partial generic revision, a subgenus into the genus *Indotritia* SELLNICK, 1959.

A number of new discoveries further enriched our knowledge concerning the distribution and relationships of Oribatidae. Special mention should be made on the second species of the recently described *Hypochthoniella* genus, and again the second species within the genus *Notogalumna*. In connection with the description of the new *Uracrobates* species I newly examined the generotype: *U. magniporosus* BALOGH et MAHUNKA, 1966, and decided to publish a new figure of the type-species.

#### LIST OF LOCALITIES\*

- No. 84.** Kisiwani, Tanga region, 350 m. 10. II. 1987. — Berlese and Nematoda samples from dry litter and soil in a teakwood (*Tectone* sp.) plantation.  
**No. 103.** Kwamsambia Forest Reserve, Tanga region. 10 km S from Kwamkoro. 1050 m 10. II. 1987. — Berlese and Nematoda samples from the litter and soil of a primary rainforest, along a straight line (see in the introduction). Five different samples (A—E).  
**No. 105.** Kwamsambia Forest Reserve, Tanga region. 10 km S from Kwamkoro. 1050 m 10. II. 1987. — Sifted material from litter of  $4 \times 0.5$  m<sup>2</sup> areae (see. No. 103).  
**No. 134.** Amani, Tanga region. 15. II. 1987. — Seeping the vegetation of a marshy-meadow.

#### *Mesoplophora* (*Parplophora*) *rostrata* sp. n.

Measurements. — Length of aspis: 205—221  $\mu$ m, length of notogaster: 286—297  $\mu$ m, height of notogaster: 194—205  $\mu$ m.

**A s p i s:** Surface without any sculpture. Lateral carina and lateral margin well developed, latter conspicuously wide basally. Three pairs of prodorsal setae (*ro*, *le*, *in*) thin, one pair minute (*ex*). Setae *in* > *le* > *ro*. Sensillus long, with 8—9 very long cilia (Fig. 1).

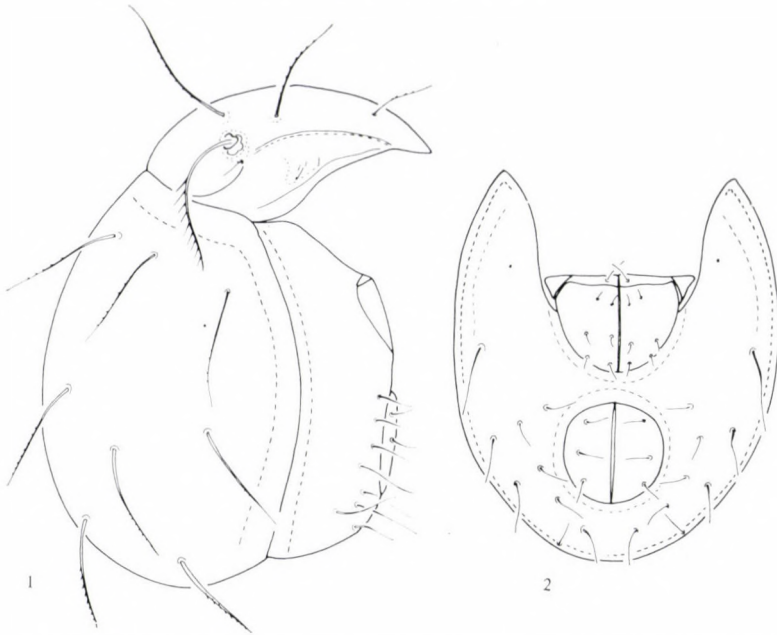
**N o t o g a s t e r:** Eight pairs of notogastral setae present: anterior three pairs thin, rarely ciliate, cilia hardly observable. Other notogastral setae thicker and more ciliate than the preceding ones.

**V e n t r a l s i d e** (Fig. 2): Genital plate with 6 + 1 genital setae arranged in two rows. One pair of aggenital setae present, represented only by their alveoli. Nine pairs of “adanal” and two pairs of simple anal setae present.

**T y p e - m a t e r i a l:** Holotype (1260-HO-87): No. 84; 4 paratype: from the same sample; 9 paratypes (4 nymphs): No. 85; 2 paratypes: BORHIDI 2. Holotype and 13 paratypes (4 nymphs) (1260-PO-87) deposited in the HNHM, 1 paratype in the MHNG and 1 paratype in the SUM.

\* All samples were collected by S. MAHUNKA, T. PÓCS and A. ZICSI.





Figs 1—2. *Mesoplophora (Parplophora) rostrata* sp. n. — 1 = body in lateral view, 2 = anogenital region

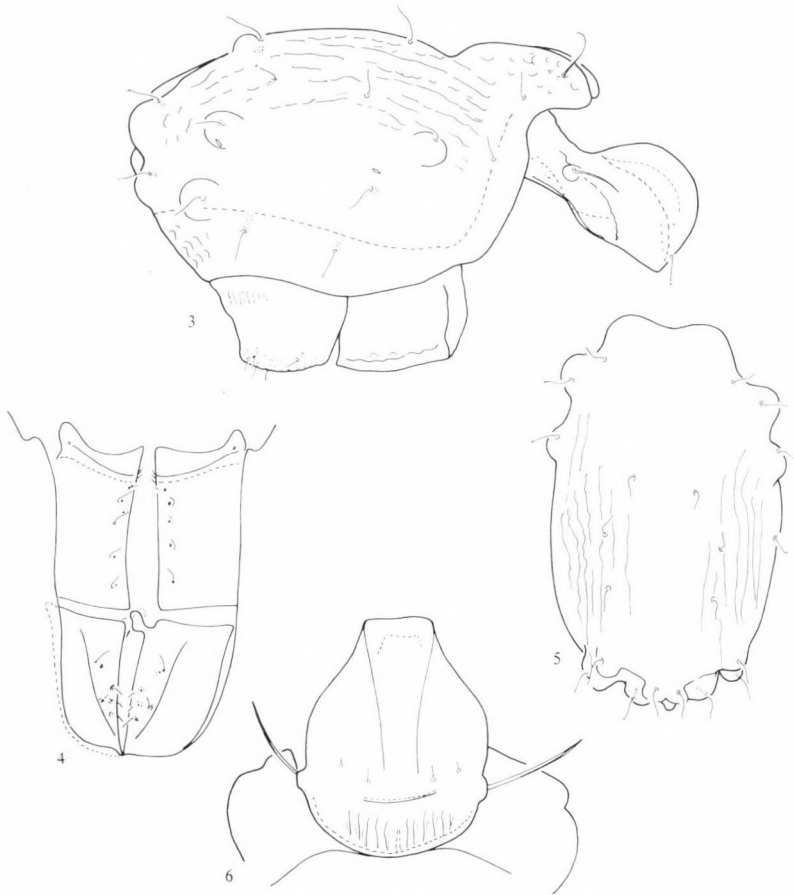
**R e m a r k s:** The species of the genus *Mesoplophora* were newly discussed by NIEDBALA (1985). The new species stands nearest to *M. africana* BALOGH, 1958, however, it is distinguished from the latter by the less number of cilia on the sensillus (13—15 in *africana*), the fine and thin prodorsal setae (much stronger in *africana*) and by the great difference in the ciliation of setae (nearly equal in *africana*). The shape of the prodorsal and notogastral setae is similar to that of *M. invisitata* NIEDBALA, 1983 from Uganda, but their ciliation is absent and the sensillus is without long cilia.

#### **Hoplophorella meszarosi** sp. n.

**Measurements.** — Length of aspis: 340  $\mu\text{m}$ , length of notogaster: 787  $\mu\text{m}$ , height of notogaster: 484  $\mu\text{m}$ .

**A s p i s:** On the anterior half a very high crista present, similar to a steel helmet. Lateral carina short, it disappears before the lateral margin. Surface with some alveoli anteriorly and some well-observable longitudinal ribs basally (Fig. 6). All prodorsal setae thin, short, and setiform. Sensillus long, straight and shaped like a sword.

**N o t a g a s t e r:** Anterior part of notogaster dilated like an eaves (Fig. 3) covering the basal part of aspis. The anterior margin concave medially (Fig. 5). Notogaster with well-developed, round tubercles on which the



Figs 3—6. *Hoplophorella meszarosi* sp. n. — 3 = body in lateral view, 4 = anogenital region, 5 = notogaster in dorsal view, 6 = aspis

notogastral setae arise. The tubercles of setae  $h_1$  connected with each other medially, like a fish-tail (Fig. 6). All notogastral setae thin, fine and short. Surface ornamented by large alveoli, arranged in longitudinal rows forming longitudinal fossae.

**Anogenital region:** Surface of ano-adanal plate foveolated along the inner margin, but genito-aggenital plate only with some larger, irregular alveoli. All ano-adanal setae short, no essential difference among them. Four pairs of genital setae comparatively long and thin (Fig. 4).

**Type-material:** Holotype (1261-HO-88): No. 105; deposited in the HNHM.

**Remarks:** The new species belongs to the *Hoplophorella multituberculata* species-group,\* which is characterized by the notogastral tubercles. It

\* See remarks under *Hoplophorella tuberculosa* sp. n.

is distinguished from the related species by the fishtail-shaped end of notogaster, the medially concave anterior notogastral margin and by the very high aspidial crista.

I dedicate the new species to my friend DR. F. MÉSZÁROS (Director of the Zoological Department of the Hungarian Natural History Museum, Budapest), who collected many soil samples for me.

### **Hoplophorella tuberosa** sp. n.

Measurements. Length of aspis 454  $\mu\text{m}$  length of notogaster 959  $\mu\text{m}$ , height of notogaster: 561  $\mu\text{m}$ .

**Aspis:** Very high median crista present, lateral carina short, but well developed, it runs anteriorly from basal part of aspis and sweeps round the bothridium. Surface ornamented by foveolae anteriorly and by rugae basally. Three pairs of prodorsal setae very short, thin, fine setae ex reduced, only their insertion points observable. Sensillus setiform, thin and smooth (Fig. 9).

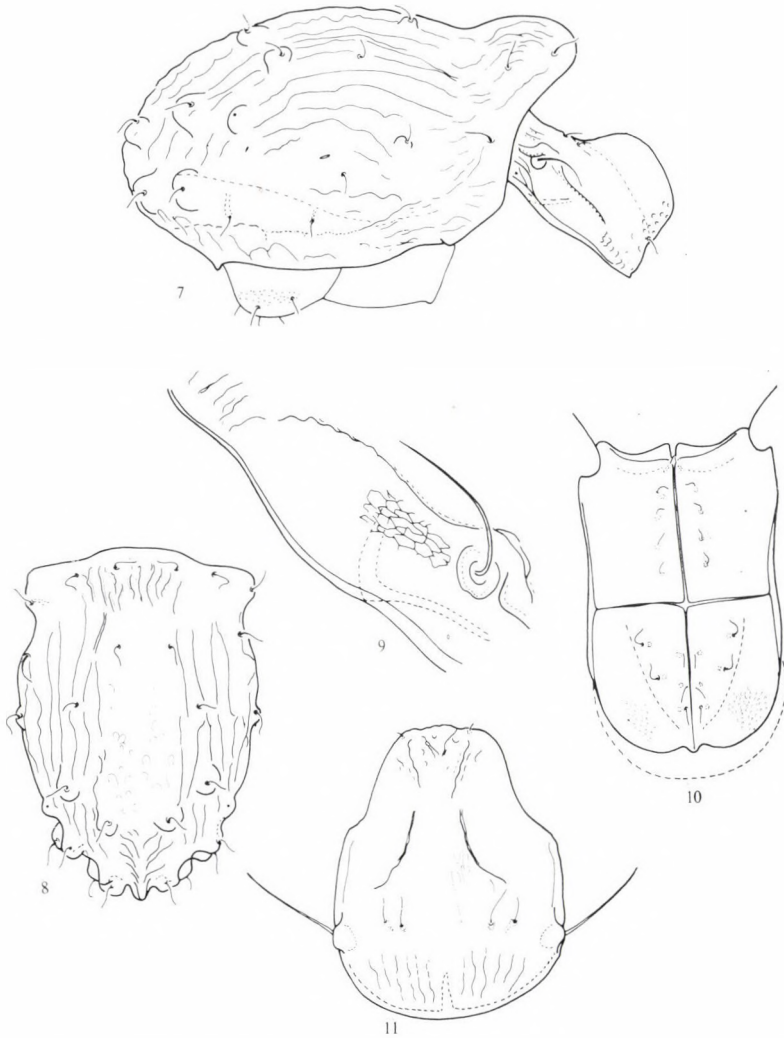
**Notogaster:** Anterodorsal part of notogaster protruding forward in dorsal view (Fig. 7), it converges toward the basal part of aspis in lateral view narrowed anteriorly. Surface of notogaster with large, round protuberances and mostly longitudinal ribs. Fifteen pairs of fine and curved notogastral setae present, mostly arising on tubercles. Dorsomedian part ornamented by large foveolae (Fig. 8), some rugae also visible anteriorly.

**Anogenital region:** Surface of both pairs of plates ornamented by small foveolae, ano-adanal plates very high. All setae of this region short and simple. Setae  $ad_1$  and  $ad_2$  slightly longer than the other ones (Fig. 10).

**Type-material:** Holotype (1262-HO-88): No. 134: deposited in the HNHM.

**Remarks:** The new species belongs to the "*multituberculata*" species-group, which is characterized by the strong anterodorsal protrusion, the strong structure and sculpture of the prodorsum and the notogaster, and the fine short ano-adanal setae. Some of the related species were placed by NIEDBALA (1986) in the genus *Protophthiracarus* BALOGH, 1972. In my opinion they belong to the genus *Hoplophorella*, or perhaps represent a new genus. For the Ethiopian species of this well-separable group I give a short determination key hereunder:

- 1 (6) On the prodorsum a very high crista present, the basal part of prodorsum (in lateral view) only half as high as the anterior part with crista.
  - 2 (3) Anterior margin of notogaster concave. Posterior margin (in dorsal view) resembling a fish-tail
- meszarosi** sp. n.
- 3 (2) Anterior margin of notogaster convex, rounded, posterior margin not resembling a fish-tail.



Figs 7–11. *Hoplophorella tuberosa* sp. n. — 7 = body in lateral view, 8 = notogaster in dorsal view, 9 = bothridial region, 10 = anogenital region, 11 = aspis

- 4 (5) Notogastral setae dilate, phylliform. Behind anterodorsal protuberances some strong elevations visible **multituberculata** (BALOGH et MAHUNKA, 1966)
- 5 (4) Notogastral setae simple, thin and filiform. Notogaster simply concave behind the anterodorsal protuberances **tuberosa** sp. n.
- 6 (1) Prodorsum without a high crista, its anterior part at least scarcely higher (in lateral view) than the basal part.
- 7 (8) Notogaster without clearly observable tubercles or elevations, its surface waved or rugose **multirugosus** (MAHUNKA, 1978)
- 8 (7) Notogaster with strongly convex tubercles or elevations.
- 9 (10) Notogastral surface ornamented by small foveolae. Anterodorsal protrusion very long and strongly narrowed anteriorly **tuberculosissimus** (MAHUNKA, 1978)

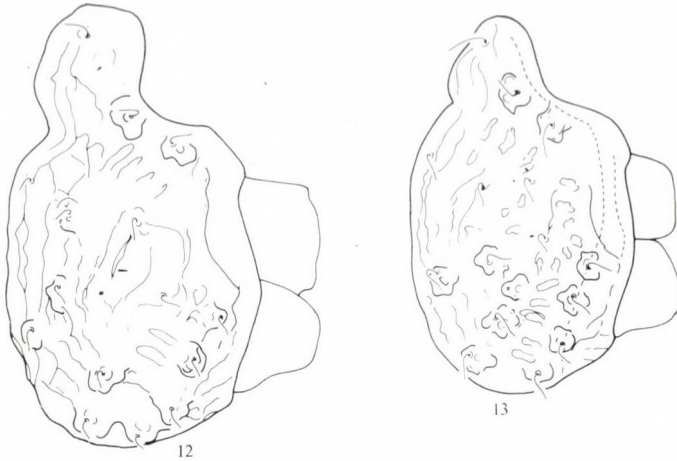


Fig. 12. *Hoplophorella horrida* MAHUNKA, 1984 notogaster in lateral view. — Fig. 13. *H. verrucosa* MAHUNKA, 1987 notogaster in lateral view

- 10 (9) Notogastral surface ornamented by large and irregular alveoli. Anterodorsal protrusion either much smaller and narrow, or very wide, quadrangular.
- 11 (12) Sensillus very thin, setiform. Anterodorsal protrusion angular in lateral view (Fig. 12) **horrida** MAHUNKA, 1984
- 12 (11) Sensillus dilated, fusiform. Anterodorsal protrusion rounded and narrowed anteriorly (Fig. 13) **verrucosa** MAHUNKA, 1987

### *Steganacarus (Rhacaplacarus) zicsii* sp. n.

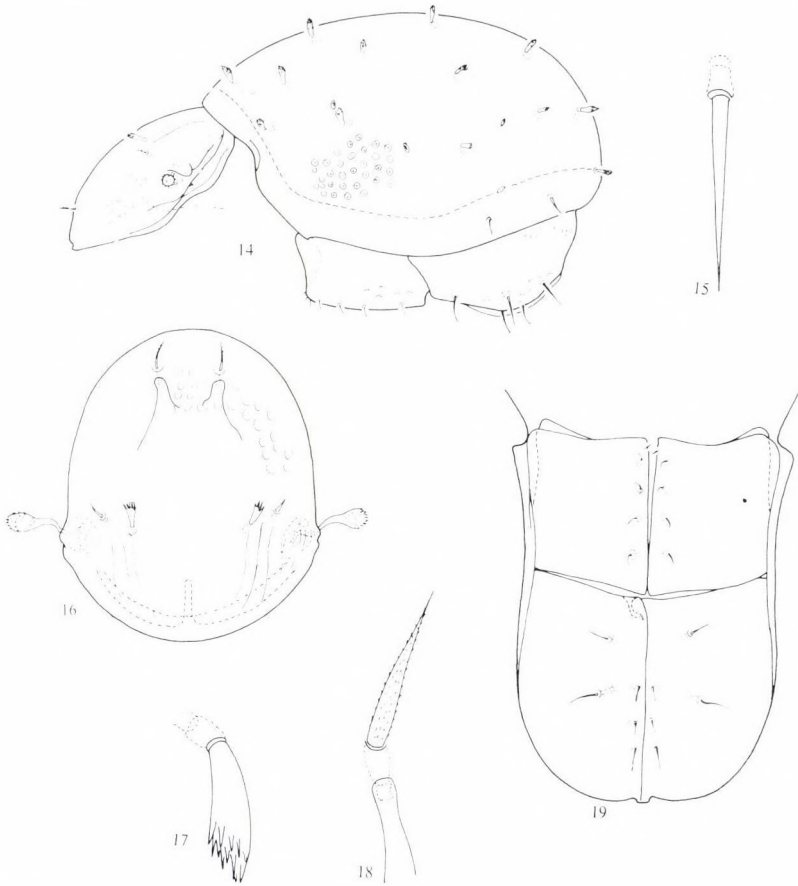
Measurements. — Length of aspis: 128–156  $\mu\text{m}$ , length of notogaster: 232–208  $\mu\text{m}$ , height of notogaster: 124–188  $\mu\text{m}$ .

**A s p i s:** Surface foveolate anteriorly and partly laterally, but its dorsomedian and basal surface without foveolae. Basally 2–3 pairs of strong ribs well observable (Fig. 16). Lateral carina absent, lateral margin short. Among the prodorsal setae *ro* (Fig. 18) thickened basally, comparatively long, finely barbed, setae *le* dilate, phylliform, with long spines, setae *in* minute, setae *ex* reduced. Sensillus short, its head nearly round, its surface distinctly barbed.

**N o t o g a s t e r:** Surface weakly, but regularly foveolate, foveolae with a median puncture each. Fifteen pairs of short notogastral setae present, twelve pairs of them dilate (Fig. 17) resembling lamellar setae, two pairs (*p*<sub>3</sub> and *p*<sub>4</sub>) normal (Fig. 15) as rostral setae. Four pairs of well-observable lyrifissures present, *ia* originating in front of setae *cp*.

**A n o g e n i t a l r e g i o n:** All setae thin and simple, adanal setae slightly longer than anal ones (Fig. 19), but no essential difference among them. Both pairs of plates only partly ornamented by foveolae.

**T y p e - m a t e r i a l:** Holotype (1263-HO-88): No. 103; 2 paratypes from the same sample; 1 paratype: No. 105. Holotype and 2 paratypes (1263-PO-88) deposited in the HNHM and 1 paratype: MHNG.

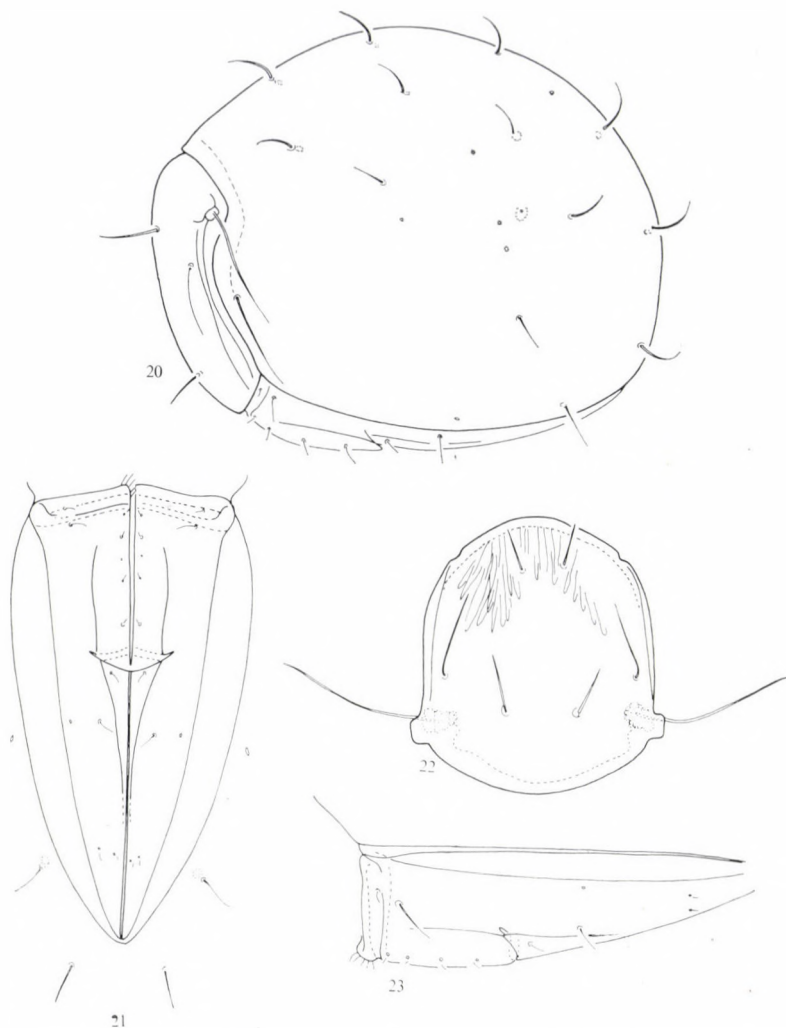


Figs 14—19. *Steganacarus (Rhacaplacarus) zicsii* sp. n. — 14 = body in lateral view, 15 = seta  $p_1$ , 16 = aspis, 17 = seta  $c_3$ , 18 = seta  $ro$ , 19 = anogenital region

**Remarks:** The new species is well characterized by the form of its notogastral setae. On this basis it stands near to *S.(R) spiniger* AOKI, 1980, because only this species has short notogastral setae in this genus. The form of the notogastral setae resemble those of *Atropacarus clavigerus* (BERLESE, 1904) and *T. csiszarae* BALOGH et MAHUNKA, 1979, however, the generical difference is evitable (NIEDBALA, 1986).

#### ***Indotritia (Afrotritia) compacta* sp. n.**

**Measurements.** — Length of aspis: 229—328  $\mu\text{m}$ , length of notogaster: 410—615  $\mu\text{m}$ , height of notogaster: 398—492  $\mu\text{m}$ . Body very wide (328—485  $\mu\text{m}$ ), compact.



Figs 20–23. *Indotritia (Afrotritia) compacta* sp. n. — 20 = body in lateral view, 21 = anogenital region, 22 = aspis, 23 = anogenital region in lateral view

**A s p i s:** Two, nearly equally developed lateral carinae present on each side, upper slightly shorter than the lower one. Lateral margin weakly developed. Prodorsal setae represent a different type, setae *ro* and *in* short, erect,  $ro < in$ , their end blunt at tip (Fig. 22), setae *le* thin, filiform. Exobothridial setae very short. Margin of bothridial squama wavy. Sensillus very long (150  $\mu\text{m}$ ), setiform.

**N o t o g a s t e r:** Fourteen pairs of notogastral setae present, they are also of two types, mostly they are short, curving forwards, blunt at tip, but

setae  $c_3$  very long and thin, setae  $p_3$  straight and thinner than the  $p_2$  or  $p_1$  (Fig. 20). Four pairs of notogastral lyrifissures present, and the insertion of setae  $f_1$  and  $f_2$  well observable.

**Anogenital region:** Genito-aggenital suture reaching to the insertion of setae  $ag_2$ . Setae  $ag_1$  very short, sometimes hardly observable. Anogenital cleft also minute. Ano-adanal suture reaching slightly over lyrifissures *iad* (Fig. 21). All setae short and thin, their ratio as shown in Fig. 23.

**Type-material:** Holotype (1264-HO-88): No. 105, 3 paratypes: from the same sample; 5 paratype: No. 12; 1 paratype: No. 35; 2 paratypes: No. 53; 2 paratypes: No. 170. Holotype and 11 paratypes (1264-PO-88): deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The species belonging to the genus *Indotritia* JACOT, 1925 stand partly very near to each other, partly quite apart, since among them supraspecific differences observable are, first of all in the anogenital region. PÉREZ-IÑIGÓ (1986) established already a new subgenus (*Macarotritia*) but it does not belong — in my opinion — to the genus *Indotritia*. The present new species is also distinguished from all the other ones by the shape of its ano-adanal suture, therefore, I establish for it a new subgenus:

#### **Afrotritia** subgen. n.

**Diagnosis:** Habitus resembling that of *Indotritia* s. str. Sensillus setiform, prodorsal and notogastral setae partly erect, spinose. Genital — aggenital and anal — adanal plates only incompletely separated, ano-adanal suture partly absent.

**Type-species:** *Indotritia (Afrotritia) compacta* sp. n.

A further species (*Indotritia aotearoana* RAMSAY, 1966) is also distinguished from all the other species, so I propose for it a new subgenus too:

#### **Zeaotritia** subgen. n.

**Diagnosis:** Body compact, wide. Sensillus short, thick, bacilliform, ciliate. Prodorsal and notogastral setae fine, simple, smooth. Anogenital cleft absent. Ano-adanal suture wholly developed. Anal setae reduced.

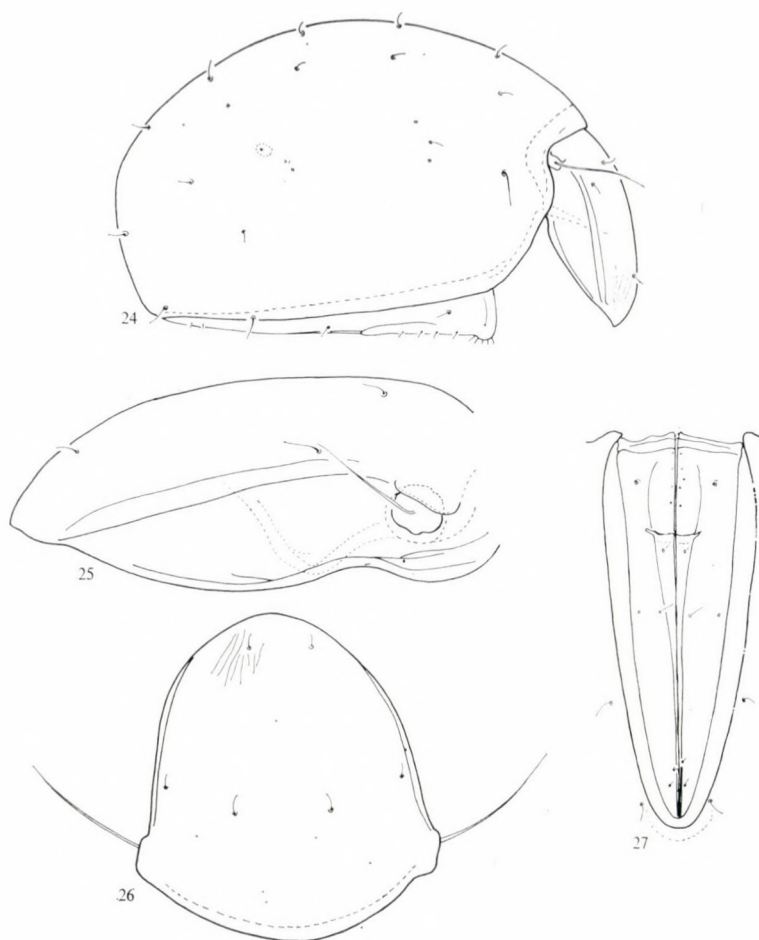
**Type-species:** *Indotritia aotearoana* RAMSAY, 1966.

**Remark:** For differential diagnosis see also after the description of the next new *Indotritia* species.

#### **Indotritia nuda** sp. n.

**Measurements.** — Length of aspis: 400–484  $\mu\text{m}$ , length of notogaster: 844–992  $\mu\text{m}$ , height of notogaster: 557–660  $\mu\text{m}$ .





Figs 24–27. *Indotritia nuda* sp. n. — 24 = body in lateral view, 25 = bothridial region, 26 = aspis, 27 = anogenital region

**Aspis:** Anterior part of its surface striate. Two lateral carinae present on each side, upper one shorter and slightly thinner (Fig. 25) than the lower line (in lateral view). Lateral margin observable but not long. All three pairs of prodorsal setae fine (Fig. 26), short, exobothridial setae represented only by their alveoli.

**Notogaster:** Fifteen pairs of very short, fine, sometimes hardly observable notogastral setae present. Setae  $c_1$  originating much farther from the collar line than  $c_2$  and  $c_3$  (Fig. 24). Setae  $c_3$  three-times longer than  $c_2$  but they are also very fine. Only two pairs of lyrifissures observable.

**Anogenital region:** Anogenital seta formula: 9–1–1–3. All setae very short and fine, setae  $ag$  and  $ad_3$  slightly longer than the other ones (Fig. 27).

**Legs:** All legs tridactylous.

**Type-material:** Holotype (1265-HO-88): No. 105; 6 paratypes: from the same sample; 1 paratype: No. 103. Holotype and 5 paratypes (1265-PO-88) deposited in the HNHM 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The number of species belonging to the genus *Indotritia* increased remarkably in recent years, and these species, also the new one, stand comparatively very near to each other. The following key may be used separating the species:

- 1 (2) Aggenital cleft absent. Anal setae completely reduced. Palps four-segmented (Subgenus: *Zeotritia* subgen. n.) **aotearoana** RAMSAY, 1966
- 2 (1) Aggenital cleft present, at least one pair of anal setae visible.
- 3 (4) Ano-adanal suture partly reduced, therefore, posterior part of anal and adanal plates fused (Subgenus: *Afrotritia* subgen. n.) **compacta** sp. n.
- 4 (3) Ano-adanal suture well developed, it is clearly divided over its whole length of the anal and adanal plates (Subgenus: *Indotritia*).
- 5 (12) One pair of anal and two pairs of adanal setae present.
- 6 (9) Sensillus very long, at least three-times longer than the next longest prodorsal or notogastral setae.
- 7 (8) All notogastral or prodorsal setae very short and fine. Sensillus more than five-times longer than rostral setae **nuda** sp. n.
- 8 (7) Some notogastral setae strong and erect; sensillus only three-times longer than rostral setae **carolinae** JACOT, 1930
- 9 (6) Sensillus normal in length, not or scarcely longer than lamellar or interlamellar setae.
- 10 (11) Interlamellar setae thicker and longer than lamellar ones. Surface smooth **javensis** (SELLNICK, 1923)
- 11 (10) Interlamellar setae thicker, but much shorter than lamellar ones. Notogastral surface with a fine, waved sculpture **undulata** BAYOUMI et MAHUNKA, 1979
- 12 (5) Two pairs of anal and two pairs of adanal setae present  
All the other *Indotritia* species

### *Pocsia heterotricha* sp. n.

**Measurements.** — Length of aspis: 189–206  $\mu\text{m}$ , length of notogaster: 367–382  $\mu\text{m}$ , height of notogaster: 237–260  $\mu\text{m}$ .

**Aspis** (Fig. 31): Lateral carina weak, lateral margin wide, its widest part is in the middle. Prodorsal setae — with the exception of setae *ex* — long, their ratio:  $ro > le > in$ . Sensillus fusiform, finely ciliate (Fig. 29).

**Notogaster** (Fig. 28): Fourteen pairs of notogastral setae present, great differences exist in their lengths, setae  $c_3$  very short, only one-third as long as setae *cp*. Setae  $c_1$  as long as  $h_1$  or  $p_1$ . Four pairs of lyrifissures present.

**Anogenital region** (Fig. 30): Genital setae much shorter than anal ones. Setae  $an_1 \cong an_2 \cong an_3$ .

**Type-material:** Holotype (1266-HO-88): No. 105; 5 paratypes: from the same sample; 3 paratypes: No. 103. Holotype and 6 paratypes (1266-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.



Figs 28–31. *Pocsia heterotricha* sp. n. — 28 = body in lateral view, 29 = bothridial region, 30 = anogenital region, 31 = aspis

**Remarks:** The new species stands very near to *Pocsia secunda* MAHUNKA, 1983. They are distinguished by the following features:

***secunda* MAHUNKA, 1983**

1. Setae *ro* much shorter than setae *in*.
2. End of setae *cp* fine, flagellate.
3. Genital setae very long, flagellate, longer than setae *en*<sub>1</sub>.

***heterotricha* sp. n.**

1. Setae *ro* longer than setae *in*.
2. End of setae *cp* blunt, spiniform.
3. Genital setae normal in length, shorter than *an*<sub>1</sub>.

**Rhsotritia reticulata** sp. n.

Measurements. — Length of aspis 216—252  $\mu\text{m}$ , length of notogaster: 418—509  $\mu\text{m}$ , height of notogaster: 307—361  $\mu\text{m}$ .

**A s p i s:** Its outline (in lateral view) only slightly convex medially and concave in front of the rostral setae. Lateral carinae strong, reaching to lateral margin. Rostral setae (36  $\mu\text{m}$ ) only slightly shorter than lamellar setae (42  $\mu\text{m}$ ), interlamellar setae the longest (66  $\mu\text{m}$ ). Sensillus slightly dilate distally (Fig. 34), this part with some spines.

**N o t o g a s t e r:** Whole surface ornamented by secretion granules forming a polygonal reticulation (Fig. 32). Notogastral setae slightly curved, setae  $c_1$  slightly longer than  $d_1$ , no essential difference among the other setae. All setae spiculate on their distal end.

**A n o g e n i t a l r e g i o n:** Genital setae minute. Length of adanal setae similar to those of notogastral ones (Fig. 33).

**L e g s:** All legs tridactylous.

**T y p e - m a t e r i a l:** Holotype (1267-HO-88): No. 84; 8 paratypes: from the same sample. Holotype and 6 paratypes (1267-PO-88) deposited in the HNHM, 1 paratype: MHNG, and 1 paratype: SUM.  
Eniochthonius

**R e m a r k s:** The ornamentation of the notogaster is unique in the genus *Rhsotritia* MÄRKEL et MEYER, 1959. On this basis the new species is well distinguished from all related species.

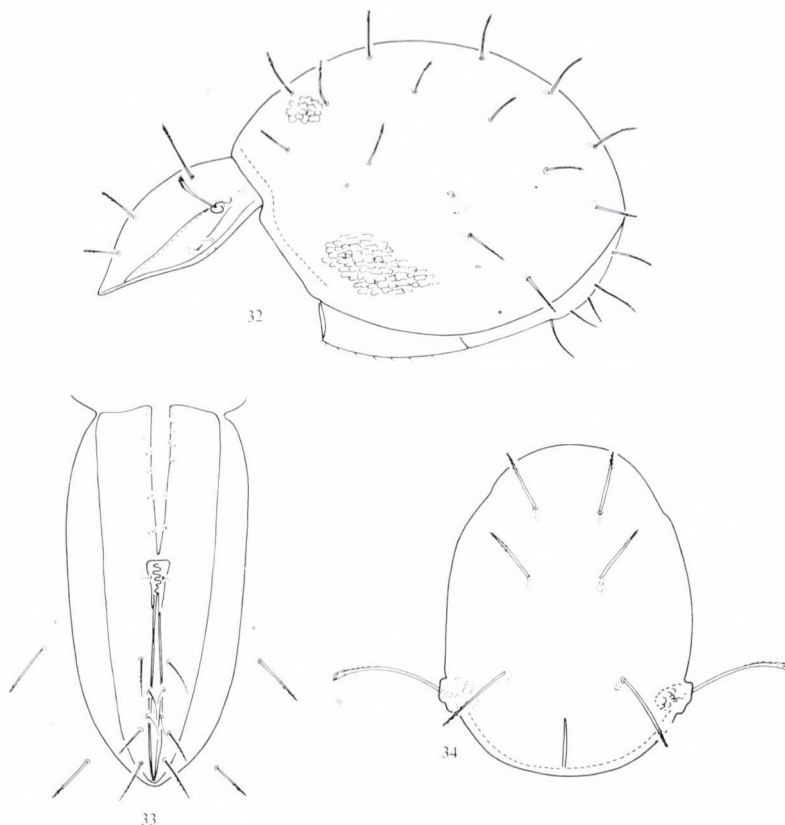
**Microtegeus variabilis** sp. n.

Measurements. — Length: 320—329  $\mu\text{m}$ , width: 232—244  $\mu\text{m}$ .

**P r o d o r s u m:** Whole surface of body covered by papillae or granules. Rostrum elongated, conical, rostral setae thin, short, arising near to rostral apex. Lamellae wide, with a long and wide anterior part and with a highly variable inner cuspis (Fig. 37). Lamellar and interlamellar setae much stronger than rostral ones, both pairs arising on tubercles. A pair of tubercles and a table-shaped chitinous formation observable in the interlamellar region. Peduncle of sensillus long, directed outwards, its nead with strong spines. Exobothridial setae also strong and long (Fig. 38).

**N o t o g a s t e r:** Surface divided by strong chitinous laths connected with each other (Fig. 35) forming a polygonate figure. Ten pairs of strong and long notogastral setae present, setae  $c_2$  much shorter than the others.

**C o x i s t e r n a l r e g i o n:** Apodemes and epimeral borders well chitinized and clearly observable. Some other ribs or chitinous laths also visible



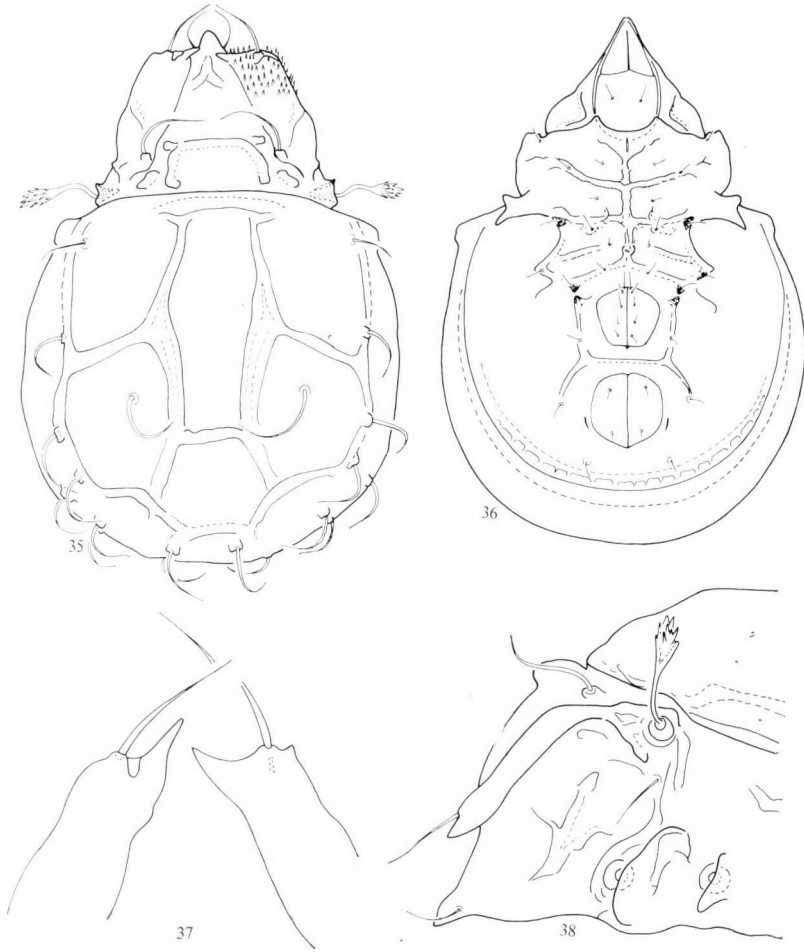
Figs 32—34. *Rhyssotritia reticulata* sp. n. — 32 = body in lateral view, 33 = anogenital region, 34 = aspis

visible (Fig. 36). Pedotecta 1 round, pedotecta 2—3 also well developed, reaching far out laterally. Two pairs of well-developed tubercles present in this region, one pair in sejugal region (with setae 3c) and one on the posterior border of epimeral region (with setae 4b). All epimeral setae short and simple.

**Anogenital region:** Anal and genital aperture framed by strong chitinous laths. On its anterior part one pair of tubercles present, they are opposed with the a posterior epimeral tubercles. Anogenital setal formula: 5—1—2—2. Anterior genital setae much longer than the others. Lyrifissures *iad* originating near to the posterior part of anal aperture.

**Legs:** All legs monodactylous. Solenidia  $\varphi_1$  and  $\varphi_2$  of leg I very long,  $\varphi_2$  directed outwards, characteristically bent. Solenidia of other legs also well curved.

**Type-material:** Holotype (1268-HO-88): No. 105; 3 paratypes: from the same sample. Holotype and 1 paratype (1268-PO-88) deposited in the HNHM, 1 paratype: MHNG, and 1 paratype: SUM.



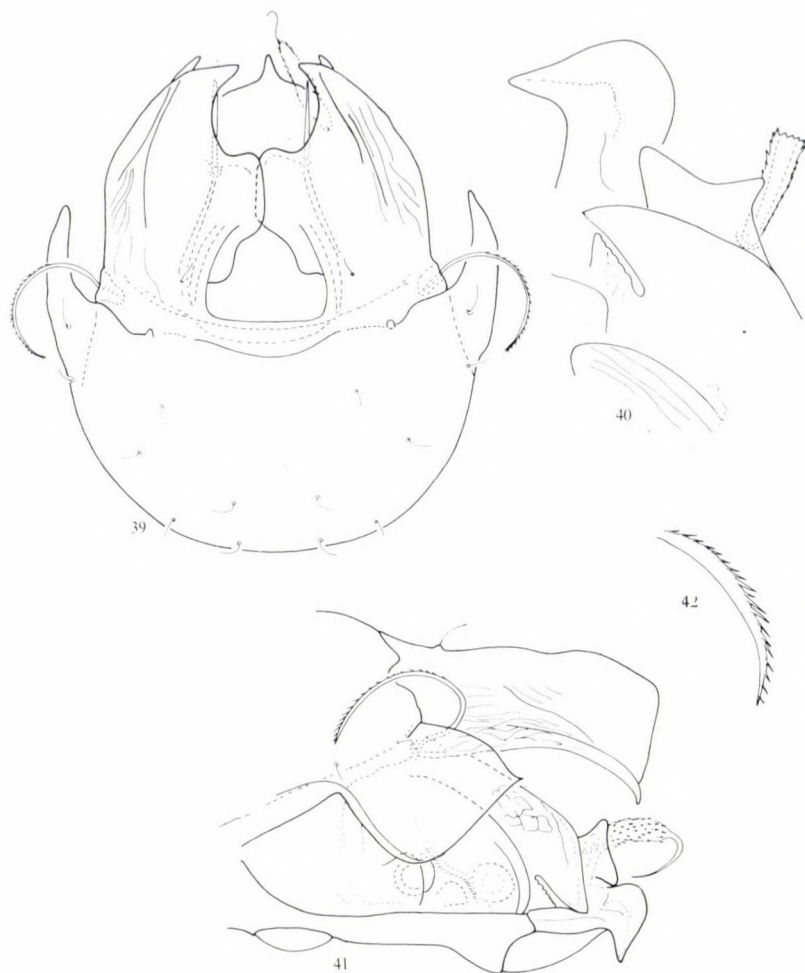
Figs 35–38. *Microtegeus variabilis* sp. n. — 35 = dorsal view, 36 = ventral view, 37 = lamellar cuspis, 38 = prodorsum in lateral view

**Remarks:** The new species is well distinguished from all heretofore known related species by the characteristic sculpture of the notogaster and the elongate median apex of the lamellae.

#### ***Cavernozetes interruptus* sp. n.**

**Measurements.** — Length: 284–310  $\mu\text{m}$ , width: 256–272  $\mu\text{m}$ .

**Prodorsum:** Rostrum nasiform, halbert-shaped in lateral view (Fig. 40). Lamellae very wide, with a spiniform outer apex; their inner margin excavate anteriorly, but overlapping each other medially (Fig. 39). Lamellar

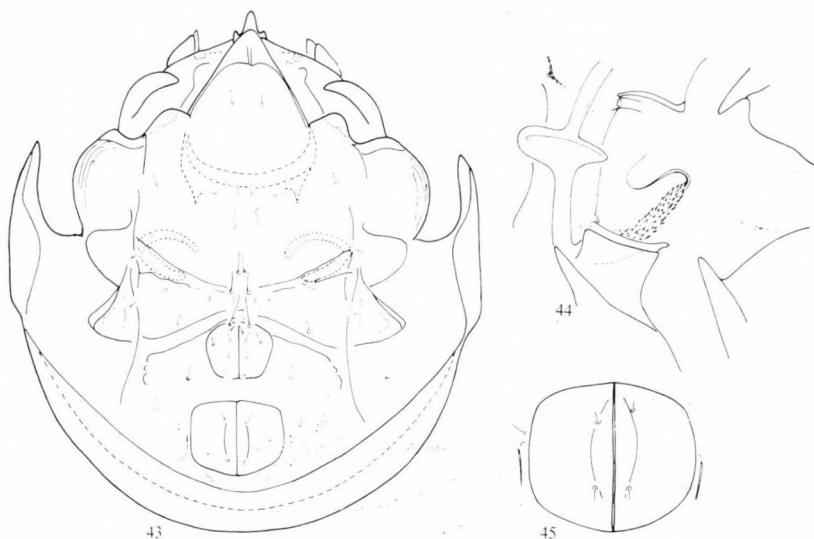


Figs 39–42. *Cavernozetes interruptus* sp. n. — 39 = dorsal view, 40 = rostral region in lateral view, 41 = prodorsum in lateral view, 42 = end of sensillus

setae spiniform, smooth, inserted on the basal surface of the lamellae; interlamellar setae fine, short, arising on the dorsal surface of the lamellae. Lateral part of lamellae ornamented by irregular, mostly longitudinal rugae. Sensillus curved backwards, its end slightly thickened, outer margin with strong spines.

**Notogaster:** Median part well excavate. Dorsosejugal suture interrupted laterally, but well visible medially. Pteromorphae large sharply pointed anteriorly. All notogastral setae short and fine.

**Lateral part of podosoma:** Tutorium very wide, it consists of two parts: anterior one dilate, bicuspidate, posterior one with one apex.



Figs 43—45. *Cavernozetes interruptus* sp. n. — 43 = ventral view, 44 = rostral region in dorsal view, 45 = anal plate

Its surface ornamented by a polygonal sculpture. Rostral setae arising under the anterior cuspis (Fig. 41), bean-pod-shaped. Pedotecta 1 very large, pedotecta 2—3 large and rounded.

**Coxisternal region** (Fig. 43): Surface smooth. Epimeral borders only partly visible, apodemes also short. Epimeral setae strong but short, partly ciliate.

**Anogenital region**: As shown in Fig. 45.

**Type-material**: Holotype (1269-HO-88): No. 105; 6 paratypes: from the same sample. Holotype and 4 paratypes (1269-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

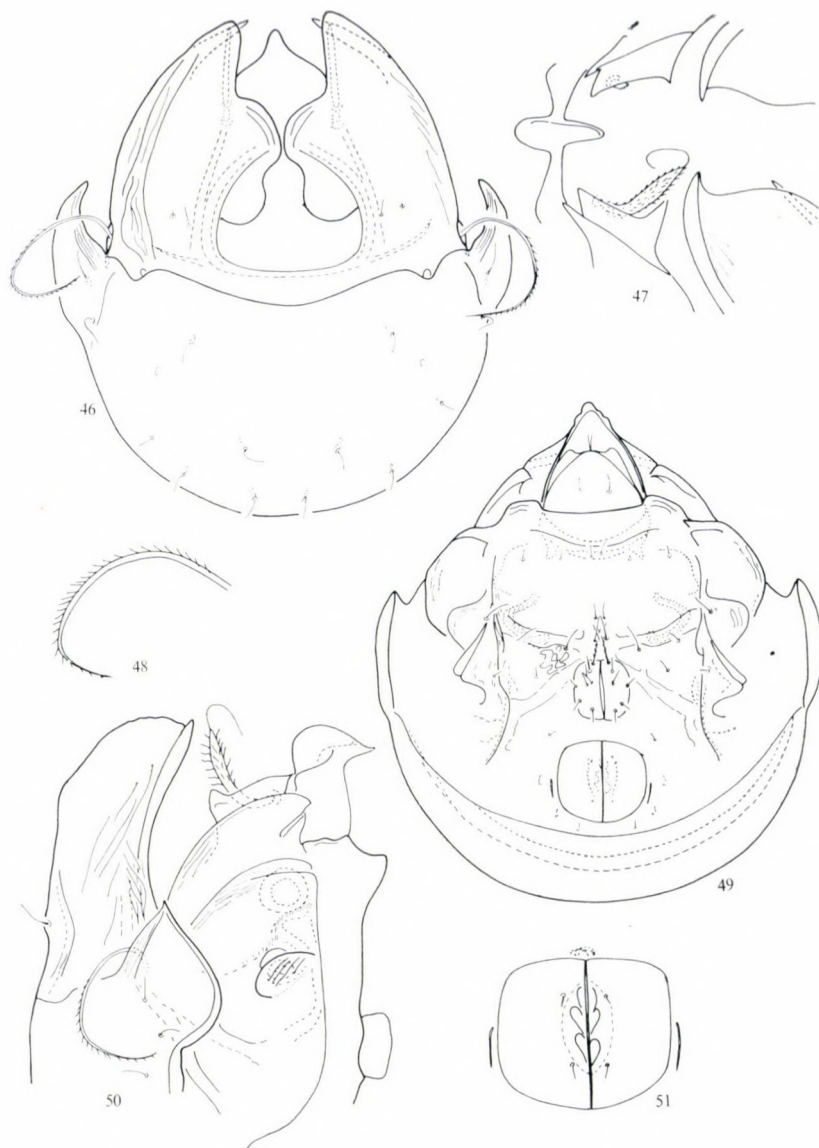
**Remarks**: See after the next *Cavernozetes* species.

### ***Cavernozetes latus* sp. n.**

**Measurements**. — Length: 324—332  $\mu\text{m}$ , width: 284—288  $\mu\text{m}$ .

**Prodorsum**: Rostrum nasiform, halbert-shaped in lateral view (Fig. 47). Lamellar region very similar to the preceding species, but lamellae do not overlap medially and the form of their median part is slightly different (Fig. 46). Sensillus curved backwards, long, setiform, not dilated distally (Fig. 48).





Figs 46–51. *Cavernozetes latus* sp. n. — 46 = dorsal view, 47 = rostral region, 48 = end of sensillus, 49 = ventral view, 50 = prodorsum in lateral view, 51 = anal plate

**Notogaster:** Dorsosejugal suture complete, concave medially and waved laterally. Form of pteromorphae also similar (Fig. 50) but slightly smaller and narrower than in the other *Cavernozetes* species.

**Lateral part of podosoma:** Tutorium very wide (Fig. 50) it consists of two parts: anterior one bicuspidate, rostral setae bean-pod-shaped,

densely and distinctly ciliate (Fig. 47). Pedotecta 1 large, its anterior margin with ribs, pedotecta 2—3 round, also large and ornamented.

**Coxisternal region** (Fig. 49): Surface partly ornamented by irregular spots, but mostly smooth. Epimeral setae short, only setae 2a and 3a stronger and longer than the others. Apodemes and borders resembling those of the preceding species.

**Anogenital region**: All setae with the exception of setae  $g_6$  short and simple. Setae  $g_6$  long, erect. On the anal plates a characteristic figure present (Fig. 51).

**Type-material**: Holotype (1270-HO-88): No. 103; 1 paratype: from the same sample. Holotype deposited in the HNHM and paratype: MHNG.

**Remarks**: These two newly described species stand very near to each other (they were collected in the same rain forest). However, they show constant differences and both may be well ordered to the genus *Cavernozetes* MAHUNKA, 1984, which was based on a similar species also from Tanzania. The new species may be distinguished by the following characters:

**interruptus** sp. n.

1. Sensillus dilate distally with strong spines.
2. Lamellae touching medially.
3. Dorsosejugal suture interrupted.
4. Anal plate with a fine, arched crista.

**latus** sp. n.

1. Sensillus setigorm, with fine spines.
2. Lamellae overlapping each other medially.
3. Dorsosejugal suture complete.
4. Anal plate with a "flower"-like figure.

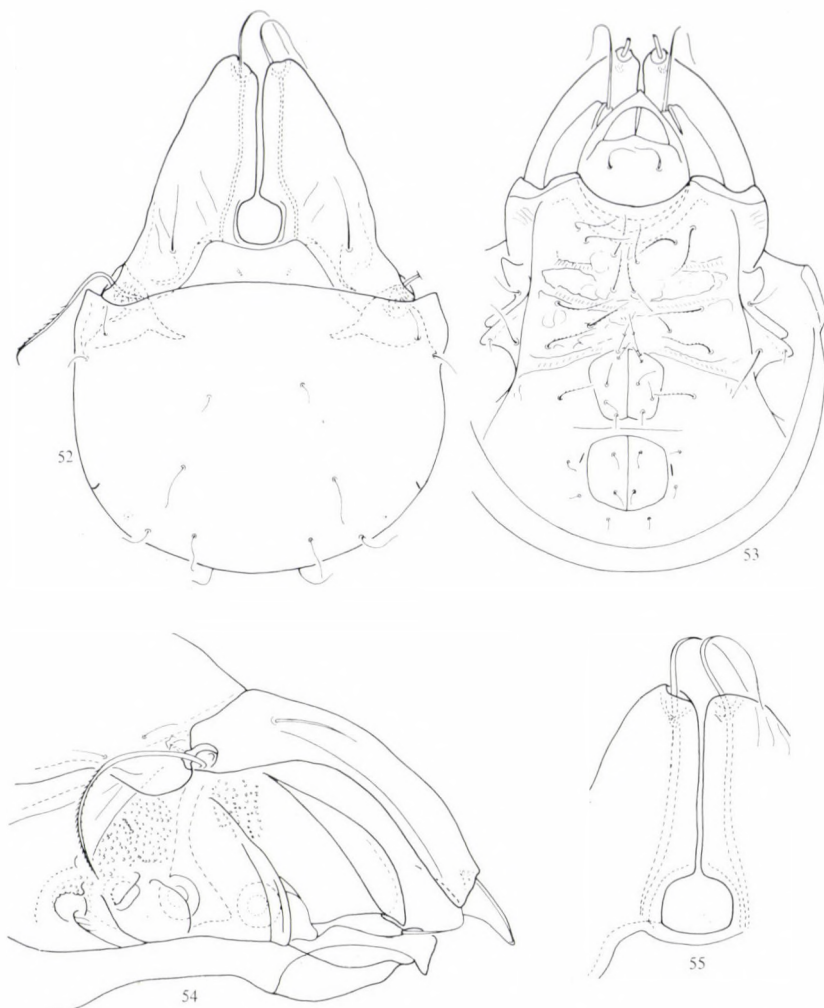
The type species of the genus (*C. excavatus* MAHUNKA, 1984) is distinguished from both new species by the spinose lamellar setae and by the shape of the lamellae.

**Megazetes flagellifer** sp. n.

**Measurements**. — Length: 332  $\mu\text{m}$ , width: 266  $\mu\text{m}$ .

**Prodorsum**: Rostral part triangular, rostrum sharply pointed (Fig. 52). Lamellae very wide and long, gradually narrowed anteriorly covering the rostrum completely. Lamellar apex (Fig. 55) rounded, but excavate medially, the long and simple lamellar setae arising in this hollow. Median margin of the lamellae — with the exception of the concave basal part — straight. Rostral and lamellar setae of similar type, both pairs with flagellate distal end, both well ciliate basally. Interlamellar setae arising on the laterodorsal surface of the lamellae. Basal part of prodorsum free, with one pair of small tubercles. Sensillus directed laterally and posteriorly, well ciliate.

**Notogaster**: Pteromorphae small, without lateral teeth. Dorsosejugal suture medially slightly convex. All notogastral setae very thin, fine, filiform, but long.



Figs 52—55. *Megazetes flagellifer* sp. n. — 52 = dorsal view, 53 = ventral view, 54 = prodorsum in lateral view, 55 = lamellar cuspis

**Lateral part of podosoma:** Tutorium well developed, with a triangular apex. Rostral setae arising very near to them on a tubercle (Fig. 54). Surface of this region distinctly granulate, granules sometimes arranged in lines. Pedotecta I very large, it consists of two parts, resembling the discidium.

**Coxisternal region:** Surface ornamented by some spots. Borders and apodemes well developed. Epimeral setae very long and ciliate (Fig. 53).

**Anogenital region:** Anterior genital setae much longer than the

other ones. Aggenital setae originating beside the genital aperture and much longer than the anal or adanal setae. The later ones conspicuously short and simple.

**Type-material:** Holotype (1271-HO-88): No. 105: deposited in the HNHM.

**Remarks:** The classification of the new species is problematic and its ranging to the genus *Megazetes* BALOGH, 1959 is provisory, because the differences among the genera *Megazetes* and *Afrozetes* ENGELBRECHT, 1972, *Acanthozetes* BALOGH, 1958, etc. are not quite clear. On the ground of lamellar shape the new species resembles *M. tanzicus* MAHUNKA, 1983, however, the new species is distinguished from all heretofore known *Megazetes* BALOGH, 1959 species by the apex of lamellae, and by the length and shape of its notogastral and epimeral setae.

### ***Megazetes scriptus* sp. n.**

**Measurements.** — Length: 170—174  $\mu\text{m}$ , width: 124—126  $\mu\text{m}$ .

**Prodorsum:** Rostrum nearly triangular, but rostrum rounded. Lamellae wide, medially overlapping each other. Their outer cuspis terminating in a long spine, inner cuspis shorter and rounded, lamellar setae arising on them. Anterior margin of lamella slightly concave between the two cuspides. Median margin nearly hatched-shaped. Its surface with longitudinal striation. Rostral setae long, thin, setiform, arising far from the cuspis of tatorium (Fig. 58). Lamellar setae thick, strong spines, interlamellar one slightly longer but thin, simple. The latter arising on the inner margin of lamellae. Sensillus latero-reclinate, unilaterally ciliate with 17—18 cilia.

**Notogaster:** Dorsosejugal suture interrupted medially. Pteromorphae small, sharply pointed at tip or with two small teeth. Its surface rugose, basally pustulate; this sculpture in spread to the notogastral surface, too. The latter ornamented also by a longitudinal fine sculpture medially, composed of irregular lines (Fig. 56). All notogastral setae short and simple.

**Ventral side:** Anterior margin of coxisternal region scarcely concave. Sejugal and fourth apodemes well developed, composing transversal bands. On the latter surface some foveolae and striae visible laterally. Epimeral setae simple, setae *Ic* arising farther from *Ib* than *Ib* from *Ia*. All pedotecta and the discidium well developed (Fig. 57). Genital setae — with the exception of the anterior pair — and the other setae in the anogenital region (Fig. 57), short and mostly thick.

**Legs:** Femur of legs III and IV with a blade-like formation ventrally, its margin waved (Fig. 59).



Figs 56—59. *Megazetes scriptus* sp. n. — 56 = dorsal view, 57 = ventral view, 58 = prodorsum in lateral view, 59 = femur of leg IV

**Type-material:** Holotype (1272-HO-88): No. 103; 3 paratypes: from the same sample. Holotype and 1 paratype (1272-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The East-African species of the genus *Megazetes* BALOGH, 1959 was surveyed by MAHUNKA (1986). The new species stands nearest to the *M. rugosus* MAHUNKA, 1986 described also from Tanzania. It is distinguished from it by the shape of its lamella (no deep anterior hollow present) and by the much longer interlamellar setae.

**Tectocarabodes** gen. n.

**D i a g n o s i s:** Family Carabodidae. Prodorsum with modified, rostral apex but without any median elevation. Dorsosejugal region normal, notogaster also simply convex. Fourteen pairs of notogastral setae present, four pairs of them in postero-marginal position. Epimeral setal formula; 3-1-3-3. Anogenital setal formula: 4-1-2-3. Genital setae very long, one pair of epimeral setae (4*b*) and the preceding ones dilate, phylliform. Ventral plate deeply excavate, this part framed by strong laths.

**Type species:** *Tectocarabodes monstruosus* sp. n.

**R e m a r k s:** The new genus belongs to the subfamily Carabodinae s. str. and stands near to *Austrocarabodes* HAMMER, 1966. It is distinguished from it and from other congeners by the specially modified rostral apex and by the structure of the ano-adanal region.

**Tectocarabodes monstruosus** sp. n.

**Measurements:** — Length: 1031  $\mu\text{m}$ , width: 578  $\mu\text{m}$ .

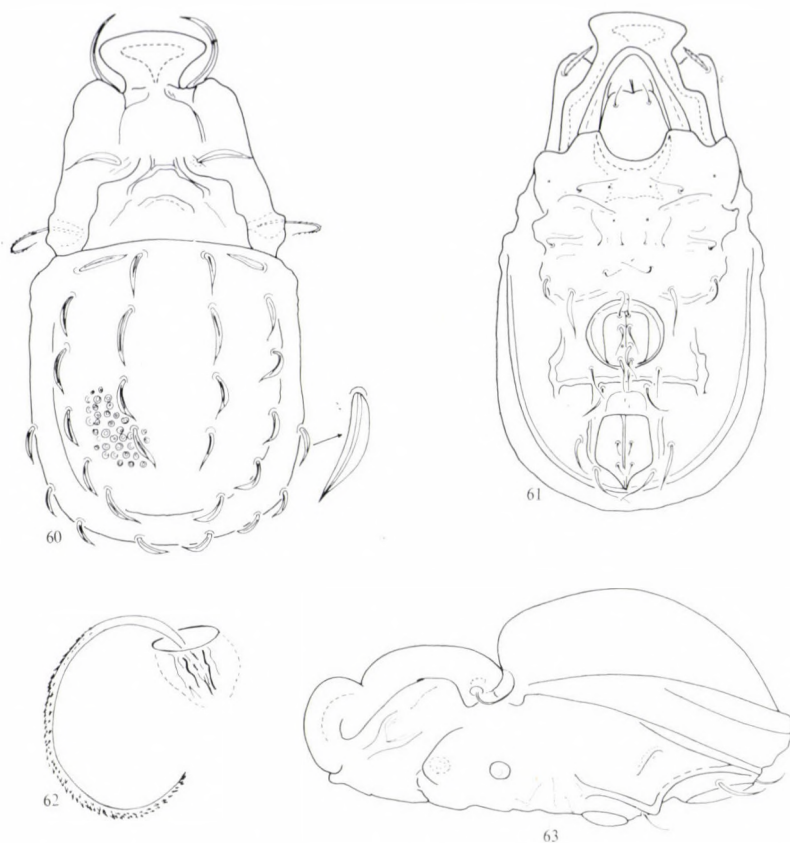
**P r o d o r s u m:** Rostrum modified, rostral apex protruding anteriorly and dilate like a carina in lateral view (Fig. 63), and resembling a hammer in dorsal view (Fig. 60). Rostral setae arising on tubercles at the foot of this structure. They are long and curved inwards. Lamellae rounded anteriorly, lamellar setae phylliform with serrate margin. Interlamellar region with strong transversal ribs, on one of them arise the phylliform interlamellar setae, which are directed outwards. Sensillus (Fig. 62) setiform and strongly curving backwards.

**N o t o g a s t e r:** Fourteen pairs of phylliform notogastral setae present, four pairs in postero-marginal position. Surface ornamented by ring-shaped foveolae (Fig. 60).

**C o x i s t e r n a l r e g i o n:** Mentum very long longitudinally, much longer than wide. Rutellum short. Epimeral sculpture hardly observable, covered by a secretion layer, nearly smooth. Among the epimeral setae great differences exist. Setae 1*a*, 1*c*, 2*a* and 3*a* minute, setae 1*b*, 3*b*, 3*c* very long but thin, setae 4*b* dilated phylliform.

**A n o g e n i t a l r e g i o n:** Genital aperture framed by a strong, nearly round ring, anal aperture framed also by a chitinous thickening, it is connected with a similar structure originating medially (Fig. 61). Genital setae very long, widened basally, aggenital setae similar to them. Anal plate with a long and strong posterior spur medially. Anal setae short but thick, adanal ones long and phylliform, resembling the notogastral setae.

**L e n g s:** Setae *u* on all tarsi short and blunt.



Figs 60–63. *Tectocarabodes monstruosus* sp. n. — 60 = dorsal view, 61 = ventral view, 62 = sensillus, 63 = outline of body in lateral view

**Type-material:** Holotype (1273-HO-88) No. 105, deposited in the HNHM.

**Remarks:** See remarks after the generic diagnosis.

### ***Beckiella clavata* sp. n.**

**Measurements.** — Length 713–722  $\mu\text{m}$ , width: 295–300  $\mu\text{m}$ .

**Prodorsum:** Rostrum nearly triangular, but rostral apex rounded. Prodorsum — behind rostrum — strongly widened, its anterior margin nearly transversal, lateral margins run parallel, anterior corner rectangular (Fig. 69). Rostral and lamellar setae nearly equal in length, latter ones stand twice as far from each other than the preceding ones. Interlamellar and exobothridial setae very short and fine. Stalk of sensillus (Fig. 64) long, its head clavate, api-



Figs 64–69. *Beckiella clavata* sp. n. — 64 = dorsal view, 65 = femur of leg IV, 66 = ventral view, 67 = anterior part of body in ventral view, 68 = epimeral region, 69 = lateral part of prodorsum

cal part covered with longer, basal part with shorter spines. Interbothridial and lamellar spots well observable.

**Notogaster:** Dorsosejugal suture partly visible. Ratio of body length/width: 2.41. Setae  $c_2$  short, similar to the interlamellar ones. Setae  $1m$ ,  $1p$ ,  $p_3$  and  $h_3$  very short and fine, the others much longer. Setae  $h_1$  and  $h_2$



finely, setae  $p_1$  and  $p_2$  strongly roughened. The distance between setae  $lm$  and  $lp$ ,  $lp$  and  $h_2$  nearly equal in length, but the distance between  $lm$  and  $lp$  greater than in the latter ones.

**G n a t h o s o m a:** Suctorial labiogenal articulation. Chelicerae pelop-toid.

**C o x i s t e r n a l r e g i o n:** Surface of pedotecta 1 and 2—3 well fo-veolate. Epimeral surface ornamented by an irregular polygonal reticulation. Four pairs of median epimeral setae ( $1a$ ,  $2a$ ,  $3a$  and  $4a$ ) much longer than the two lateral pairs ( $3c$  and  $4c$ ). Apodemes and epimeral borders not clearly ob-servable,  $bo$ . 1 much wider than the others (Fig. 68). In front of genital aper-ture a pair of wide tubercles observable,  $bo$ . 5 also wide.

**A n o g e n i t a l r e g i o n:** Anogenital setal formula: 4—1—2—3. Ge-nital setae minute, both anterior pairs arising far from the anterior margin of genital plate. Aggenital and among the adanal setae two pairs ( $ad_2$  and  $ad_3$ ) also minute. There is a great difference in length between the anal setae:  $an_1 < an_2$  (Fig. 66). Lyrifissures  $iad$  originating very far from anal aperture.

**L e g s:** All trochanters and femora well foveolate. All femora with a long and deep basal hollow framed by two spurs, it is larger on femur IV (Fig. 65).

**T y p e - m a t e r i a l:** Holotype (1274-HO-88): No. 103; 1 paratype: No. 105. Holotype deposited in the HNHM and paratype in the MHNG.

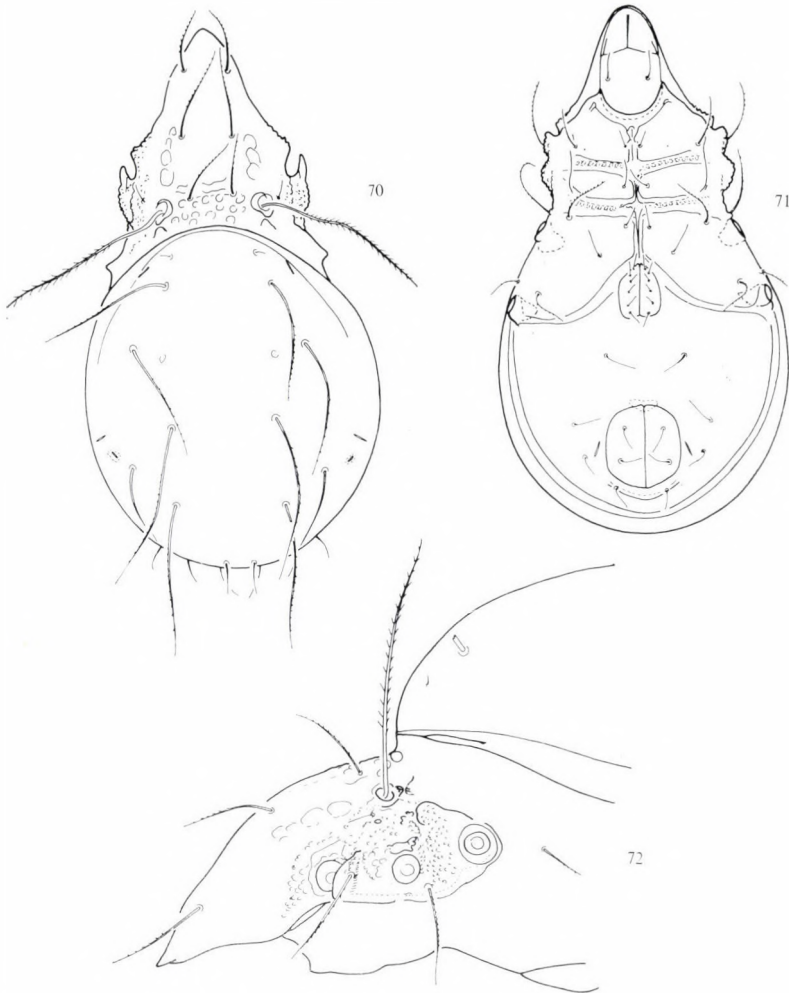
**R e m a r k s:** The new species is well characterized by the very wide, angulate anterior part of prodorsum, the measurements of its body and by the ratio of the notogastral setae. On these bases it stands very far from the so far described representatives of its alliance.

#### **Antenoppia szaboi** sp. n.

**Measurements.** — Length: 475—533  $\mu\text{m}$ , width: 262—296  $\mu\text{m}$ .

**P r o d o r s u m:** Rostral part elongated, narrow. All prodorsal setae — with the exception of setae  $ex$  — long, finely ciliate, their ratio:  $ro > le > in$ , but no great difference among them. Sensillus very long (210  $\mu\text{m}$ ), setiform, with long cilia on each side (Fig. 70). Interbothridial region tuberculate, some tubercles also in the sejugal region. Posterior part of bothridium covered also by tubercles. Lateral part of podosoma granulate, tuberculate and/or pustulate. These spread to the surface of pedotecta I and the lateral part of the sejugal region (Fig. 72).

**N o t o g a s t e r:** Dorsosejugal suture becomes thin medially. Four pairs of setae very long (140—150  $\mu\text{m}$ ), much longer than the other ones. Setae  $c_2$  minute, setae  $h_3$  half as long as  $h_2$ , all others very short. The long setae finely ciliate.



Figs 70–72. *Antenoppia szaboi* sp. n. — 70 = dorsal view, 71 = ventral view, 72 = prodorsum in lateral view

**C o x i s t e r n a l r e g i o n:** Pedotecta 2–3 and the discidium reduced, legs III and IV originating very far from each other. Apodemes short, epimeral borders well developed, composing a network, bo. sej. and bo. 2 especially wide. Epimeral setae well characterize this species, all — with the exception of setae *4c* (!) — long, well ciliate. Setae *1c* arising on pedotecta *1*, *1b* far laterally, far from setae *1a* (Fig. 71).

**A n o g e n i t a l r e g i o n:** Genital aperture narrow; six pairs of genital setae present, all originating in a longitudinal line. Anal and adanal setae fine, no great difference among them. Setae *ad*<sub>1</sub> arising on a crescentiform thickening, behind the anal aperture. Lyrifissures *iad* in apoanal position.

**Legs:** All joints of legs very long and narrow.

**Type-material:** Holotype (1275-HO-88): No. 105; 7 paratypes: from the same sample; 3 paratypes: No. 103. Holotype and 8 paratypes (1275-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The new species is well characterized by the pustulate interbothridial region and the well-granulate lateral part of prodorsum. On this basis it is distinguished from all related species.

### *Arcoppia tuberosa* sp. n.

**Measurements.** — Length: 426–447  $\mu\text{m}$ , width: 236–252  $\mu\text{m}$ .

**Prodorsum:** Rostrum tripartite, median apex not longer than the lateral ones. Costula well developed, typical horseshoe-shaped (Fig. 73). Lateral laths also thick and strong. In the interlamellar region some transversal rugae present, they are well visible also in lateral view (Fig. 75). In the interbothridial region large and strong tubercles visible, some irregular spots also present medially and laterally. Prodorsal setae long and finely ciliate. Their ratio:  $in > ro > le > ex$ . Sensillus also long, its head distinct, with 4 (rarely 5) long branches of different lengths. Exobothridial region well granulated.

**Notogaster:** Ten pairs of notogastral setae present, among them setae short,  $p_1-p_3$  slightly shorter than the median ones, all setae finely ciliate.

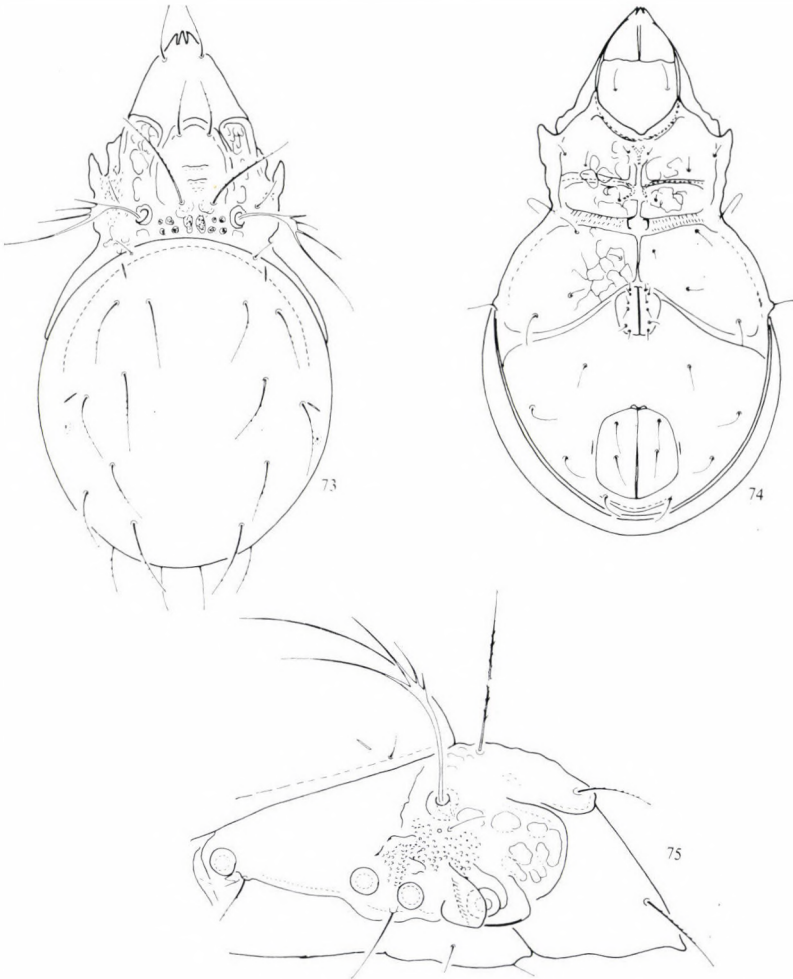
**Coxisternal region:** Third and fourth legs originating far from each other, therefore, epimeres 3–4 large, discidium very long, like a longitudinal lath, its posterior end with a small tubercle (Fig. 74), seta  $4c$  arising on it. Epimeral surface ornamented by spots. Epimeral setae mostly short,  $1c$  and  $4c < 3c$ . Sejugal and 4th epimeral border wide, longitudinal sternal one very narrow.

**Anogenital region:** Genital setae arising in a longitudinal line. Aggenital, anal and adanal setae nearly equal in length, setae  $ad_1$  originating on a crescentiform chitinous lath. Adanal setae bent inwards. Lyrifissures  $iad$  in adanal position.

**Legs:** All joints of legs very long and narrow.

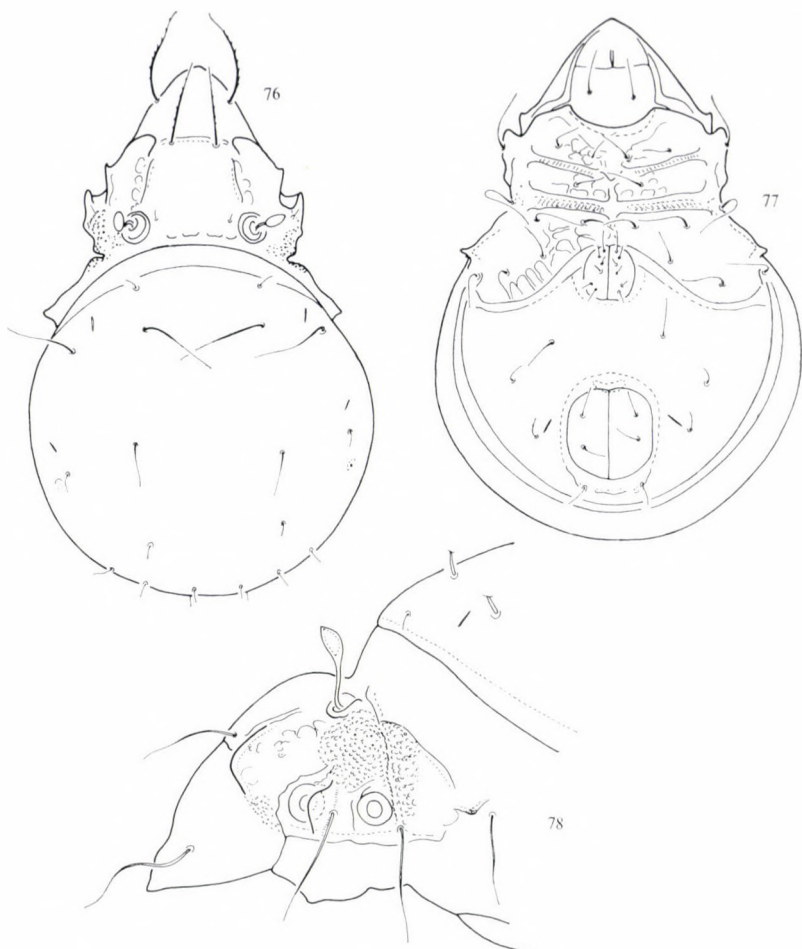
**Type-material:** Holotype (1276-HO-88): No. 105; 10 paratypes: from the same sample. Holotype and 8 paratype (1276-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The species of the genus *Arcoppia* were surveyed by RODRIGUEZ and SUBIAS (1982). The new species is well characterized by the tuberculate basal part of prodorsum. This character is heretofore known in some *Arcoppia* HAMMER, 1977 species e. g. *A. brachyramosa* HAMMER, 1977,



Figs 73—75. *Arcoppia tuberosa* sp. n. — 73 = dorsal view, 74 = ventral view, 75 = prodorsum in lateral view

*A. corniculifera* (MAHUNKA, 1978), *A. fenestralis* (WALLWORK, 1961), *A. pergeli* MAHUNKA, 1982, *A. varia* HAMMER, 1980. Among them on the basis of the long notogastral setae (their length nearly as long as the distance between setae *1m* and *1p*) it stands nearest to *A. pergeli* MAHUNKA, 1982, however, the costula of the latter one is concave. It is distinguished from *fenestralis* by the very long interlamellar setae and by the shape of the rostrum, from *corniculifera* by the shape of the sensillus.



Figs 76—78. *Pletzenoppia hamiltoni* sp. n. — 76 = dorsal view, 77 = ventral view, 78 = prodorsum in lateral view

***Pletzenoppia hamiltoni* sp. n.**

Measurements. — Length 442—480  $\mu\text{m}$ , width: 303—320  $\mu\text{m}$ .

**Prodorsum:** Rostrum very wide, rounded medially. A weak costula present transversally and a fine line directed to the bothridium. Lateral lath well observable, strong and characteristically arched anteriorly. Rostral setae thicker and longer than the lamellar ones. Interlamellar setae minute, exobothridial setae reduced. Sensillus very short, its head clavate (Fig. 76) in lateral view. Exobothridial region distinctly pustulate or granulate. Granules spread to the pedotecta and they are present also in front of leg I (Fig. 78). The border of the granulated region is always definite.

**Notogaster:** Very high, it forms nearly a semicircle in lateral view. Ten pairs of characteristic notogastral setae present. Setae *la* and *lm* much longer than the others, they originate in a transversal line. Setae *c*<sub>2</sub>, *h*<sub>1</sub>, *h*<sub>2</sub> and *h*<sub>2</sub> very short and fine, setae *lp* nearly half as long as setae *lm*. Setae *p*<sub>1</sub> arising immediately near to the posterior border of notogaster, setae *p*<sub>2</sub> and *p*<sub>3</sub> far anteriorly from the latter.

**Coxisternal region:** Epimeral borders well developed, they compose a well observable framework. Epimeral surface with irregular spots. Setae long and simple, setae *lc* arising on pedotecta 1, they are longer than setae *4c*.

**Anogenital region:** Anogenital setal formula: 6-1-2-3. Anterior and posterior genital setae much longer than the median ones. Aggenital setae much longer than adanal ones. Among the latter setae *ad*<sub>1</sub> originating on transversal chitinous laths (Fig. 77).

**Type-material:** Holotype (1277-HO-88): No. 105; 5 paratypes: from the same sample; 1 paratype: No. 103. Holotype and 4 paratype (1277-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The new species stands very near to the (?) *Pletzenoppia curvclavata* MAHUNKA, 1985, described from South Africa. They are distinguished by the following characters:

**curvclavata** MAHUNKA, 1985

**hamiltoni** sp. n.

- |   |  |
|---|--|
| 1. Rostral and lamellar setae equal in length.                          | 1. Rostral setae much longer than lamellar ones.                     |
| 2. Setae <i>h</i> <sub>1</sub> twice as long as <i>p</i> <sub>1</sub> . | 2. Setae <i>p</i> <sub>1</sub> = <i>h</i> <sub>1</sub> .             |
| 3. Setae <i>h</i> <sub>1</sub> $\cong$ <i>lp</i> .                      | 3. Setae <i>h</i> <sub>1</sub> only one-third as long as <i>lp</i> . |
| 4. Aggenital and adanal setae equal in length.                          | 4. Aggenital setae much longer than adanal ones.                     |

I dedicate the new species to DR. A. HAMILTON the renown botanist, in acknowledging his help during our collecting trip.

**Pletzenoppia zicsica** sp. n.

**Measurements.** — Length: 867–902  $\mu$ m, width: 549–615  $\mu$ m.

**Prodorsum:** Rostrum widely rounded, rostral setae arising laterally. Costula absent, but a weak structure observable a pair arched lateral laths well developed. Lamellar setae arising medially, very near to each other, interlamellar setae originating near to bothridium. Ratio of prodorsal setae *ro* > *le* > *in*  $\cong$  *ex*. Sensillus short, slightly fusiform (Fig. 81), its surface finely roughened. Exobothridial region densely granulate, border of this surface well distinct.



Figs 79–81. *Pletzenoppia zicsica* sp. n. — 79 = dorsal view, 80 = ventral view, 81 = prodorsum in lateral view

**Notogaster:** Very high, nearly semicircular. Ten pairs of notogastral setae of different lengths present, setae  $c_2$  minute, with the long setae  $1a$ ,  $1m$  and  $1p$  arising in a longitudinal line (Fig. 79). Setae  $1a$ ,  $1m$ ,  $1p$  and  $h_2$  nearly equal in length and they are longer than the others. All setae finely ciliate, blunt at tip. Lyrifissures  $im$  short.

**Coxisternal region:** Epimeral borders  $bo. 2$  and  $bo. sej$ , run nearly transversally,  $bo. 4$  well arched. Epimeral surface with irregular polygonal reticulation. Epimeral setae long and simple. All slightly ciliate. Setae  $1c$  arising on pedotecta 1, setae  $4c > 1c$ . Discidium with a long and sharp lateral spur.

**Anogenital region:** All genital setae strong and comparatively long, originating in a longitudinal line. No essential difference (Fig. 80) among the aggenital, anal and adanal setae. Lyrifissures  $iad$  in apoanal position.

**Type-material:** Holotype (1278-HO-88): No. 105; 3 paratypes: from the same sample; 1 paratype: No. 103. Holotype and 2 paratypes (1278-PO-88) deposited in the HNHM, 1 paratype: MHNG and 1 paratype: SUM.

**Remarks:** The new species is well characterized by the position of its lamellar setae and the length and position of the anterior notogastral setae. On these bases it stands nearest to the *Pletzenoppia aseta* MAHUNKA, 1986 from South Africa. The latter is distinguished from it by the absence of the interlamellar and the much shorter notogastral setae.

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TAPEWORM PARASITES OF BURHINUS  
OEDICNEMUS (L., 1758) IN HUNGARY (CESTODA:  
PROGYNOTAENIIDAE AND DILEPIDIDAE)

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Two little known tapeworm species are recorded from the charadriiform bird *Burhinus oediconemus* (L., 1758) collected in the Great Hungarian Plain: *Progynotaenia evaginata* FUHRMANN, 1909 (Progynotaeniidae BURT, 1939) and *Paricterotaenia delachauxi* (BAER, 1925) (Dilepididae FUHRMANN, 1907). The morphology and systematic status of both species are discussed.

There is only one previous report on the occurrence of *Progynotaenia evaginata* FUHRMANN, 1909 in *Burhinus oediconemus* in Europe (IVANITSKII, 1940) from the Ukraine, without any morphological data. LÓPEZ-NEYRA described *Choanotaenia delachauxi* var. *mesacantha* in 1935 (synonym of *Paricterotaenia delachauxi* [BAER, 1925] FUHRMANN, 1932) as a parasite of *Burhinus oediconemus crepitans* in Granada (Spain). ILLESCAS-GOMEZ and LÓPEZ-ROMAN (1980) reported *Paricterotaenia coronata* (CREPLIN 1829) from the stone curlew in the Spanish locality of Alcaraban in Granada.

*Burhinus oediconemus* is a rare and strictly protected bird species in Hungary, its breeding population is estimated at 200 pairs. It nests in dry sodic grasslands and sand dunes in the Great Hungarian Plain, and migrates to North Africa to winter.

The Hungarian Natural History Museum obtained only 2 specimens of stone curlew for parasitological study. Within the framework of faunistical research carried out in the Kiskunság National Park, we studied one *B. oediconemus* host. The discovery of the species *Progynotaenia evaginata* FUHRMANN, 1909 has already been reported (MURAI et al., 1986). In the present study we give its morphological and metric characteristics and comment on its systematic

position. The same treatment is given for the other species: *Paricterotaenia delachauxi* (BAER, 1925) FUHRMANN, 1932, found in the second stone curlew in the Nagykunság territory (1985).

#### MATERIAL AND METHODS

The tapeworm species mentioned above were fixed and preserved in 70% ethyl-alcohol and in 5% hot formalin. Whole mount preparations were stained with Erlich's haematoxylin and alum carmine; the rostellar hooks and eggs were preserved in Berlese solution. The numbers of the tapeworm specimens and their localities are presented below. All measurements are given in mm.

#### RESULTS

##### 1. *Progynotaenia evaginata* FUHRMANN, 1909 (Progynotaeniidae BURT, 1939)

Host: *Burhinus oedicnemus* (L., 1758).

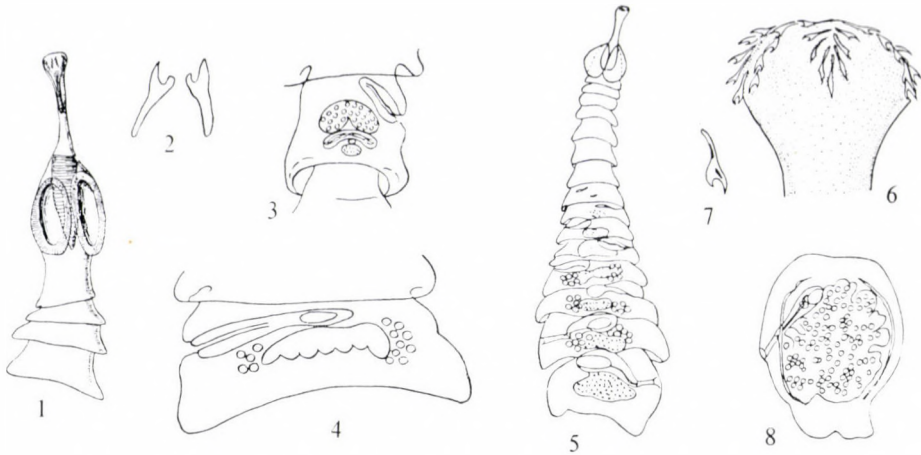
Localisation: small intestine.

Locality: Orgovány, Kiskunság National Park, 7 September, 1960, legit. I. SZABÓ, Hung. Nat. Hist. Museum, No 66.

Number of specimens examined: 85.

The description is based on 75 specimens. The tapeworms are small, measuring 3.5–4.6 in length, the maximum breadth being 0.75–0.80. The strobila has about 20 segments, mostly 17. The anterior segments are wider than long, the posterior ones are longer than wide, not quadratic, the margins of segments serrated. The scolex with no protruding rostellum measures  $0.20-0.24 \times 0.28-0.30$ . Four large oval suckers are  $0.16-0.19 \times 0.09-0.11$ . The protruding rostellum measures  $0.055-0.062 \times 0.25-0.33$ . The rostellar sac is  $0.200-0.240 \times 0.080-0.100$ . The rostellum is armed with 60 hooks arranged on six "zig-zag" angles equidistant from each other. Each angle bears 10 hooks in two rows, 5 in one and 5 in the other. The angles are well visible only when the rostellum is protruded. (Mostly are arranged in four rows plus an incomplete fifth and sixth row.) In specimens in which the hooks were in the rostellar sac there were 45–60 hooks, usually in groups of 10 (Figs 19–21). The hooks are long-handled, measuring 0.017–0.019.

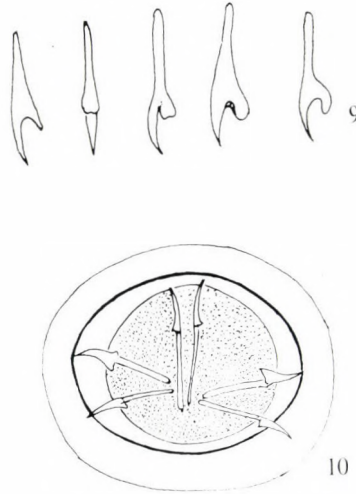
There is no neck, segmentation beginning immediately behind the scolex. The proglottides campanulate, rapidly increasing in size. The anterior 1st–8th segments are immature, without sexual organs. In the 9th–10th segments the differentiation of sexual organs is visible, the primordium of the female genitalia — ovary, the vitelline gland and the receptaculum seminis appear. In the 11th–12th segments the ovary occupies a median portion, it is kidney-shaped or



Figs 1—4. *Progynotaenia evaginata* FUHRMANN, 1909 (after FUHRMANN's original description). 1 = scolex, 2 = form of rostellar hooks, 3 = 12th segment with female genitalia, 4 = 15th segment with male genital organs. — Figs 5—8. *Progynotaenia indica* JOHRI, 1963 (syn. of *P. evaginata*, after JOHRI's description), 5 = a whole specimen, 6 = rostellum with the "zig-zag" angles of hooks, 7 = form of the rostellar hooks, 8 = the last segment with ripe eggs in uterus

transverse elongated and measures 0.200—0.225 in width. The vitelline gland is small, compact, it lies posterior to the ovary and measures 0.024—0.032. The large receptaculum seminis is transversely elongated to the poral side and lies posterior to the ovary and the vitelline gland, in the 12th and 13th segments are full of sperms. In these segments we can see the receptaculum seminis, a hole probably made by the cirrus for insemination, while the vagina is absent. In the 13th—14th segments, more anterior to the ovary, the uterus arises and rapidly develops, while the other female genitalia disappear. The young uterus is sac-like, later slightly lobed, in the 19th—20th (it is possible in 17th) segments gravid. The ripe eggs have 3 envelopes (they are well visible only in the last segment). The oncosphere measures  $0.040 \times 0.032$ , the hooks of embryos 0.025—0.030, the first envelope  $0.050—0.063 \times 0.044—0.052$ , the second envelope  $0.063—0.065 \times 0.056—0.058$  (Figs 10, 27 and 28).

The first sign of the male genitalia is the primordium of the cirrus sac in the 10th—11th segments. The well-developed cirrus sac in the 13th—14th segments passes ventrally to the excretory canals to the median position in the anterior half of the segment. In the 17th segment the cirrus sac measures  $0.500—0.640 \times 0.070—0.120$ . The proximal wider end of the cirrus sac is thin-walled and contains the internal vesicula seminalis measuring  $0.240—0.260 \times 0.040—0.080$ . The distal end of the cirrus sac is more muscular. The cirrus sac alternates in all the examined specimens regularly, except one where in three consecutive segments the cirrus pouch is open on one side. The cirrus



Figs 9—10. *Progynotaenia evaginata* FUHRMANN, 1909 (orig. after Hungarian material), 9 = form of the rostellar hooks in various position, 10 = morphology of eggs

sac leads into a deep genital atrium which opens to the outside on great genital papillae. The maximum size of the genital papillae is 0.19—0.21. The cirrus is armed with several rows of minute spines 0.006 long (Fig. 33). The stretching cirrus measures 0.150—0.180  $\times$  0.030—0.035.

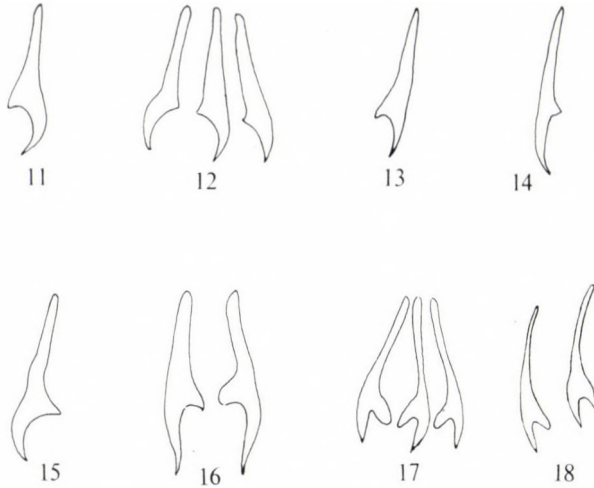
In the 12th—13th segments there is the primordium of testes, they soon reach maturity in the 14th—15th segments. The testes are in two groups lateral to the uterus, within the excretory canals. In one group there are 8—10 spherical testes, 0.040—0.056  $\times$  0.024—0.032 in diameter. The number of testes varies from 16 to 20 in each segment. In the 17th—18th segments the testes abruptly disappear. In the gravid last segment only the cirrus sac with the cirrus remains.

The musculature of the segments is very weak, there being two layers of longitudinal muscle and one weakly developed layer of transverse muscle.

Systematic status of the species *Progynotaenia evaginata* FUHRMANN, 1909:

FUHRMANN (1909) described a new genus for the protogynous acoleid species. The most remarkable generic characteristics of *Progynotaenia* are:

Small cestodes consisting only a few segments. Rostellum short or long, with a circular or zig-zag row of long-handled hooks. Musculature similar to that of the other acoleid genera. No neck. *Proglottides campanulate*, rapidly increasing in size. Testes developed only in posterior segments, divided into two groups, one on each side of uterus. Cirrus sac well developed, containing internal seminal vesicle; cirrus spinose. Genital atrium opening on right or left



Figs 11—18. Rostellar hooks of some *Progynotaenia* species, 11 = *P. odhneri* (after NYBELIN's 1914 original description, 12 = *P. odhneri* (after BAER's revision in 1940), 13 = *P. pauciannulata* BACZYNSKA, 1914 (syn. of *P. odhneri*, after the original description), 14 = *P. foetida* MEGGITT, 1928 (syn. of *P. odhneri*; after the original description), 15 = *P. fuhrmanni* SKRJABIN, 1914 (syn. of *P. odhneri*; after the original description), 16 = *P. evaginata* (FUHRMANN, 1909) sensu BAER, 1940 (syn. of *P. odhneri*; after BAER, 1940), 17—18 = *P. jagerskoldi* FUHRMANN, 1909 (17 = after BAER, 1940, 18 = after the original description of FUHRMANN)

margin, alternating regularly. Anterior proglottides containing only female genitalia. Ovary central, simple or bilobed; vitelline gland small, compact. Seminal receptacle transversely elongated between ovary and vitelline gland. Uterus arising dorsal to ovary, later sac-like, lobed. Vagina lacking.

FUHRMANN in 1909 described two species: *Progynotaenia jagerskoldi* as the type species and *P. evaginata*, both parasites of charadriiform birds and found in the inundation area of the White Nile. The two species homogeneous in the structure of their internal anatomy, but there is an important difference between their hook crowns: *P. jagerskoldi* has 34 rostellar hooks in one circle measuring 0.052 [after BAER's (1940) revision, 0.059]] and have a specific shape distinguishable from other *Progynotaenia* species (Figs 17—18). *P. evaginata* was described from *Oedicnemus senegalensis*, and FUHRMANN characterized it as having 60 hooks (0.018 of length) placed into 6 "zig-zag" lines on the rostellum (Figs 1—4).

SKRJABIN (1914) worked with the same material from the White Nile territory and described a new species named *Progynotaenia fuhrmanni*. He used for comparison FUHRMANN's species and concluded that the arrangement of the hooks on the rostellum of *P. evaginata* is a true character.

In 1914 NYBELIN described the species *Progynotaenia odhneri*, which shows the third form of hooks in the genus, and which is regarded up to now as the third valid species of *Progynotaenia*. The hooks are arranged in one circle

and are a little bulkier than in *P. jagerskioldi*. *P. odhneri* NYBELIN, 1914 was collected in Sweden from *Charadrius hiaticula*. The internal anatomy of *P. odhneri* is very near to the above-mentioned species, the number of rostellar hooks is 12, each measuring 0.059 (Figs 11–12).

A number of species have been described with the same morphology as *P. odhneri* NYBELIN, 1914 (number of hooks and measurements in parentheses):  
 — *P. pauciannulata* BACZYŃSKA, 1914 (19/0.044) ex *Haplopterus spira*, Cairo, Egypt (Fig. 13);  
 — *P. fuhrmanni* SKRJABIN, 1914 (12–14/0.063) ex *Charadrius minor*, White Nile (Fig. 15);  
 — *P. foetida* MEGGITT, 1928 (20/0.046–0.051) ex *Oediconemus crepitans*, Egypt (Fig. 14);  
 — *P. americana* WEBSTER, 1951 (12–14/0.057–0.075) ex *Charadrius* spp., USA;  
 — *P. longicirrata* SINGH, 1952 (16/0.068–0.070) ex *Lobipluvia malabarica*, India;  
 — *P. leucura* SINGH, 1959 (12/0.062–0.070) ex *Chetusia leucura*, India.

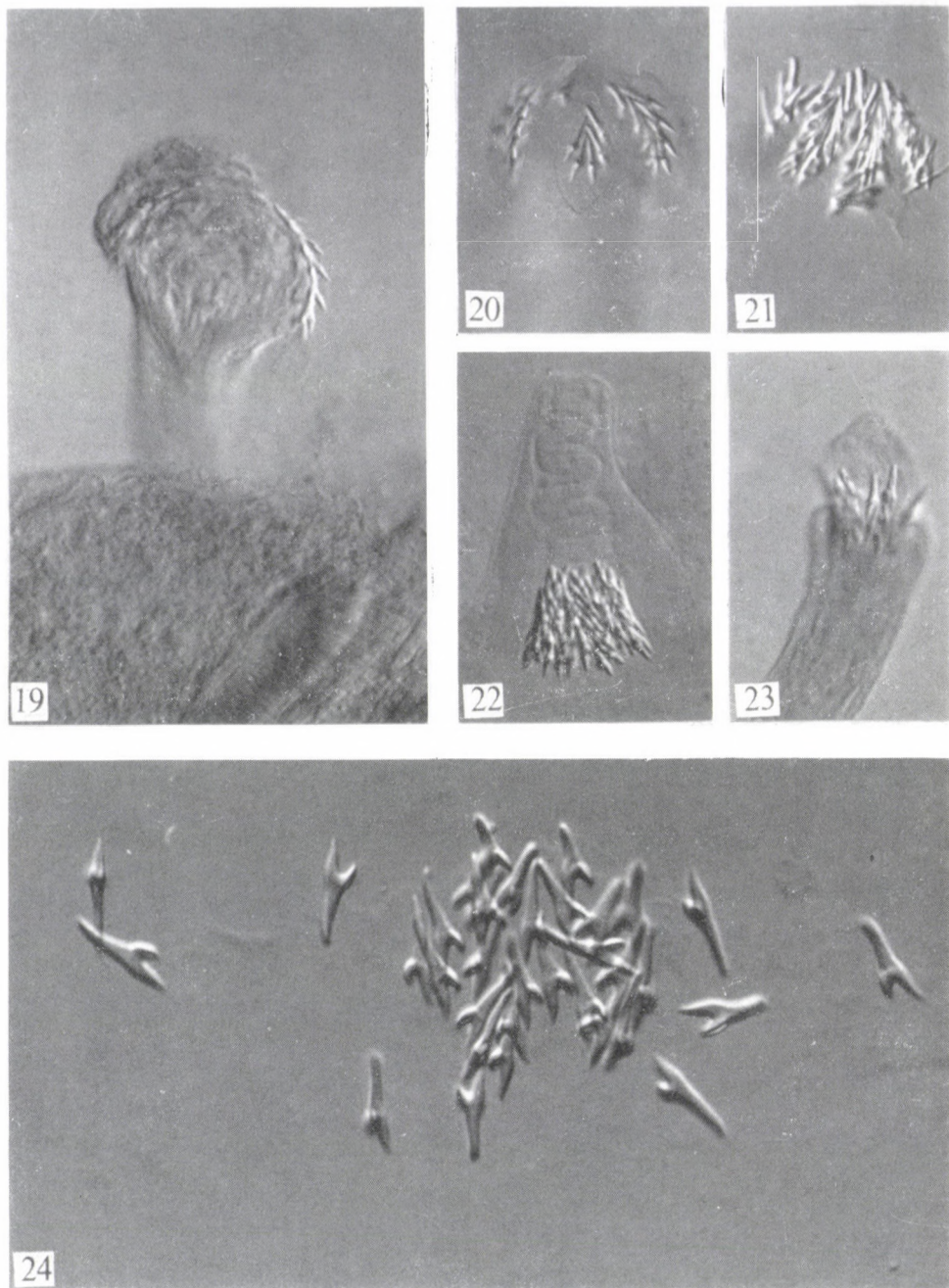
These six species are proposed by some authors (LÓPEZ-NEYRA, 1953; JOHRI, 1963; RYJIKOV and TOLKATSHEVA, 1981) as synonyms of *P. odhneri*.

*P. jagerskioldi* FUHRMANN, 1909 is known only from the original locality (White Nile, ex *Pluvianus aegypticus*).

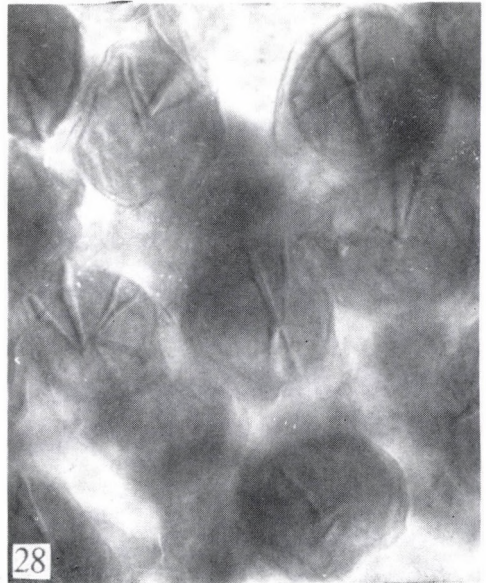
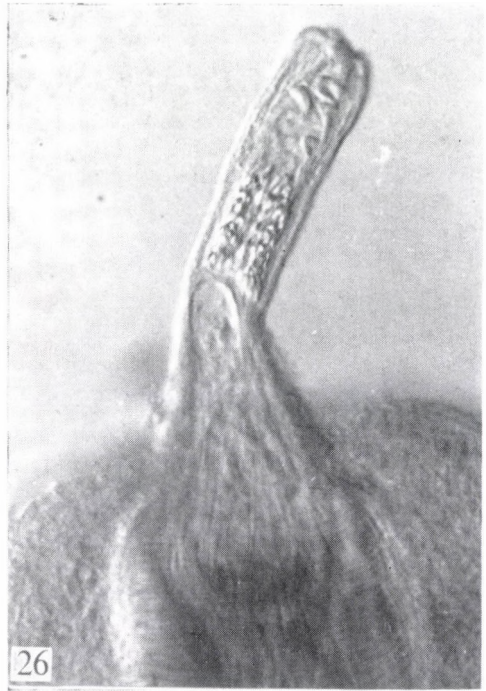
MEGGITT (1928) described *Progynotaenia flaccida* from *Recurvirostra avosetta* in Egypt, characterized by two rows of rostellar hooks (10/0.031–0.034 in the first row and 10/0.007–0.008 in the second row), anatomically related to *Progynotaenia* species. This form was transferred by BAER (1940) to the genus *Proterogynotaenia* FUHRMANN, 1911.

MEGGITT (1928) erroneously used the name *P. evaginata* FUHRMANN, 1909 for a tapeworm with 20 rostellar hooks, parasitizing *Oediconemus crepitans* and *Spatula clypeata* in Egypt.

BAER (1940) studied the type material of *P. evaginata* FUHRMANN, 1909 and did not find any whole specimen with rostellum having 60 hooks in “zig-zag” arrangement. “An examination of the type specimen of this species has revealed that there are two scolices, the one which no doubt belongs to the genus *Gyrocoelia*, and another, which presents the typical aspect of the genus *Progynotaenia*, moreover, the latter is attached to segments showing the anatomy so that no doubt is possible that we are dealing with a species belonging to this genus, whereas the other scolex is a fragment from another worm probably from the same host (BAER, 1940 p. 187)”. He came to the conclusion that there are two species, and on the basis of the obviously disturbed type material transferred the tapeworms characterized as having 60 hooks on the scolex and placed into 6 “zig-zag” lines into the genus *Gyrocoelia* FUHRMANN, 1899 and the tapeworms in which he found only 18–20 hooks 0.055–0.060 of



Figs 19–24. Microphotographs about *Progynotaenia evaginata* FUHRMANN, 1909 (original from the Hungarian material), 19 = everted rostellum with “zig-zag” angles of rostellar hooks (only two rows are visible), 20 = hooks in Berlese solution (about 60), 21 = rostellum with three rows of hooks (disturbed), 22 = rostellar hooks in the rostellar sac, 23 = rostellum everted with some hooks (Figs 19–34 =  $20 \times 6.3$ ), 24 = Berlese preparation of the rostellar hooks (detail,  $40 \times 6.3$ )



Figs 25–28. *Progynotaenia evaginata* FUHRMANN, 1909 (orig. by Hungarian material), 25 = a whole specimen stained with carmine, 26 = rostellar sac with retracted rostellum, 27–28 = ripe eggs in the last segment (27 = Berlese preparation, 28 = stained with haematoxylin) [25 =  $10 \times 3.2$ , 26–28:  $40 \times 6.3$ ]



length on the scolex (probably one *P. fuhrmanni* SKRJABIN, 1914 specimen) indicated as *Progynotaenia evaginata* FUHRMANN 1909 (Fig. 16).

Following BAER's (1940) erroneous procedure it was impossible to make reliable identification of *P. evaginata* FUHRMANN, 1909. Only once used the name *P. evaginata* in the report of IWANITSKII (1940, cit. in RYZHIKOV and TOLKATSHEVA, 1981) as a parasite of *Burhinus oediconemus* in the Ukraine, without morphological data.

In India JOHRI (1963) studied the tapeworms of birds and he described the species *Progynotaenia indica* as a new species from the host which he indicated as "avocet-like bird". He characterized this species as having 48 hooks placed in 6 "zig-zag" lines. JOHRI made a mistake in his paper by citing the number and length of hooks of *P. evaginata* (in consequence BAER's emendation) and, therefore, erroneously thought he had an undescribed species.

GVOZDEV (1964; cit. in RYZHIKOV and TOLKATSHEVA, 1981) reported *P. evaginata* from *Burhinus oediconemus* from Kazakhstan, and mentioned that it has hooks on the rostellum in "zig-zag".

RYZHIKOV and TOLKATSHEVA (1981) based their work on FUHRMANN's original description and compared with the species *P. indica* JOHRI, 1963 supposed that it is the synonym of *P. evaginata* FUHRMANN, 1909.

Table 1

Dimensions of the species *Progynotaenia evaginata* FUHRMANN, 1909 and *P. indica* JOHRI, 1963 (syn. of *P. evaginata*)

Authors	<i>P. evaginata</i> FUHRMANN, 1908	<i>P. indica</i> JOHRI, 1963	<i>P. evaginata</i> Present paper
Length of strobila (mm)	2.3	3.7—4.9	3.5—4.6
Maximum width	0.67	1.35	0.8
Number of segments	17	14—18	17—20
Diameter of scolex	0.23	0.30—0.34	0.21—0.28
Size of suckers	0.11 × 0.17	—	0.11 × 0.19
Number of hooks	60	48	60 (45—60)
Arrangement of hooks	6 lines	6 lines	6 lines
Length of hooks	0.018	0.019—0.021	0.017—0.019
Number of testes	20—22	14—18	16—20
Length of cirrus sac	0.8	0.54—0.66 (everted 0.9)	0.50—0.64 (everted 0.8)
Eggs size	—	—	0.55 × 0.65
Oncosphere diameter	—	—	0.032—0.040
Embryonal hooks	—	—	0.025—0.030
Hosts	<i>Oediconemus</i> <i>senegalensis</i>	"Avocet-like" bird	<i>Burhinus oediconemus</i>
Locality	Africa White Nile	India	Hungary Kiskunság Nat. Park

Based on our material and studies of the literature we can state the following:

*Progynotaenia evaginata* is a very rare, however, valid species. Their hosts — stone curlew species — distributed in North Africa, South Europe, South-east Europe and South-west Asia. At present our material (85 specimens from one host) was the most suitable one to verify that *P. evaginata* exists and according to FUHRMANN's (1909) opinion it is a real member of the genus *Progynotaenia*.

The morphological and metric data given by FUHRMANN (1909) are in agreement with those of our material, and with those of *P. indica* described by JOHRI (1963) (see Table 1 and Figs 5—8).

JOHRI characterized *P. indica* with 6 angles of rostellar hooks each angle having 8 hooks in two rows, 4 hooks in each row; on the contrary as shown on Fig. 1 (JOHRI, 1963 p. 41) he has drawn 5 hooks in one row. FUHRMANN described 60 hooks. In our own material it was found that the hooks found on the rostellum can be shed. If the material is not quite fresh, original and undamaged, it is very difficult to determine the number of hooks as a criterion for distinguishing the individual species. We have a lot of specimens deprived of rostellar hooks, and only two specimens showing on the protruded rostellum the six "zig-zag" angles; and moreover these angles were incomplete (Figs 19—23). In specimens having the hooks in the rostellar sac we found 49—60 hooks in 6 groups (Figs 21, 22). The form of the rostellar hooks given by FUHRMANN, 1909 and our material are the same (Figs 2, 9, 24), and we think about JOHRI's material, the hooks are identical with those of *P. evaginata*. We agree with the opinion of RYZHIKOV and TOLKATSHEVA (1981) that *P. indica* JOHRI, 1963 and *P. evaginata* FUHRMANN, 1909 are synonymous.

We have the possibility based on the ripe specimens in our material to complete the knowledge about the morphology of eggs (Figs 10, 27, 28).

*Progynotaenia evaginata* sensu BAER, 1940 nec FUHRMANN, 1909, as far as the number of hooks is concerned, closely related to the species *P. odhneri* NYBELIN, 1914.

2. *Paricterotaenia delachauxi* (BAER, 1925) FUHRMANN, 1932 (Dilepididae FUHRMANN, 1907)

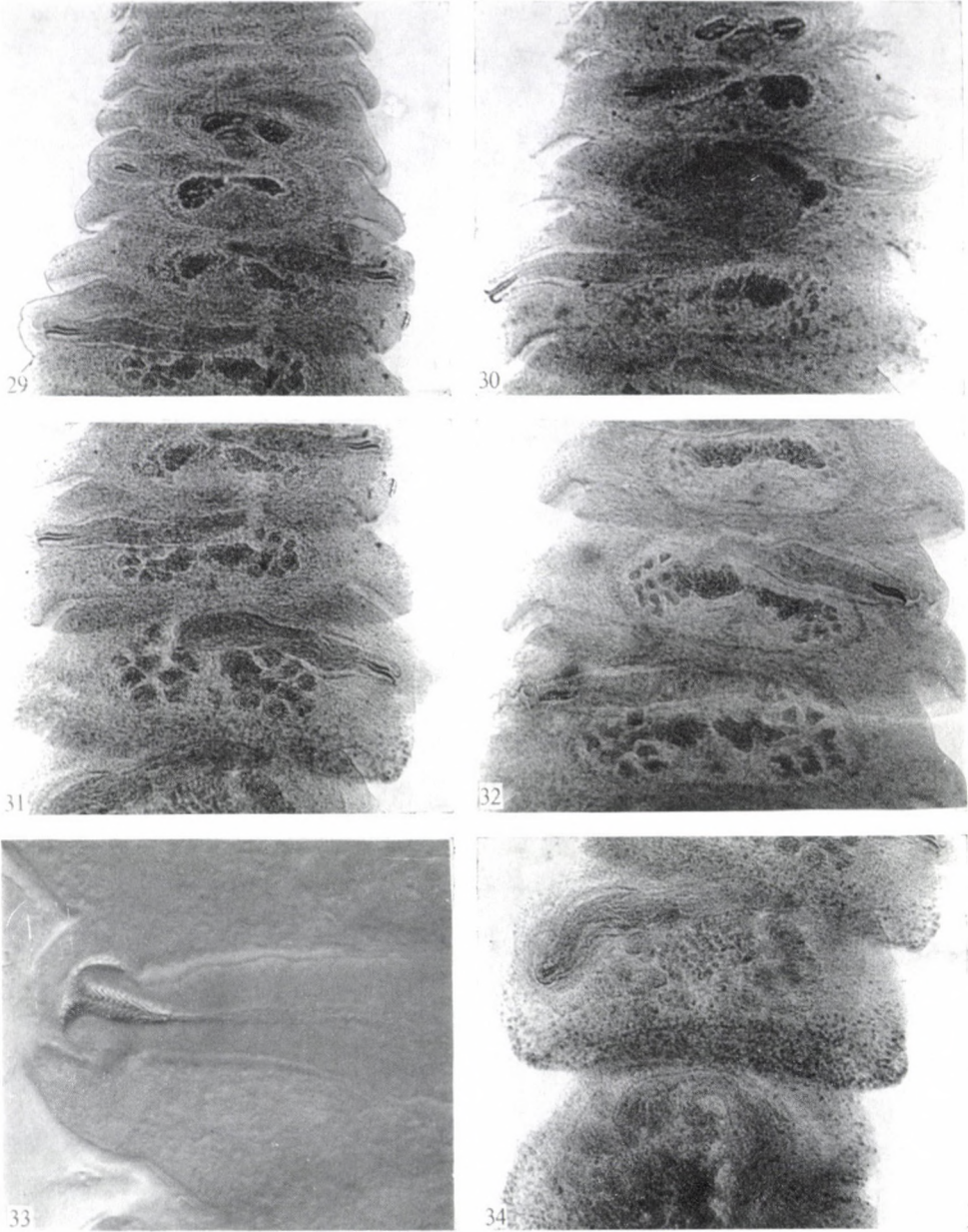
Host: *Burhinus oedicnemus* (L., 1758).

Localisation: small intestine.

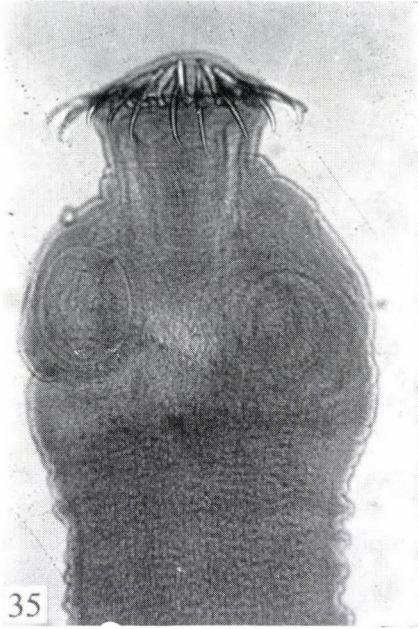
Locality: Nagyfüged, County Heves, "Nagykunság" territory, 6 October, 1985, legit B. SOLTI, Hung. Nat. Hist. Mus. No. 10907.

Number of specimen examined: 1.

The description is based on one specimen, on a weak fixation, with only the scolex, eggs and some segments in good condition. The strobila measures 33 mm in length and 2.2 in maximum breadth. The scolex is large — 0.88 in



Figs 29–34. *Progynotaenia evaginata* FUHRMANN, 1909 (orig. by Hungarian material), 29–30 = developing of female genital organs in the 10th–13th proglottides, 31–32 = developing of the male genital organs in the 13–15th proglottides, 33 = detail of the 11th proglottis showing the cirrus covered with fine spines, 34 = uterus development in the 17–18th segments [Figs 29–32 and 34 =  $6.3 \times 3.2$ , 33:  $40 \times 6.3$ ]



Figs 35–38. *Paricterotaenia delachauxi* (BAER, 1925) FUHRMANN, 1932 (orig. after Hungarian material). 35 = scolex, 36 = one rostellar hook in Berlese medium, 37 = mature eggs showing the outer sticky layer, and the refracting envelope, 38 = eggs in Berlese medium, the refracting envelope, 38 = eggs in Berlese medium, the embryonic hooklets are visible [Fig. 35 = to  $6.3 \times 3.2$ ; 37–38 =  $40 \times 6.3$ ]

diameter. The rostellum is protruding ( $0.50 \times 0.25$ ), the rostellar sac measures  $0.50 \times 0.30$ . It is armed with 18 (20) great hooks  $0.234-0.285$  long. The handle measures  $0.12-0.15$ , the blade  $0.115-0.160$ , the guard is large,  $0.068$  long and  $0.036$  thick (Figs 35-36). The suckers are  $0.32$  in diameter. There is no neck region, with the segmentation beginning immediately behind the scolex. All the segments are broader than long. Mature segments measure  $2.0 \times 0.04$ . Genital pores alternate irregularly. The female and male genitalia are not well visible. The eggs have 3 envelopes. The outer envelope is thin and sticky, the second envelope is thick and refracting in light, the third envelope is irregularly thick. The eggs measure  $0.05 \times 0.06$ , the oncosphere  $0.031-0.038 \times 0.037 = 0.044$ , the hooks of the embryo measure  $0.016-0.018$  (Figs 37-38).

Systematic status of the species *Paricterotaenia delachauxi* (BAER, 1925).

The above-mentioned species was described by BAER (1925) based on a very small number of specimens from the host *Oedicnemus crepitans* in South-west Africa. It was named *Icterotaenia delachauxi* BAER, 1925.

FUHRMANN (1932) transferred this species to the genus *Paricterotaenia* FUHRMANN, 1932.

LÓPEZ-NEYRA (1935) transferred this species to the genus *Choanotaenia* RAILLIET, 1896 and based on the material of tapeworms from *B. oedicnemus* from Spain, he described *Choanotaenia delachauxi* var. *mesacantha*.

BURT (1940) described the species *Choanotaenia magnihamata* from *B. oedicnemus* from Ceylon.

LÓPEZ-NEYRA (1951, 1952) reported that the species *Choanotaenia magnihamata* BURT, 1940 is a synonym of *Ch. delachauxi* var. *mesacantha*.

BONA (1957) stated that the genera *Paricterotaenia* FUHRMANN, 1932 and *Choanotaenia* RAILLIET, 1896 are different, especially according to the morphology of the eggs.

MATEVOSYAN (1963) leaves the species "*delachauxi*" in the genus *Choanotaenia* RAILLIET, 1896 emend. MATEVOSYAN, 1963.

ILLESCAS-GOMEZ and LÓPEZ-ROMAN (1980) reported *Paricterotaenia coronata* (CREPLIN, 1829) from *Burhinus oedicnemus* in Spain, and confirmed the validity of the genus *Paricterotaenia* FUHRMANN, 1932.

Based on our material and the literature we can conclude the following:

The study of BONA (1957) has proved that the species "*delachauxi*" described by BAER (1925) belongs to the genus *Paricterotaenia*.

There are no bases and criteria for forming varietas within the species *P. delachauxi* (BAER, 1925). If some individuals appear different morphologically and/or metrically, it is not a population but individual variation (however, it is possible that more than  $0.05$  mm difference between the length of the rostellar

hooks by *P. delachauxi* and *P. delachauxi* var. *mesacantha* is a specific characteristic). Our specimen is nearer to BAER's species than to LÓPEZ-NEYRA's varieties.

We agree with the opinion of LÓPEZ-NEYRA (1951, 1952) that the species *Choanotaenia magnihamata* BURT, 1940 is a synonym of *P. delachauxi* (BAER, 1925).

**Acknowledgement:** The authors would like to thank the following persons for their kind help and assistance: Mrs. ETELKA VAJDA for making the preparations; Dr. ZSUZSA HALMAI (Zeiss Differential Interference Microscopy, Margit Hospital in Budapest) and Ing. MILAN VAŇEK (Opton Photograph Microscopy in Brno) for the photographs and the University of Agriculture in Brno for financial help with the meeting of research workers at the Department of Zoology, Fur Animal Breeding and Bee Keeping of the Faculty of Agronomy (9–23 April, 1987), thus, enabling trilateral scientific cooperation as a part of cultural cooperation among the participating parties.

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A REVIEW OF THE AFROTROPICAL SPECIES OF  
NORRBOMIA GEN. N.  
(DIPTERA: SPHAEROCERIDAE, COPROMYZINI)

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*Norrbomia* new genus of the tribe Copromyzini is described (type-species: *N. indica* sp. n.) for most of the species of *Borborillus*: auctororum. *Borborillus* DUDA, 1923 (type-species: *Borborus uncinatus* DUDA, 1923) with *B. vitripennis* (MEIGEN, 1830) is closely related to *Metaborborus* VANSCHUYTBROECK, 1948 and *Gymnometopina* HEDICKE, 1923, *Norrbomia* species represent their sister-group (with major delimiting features in male genitalia). Five new species are described: *N. demeteri* sp. n. (Ethiopia), *N. elephantis* sp. n. (Tanzania), *N. indica* sp. n. (India), *N. keniaca* sp. n. (Kenya) and *N. sarcophaga* sp. n. (South Africa). *Borborus ambili* VANSCHUYTBROECK, 1959 is synonymous with *Borborus spinosus* VANSCHUYTBROECK, 1959. Distribution of *Norrbomia sordida* (ZETTERSTEDT, 1847) is revised. A key is given for the Afrotropical species. With 35 figures.

In the course of studies aimed at a better understanding of the sphaerocerid species developing in droppings of big hoofed animals in the Afrotropical region, the species of *Borborillus* (tribe Copromyzini) were considered. In this tribe NORRBOM and KIM (1985) and NORRBOM (1987) had published excellent revisions concerning the species of *Metaborborus* VANSCHUYTBROECK, 1948 and *Gymnometopina* HEDICKE, 1923, respectively. At first my aim was to study only the types and specimens which were described or identified by DR. PAUL VANSCHUYTBROECK, to review the known species and to compile a workable key for the specimens collected on droppings in Africa.

Prior to this study, both DR. ALLEN L. NORRBOM and the present author had independently realized that *Borborus vitripennis* MEIGEN, 1830 has male genitalia similar to those of the species of *Metaborborus* and *Gymnometopina*. In the latest phase of the present study\* also the male genitalia of *Borborillus uncinatus* (DUDA, 1923), the type-species of *Borborillus* DUDA, 1923 were investigated with a surprising result: all the main male genital features are common with those of the two above-mentioned genera and are quite opposite to those of all the Afrotropical species. DUDA (1923) described *Borborillus* as a subgenus of *Borborus* without a type-species designation. RICHARDS (1930) designated *Borborus* (*Borborillus*) *uncinatus* DUDA, 1923\*\* as type-species

\* This is why a part of the specimens involved in this study was labelled as "*Borborillus*".

\*\* All its type-series seen: 1 male syntype in BECKER's collection, 17 syntypes in DUDA's collection in the Berlin Museum, a female syntype from Bártfa in the HHM.

(subsequent des.) simply because this was listed first by DUDA (1923). To clarify the specific status of the specimens of "*sordida*" in the collection of the Zoological Department, Hungarian Natural History Museum (HNHM), those specimens were also studied which led to the discovery of a new species from India; the latter was designated as the type-species of the new genus in order to stress its worldwide distribution (see below).

Almost 300 specimens from the Afrotropical region and an addition of several hundred specimens of *N. sordida*, *B. uncinatus* and *B. vitripennis* from the Palaearctic were studied.

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DR. L. E. O. BRAACK, Natal Museum, Pietermaritzburg, South Africa (NM).

In the following the new genus and five new species are described, then locality data of the other species are given; finally, a key is given for the Afrotropical species, which includes also the differentiating features of the new species.

### Norrbomia gen. n.

The main differentiating features of the male genitalia are as follows:

<i>Norrbomia</i>	<i>Borborillus</i>
hypandrial apodeme very long	hypandrial apodeme absent
hypandrial arms fused with apodeme (Fig. 35)	hypandrial arms free, not fused (with cranially directed processes in <i>B. vitripennis</i> )
basiphallus compact with a curved caudal ventral hook (epiphallus)	basiphallus rod-like (with a robust straight epiphallus) but much widened cranially
postphallic sclerite absent	epiphallus and intraperiandrial sclerite connected through a black, well-sclerotized postphallic sclerite
cerci fused with epandrium	cerci free, not fused with epandrium
cerci of various forms	cerci short, blunt and simple
surstyli of an intricate form (usually consisting of 3 lobes)	surstyli simple
parameres very wide, shielding basiphallus	parameres narrow apically

Other features of the *Norrbomia* species: arista bare or short pubescent, genal bristle weak, postocular setulae in one row; two *ac* rows, two pairs of *sc*, no additional scutellar setae; male fore metatarsus with a ventroapical



hook, hind tibia with strong ventroapical spur and with a long dorsal preapical seta, a conspicuous anteroventral in distal third of  $t_3$  present; vein  $Cu_1$  with vein appendage distally to posterior crossvein, terminal section of medial vein and intracrossvein section are equal to subequal.

Gender: feminine.

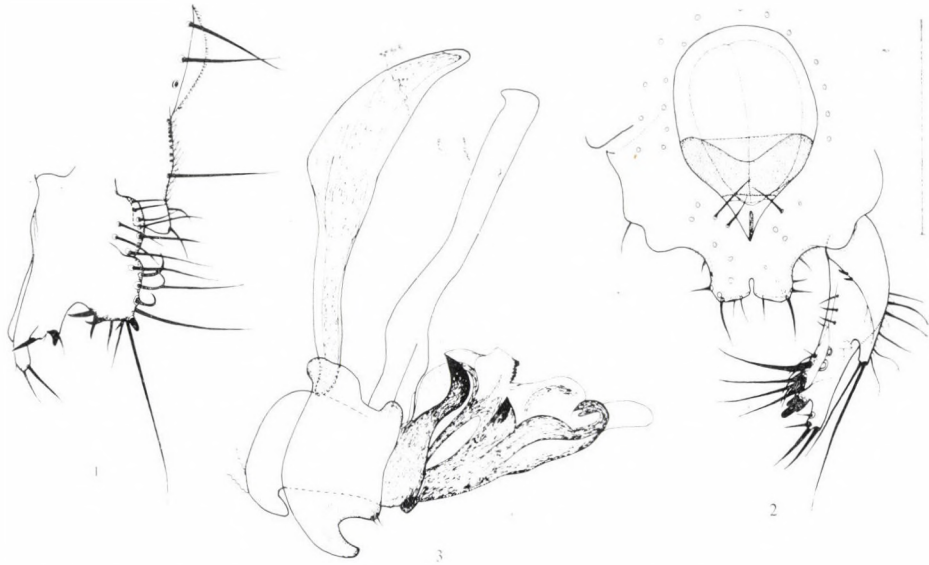
Type-species: *Norrbomia indica* sp. n., by original designation. Etymology: I dedicate the new genus to DR. ALLEN L. NORRBOM (Washington), who has achieved remarkable results in the generic and species revision of the tribe Copromyzini.

Remark. The species of *Borborillus* DUDA, 1923 (with its type-species *uncinatus* (DUDA, 1923) and *vitripennis* (MEIGEN, 1830) and possibly with some other species not studied hitherto) share all the genital characteristics listed above with the species of *Metaborborus* VANSCHUYTBROECK, 1948 and of *Gymnometopina* HEDICKE, 1923 (cf. NORRBOM and KIM, 1985, 1987); thus I regard the species of these three genera as a sister-group of the *Norrbomia* species. A majority of the species in the Palaearctic region assigned hitherto to *Borborillus* (PAPP, 1984) belongs actually to *Norrbomia*.

#### *Norrbomia demeteri* sp. n.

Measurements in mm: body length 2.33 (holotype), 2.12—2.75 (paratypes), length of wing 2.33 (holotype), 2.12—3.08 (paratypes), width of wing 1.00 and 0.83—1.14.

Frons, vertex, occiput and face marbly dusted with grey and brownish grey pollen. Gena with an oblong peristomal silvery area and with a comparatively wide subocular black area, which widens to the whole width of gena posteriorly. 5—6 short *if* pairs. Mesonotum marbly bicolourous with a pair of brown *dc* lines and with a wide sagittal stripe. One *dc* pair. Anepisternum grey dusted, katepisternum with a large shining black bare spot bordered by narrow dusted areas dorsally, anteriorly and posteriorly (in some specimens anterior dusted area larger, i. e. shining area smaller). Fore coxae shining black. Legs all dark, dark grey dusted; legs rather robust, fore and hind femora more or less thickened. Male  $mt_1$  simple with a strong ventral apical hook. Ventroapical spur of hind tibia thick but only moderately long. Wings light brownish, veins dark brown. Terminal section of medial vein per intracrossvein section 0.96 (holotype), 1.17 (paratype ♂). Abdomen all grey dusted. Male  $S_5$  as long as wide (Fig. 4) or shorter, caudal margin tends to have 3 small protuberances.  $S_2$ — $S_4$  rather small. Surstyli of an intricate form (Figs 1, 2), its caudal process short and wide, in profile base of surstylus not much narrower than in its middle, 4 medially directed thick and long bristles (and numerous thinner additional setae); cerci short, stub-like apically (similar to the foot of an elephant) (Fig. 1).



Figs 1—3. Genitalia of *Norrbomia demeteri* sp. n., paratype male. 1 = surstylus and cercus in lateral view, 2 = cerci and right surstylus in caudal view, 3 = aedeagal complex laterally. Scale: 0.2 mm

Ventral hook of parameres (Fig. 3) large and blunt, hook of basiphallus much shorter and thicker than that of *spinosa*, distiphallus short and compact. Female genitalia not studied.

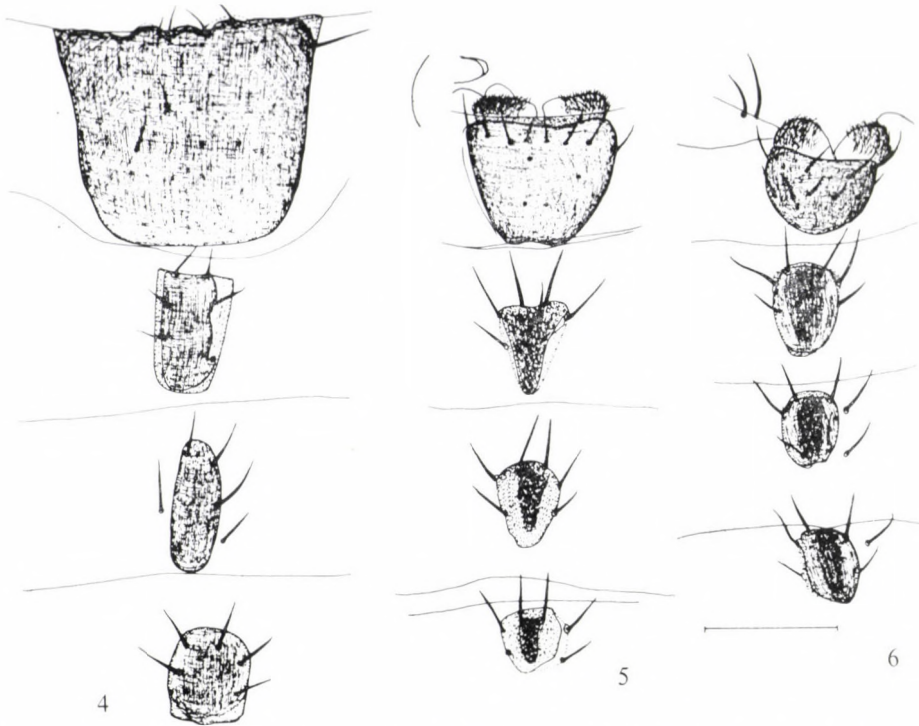
Holotype male: Ethiopia, Addis Abeba, Akaki River — 13. XI. 1980, leg. DEMETER (HNHM). — Paratypes (all in HNHM): 9♂, 17♀: same data; 1♂: Ethiopia, 20 km S of Debre Sina, No. 31 — 18—21 IX. 1981, leg. DEMETER; 5♂, 5♀: Abyssinia, KOVÁCS—Dire—Daua, 1911, II. 19. — "*sordida* ♂" det. O. DUDA.

The species is dedicated to DR. ANDRÁS DEMETER, the collector of the majority of the type-series.

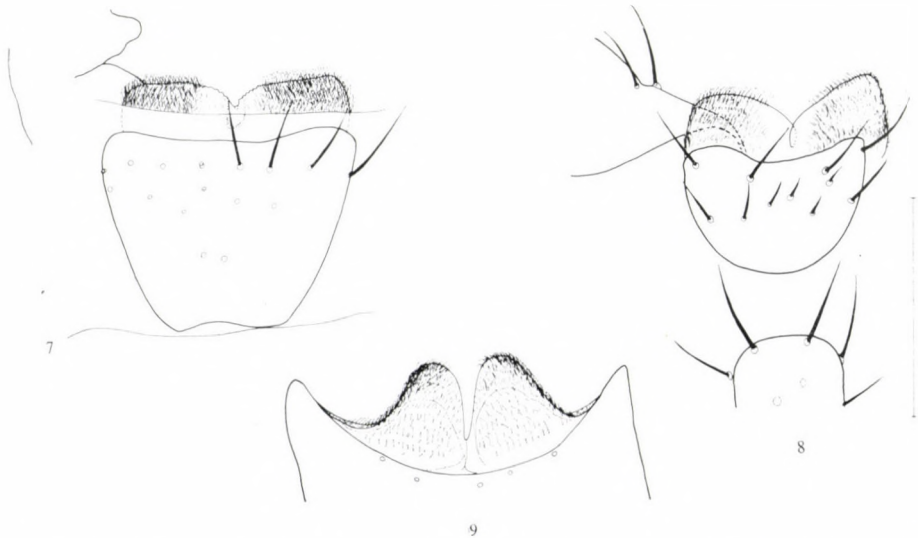
### *Norrbomia elephantis* sp. n.

Measurements in mm: body length 1.43 (holotype), 1.55—2.08 (paratypes), length of wing 1.71 (holotype), 1.72—2.17 (paratypes), width of wing 0.64 and 0.64—0.83.

Frons, vertex, occiput and facial cavity grey dusted, an oblong peristomal area of gena grey dusted, a subocular narrow part and all distal part of gena shining black. 4—5 short *if* pairs. Mesonotum all grey dusted, a band between *acmi* and a pair of linear *dc* stripes brownish. One *dc* pair. Episternum grey dusted (as the whole mesopleuron). Legs rather slender, dark, covered by thick grey pollen. Male *mt*<sub>1</sub> with a distal ventroapical hook, curved ventral spur of hind tibia comparatively short (0.10 mm). Wings light greyish, veins



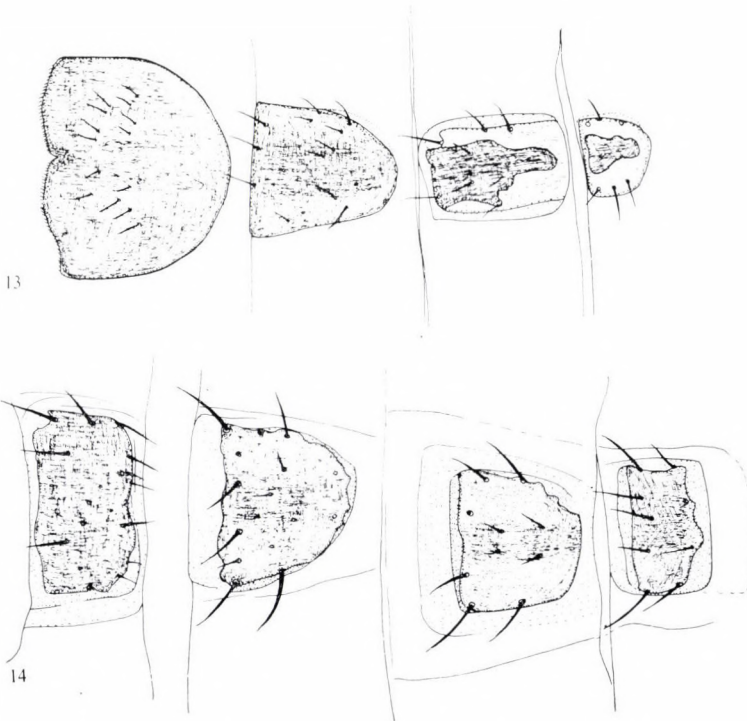
Figs 4-6. Pregenital sternites of *Norrbomia* males. 4 = *N. demeteri* sp. n., paratypes; 5-6. *N. elephantis* sp. n.: 5 = holotype, 6 = paratype. Scale: 0.2 mm



Figs 7-9. Fifth sternite of *Norrbomia* males. 7-8: *N. elephantis* sp. n.: 7 = holotype, 8 = paratype; 9 = *N. mpazaensis* (VANSCHUYTBROECK), paratype. Scale: 0.2 mm



Figs 10–12. Genitalia of *Norrbomia elephantis* sp. n., holotype male. 10 = surstylus and cercus in lateral view, 11 = aedeagal complex with hypandrial arm laterally, 12 = right cercus and surstylus in caudal view. Scale: 0.2 mm



Figs 13–14. Pregenital sternites of *Norrbomia* males. 13 = *N. indica* sp. n., paratype; 14 = *N. keniaca* sp. n., paratype. Scale: same as for Figs 4–6

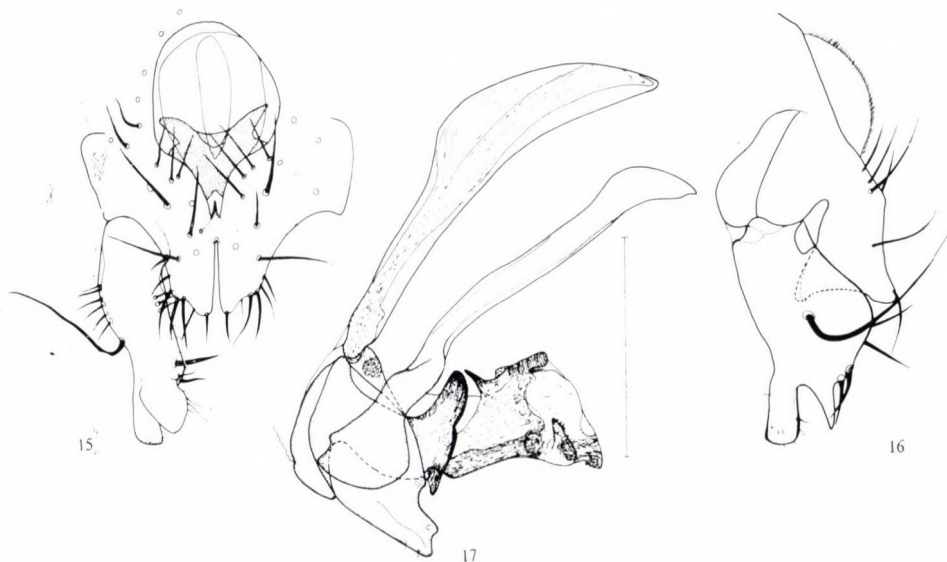
dark brown. Terminal section of medial vein per intracrossvein section 1.17 (holotype). Male genitalia distinctly different from those of *mpazaensis* (see also key): cerci (Fig. 12) short and bilobed with a sharp process in profile, surstylus (Figs 10, 12) trilobed, much widened apically, and with several thorn-like bristles; ventral hook of basiphallus rather large (Fig. 11), parameres with a characteristic anterior process, distiphallus somewhat longer than in *mpazaensis*. Male abdominal  $S_5$  with a pair of very wide hairy caudal processes (Figs 7, 8),  $S_2-S_4$  rather small and slightly variable from specimen to specimen (Figs 5, 6).

Holotype male: Tanzania: Morogoro region, Mikumi National Park, Mikumi Tented Camp — Netting over excrement of elephant, Feb 1, 1987, leg. S. MAHUNKA—T. PÓCS—A. ZICSI, No. 8 (HNHM, minutia-pinned from alcohol). — Paratypes: 1 ♂, 4 ♀: same data (HNHM).

### *Norrbomia indica* sp. n.

Measurements in mm: body length 1.96 (holotype), 1.83–2.33 (paratypes), length of wing 1.79 (holotype), 1.88–2.17 (paratypes), width of wing 0.72 and 0.72–0.81.

Frons, vertex, occiput and facial cavity all marbly dusted with grey and brownish grey pollen. Flagellomere partly greyish red (at least so ventrally). 5–6 short *if* pairs. Gena with an oblong peristomal silvery grey dusted area and with a narrow subocular shining black area, which widens to the whole width of gena caudally (posteriorly). Mesonotum covered by thick yellowish



Figs 15–17. Genitalia of *Norrbomia indica* sp. n., paratype male. 15 = cerci and left surstylus in caudal view, 16 = surstylus and cercus in lateral view, 17 = aedeagal complex with hypandrial arm laterally. Scale: 0.2 mm

grey pollen. Episternum (as the whole mesopleuron) grey dusted. Legs thicker than in its congeners (*elephantis*, *mpazaensis*) with thick grey pollen but knees, proximal half of fore tibia and a good part of tarsi reddish. Male  $mt_1$  rather short (not much longer than second tarsomere), with the usual ventroapical hook; spur of hind tibia thick but only moderately long. Wings light brownish, veins light brown (incl. costa), halteres yellow. Terminal section of medial vein per intracrossvein section 0.94 (holotype), 0.87 (paratype ♂). Abdomen all grey dusted. Male abdominal sterna (Fig. 13) comparatively large,  $S_5$  large but without caudal processes, medially with a small incision. Male cerci robust (Fig. 15) with a distinct cranial apical process (Fig. 16), surstylus comparatively long with two apical processes (Figs 15, 16). Ventral hook of basiphallus robust (Fig. 17), paramere short but high, bilobed apically. Aedeagal apodeme and hypandrial apodeme very big, distiphallus comparatively short (Fig. 17). Female genitalia not studied.

Holotype male: India or., BIRÓ 1902 — Matheran 800 m., VII. 8. — “*sordida* ♂” det. O. DUDA (HNHM). — Paratypes: 15 ♂, 3 ♀: same data (HNHM, all identified by O. DUDA as “*sordida*”).

*Norrbomia indica* sp. n. is an easily identifiable species. It does not fit well into the key for the Afrotropical species: its episternum is completely grey dusted but male sterna rather big and  $S_5$  is without processes. Among the known species, *N. sordida* is probably its nearest relative but *sordida* has a shining bare spot on its katepisternum and details of the male genitalia are much different (see e.g. Figs 16, 17 vs. Figs 29, 30).

#### *Norrbomia keniaca* sp. n.

Measurements in mm: body length 2.41 (holotype), 2.13—2.45 (paratypes), length of wing 2.33 (holotype), 2.08—2.38 (paratypes), width of wing 0.93 and 0.79—0.93.

Orbits and large frontal triangle silvery grey dusted, a narrow area between dark bare anterior (supralunular) area — in 1/3 of frons — red or yellowish red. Flagellomere greyish red, facial plate and gena bright yellow or reddish yellow. Mesonotum, notopleura and scutellum grey dusted with thick yellowish grey pollen, whole episternum shining black, fore coxae and subalar protuberance shining black, too. One *dc* pair. Legs mainly black, fore tibia, proximal part of middle and hind tibiae and a good part of tarsi red or greyish red. Male  $mt_1$  distally with a ventral apical hook. Wings light greyish, veins yellowish, halteres yellow. Terminal section of medial vein per intracrossvein section 1.47 to 2.00, i.e. intracrossvein section rather short. Dorsal surface of abdominal tergites and epandrium grey dusted, ventrally curved parts of tergites and sternites shining black. Male abdominal sternites (Fig. 14)



Figs 18–20. Genitalia of *Norrbomia keniaca* sp. n., paratype male. 18 = surstylus and cercus in lateral view, 19 = cerci and surstyli in caudal view, 20 = aedeagal complex with hypandriar arm laterally. Scale: 0.2 mm

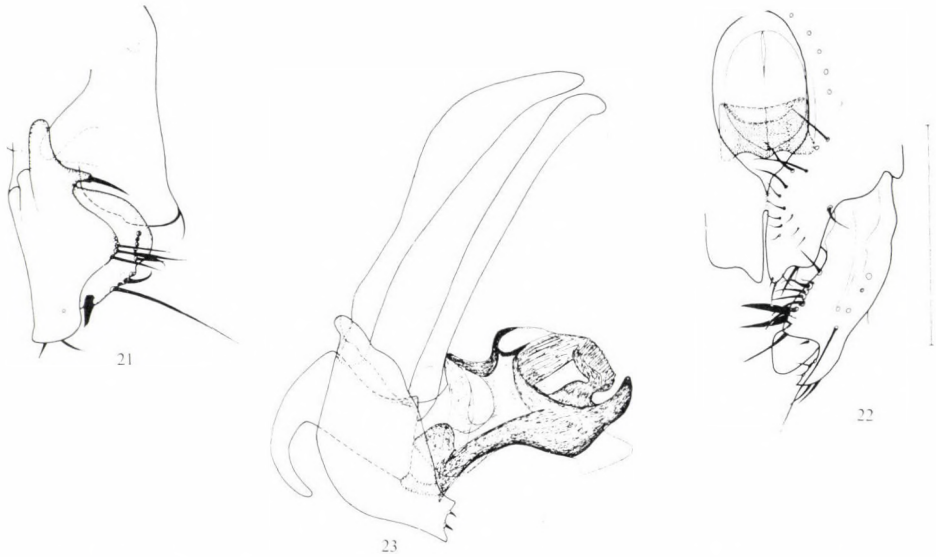
rather large but  $S_5$  not bigger, contrasting all the grey-dusted species of the Afrotropical region. Male cerci simple with a narrow but blunt apical process (Figs 18, 19), surstylus rather long, compact in profile (Fig. 18) but actually of an intricate form of processes, thorns and bristles (Fig. 19). Ventral hook of basiphallus short (Fig. 20), paramere with a narrow, cranially directed anterior process, distiphallus short and strongly chitinized. Female terminalia not studied.

Holotype male: SW Kenya, Narok, 1 km S junction at Enoso Nyuro, Savanna, 30.7. 1981, leg. LARS FRÖBERG (ZML). — Paratypes: 70 ♂, 12 ♀: same data (23 ♂, 4 ♀ in HNHM, other paratypes in ZML).

#### *Norrbomia sarcophaga* sp. n.

Measurements in mm: body length 1.74 (holotype), 1.43–2.06 (paratypes), length of wing 1.97 (holotype), 1.86–2.05 (paratypes), width of wing 0.74 and 0.67–0.75.

Body and legs shining black, a narrow peristomal area of gena somewhat dusted. Four anterior *if* pairs and a complete row of incurving inner orbitals. Two rows of scattered *acmi*, acrostichals rather long (up to 0.12 mm), at least



Figs 21–23. Genitalia of *Norrbomia mpazaensis* (VANSCHUYTBROECK, 1959), paratype male. 21 = surstylus and cercus in lateral view, 22 = cerci and right surstylus in caudal view, 23 = aedeagal complex without hypandrial arm laterally. Scale: 0.2 mm



Figs 24–28. *Norrbomia sarcophaga* sp. n., paratype male. 24 = pregenital sternites, 25 = surstylus in lateral view, 26 = cerci and intraperiandrial sclerite in caudal view, 27 = aedeagal complex without hypandrial arm laterally, 28 = cercus laterally. Scales: 0.2 mm, for Fig. 24 and for Figs 25–28, respectively



dark brown. Terminal section of medial vein per intracrossvein section 1.17 (holotype). Male genitalia distinctly different from those of *mpazaensis* (see also key): cerci (Fig. 12) short and bilobed with a sharp process in profile, surstylus (Figs 10, 12) trilobed, much widened apically, and with several thorn-like bristles; ventral hook of basiphallus rather large (Fig. 11), parameres with  $1 + 2$  *dc* pairs (all *dc*-s enlarged). Legs robust, femora thickened, shining (at most dark brown), knees, apices of tibiae and 2 basal tarsomeres of fore and middle tarsi yellow to ochreous. Male *mt*<sub>1</sub> with a sharp ventroapical hook. Dorsal preapical of hind tibia and its ventroapical spur very long (0.23 mm and 0.22 mm). Wings transparent (at most light greyish), veins light yellowish to ochreous. Basicosta with a very long incurving bristle. Second costal section 3.72 times as long as third section, terminal section of medial vein per intracrossvein section 1.15. Male abdominal sternites (Fig. 24) rather big, *S*<sub>5</sub> shield-like with long and thick lateral marginal bristles caudally. Cerci (Figs 26, 28) long, blunt and incurving apically, surstylus (Fig. 25) robust with a long apical process bearing short thorns. Intraepiandrial sclerite (Fig. 26) very characteristic with its 3 pairs of sharp processes. Ventral hook of basiphallus (Fig. 27) much curved but rather short, paramere with 2 small anterior apical processes. Distiphallus robust.

Holotype male: South Africa: Transvaal, n. Kruger National Park, Pafuri, 22° 27'S 31° 17'E, 21-9-1979, L. BRAACK, ex. Impala carcass — Sp. P (now in Natal Museum through L. E. O. BRAACK). — Paratypes: 2 ♂, 1 ♀: *ibid.*, 1-Aug. 1978 — “Reference code: Sphaeroceridae sp. new” (NM, 1 ♂ in HNHM); 1 ♂: *ibid.*, 29-V-1979 — “wet elephant dung” — sp SMC (HNHM); 1 ♀: *ibid.*, 27-IX-1979, ex. Impala carcass — Sp. M (graphite) “Day 14 27/9/79. 2400 328 Ap C (HNHM).

#### MATERIALS STUDIED (OTHER THAN NEW SPECIES)

*Norrbomia gravis* (ADAMS, 1905), comb.n. 3 ♂ (ZML, HNHM): SW Kenya, Narok, 1 km S junction at Enoso Nyuro, Savanna, 30.7.1981, leg. LARS FRÖBERG; 17 ♂, 19 ♀ (HNHM): Abyssinia, KOVÁCS—Dire-Daua, 1911. II. 19 — “*opacus* ♂” det. O. DUDA; 3 ♂, 1 ♀ (HNHM): *ibid.*, Marako, 1912. III.; 4 ♂, 3 ♀ (HNHM): Ethiopia, Addis Abeba, Akaki River — 6. X., 13. XI. 1980, leg. DEMETER; 1 ♂ (HNHM): Ethiopia, 20 km S of Debre Sina — 18-21. IX. 1981, leg. DEMETER.

*Norrbomia marginatis* (ADAMS, 1905), comb.n. 1 ♂, 1 ♀ (ZML, HNHM): SW Kenya, Narok, 1 km S junction at Enoso Nyuro, Savanna, 30. 7. 1981, leg. LARS FRÖBERG; 1 ♂ (HNHM): Madagascar, Sikora — “*marmoratus* ♂” det. O. DUDA; 1 ♂ (HNHM): Ethiopia, Lake Langano — 12. X. 1980, leg. DEMETER; 7 ♂, 2 ♀ (HNHM): India or. BIRÓ 1902 — Matheran 800 m, VII. 8. — “*marmoratus* ♂” det. O. DUDA; 1 ♂, 1 ♀ (ZML, HNHM): Nepal; 19 km NW Pokhara, Gandrung, 7. 4. 1983, 2000 m, Grassy meadow, ULF GÄRDENFORS. Specimens seen also from Greece and Israel.

*Norrbomia mpazaensis* (VANSCHUYTBROECK, 1959), comb.n. Type-series:

Holotype male (MRAC): Congo Belge, P.N.G., Miss. H. DE SAEGER, II/ge/ 4, 22—V—1951, Réc. H. DE SAEGER, 1778 — P. VANSCHUYTBROECK det., 1959, *Borborillus mpazaensis* n. sp. Paratype female (MRAC): Congo Belge, P.N.G., Miss. H. DE SAEGER, Ndelele K.115, 3—XII—1951, Réc. H. DE SAEGER, 2842 — (2nd label as above): this is a female of *spinosa*. Other specimens (all IRSN): 1 ♂, 4 ♀ of the type-series of *spinosa*, see there; 2 ♂ (identified as *utukuruensis* by VANSCHUYTBROECK): I/b/1, 8—II—1950, 202, etc.; 3 ♂: II/fd/17, 15—V—1951, 1917, etc.; 9 ♂: II/ge/4, 22—V—1951, 1778, etc.

*Norrbomia spinosa* (VANSCHUYTBROECK, 1959), comb.n. Type-series: Holotype male (MRAC): Congo Belge, P.N.G., Miss. H. DE SAEGER, Utukuru/4, 22—VII—52, H. DE SAEGER, 3811 — P. VANSCHUYTBROECK det., 1959, *Borborillus spinosus* n. sp. (abdomen and genitalia in glycerin in a plastic microvial). Paratypes: 7 ♂, 8 ♀ (MRAC): 2 ♂, 6 ♀: data same as for holotype (1 ♂, 5 ♀ conspecific, 1 ♂ *utukuruensis*, 1 ♀ *mpazaensis*); 5 ♂, 2 ♀: II/fd/17, 15—VI—1951, 1917, etc. (3 ♂, 1 ♀ conspecific, 2 ♂, 1 ♀ *mpazaensis*). 6 ♂, 7 ♀ (IRSN): 5 ♂, 7 ♀: II/fd/17, 15—VI—1951, 1917, etc. (4 ♂, 3 ♀ conspecific, 1 ♂, 4 ♀ *mpazaensis*); 1 ♂: Utukuru/4, 22—VII—52, 3811, etc. (conspecific). 1 ♂, 1 ♀ (HNHM): II/fd/17, 15—VI—1951, 1917, etc. (conspecific male, a female of *mpazaensis*). Specimens other than types: 3 ♂ (IRSN): II/ge/4, 22—V—1951, 1778, or, I/b/1, 8—II—1950, 202, or, Utukuru/4, 3809, etc. (this 3 males were identified as *utukuruensis* by P. VANSCHUYTBROECK).

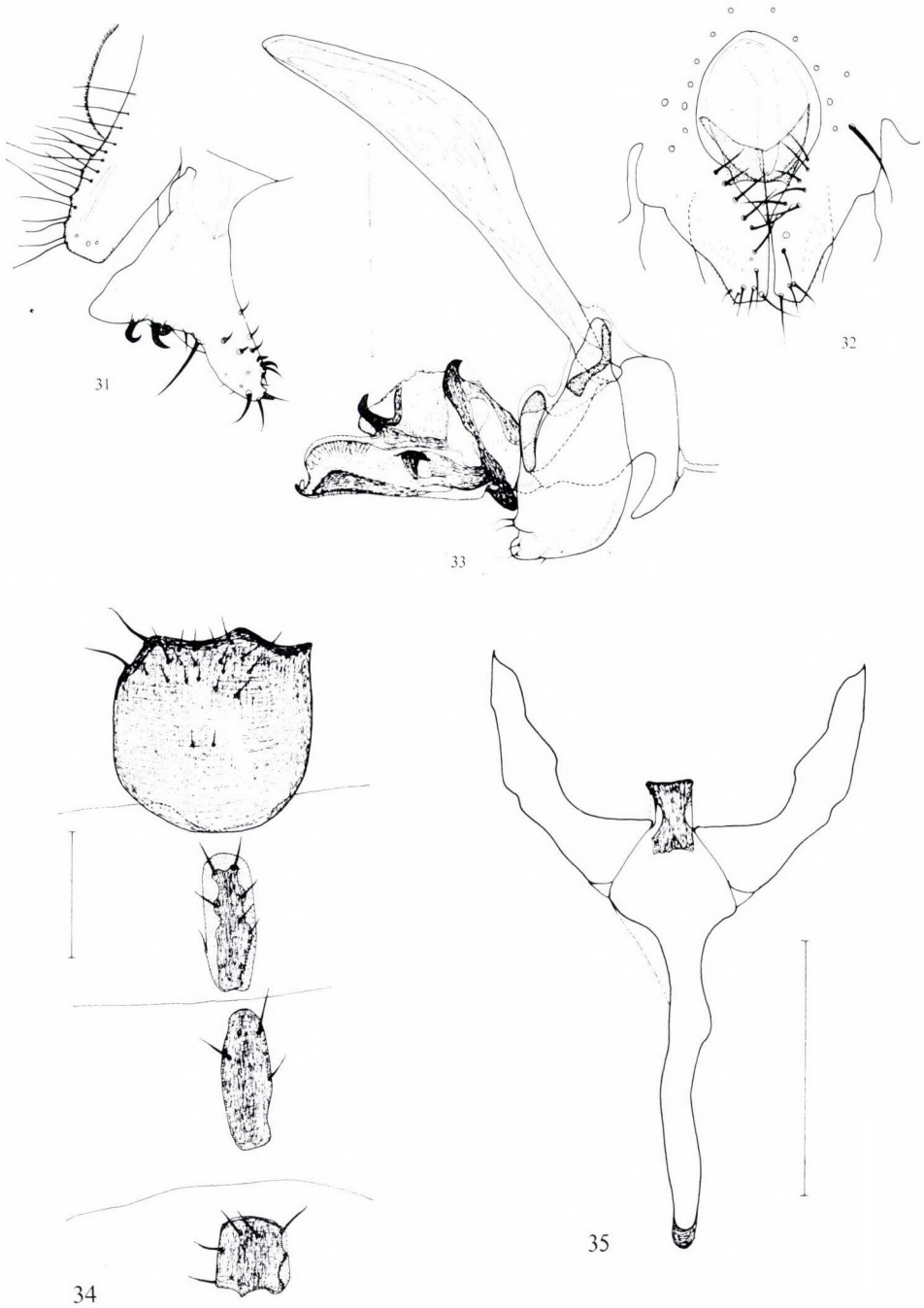
Type-series of *Borborus ambili* VANSCHUYTBROECK, 1959: Holotype male (MRAC): Congo Belge, P. N. G., Miss H. DE SAEGER, Utukuru/4, 22—VII—52, H. DE SAEGER, 3809 — P. VANSCHUYTBROECK det., 1959, “*Borborillus ambili* n. sp.”. The holotype of *ambili* is conspecific with the holotype specimen of *Borborus spinosus* VANSCHUYTBROECK, 1959. In the capacity of a first reviser, I determine the precedence in favour of the name *spinosus* (with a large type-series and amore proper, more expressive name). Paratypes: 1 ♂, 1 ♀ (MRAC): same data as for holotype; this male is in a glass microvial with glycerine and is broken into several pieces but without genitalia; this is obviously the specimen, whose genitalia were depicted by P. VANSCHUYTBROECK as those of *ambili*. This male paratype is conspecific with the holotype of *mpazaensis* (this statement is based on the shape of  $S_3$ ), the paratype female is a female of *spinosa*. 1 ♂ (IRSN): Utukuru/4, 3809, etc. (conspecific with the holotype of *spinosa*).

*Norrbomia utukuruensis* (VANSCHUYTBROECK, 1959), comb.n. Holotype male (MRAC): Congo Belge, P.N.G., Miss. H. DE SAEGER, Utukuru/4, 22—VII—52, H. DE SAEGER, 3809 — P. VANSCHUYTBROECK det., 1959, *Borborillus utukuruensis* n. sp. (without genitalia but its identity is obvious judged by the male  $mt_1$  and other body characteristics). Paratype female (MRAC): same data (conspecific with holotype). Specimens other than types: 1 ♂, 1 ♀ (IRSN): Utukuru/4, 3809, etc.

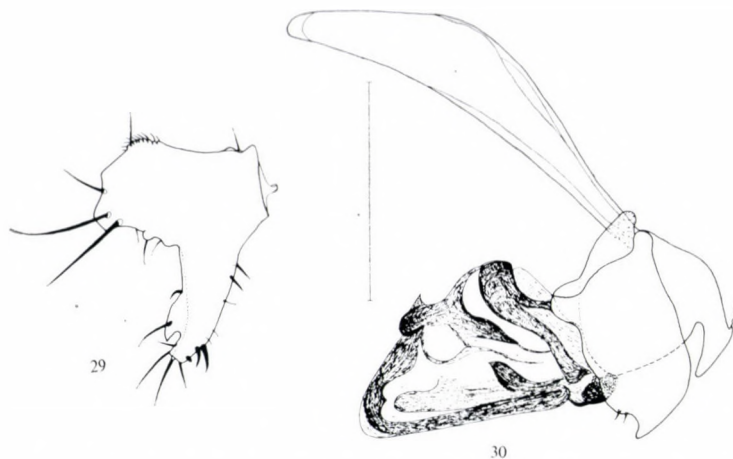
A key for the Afrotropical species of *Norrbomia* L. Papp

- 1 (6) Mesonotum strongly or moderately shining black. Three or more *dc* pairs.  
 2 (3) Mesonotum brilliantly shining. 1 + 2 (or more) *dc* pairs. *acmi* and *dcmi* scattered but enlarged. Male fore metatarsus simple  
**sarcophaga** sp. n.
- 3 (2) Mesonotum less shining. Male fore metatarsus modified and/or *acmi* and *dcmi* normal.  
 4 (5) Male fore metatarsus with a deep ventral incision. 4 short *dc* pairs  
**utukuraensis** (VANSCHUYTBROECK, 1959)
- 5 (4) Male fore metatarsus simple, 5 (4) long *dc* pairs  
**gravis** (ADAMS, 1905)
- 6 (1) Mesonotum heavily dusted. One strong posterior *dc* pair (and some short, not characteristic *dc*-s).  
 7 (8) Both anepisternum and katepisternum shining black. Anterior part of frons and gena yellow or reddish yellow  
**keniaca** sp. n.
- 8 (7) Episternum all grey dusted or katepisternum with a shining black bare spot ventrally. Gena never yellowish or reddish.  
 9 (12) Gena with a linear bare area only below eye.  
 10 (11) Katepisternum dusted in most part with a small subcoxal bright spot only. Flagellomere reddish (also South Palaearctic and Oriental)  
**marginatis** (ADAMS, 1905)
- 11 (10) Lower half of katepisternum shining black. Antennae all black (Madagascar; not seen)  
**stuckenbergi** (HACKMAN, 1967)
- 12 (9) Gena with wider or triangular bare area below eye.  
 13 (18) Ventral part of katepisternum shining black. Male  $S_5$  without big paired caudal processes.  
 14 (15) Male abdominal sternites 2–4 rather big,  $S_5$  much wider than long. Basiphallus with a big ventral hook, paramere with a distinct but short ventroapical process (Fig. 30). Male surstylus as in Fig. 29 (not Afrotropical)  
**sordida** (ZETTERSTEDT, 1847)]
- 15 (14) Male abdominal sternites 2–4 small and narrow,  $S_5$  as long as wide or nearly so.  
 16 (17) Mesonotum unicolourous with thick yellowish pollen. Male cerci robust, blunt, rather simple (Fig. 32), surstylus with a large caudally directed process (Fig. 31) and with 3 very long, medially directed thick bristles. Ventral hook of basiphallus very long and slender (Fig. 33), paramere without distinct apical process  
**spinosa** (VANSCHUYTBROECK, 1959)  
**hypopygialis** (RICHARDS, 1939)\*
- 17 (16) Mesonotum marbly bicolourous with a pair of brown *dc* lines and with a wide sagittal stripe. Male cerci short, stub-like apically (Fig. 1), surstylus shorter, its caudal process short and wide (Figs 1, 2) with 4 medially directed thick bristles. Ventral hook of basiphallus blunt but much curved (Fig. 3), parameres with a large and blunt hook  
**demeteri** sp. n.
- 18 (13) Katepisternum more or less dusted, at most weakly shimmering. Male  $S_5$  with a pair of big caudal processes.  
 19 (20) Katepisternum thickly dusted, without any shining reflection. Male  $S_5$  with a pair of very wide caudal processes (Figs 7, 8). Male cerci short, with a sharp process in profile (Fig. 10), surstylus (Fig. 10) trilobed and very wide apically. Ventral hook of basiphallus shorter and thicker (Fig. 11), apical part of paramere narrower (Fig. 11)  
**elephantis** sp. n.
- 20 (19) Katepisternum thinly dusted, weakly shimmering. Male  $S_5$  with a pair of narrower, rounded processes (Fig. 9). Male cerci large and wide (Fig. 21), surstylus (Figs 21, 22) somewhat longer but very wide in its middle. Ventral hook of basiphallus (Fig. 23) narrow and very long, apical part of paramere with a wide, quadrate apex (Fig. 23)  
**mpazaensis** (VANSCHUYTBROECK, 1959)

\* RICHARDS (1962: Fig. 7) depicted the surstylus of a specimen he identified as "*Copromyza sordida* var. *hypopygialis*", which is obviously conspecific with the holotype of *spinosa*. Before receiving the page proofs, through the courtesy of Dr. B. R. PITKIN (BMNH), I managed to study the type-series of *hypopygialis*: the holotype male and some of the paratypes are conspecific with the holotype of *spinosa* (i.e. *spinosa* is a junior synonym of *hypopygialis*); other paratypes are *elephantis* and *keniaca*; for details see a forthcoming paper.



Figs 31—35. *Norrbomia spinosa* (VANSCHUYTBROECK, 1959), paratype male. 31 = surstylus and cercus in lateral view, 32 = cerci in caudal view, 33 = aedeagal complex without hypandrium laterally, 34 = pregenital sternites, 35 = hypandrium, dorsal view.  
Scales: 0.2 mm



Figs 29—30. Genitalia of *Norrbomia sordida* (ZETTERSTEDT, 1847) male. 29 = surstylus in lateral view, 30 = aedeagal complex without hypandrium. Scale: 0.2 mm

Species incertae: *Borborus fuscanus* BECKER, 1909: 120. Described as a single male from Harar, Ethiopia, which is in all probability a specimen of *N. gravis* (ADAMS, 1905); its type is probably lost.

RICHARDS (1980) listed also *costalis* (ZETTERSTEDT, 1847) and *sordida* (ZETTERSTEDT, 1847) in his catalogue of Afrotropical Sphaeroceridae, but it is clear that those data were based on misidentifications. As a result of the present studies the distribution of *sordida* can be redefined: Palaearctic region (specimens seen from numerous countries, incl. Israel, Greece and Mongolia), Nearctic region (a specimen in the HNHM from Vancouver), Hawaii (specimens also in HNHM), some Atlantic islands, cf. RICHARDS (1980), TENORIO (1968). It should be admitted that TENORIO's drawing of its surstylus is strongly misleading (1968: Fig. 8b).

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SEVEN NEW CHAETOSPANIA KARSCH  
SPECIES FROM THE OLD WORLD  
(DERMAPTERA, LABIIDAE)

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A revision, based on the comparative morphological description of male genitalia of the Old World genus *Chaetospania* KARSCH, with descriptions of *Ch. concitata* sp. n. (Zimbabwe-Rhodesia), *galactica* sp. n. (Tanzania), *attenuata* sp. n. (New Guinea), *adolescens* sp. n. (Fiji), *arguata* sp. n. (India), *luxor* sp. n. (India), and *castor* sp. n. (New Guinea) are given.

The *Chaetospania* species separated by KARSCH in 1886, are ranged in the subfamily Sparattinae. Species with depressed body, usually dark in colour or abdomen reddish. Head flat, rather cordiform in shape with posterior margin concave. First antennal joint comparatively long, eyes small. Tegmina and wings usually fully developed, and punctured and pubescent. Abdomen strongly depressed, but not paper-like, occupying an intermediate position between the subfamilies Sparattinae and Labiinae. Forceps and pygidia sexually dimorphic, those of males with branches more or less straight, except at apices, inner margin often dentate or with smaller or larger teeth. Forceps of females with branches almost straight except at apices, usually with a dentate inner flange or inner tooth or teeth.

The description of the known Old World species on the basis of external morphology, their systematic revision and the description of the male genital apparatus are given along with seven new species.

***Chaetospania concitata* sp. n.**

F e m a l e head with antennae, pronotum, tegmina and wings dark brown, shining; legs light brown, abdomen and forceps reddish. Cuticle of head finely punctured, tegmina and wings punctured and pubescent; hairs yellow. Head cordiform; postfrontal sutures well marked, coronal suture very short. Eyes small, slightly shorter than length of head behind eyes. Antennae 12-jointed; first joint normal, a little shorter than distance between antennal bases, second quadrate, rest long, cylindrical. Pronotum longer than broad; lateral margins a little narrowed posteriorly, posterior margin convex; median

longitudinal furrow well marked. Tegmina and wings well developed. Abdomen more or less parallel-sided, ultimate tergite broad, median longitudinal sulcus present medially. Pygidium comparatively large, with dorsal and ventral parts; ventral section with two lateral tubercles. Each branch of forceps (Fig. 1) trigonal in cross-section, with ventral and dorsal ridges; both edges with a smaller tooth basally.

Length of body with forceps: 14—15 mm.

Male unknown.

Holotype female: Zimbabwe-Rhodesia, Mt. Selinda, 1—17. IV. 1956. G. VAN SOHN. Paratypes ditto, 3 females (deposited in the Hungarian Natural History Museum, Budapest).

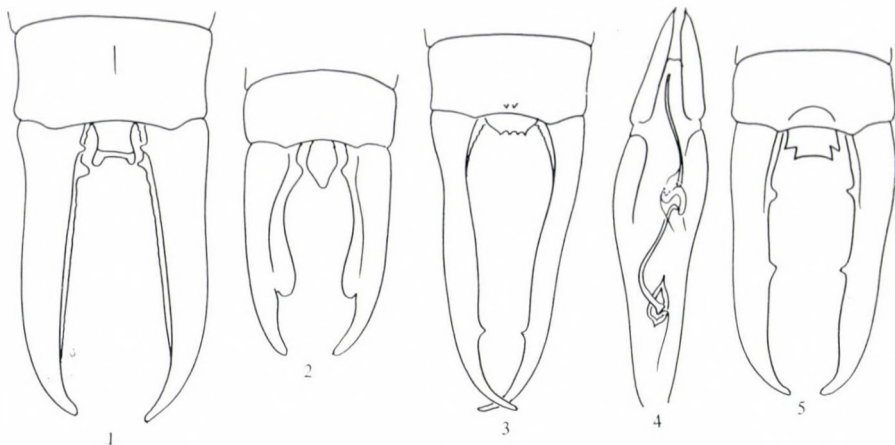
Its nearest ally is *Ch. villica* (BURR, 1911), with the following differences:

	<i>villica</i> (BURR)	<i>concitata</i> sp. n.
1. Head	yellow	dark brown
2. Pygidium	quadrate, without lateral tubercles	specific, with lateral tubercles
3. Inner margin of forceps	forming a flat flange; trigonal basally, simple (Fig. 2)	with dorsal and ventral ridges; in both edges with a smaller tooth basally

### *Chaetospasia galactica* sp. n.

Male head, pronotum, tegmina and wings dark brownish-black, antennae dark brown, legs yellow, abdomen reddish except ultimate tergite, brownish-red, and forceps dark red. Cuticle of body punctured and pubescent. Head depressed, lateral margins behind eyes convex; posterior margin emarginate in the middle. Eyes normal, small, slightly shorter than length of head behind eyes. Antennae 11-jointed; first joint long, but a little shorter than distance between antennal bases; second quadrate, rest long, cylindrical. Pronotum longer than broad, all angles and margins rounded; median longitudinal furrow present. Tegmina and wings well developed. Abdomen depressed, more or less parallel-sided; ultimate tergite broad, posterior margin with two very small tubercles near base of forceps. Pygidium broad, widened basally, narrowed apically; posterior margin with four very small tubercles. Each branch of forceps (Fig. 3) slender, comparatively long, trigonal in cross-section basally, cylindrical apically; inner margin with a small, single tooth near apex. Genitalia (Fig. 4) well developed; central parameral plate a little expanded apically, virga within genital lobe very long, and associated with a smaller sclerotized plate basally; external paramere comparatively long, apex acuminate.





Figs 1—5. 1 = Holotype ultimate tergite with forceps of *Chaetospania concitata* sp. n. — 2 = Female ultimate tergite with forceps of *Ch. villica* (BURR, 1911). — 3 = Holotype ultimate tergite with forceps of *Ch. galactica* sp. n., and 4 = ditto, male genital armature. — 5 = Male ultimate tergite with forceps of *Ch. kivuensis* BRINDLE, 1973 (Original)

Length of body with forceps: 14—16 mm.

F e m a l e unknown.

Holotype male: Tanzania, Uzungwa Mts. Mwanihana Forest above Sanje, 1800 m, litter, 18. viii, 1982, M. STOLTZE and N. SCHARFF leg., gen. prep. No. 888, det. DR. H. STEINMANN, and 2 males (paratypes), ditto (holotype and 1 paratype male deposited in the Zoological Museum of Copenhagen, and 1 male paratype deposited in the Hungarian Natural History Museum, Budapest).

Its nearest ally is *Ch. kivuensis* BRINDLE, 1973, with the following differences:

	<i>kivuensis</i> BRINDLE	<i>galactica</i> sp. n.
1. Male pygidium	narrowed anteriorly	narrowed posteriorly
2. Posterior margin of male pygidium	with excised angles (Fig. 5)	without excised angles
3. Length of body with forceps	8—11 mm	14—16 mm
4. Antennae	12-jointed	11-jointed
5. Pronotum	almost quadrate	longer than broad

### *Chaetospania attenuata* sp. n.

M a l e more or less unicolourous, light reddish-brown. Head depressed, a little longer than broad; lateral margins behind eyes rounded, posterior margin emarginate in the middle. Postfrontal and coronal sutures well marked. Eyes typical of the genus: shorter than length of head behind eyes. Antennae

11-jointed; first joint moderately long, about as long as distance between antennal bases; second transverse, third twice as long as broad; fourth joint shorter than third. Pronotum small, a little transverse, lateral margins straight, posterior margin truncate, and all angles rounded; median longitudinal furrow present at anterior half. Tegmina short, about one and half times as long as pronotum, wings very short, only the tips visible. Pronotum, tegmina and wings strongly punctured and pubescent. Abdomen depressed, fusiform; ultimate tergite broad, a little depressed medially near bases of forceps. Pygidium prominent, with two lateral, and two posterior tubercles. Each branch of forceps (Fig. 6) characteristic, straight basally and medially, strongly curved apically; trigonal in cross-section basally, elliptical medially, and cylindrical apically. Inner margin of forceps with a large spine-like tooth medially. Genitalia (Fig. 7) not of *Chaetospania*-type; central parameral plate large, well developed, slightly expanded apically, and narrower basally; virga within genital lobe specific, very long, twisted round as in Fig. 7; external paramere large, blunt.

Length of body with forceps: 6.5 mm.

F e m a l e unknown.

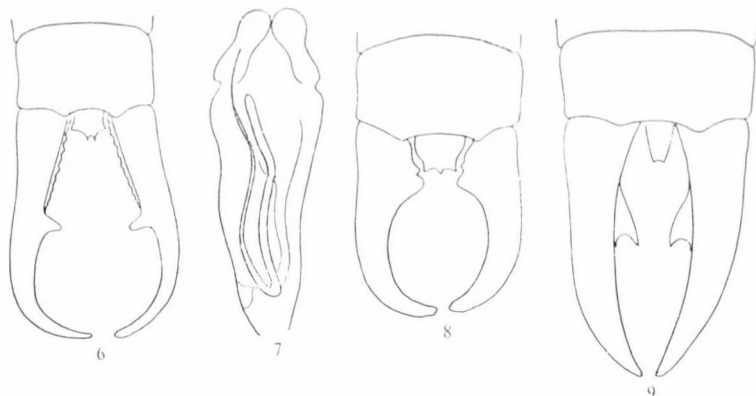
Holotype male: N. E. New Guinea, Bulolor Valley, 6 km NE of Wau, 1100 m, June 1962, rainforest leafmould berlesate, coll. R. W. TAYLOR, gen. prep. No. 844, det. Dr. H. STEINMANN (deposited in the Agassiz Museum, Cambridge, Mass. USA).

Its nearest ally is *Ch. gnathonica* BRINDLE, 1970, with the following differences:

	<i>gnathonica</i> BRINDLE	<i>attenuata</i> sp. n.
1. Branches of male forceps	with a large blunt tooth at inner margin basally (Fig. 8)	with a large spiniform tooth at inner margin medially as in Fig. 6
2. Pygidium specific	as in Fig. 8	
3. Basal part of male forceps	strongly depressed	trigonal

### *Chaetospania adolescens* sp. n.

M a l e general colour very dark brownish-black except brown legs. Head flattened, broad, lateral margins behind eyes rounded, posterior margin emarginate in the middle. Postfrontal and coronal sutures present. Eyes very small, slightly shorter than length of head behind eyes. Antennae 13-jointed; first joint long, but shorter than distance between antennal bases; second quadrate, third a little longer than fourth; all joints with long yellowish setae. Cuticle of body punctured and pubescent, shining. Pronotum longer than broad, lateral margins straight, a little narrowed posteriorly, hind margin rounded; median longitudinal furrow hardly visible. Tegmina comparatively



Figs 6-9. 6 = Holotype ultimate tergite with forceps of *Chaetospania attenuata* sp. n., and 7 = ditto, male genital armature. — 8 = Male ultimate tergite with forceps of *Ch. gnathonica* BRINDLE, 1970, and 9 = male ultimate tergite with forceps of *Ch. adolescens* sp. n. (Original)

short, only a little longer than pronotum. Wings short. Abdomen depressed, more or less parallel-sided, but narrower anteriorly. Ultimate tergite broad, depressed medially. Pygidium specific, small, but longer than broad, lateral margins convex, posterior margin concave. Each branch of forceps (Fig. 9) arcuate, branches strongly trigonal in cross-section basally and medially, cylindrical apically; dorsal edge prominent, ventral one with a very large, conspicuous tooth medially. Genitalia (Fig. 10) characteristic, central parameral plate narrow, concave laterally, virga within genital lobe comparatively long, and associated with a large sclerotized plate. External paramere conspicuous, not of *Chaetospania*-type, expanded at outer margin.

Length of body with forceps: 8 mm.

F e m a l e unknown.

Holotype male: Fiji, Navai, Viti Levu, IX. 1950, N. L. H. KRAUSS, gen. prep. No. 847, det. Dr. H. STEINMANN (deposited in the B. Bishop Museum, Honolulu, Hawaii).

Its nearest ally is *Ch. nigrifolia* BRINDLE, 1972, with the following differences:

	<i>nigrifolia</i> BRINDLE	<i>adolescens</i> sp. n.
1. Male general colour	black	dark brownish-black
2. Male forceps	flattened (Fig. 11)	not flattened
3. Male pygidium	as in Fig. 11	as in Fig. 9
4. Male genitalia	as in Fig. 12	as in Fig. 10

***Chaetospania arguata* sp. n.**

**M a l e** head, median part of pronotum, tegmina and wings dark brownish-black; antenna dark brown, legs, and lateral part of pronotum, light brown; abdomen reddish, forceps yellowish-red. Head comparatively large, smooth, rounded; eyes small, slightly shorter than length of head behind eyes. Antennae 11-jointed; first joint long, but shorter than distance between antennal bases; second joint quadrate, third a little longer than fourth. Pronotum more or less as long as broad; lateral margins straight, more or less parallel-sided; posterior margin convex; median longitudinal furrow finely marked. Tegmina and wings well developed, punctured and pubescent. Abdomen normally developed, a little expanded medially, its surface with two smaller projections posteriorly. Pygidium prominent, strongly flattened, narrowed basally, expanded apically; lateral margins with a well-developed tubercle, and posterior margin concave. Forceps (Fig. 13) arcuate, branches with prominent dorsal and ventral edges, ventral ridge with a specific tooth medially. Genitalia (Fig. 14) characteristic; central parameral plate comparatively short, and a little expanded medially; virga within genital lobe very long, specific; external paramere very long, not of *Chaetospania*-type, narrow, but apex obtuse. External parameres, and interno-lateral margins of central parameral plate strongly sclerotized.

Length of body with forceps: 9.5–10.5 mm.

**F e m a l e** unknown.

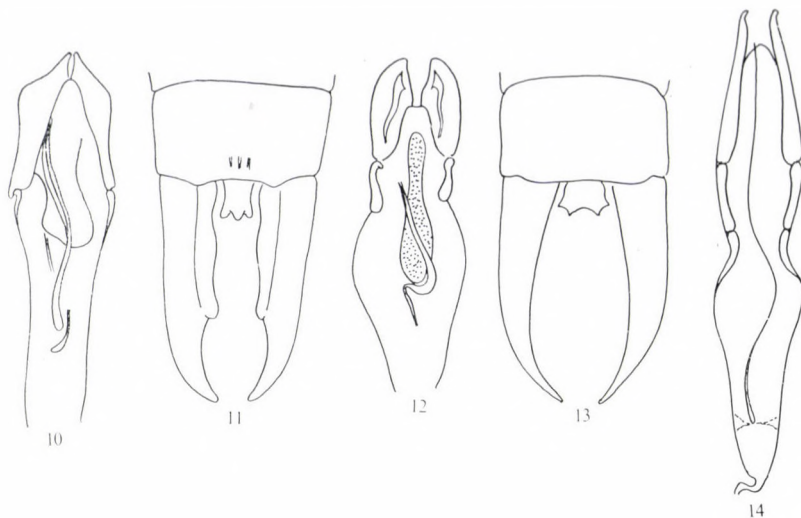
Holotype male: India, Talewadi, Belgaum District, Karnataka, 750 m, 26. 2. 1980., legit: GY. TÓPÁL, gen. prep. No. 792, det. Dr. H. STEINMANN (deposited in the Hungarian Natural History Museum, Budapest, and 3 paratypes, one, ditto, gen. prep. No. 791, det. Dr. H. STEINMANN).

Its nearest ally is *Ch. ferox* STEINMANN, 1984, with the following differences:

	<b>ferox</b> STEINMANN	<b>arguata</b> sp. n.
1. Male pygidium	as in Fig. 15	as in Fig. 13
2. Male forceps	with an inner tooth in the basal section	with an inner tooth in the median section
3. Male genitalia	as in Fig. 16	as in Fig. 14
4. Distributed	Bali	India

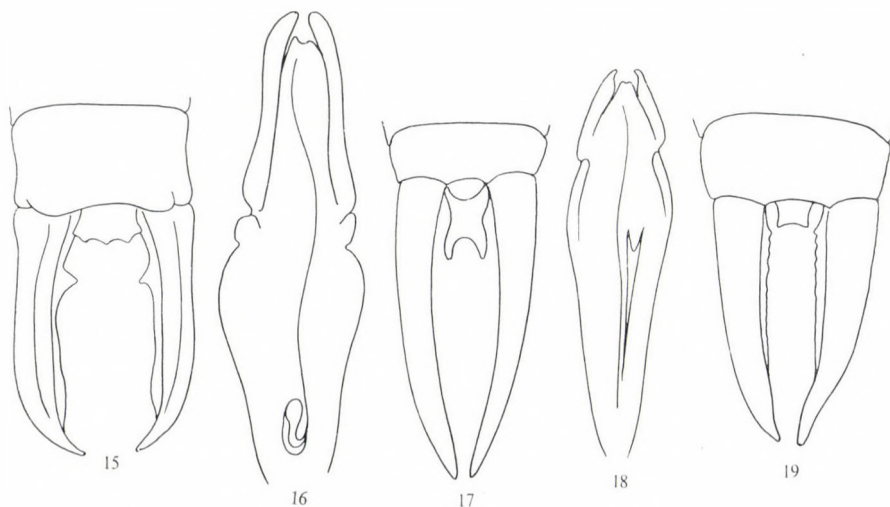
***Chaetospania castor* sp. n.**

**M a l e** head, pronotum, tegmina and wings dark brownish-black; antennae dark brown, legs yellowish; abdomen and forceps reddish-brown. Head depressed; postfrontal and coronal sutures obsolete; posterior margin emargi-



Figs 10–14. 10 = Holotype genital armature of *Chaetospania adolescens* sp. n. — 11 = Male ultimate tergite with forceps of *Ch. nigritula* BRINDLE, 1972, and 12 = ditto, male genitalia. — 13 = Holotype ultimate tergite with forceps of *Ch. arguata* sp. n., and 14 = ditto, holotype genital armature (Original)

nate in middle. Eyes very small. Antennae 12-jointed; first joint normal, shorter than distance between antennal bases; second transverse, third longer than fourth. Pronotum longer than broad, lateral margins straight, parallel-sided; posterior margin rounded. Tegmina and wings well developed. Abdomen slen-



Figs 15–19. 15 = Holotype ultimate tergite with forceps of *Chaetospania ferox* sp. n., and 16 = ditto, holotype genital armature. — 17 = Holotype ultimate tergite with forceps of *Ch. castor* sp. n., 18 = ditto, male genitalia, and 19 = ditto, female forceps (Original)

der, flat. Ultimate tergite transverse, simple. Pygidium spatulate, characteristic, lateral and posterior margins concave. Each branch of forceps (Fig. 17) perceptibly narrow, simple, more or less cylindrical in cross-section: inner margin without ventral flange, but with a fine edge. Genitalia (Fig. 18) narrow, elongated; central parameral plate narrowed basally, and expanded apically; virga within genital lobe very long, and associated with a long and narrow sclerotized plate; external paramere simple, broad basally, obtuse apically.

**F e m a l e** very similar to male, but ultimate tergite larger, smooth; pygidium quadrate, about as long as wide, lateral and posterior margins concave. Forceps (Fig. 19) of *Chaetospania*-type, well separated basally by pygidium, branches trigonal in cross-section, inner margin with crenulated inner flange.

Length of body with forceps: in both sexes: 10—11.5 mm.

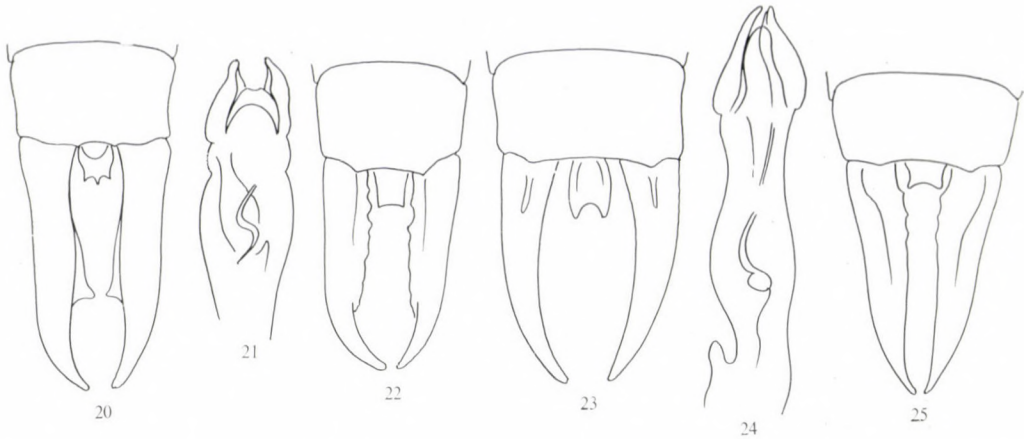
**H o l o t y p e** male: New Guinea, Wau, Nami Creek, 1968, legit: Dr. J. BALOGH, gen. prep. No. 923, det. Dr. H. STEINMANN, and 1 paratype, female: S. Celebes, Bua-Kraeng, 5000 ft., Febr. 1896. H. FRUHSTORFER (deposited in the Hungarian Natural History Museum, Budapest).

Its nearest ally is *Ch. thoracica* (DOHRN, 1867), with the following differences:

	<i>thoracica</i> (DOHRN)	<i>castor</i> sp. n.
1. Inner margin of male forceps	with a large tooth	without any tooth
2. Male pygidium	small, as in Fig. 20	large, as in Fig. 17
3. Virga within male genital lobe	short, as in Fig. 21	long, as in Fig. 18
4. Female pygidium	quadrate	transverse
5. Female forceps	as in Fig. 22	as in Fig. 19

### *Chaetospania luxor* sp. n.

**M a l e** general colour dark brownish-red; antennae dark brown, femora brown basally, and lighter apically, tibiae and tarsi light brown. Head rounded; posterior margin convex; postfrontal and coronal sutures obsolete. Eyes very small. Antennae 11-jointed; first joint stout, essentially shorter than distance between antennal bases; second transverse, third a little longer than fourth. Pronotum a little longer than broad, lateral margins straight, and parallel-sided; posterior margin convex. Tegmina very short, only a little longer than pronotum, and wings absent. Abdomen normally developed, a little expanded medially. Ultimate tergite broad, large, simple, smooth. Pygidium a little similar to *castor* sp.n., but shorter, and not concave laterally; posterior margin deeply excised semicircularly. Forceps (Fig. 23) arcuate, not of *Chaetospania*-type, without inner flange and tooth; branches depressed at dorsal surface



Figs. 20–25. 20 = Male ultimate tergite with forceps of *Chaetospania thoracica* (DOHRN 1867), 21 = ditto, male genitalia, and 22 = ditto, female forceps. — 23 = Holotype ultimate tergite with forceps of *Ch. luxor* sp. n., 24 = ditto, male genitalia, and 25 = ditto, female forceps (Original)

basally. Genitalia (Fig. 24) not of *Chaetospania*-type; central parameral plate narrow, and long conspicuous; virga within genital lobe long, and associated with a sclerotized plate basally; external paramere moderately long, but broad basally, and narrowed apically.

**F e m a l e** very similar to male, but pygidium transverse, posterior margin concave; forceps (Fig. 25) trigonal in cross-section basally, elliptical medially, and cylindrical apically; inner margin with smaller teeth or tubercles.

Length of body with forceps: in both sexes: 6–6.5 mm.

Holotype male: India, Meghalaya, Garo Hills, 4. XI. 1978, Dainaduba, 250 m, legit: Dr. I. LÖBL, gen. prep. No. 793, det. Dr. H. STEINMANN (holotype, and 4 paratypes, males, and 1 paratype female deposited in the Muséum d'Histoire Naturelle at Genève, and 2 paratypes, males deposited in the Hungarian Natural History Museum, Budapest).

Its nearest ally is *Ch. castor* sp.n., with the following differences:

	<i>castor</i> sp. n.	<i>luxor</i> sp. n.
1. Male pygidium	spathulate	not spathulate
2. Male forceps	as in Fig. 17	as in Fig. 23
3. Virga within male genitalia	very long, as in Fig. 18	shorter, as in Fig. 24
4. Female forceps	with crenulated inner flange, as in Fig. 19	with smaller inner teeth, as in Fig. 25

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STUDIES ON THE AFGHANO–IRANIAN  
EUPITHECIINI FAUNA I.  
(LEPIDOPTERA: GEOMETRIDAE)

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Description of the new taxa *Eupithecia convallata* BRANDT ssp. *terricolor* ssp. n., *E. elbursi* sp. n., *E. edaphopteryx* sp. n., *E. xanthomixta* sp. n., *E. xanthomixta* VOJNITS ssp., *derbendi* ssp. n. *E. convallata* BRANDT, 1938, is a distinct species (stat. nov.). Examination of the typespecimens and diagnoses of the genitalia of *Eupithecia harenosa* BRANDT, *E. convallata* BRANDT, *E. tessarata* BRANDT, *E. sincera* BRANDT, and *E. adjemica* BRANDT.

By the kind cooperation of MRS. E. VARTIAN, Vienna, I had the opportunity to elaborate a larger Afghano-Iranian material; the present paper contains the first part of the studies. I avail myself of also this opportunity to express my gratitude to her as well as G. EBERT, Karlsruhe, and B. GUSTAFSSON, Stockholm, for their permissions to revise the type-specimens designated by BRANDT; I am indebted to the Alexander von Humboldt Foundation, Bonn, for the grants which made possible my visits to several museums abroad.

*Eupithecia harenosa* BRANDT, 1938

Ent. Rundschau, 55 (50): 586, Figs 279–282

**D i a g n o s i s.** Alar expanse of fore wings of holotype 22 mm, that of allotype 23 mm, and another male paratype also measuring 22 mm. Wings slightly elongated. Costa of fore wing slightly, termen definitely, arcuate, dorsum straight. Apex pointed, tornus obtusely angulate. Hind wing elongate, obtusely angulate. Basic colour of fore wings dull yellow, considerably more vivid in the paratype. Transverse stripes wide, well discernible, finely arcuate. A fuscous irroration extending mainly to costa, apical and terminal fields of fore wing. Discal spot of holotype small, hardly discernible in allotype, and rather marked in paratype. Hind wing paler than fore wing, transverse bands discontinuous. Underside of wings light, sericeous, pattern marked only in paratype. Cilia medium long, shiny, striated yellow and yellowish brown (Plate 1, Figs 1–2).

**G e n i t a l i a.** ♂: Valva stout, auriculate, dorsum slightly convex, ventrum evenly arcuate, apex somewhat elongated. Uncus robust, thick, bifid. Falces not projecting beyond uncus, long and tapering. Ampulla short and

## Plate 1

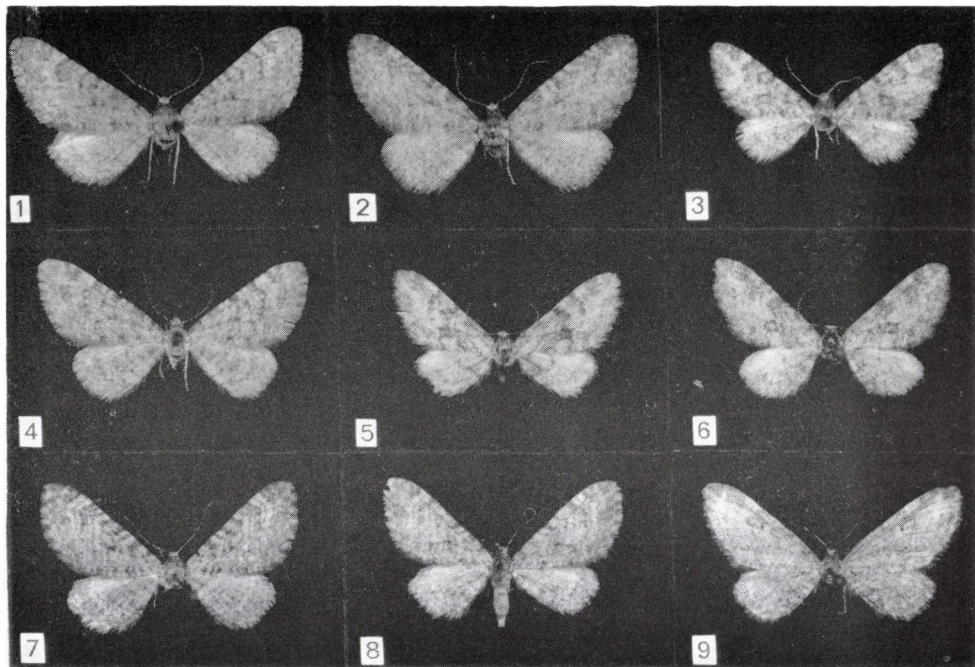


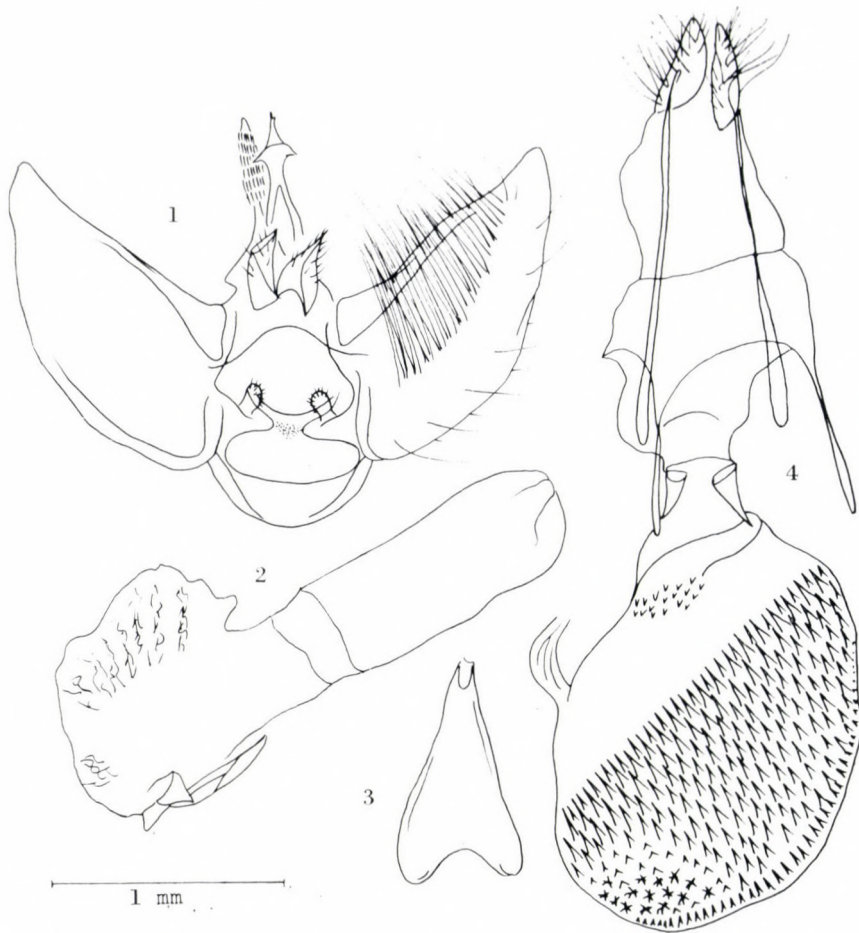
Fig. 1 = *Eupithecia harenosa* BRANDT, holotype; Fig. 2 = *E. harenosa* BRANDT, allotype; Fig. 3 = *E. convallata* BRANDT, holotype; Fig. 4 = *E. convallata* BRANDT, allotype; Fig. 5. = *E. convallata terricolor* ssp.n., paratype ♂; Fig. 6 = *E. convallata ssp. terricolor* ssp.n., paratype ♀; Fig. 7 = *E. elbursi* sp.n., holotype; Fig. 8 = *E. elbursi* sp.n., paratype ♀; Fig. 9 = *E. edaphopteryx* sp.n., holotype

thick, its anterior and interior surfaces with approximately 30—40 short bristles. Pulvinulus a right-angled triangle. Aedoeagus short, thick. Vesica considerably sculptured, with a twisted and pointed cornutus and a long, sclerotized, medially split lamella. Base of long and evenly attenuating sternite incised, terminating in two minute apices connected by a membrane (Figs 1—3) ♀: Bursa copulatrix oval, its three-fifths padded with spines, a half-sided field antrum heavily sclerotized, also containing a few (8—10) spines. Both anterior and posterior apophyses medium long, robust, terminally expanded. Papillae anales elongated (Fig. 4).

**B i o l o g y.** First stages and foodplant unknown. Imago were captured in July.

**D i s t r i b u t i o n.** Ranging in Iran. Locus typicus: between Ardekan and Talachosroe, Comée, 3750 m.

**R e m a r k s.** In his laconic description (six lines) BRANDT (1938) emphasized the appearance of the discal spot (“Mittelpunkt deutlich”) — rather unintelligible in cognizance of the type-specimens. In SCHÜTZE’s (1956) and SCHWINGENSCHUSS’ (1939) works this name is misused for *convallata* (see below).



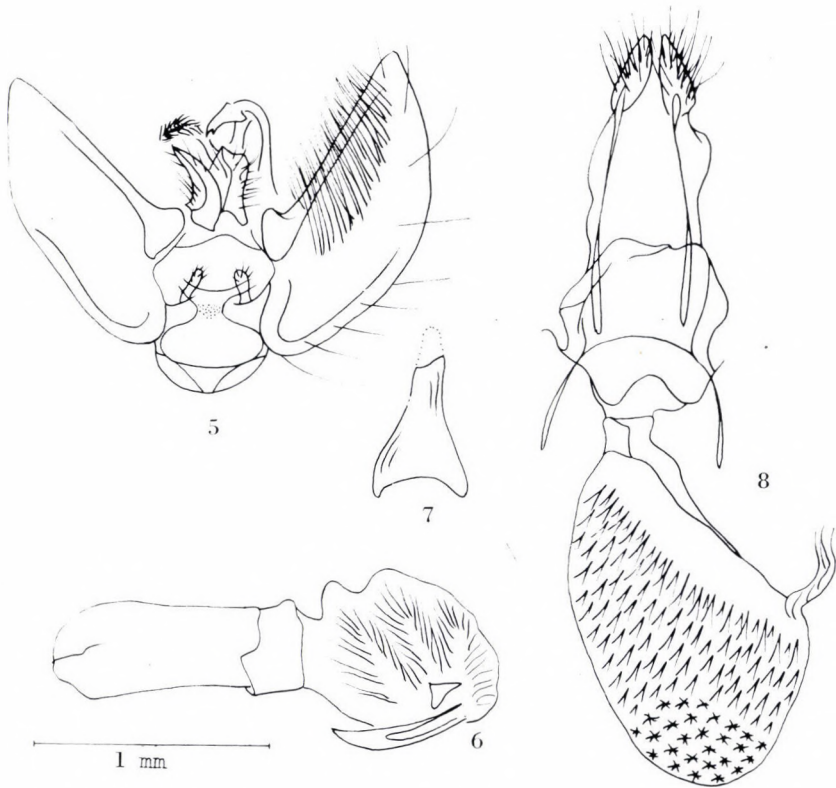
Figs 1—4. 1 = Male genitalia, 2 = aedeagus, 3 = sternite VIII and 4 = female genitalia of *Eupithecia harenosa* BRANDT

Holotype ♂: "Iran Fars Strasse Ardekan-Talochosroe Comée (Barm i Firus) ca 3750 m 4. u. 5. Juli 1937 coll. BRANDT" "Holotype *Eupithecia harenosa* BRDT. BRANDT" "coll. RMS" "photo 32 A 80 det. A. VOJNITS". Allotype ♀: Iran Fars Strasse Ardekan-Talochosroe Comée (Barm i Firus) ca 3750 m 12.—20. Juli 1937 coll. BRANDT" "Allotype *Eupithecia harenosa* BRDT. BRANDT" "Paratypus "Allon" *Eupithecia harenosa* BRDT, 18023 ♀ det. A. VOJNITS". Paratype ♂: "Iran Fars Strasse Ardekan-Talochosroe Comée (Barm i Firus) ca 3750 m 12—20. Juli 1937 coll. BRANDT" "Paratype *Eupithecia harenosa* BRDT. BRANDT" "coll. RMS" "Paratypus *Eupithecia harenosa* BRDT. 18049 ♂ det. A. VOJNITS". Type-specimens deposited in the Rijksmuseum, Stockholm.

*Eupithecia convallata* BRANDT, 1938, stat. nov.*Eupithecia harenosa* BRANDT ssp. *convallata* BRANDT — Ent. Rundschau, 55 (50): 583—586.

**D i a g n o s i s.** Alar expanse of fore wings of holotype 17.5 mm, that of allotype 19.5 mm; male paratype 18.5 mm. Wings somewhat wider than in *harenosa*, costa of fore wing more arcuate at apex, tornus more angulate. Hind wing rather rounded. Basic colour darker, with a grey and fuscous suffusion, median field also with a definite rufous spot. Pattern decidedly more marked. Discal spot minute, dark, conspicuous. Pattern of underside more distinct. Cilia darker (Plate 1, Figs 3—4).

**G e n i t a l i a.** ♂: Valva slightly narrower than in *harenosa*, ampulla slightly longer and with less setae. Bisected lamella of aedoeagus longer. Sternite VIII large as in *harenosa*, but injured and therefore apparently shorter in holotype (Figs 5—7). ♀: Bursa copulatrix more elongated, spines covering a larger area; no spines present towards antrum. Apophyses shorter, papillae anales also shorter (Fig. 8).



Figs 5—8. 5 = Male genitalia, 6 = aedoeagus, 7 = sternite VIII and 8 = female genitalia of *Eupithecia convallata* BRANDT

**Remarks.** I consider BRANDT's (1938) description as relating to a subspecies, though the wording is slightly peculiar ("Diese Form oder ssp. möge f. *convallata* f.n. heissen"). According to SCHWINGENSCHUSS (1939), the alar expanse of the "typical" *convallata* is 20 mm, whereas that of the specimens he studies was 17 mm and their wings showed a heavier pattern. Nor is it clearer what he intended to say with the following statements: "*convallata* ist also in Nordiran eine Subspecies. Die Typen der *convallata* stammen von Comée in Südiran." Twelve males and 8 females of the VARTIAN material now studied are also smaller and with a more marked pattern than in the types. SCHÜTZE (1956) described the male genitalia, and also published their figure; that of the aedoeagus is inaccurate and sternite VIII misdrawn.

**Biology.** First stages and foodplant unknown. Most specimens were captured in July, two in June and one in May.

**Distribution.** Ranging in Iran. Locus typicus: between Ardekan and Talochosroe, Comée, 2600 m.

**Specific differences.** On the basis of the characteristics outlined above — and with regard to the fact that the differences are meagre among the species relegated to the species group — and by the distribution pattern I consider the taxon as a distinct species.

Holotype ♂: "Iran Fars Strasse Ardekan-Talochosroe Comée, ca 2600 m 10. VII. 1937 coll. BRANDT" "Holotype *Eupithecia convallata* BRDT. BRANDT" "coll. RMS" "Holotypus *Eupithecia convallata* BRDT. 18025 ♂ det. A. VOJNITS". Allotype ♀: Iran Fars Strasse Ardekan — Talochosroe Comée, ca 2600 m. 27. 7. 1937 coll. BRANDT "coll. BRANDT" "Allotype *Eupithecia convallata* BRDT. BRANDT" "coll. RMS" "Paratypus "Allo" *Eupithecia convallata* BRDT. 18026 ♀ det. A. VOJNITS". Paratype ♂: "Paratype *Eupithecia convallata* BRDT. BRANDT" "Iran Fars Strasse Ardekan-Talochosroe Comée, ca 2600 m, 20. 7. 1937 coll. BRANDT" "coll. RMS". Types deposited in the Rijksmuseum, Stockholm.

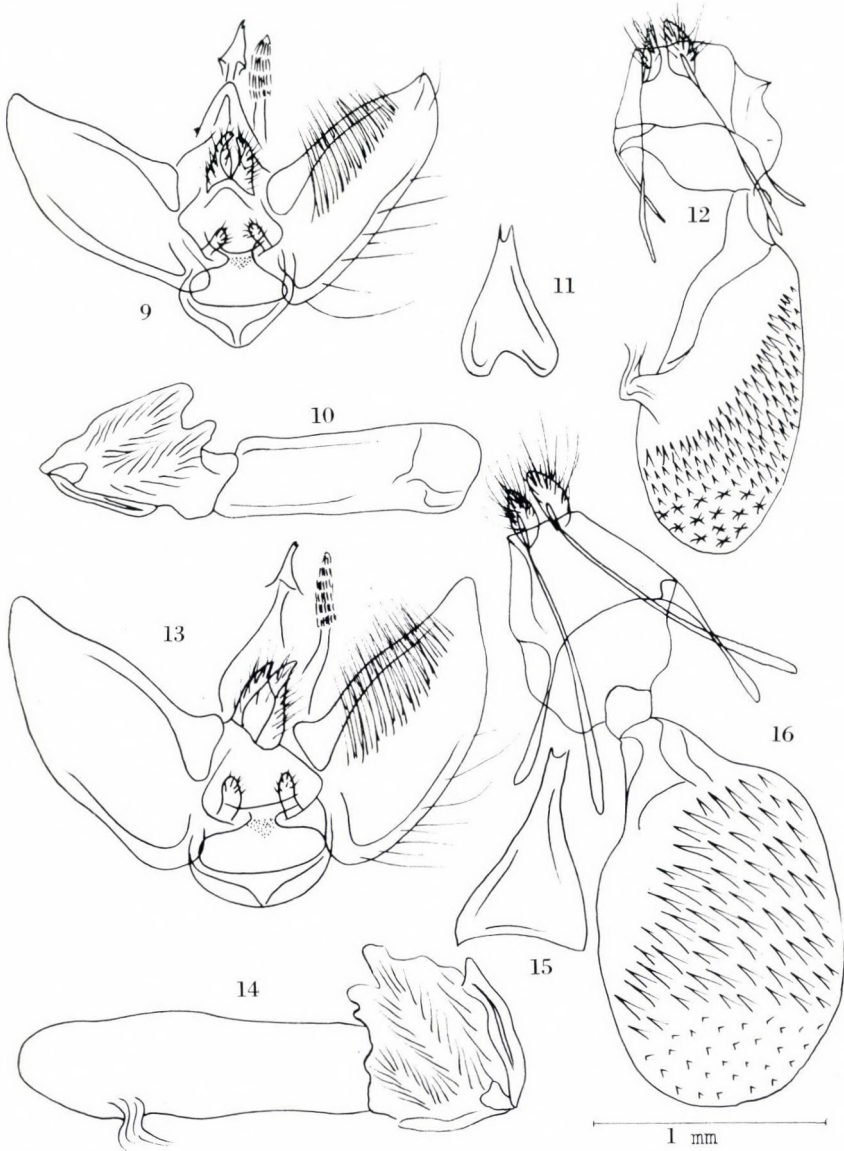
Examined material from the VARTIAN Collection: 12 ♂♂ and 8 ♀♀, Shimshak 2300 m, on the southern slope of the Elburs, 1—22. VII.; Derbend, 2000 m, 7—15. VI; and Tepe, 1600 m, 31. V.; all leg. VARTIAN. The specimens are deposited in the VARTIAN collection, Vienna, and in the Hungarian Natural History Museum, Budapest.

Slides: Nos. 16108, 16110, 16113, 16173, 16174, 16176, 16179, 16181, 16182, 16184 (♂♂), 15613, 15618, 15619, 16111, 16180, 16183 (♀♀), gen. prep. A. VOJNITS.

### *Eupithecia convallata* BRANDT ssp. *terricolor* ssp. n.

**Diagnosis.** Alar expanse of fore wings of four males 17, 17.5 and twice 18 mm; that of females 16.5, 17, 17.5 and 18 mm. A moderately broad-winged species: fore wing an isosceles triangle, hind wing rounded. Costa and termen of fore wing arcuate, dorsum straight, apex pointed, tornus obtuse. Basic colour of fore wing greyer than in nominate subspecies, hind wing whitish with a simpler pattern. Underside of wings light, cilia not yellowish or brownish but greyish white and grey (Plate 1, Figs 5—6).

**Genitalia.** ♂: The short spiniform cornutus of aedoeagus not sharply



Figs 9—16. 9 = Male genitalia, 10 = aedeagus, 11 = sternite VIII and 12 = female genitalia of *Eupithecia convallata* ssp. *terricolor* ssp. n.; 13 = Male genitalia, 14 = aedeagus, 15 = sternite VIII and 16 = female genitalia of *E. elbursi* sp. n.

defined as in nominate subspecies; sternite VIII wider (Figs 9—11) ♀: Apophyses, especially posterior ones, shorter (Fig. 12).

**B i o l o g y.** First stages and foodplant unknown. Imagos were captured in May.

**Distribution.** Found in Afghanistan. Locus typicus: 10 km NW from Kabul, 1900 m.

**Specific differences.** The new taxon is well differentiable, as to external morphology, from the nominate subspecies, but the differences discernible in the configuration of the genitalia are not convincing enough to consider it as a distinct species — although it is these very differences in the genitalia which are less than prominent in the whole specific group.

Holotype ♂: "29. V. 1965. Afgh. 10 km NW v. Kabul, 1900 m KASY et VARTIAN" "*Eupithecia* gen. prep. No. 16206 ♂ det. A. VOJNITS" "*Eupithecia convallata* BRANDT ssp. *terricolor* VOJNITS, Holotypus". Paratypes: 3 ♂♂ and 4 ♀♀ with the same data. Holotype deposited in the VARTIAN Collection, paratypes in the same collection and in the Hungarian Natural History Museum, Budapest.

Slides: Nos 15627, 16202, 16203, 16206 (♂♂), 15619, 16204, 16205, 16207, (♀♀), gen. prep. A. VOJNITS.

### *Eupithecia elbursi* sp. n.

(Derivation of specific name: after the Elburs mountain range)

**Diagnosis.** Average alar expanse of male fore wings 20.5 mm (based on 10 specimens), extreme values 19.5 and 22 mm; that of two females 18 and 19.5 mm. Shape of wings as in *Eupithecia harenosa* BRANDT. Basic colour darker, fuscous, pattern more marked, dark and light stripes conspicuous against basic colour. Underside of wings with sharply defined pattern, cilia darker (Plate 1, Figs 7—8).

**Genitalia:** ♂: Vesica better differentiated, humeriform projection of sternite VIII more expressed (Figs 13—15). ♀: Genital organ smaller, spines arranged more sparsely in bursa copulatrix (Fig. 16).

**Biology.** First stages and foodplant unknown. Imagos were captured in July.

**Distribution.** Ranging in Iran. Locus typicus: southern slopes of Shimshak, 2300 m, Elburs.

**Specific differences.** See diagnosis. Belonging in the *convallata* — *harenosa* group, standing near the latter species. External morphological differences (colour and pattern) rather decisive, but those between genitalia rather meagre; this fact rather characteristic of the whole group.

Holotype ♂: "1.—22. VII. 1970 IRAN Elburs-Geb. Südseite Shimshak, 2300 m 50 km nördl. Teheran leg. VARTIAN" "gen. prep. No. 16172 ♂ det. A. VOJNITS" "*Eupithecia elbursi* VOJNITS Holotype". Paratypes: 8 ♂♂ and 2 ♀♀ with the same data, and 1 ♂ Paskala, 2250 m, NE of Derbend, 25 km N from Teheran. Holotypus deposited in the VARTIAN Collection, paratypes in the same collection and the Hungarian Natural History Museum, Budapest.

Slides: Nos. 15610, 15612, 16109, 16112, 16172, 16175 (♂♂), 16107 (♀), gen. prep. A. VOJNITS.

## Plate 2

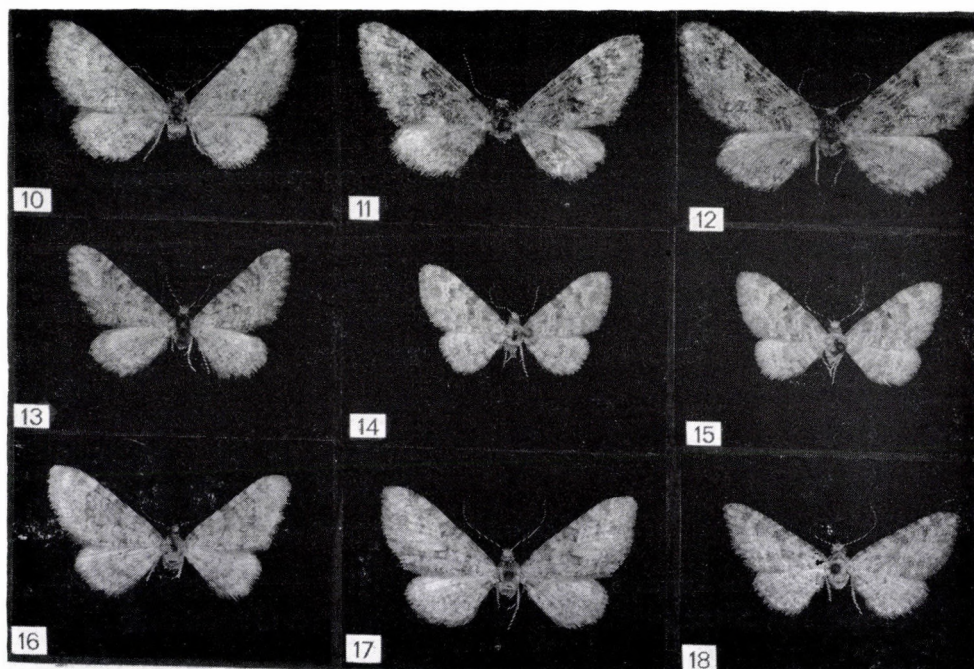


Fig. 10 = *Eupithecia edaphopteryx* sp.n., paratype ♀; Fig. 11 = *E. xanthomixta* sp.n., holotype; 12 = *E. xanthomixta* ssp., paratype ♀; 13 = *E. xanthomixta derbendi* ssp. n., paratype ♂; 14 = *E. tesserrata* BRANDT, holotype; 15 = *E. tesserrata* BRANDT, allotype; 16 = *E. sincera* BRANDT, holotype; 17 = *E. sincera* BRANDT, allotype; 18 = *E. adjemica* BRANDT ♂

### *Eupithecia edaphopteryx* sp. n.

(Derivation of specific name: edaphos (colour of) soil + pteryx = wing)

**D i a g n o s i s.** Alar expanse of fore wings of a single male specimen 20.5 mm, that of female 19 mm. Wings comparatively broad. Costa of fore wing heavily arcuate, also termen, but dorsum straight. Tornus obtuse. Hind wing obtusely angulate. Basic colour whitish brown, transverse stripes fuscous. Discal spot minute. Underside of wings with sharply defined pattern. Cilia medium long, shiny, striated white and yellowish brown (Plate 1, Fig 9, Plate 2, Fig 10).

**G e n i t a l i a.** ♂: Valva evenly arcuate, apex obtuse. Uncus short, stout, wide, bifid. Falces short. Ampulla short, thick, terminally with 14–16 short bristles. Pulvinulus robust, a right-angled triangle. Aedoeagus short, cylindrical, with a U-shaped, and a larger and smaller strobiliform excrescence. Wide base of sternite VIII deeply excised, attenuating posteriorad (Figs 17–19). ♀: Bursa copulatrix elongate, spinose field asymmetrical and extending over



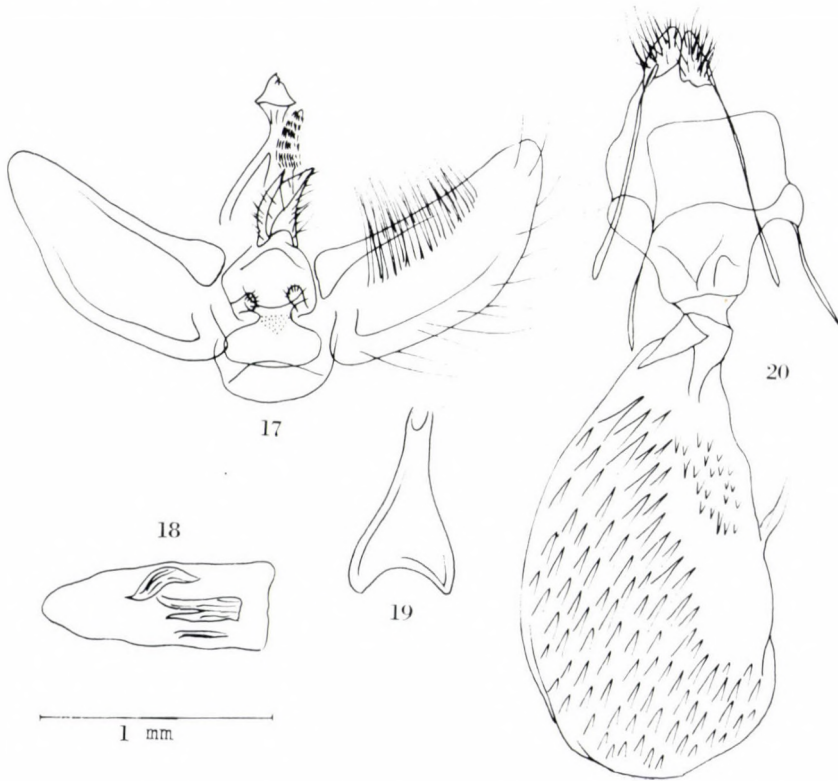
two-thirds of bursa. Anterior and posterior apophyses medium long and thick. Papillae anales small (Fig. 20).

**Biology.** First stages and foodplant unknown. Imagos were collected in June.

**Distribution.** Ranging in Iran. Locus typicus: Paskala, 2250 m, NE of Derbend.

**Specific differences.** Principally on the basis of the female genitalia, sternite VIII of the male, and the external morphology, the species is relegable to the *convallata-harenosa* group, but the very short and stout uncus differentiates it from all related species.

Holotype ♂: "1.—24. VI. 1970 IRAN Paskala 2250 m nordöstl. Derbend 25 km nördl. Teheran leg. VARTIAN" "gen. prep. No. 15628 ♂ det. A. VOJNITS" "*Eupithecia edaphopteryx*



Figs 17–20. 17 = Male genitalia, 18 = aedoeagus, 19 = sternite VIII and 20 = female genitalia of *Eupithecia edaphopteryx* sp. n.

VOJNITS, Holotype". Paratype: 1 ♀ with the same data. Both type-specimens preserved in the VARTIAN Collection, Vienna.

Slides: Nos 15628 (♂), 15629 (♀), gen. preP. A. VOJNITS.

**Eupithecia xanthomixta** sp. n.

(Derivation of specific name: xanthos = yellow + mixtus = mixed (with))

**D i a g n o s i s.** Alar expanse of fore wings of three males 20, 20.5 and 22 mm, that of females 19, 21, 21.5, 22 and 25 mm. Wings moderately elongated. Costa of fore wing straight, arched only near apex, termen hardly arcuate, dorsum straight. Apex elongated. Hind wing obtusely angulate. Fore wing yellowish brown, transverse stripes conspicuous, fuscous. Discal spot minute, dark brown. Hind wing extremely pale yellowish brown, transverse stripes pale brown, discal spot minute. Underside of wings light, pattern on that of fore wing sharply defined. Cilia striated brown and brownish yellow (Plate 2, Figs 11–12).

**G e n i t a l i a.** ♂: Valva short, considerably attenuating, dorsum finely arcuate, ventrum angulate rather than arched, apex elongated. Uncus medium long, bifid. Falces not extending beyond uncus. Ampulla very short, stout, terminally with densely arranged short bristles. Pulvinulus triangular. Aedoeagus short, stout, with a short, twisted and pointed excrescence and a longer, sclerotized lamella. Base of sternite VIII excised, evenly attenuating posteriorly and terminating in two digitiform appendages (Figs 21–23). ♀: Bursa copulatrix long, fundus not rounded. Spinose field extending over about two-thirds of bursa. Cervix and side of bursa heavily sclerotized, with some scattered spines. Anterior and posterior apophyses medium long and thick, papillae anales grain-shaped (Fig. 24).

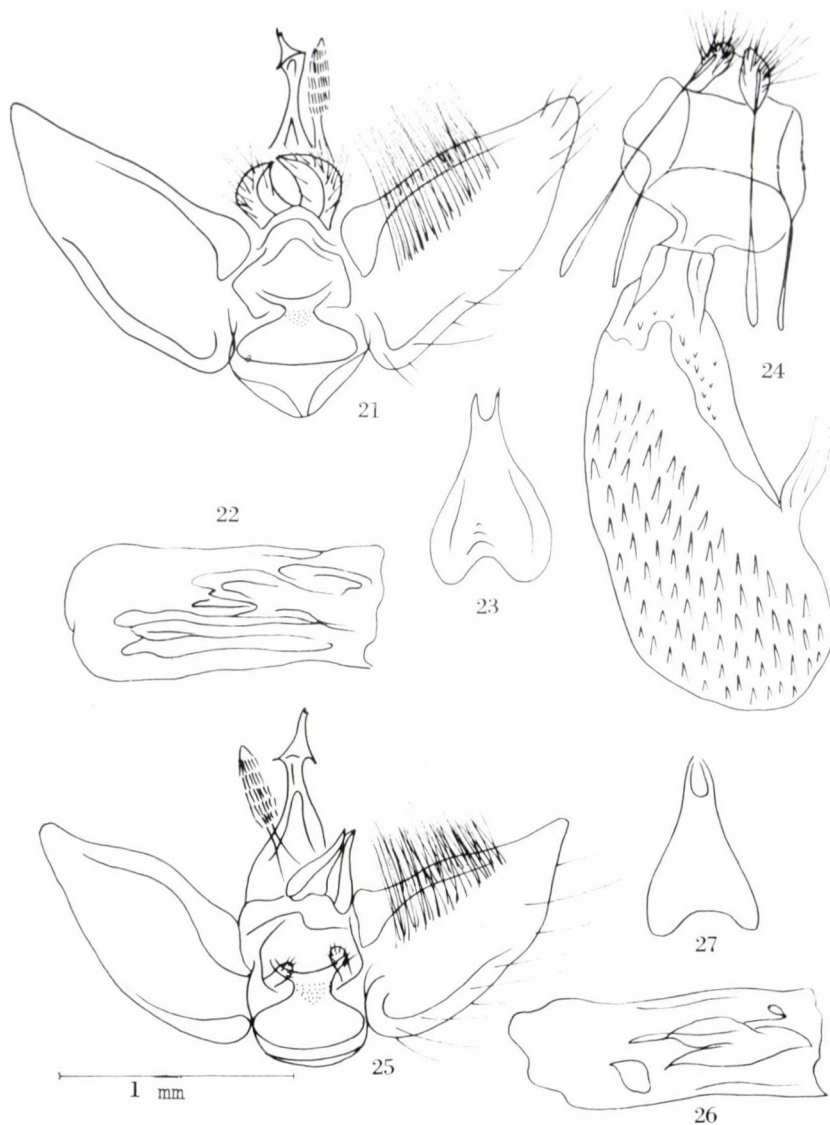
**B i o l o g y.** First stages and foodplant unknown. Imagos were collected in June and July.

**D i s t r i b u t i o n.** Ranging in Afghanistan. Locus typicus: Salang Pass, 2100 m, E Afghanistan.

**S p e c i f i c d i f f e r e n c e s.** On the basis of the genitalic configuration the new species is relegate to the *convallata-harenosa* group. The differentiating characteristics include the conspicuous pattern, the shape of the valva, uncus and sternite VIII, the excrescences of the aedoeagus, the shape of the bursa, the arrangement of the spines and of the papillae anales.

Holotype ♂: "9. VII. 1969 O-Afghanistan s.v. Khinju 2100 m Salang Paß N. Seite leg. VARTIAN" "gen. prep. No. 15158 ♂ det. A. VOJNITS" "*Eupithecia xanthomixta* VOJNITS Holotypus". Paratypes: 1 ♀ with the same data, 2 ♂♂ and 4 ♀♀: East Afghanistan, Khurd-Kabul, 18–19. VI. 1969 and 26. VI. 1965, 1900 m, leg. VARTIAN, and KASY et VARTIAN. Holotype deposited in the VARTIAN Collection, Vienna, paratypes in the same collection, and in the Hungarian Natural History Museum, Budapest.

Slides: Nos 15158, 15623, 15681 (♂♂), 15150, 15620, 15624, 15682, 15683 (♀♀), gen. prep. A. VOJNITS.



Figs 21—27. 21 = Male genitalia, 22 = aedeagus, 23 = sternite VIII and 24 = female genitalia of *Eupithecia xanthomixta* sp. n.; 25 = Male genitalia, 26 = aedeagus and 27 = sternite VIII of *E. xanthomixta* ssp. *derbendi* ssp. n.

***Eupithecia xanthomixta* VOJNITS ssp. *derbendi* ssp. n.**

(Derivation of subspecific name: after the village Derbend)

**Diagnosis.** Alar expanse of fore wings of two male specimens 19 and 20 mm. Wing shape as in nominate subspecies. Basic colour considerably greyer, hind wing whitish. Discal spot hardly discernible, transverse stripes less

obvious, and entire insect much less mottled than nominate subspecies (Plate 2, Fig. 13).

**Genitalia.** ♂: Largely as in nominate subspecies, but digitiform extensions of sternite VIII more expressed. (Figs 25–27).

**Biology.** First stages and foodplant unknown. Imagos were collected in June.

**Distribution.** Ranging in Iran. Locus typicus: Derbend, 2000 m, 25 km N of Teheran.

**Specific differences.** Despite the nearly complete morphological agreement of the genital structures, I contend, on the basis of the external differences, that we have to do with a distinct geographic subspecies assignable to the formenkreis of *xanthomixta*; indeed, it were not surprising if larger study materials would imply the existence of a distinct species.

Holotype ♂: “7.—15. 6. 1963. Iran Derbend, 25 km N v. Teheran, 2000 m KASY et VARTIAN” “gen. prep. 15579 ♂ det. A. VOJNITS” “*Eupithecia xanthomixta* VOJNITS ssp. *derbendi* VOJNITS Holotype”. Paratype: 1 ♂ with the same data. Holotype preserved in the VARTIAN Collection, Vienna, paratype in the Hungarian Natural History Museum, Budapest.

Slides: Nos 15579, 15680 (♂♂), gen. prep. A. VOJNITS.

### *Eupithecia tesserata* BRANDT, 1938

Ent. Rundschau, 55 (50): 588, Figs 310–314.

**Diagnosis.** Alar expanse of fore wings of holotype 15 mm, that of allotype 16 mm, of two paratypes 15 and 16 mm. A comparatively broad-winged species. Costa and termen of fore wing slightly arcuate, dorsum straight. Apex obtuse. Tornus rounded. Hind wing obtusely angulate. Basic colour yellowish brown, transverse stripes light yellowish, terminal stripe discontinuous. Underside of wings yellowish white, pattern elements obsolescent. Cilia yellowish brown (Plate 2, Figs 14–15).

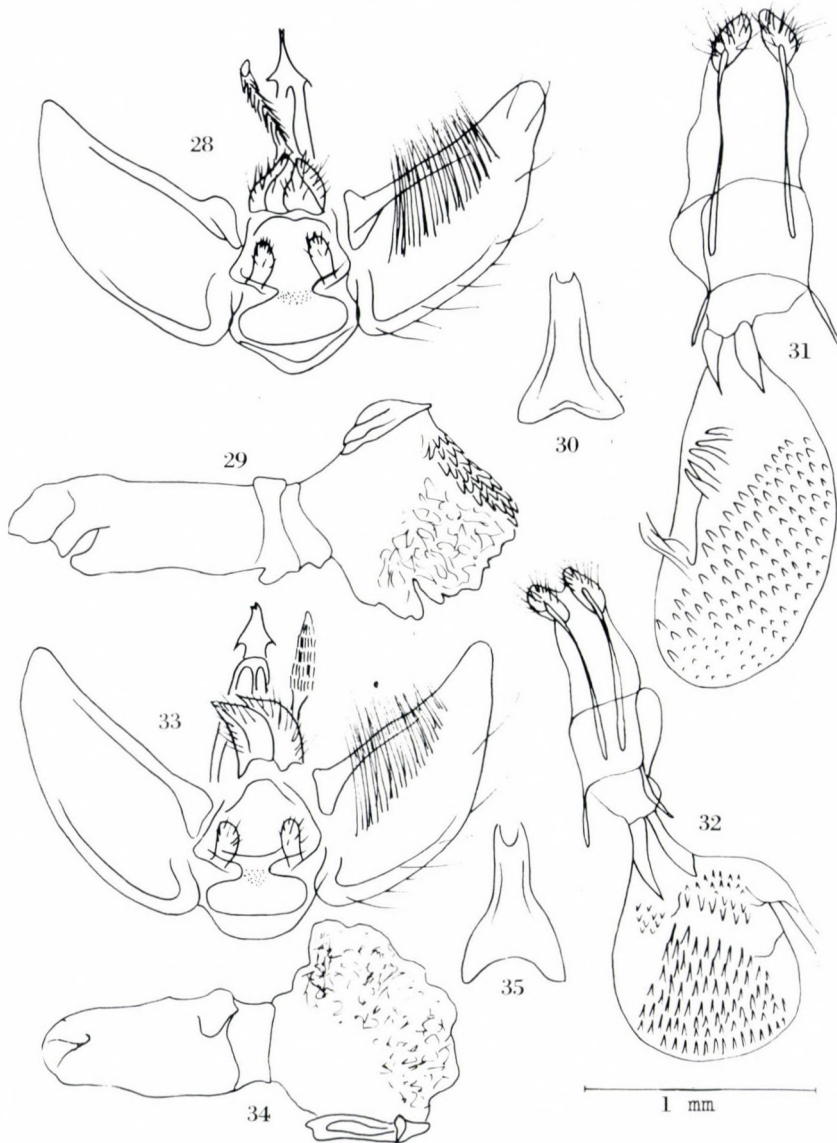
**Genitalia.** ♂: Valva of a “regular” ear shape. Uncus long, slender. Falces slender. Ampulla rather large, long and stout, only anteriorly covered by dense bristles. Pulvinulus flat. Vesica short, stout, with a strobiliform and a cymbiform sclerotized excrescence. Wide base of sternite VIII slightly incised, attenuating posteriorad (Figs 28–30). ♀: Bursa copularix long, half of it padded with spines and also with separate rows of spines. Apophysis anterior short, posterior one medium long. Papillae anales rice-shaped (Fig. 31).

**Biology.** First stages and foodplant unknown. Type specimens were collected in March — April, subsequent material derived from March-April-May.

**Distribution.** Ranging in Iran. Locus typicus: Tchoureum, 1000 m between Kazereum and Bouchir.

**Remarks.** BRANDT's (1938) short diagnosis is rather accurate, but the genitalia had not been discussed. The species is assignable to the *convallata-harenosa* group.

Holotype ♂: "Iran Fars Straße Kazerun-Bouchir Tchoureum ca. 1000 m. 18. März—6. Apr. 1937 coll. BRANDT" "Holotype *Eupithecia tesserata* BRDT. BRANDT" "91. 57" "coll. RMS"



Figs 28—35. 28 = Male genitalia, 29 = aedeagus, 30 = sternite VIII and 31 = female genitalia of *Eupithecia tesserata* BRANDT; 32 = Female genitalia of *E. sincera* BRANDT; 33 = Male genitalia, 34 = aedeagus and 35 = sternite VIII of *E. adjemica* BRANDT

"photo 34 A 80 det. A. VOJNITS" "Holotypus *Eupithecia tesserata* BRDT. 18054 ♂ det. A. VOJNITS". Allotype: "Iran Fars Straße Kazerun-Bouchir Tchoureum ca. 1000 m. Dalaki 27. März 1937 coll. BRANDT" "Allotype *Eupithecia tesserata* BRDT. BRANDT" "coll. RMS" "photo 35 A 80 det. A. VOJNITS" "Paratypus "Allo" *Eupithecia tesserata* BRDT. 18055 ♀ det. A. VOJNITS", Paratypes: 2 ♀♀ with the same data. Type specimens deposited in the Rijksmuseum, Stockholm.

Examined material: VARTIAN Collection: 2 ♂♂ and 1 ♀: SW Iran, Kasri Schirin, 24. 5. 1963; 1 ♂ and 3 ♀♀: S Iran, Bandar Abbas, 31. 3. 1972 and 3. 4. 1974; S Iran, Shiraz, 18. 4. 1970; leg. VARTIAN, KASY et VARTIAN, and Expeditio Vind. Material preserved, in the VARTIAN Collection, Vienna, and the Hungarian Natural History Museum, Budapest.

Slides: Nos 15604, 16214, 16215, 18054 (♂♂), 15605, 16212, 16213, 18055 (♀♀), gen. prep. A. VOJNITS.

### *Eupithecia sincera* BRANDT, 1938

Ent. Rundschau, 55 (50): 587, Figs 287, 288.

**D i a g n o s i s.** Alar expanse of fore wings of holotype 18 mm, that of allotype 20 mm. A rather broad-winged species. Costa of fore wing straight, but heavily arcuate preapically, termen slightly arcuate, dorsum straight. Apex obtuse. Tornus obtusely angulate. Hind wing obtusely angulate. Basic colour brownish yellow, transverse stripes yellow. Median and terminal fields darker than basal field. Discal spots not conspicuous. Underside of wings with well discernible pattern, also discal spots expressed. Cilia long and shiny, striated yellow and brownish yellow (Plate 2, Figs 16–17).

**G e n i t a l i a.** ♂: I had no opportunity so far to study the slide made of the holotype (by E. SCHÜTZE), thus I propose to discuss it at a later time. ♀: Bursa copulatrix only moderately elongate. A spinose field extending to about half bursal area, but spines present also towards antrum. Anterior apophyses short, posterior ones medium long. Papillae anales resembling a grain of rice (Fig. 32).

**B i o l o g y.** First stages and foodplant unknown. Type specimens collected in July.

**D i s t r i b u t i o n.** Ranging in Iran. Locus typicus: Comée (Barm i Firus).

**R e m a r k s.** BRANDT (1938) states in his laconic description, running to three lines, that the species resembles *harenosa*. This is insofar true that every member of the group very much resembles the others, but there is an essential difference especially in the configuration of the transverse stripes. BRANDT (1938) also pointed out that the species has somewhat broader wings than *harenosa*; this derives mainly from the fact that the termen of the fore wing is angulate. The species is relegable to the *convallata-harenosa* group.

Holotype ♂: "Iran Fars Straße Ardekan-Talochosroe Comée (Barm i Firus) ca. 3750 m 12.—20. Juli 1937 coll. BRANDT" "Holotype *Eupithecia sincera* BRDT. BRANDT" "R. M. prep. 4903" "*sincera* BRDT. Präp. Nr S 1212 ♂ det. E. SCHÜTZE, Kassel" "coll. RMS" "7457" "photo 9 F 80 det. A. VOJNITS". Allotype ♀: "Iran Fars Straße Ardekan-Talochosroe Comée (Barm. Firus) ca. 3750 m 12.—20. Juli 1937 coll. BRANDT" "Allotype *Eupithecia sincera* BRDT. BRANDT" "coll. RMS" "photo 10 F 80 det. A. VOJNITS" "Paratypus "Allo" *Eupithecia sincera* BRDT. 18007 ♀ det. A. VOJNITS". Type specimens deposited in the Rijksmuseum, Stockholm.

*Eupithecia adjemica* BRANDT, 1941

Mitt. münch. ent. Ges., **31**: 876, Fig. 30.

**D i a g n o s i s.** Alar expanse of fore wings of two male specimens 16 and 18 mm. In his detailed description, BRANDT (1941) characterizes the species correctly (Fig. 18).

**G e n i t a l i a.** ♂: Valva auriculiform, gradually attenuating; apex rounded; dorsum slightly, ventrum considerably, arcuate. Uncus bifid, robust. Falces not projecting beyond uncus. Ampulla stout, with sparsely arranged short setae. Pulvinulus triangular. Aedoeagus thick, short, vesica short and wide, with a small, granuliform and a U-shaped, sclerotized lamelliform excrescence. Basis of sternite VIII excised, attenuating posteriorad and terminating labiately (Figs 33—35). ♀: Unknown.

**B i o l o g y.** First stages and foodplant unknown. Specimens were collected in mid-September.

**D i s t r i b u t i o n.** Ranging in Iran. Locus typicus: Soultanabad, ca. 1500 m.

**R e m a r k s.** There are no type designations on the two specimens under discussion, but every other label data corresponds with the description. BRANDT (1941) considered the species as similar to *Eupithecia obtinens* BRANDT, but this can be accepted only in part. The species is assignable to the *convallata-harenosa* group.

Examined material: 1 ♂ "Iran Arak-Adjemi Soultanabad, ca 1500 m. Mitte Sept. 1938 Coll. BRANDT" "*E. adjemica* BRDT." "*Eupithecia adjemica* BRDT. 18022 ♂ det. A. VOJNITS"; 1 ♂ "Iran Arak-Adjemi Soultanabad ca 1500 m. Mitte Sept. 1938 Coll. BRANDT" "Brdt." "*adjemica*" "93 57" "R. M. prep. 4913" "*Eupith. adjemica* BRDT. Präp. Nr S 1216 ♂ det. E. SCHÜTZE, Kassel" "photo 27 F 80 det. A. VOJNITS". Both specimens deposited in the Rijksmuseum, Stockholm.

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WEITERE NEUE UND BEKANNTTE  
MARTIODRILUS-ARTEN AUS EKUADOR UND  
KOLUMBIEN (OLIGOCHAETA:  
GLOSSOSCOLECIDAE). REGENWÜRMER AUS  
SÜDAMERIKA, 7.

A. ZICSI

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(Eingegangen am: 25. November 1987)

Three species, new for science, belonging to the genus *Martiodrilus* MICHAELSEN, 1936, are described: *M. onorei* sp. n., *M. poncei* sp. n. and *M. colomai* sp. n. Complementary descriptions of the species *M. euzonus* (COGNETTI, 1905), *M. bicolor* (MICHAELSEN, 1913), *M. agricola* (COGNETTI, 1904) and *M. savanicola* (MICHAELSEN, 1900) are given on the base of a rich material.

In einer vorausgehenden Arbeit über die Bekanntmachung einiger *Martiodrilus*-Arten aus Ekuador (ZICSI, 1988) wurde bereits hervorgehoben, dass die von MICHAELSEN 1936 neu gefasste Sammelgattung *Martiodrilus*, wie dies bereits auch aus dem tabellarisch zusammengestellten Artenschlüssel (MICHAELSEN, 1918) hervorgeht, in Spezies mit stark verdickten Dissepimente hinter dem Muskelmagen und in solche bei denen die Dissepimente hinter diesem Organ geschwunden sind, aufgeteilt werden kann. Trotz dem wesentlichen Unterschied im inneren Aufbau dieser Tiere wurden die Arten dieser Gattung bloss aufgrund der Zahl (7–8 Paare) und Struktur der Chylustaschen (Kompositenschlauch bzw. Wabentaschen) denen MICHAELSEN eine besondere Bedeutung bei der systematischen Beurteilung zumisst, in der neubenannten Gattung *Martiodrilus* (MICHAELSEN, 1936) zusammengefasst. Ohne vorläufig an dieser Aufteilung Veränderungen vollziehen zu wollen, werden an dieser Stelle solche Arten deren Dissepimente hinter dem Muskelmagen entweder geschwunden oder hautdünn verdickt sind, bekanntgegeben.

Es handelt sich hauptsächlich um die Bearbeitung von Material das 1986 und 1987 von DR. I. LOKSA und dem Verfasser in verschiedenen Teilen Ekuadors gesammelt wurde, oder um Material, dass von den Herren Dr. G. ONORE, Katholische Universität Quito in Ekuador, Professor DR. H. STURM, Hochschule Hildesheim, in Kolumbien erbeutet und dem Verfasser zur Bearbeitung überlassen wurde. Den erwähnten Herren spreche ich für die Überlassung des Materials auch an dieser Stelle meinen besten Dank aus.

Gattung *Martiodrilus* MICHAELSEN, 1936

**D i a g n o s e.** Normale Borsten in 8 Längslinien. Männliche Poren intraclitellial. Chylustaschen 7—8 im Bereich des 7—14. Segmentes, Kompositenschlauchtaschen bzw. Wabentaschen. Geschlechtsapparat holoandrisch und metagyn. Samensäcke nicht unter Durchbrechung der Dissepimente weit nach hinten reichend.

*Martiodrilus euzonus* (COGNETTI, 1904)

Es liegen mir von verschiedenen Fundorten mehrere Exemplare dieser umstrittenen und so auch schwer identifizierbaren Art vor. Bereits COGNETTI weist bei seiner ausführlichen Beschreibung 1906 darauf hin, dass sie den Arten *M. tutus* (COGN., 1904) und *M. gravis* (COGN., 1904) sehr nahesteht. MICHAELSEN (1910a, b) befasst sich ebenfalls anhand von Exemplaren aus Ekuador und später bei der Beschreibung von *M. bicolor* (MICHAELSEN, 1913) ausführlich mit dieser Art, wobei auch hingewiesen wird, dass seine *bicolor* gewisse Ähnlichkeiten mit *euzonus* aufweist. Er kommt bei der Erörterung der Chylustaschen-Gestaltungen zu ganz interessanten phyletischen Folgerungen, die jedoch 1918 (p. 118), was die Gestaltung der Chylustaschen selbst betrifft, zum Teil widerrufen wird. Neuerdings erwähnt RIGHI (1981) je ein Exemplar von zwei verschiedenen Fundorten aus Ekuador, die jedoch schon in der Lage des Gürtels und der Pubertätsstreifen von der Originalbeschreibung von *M. euzonus* abweichen.

Die von verschiedenen Fundorten vorliegenden Exemplare wurden nach einer eingehenden Untersuchung und einem Vergleich mit Originalstücken von COGNETTI, die ich aus der Sammlung des Zoologischen Instituts und Museums von Hamburg erhielt, studiert. Für die Überlassung des Materials spreche ich Herrn Dr. Prof. M. DZWILLO auch an dieser Stelle meinen besten Dank aus. Es handelt sich um die beiden Exemplare die MICHAELSEN seinerzeit von COGNETTI DE MARTIIS erhalten hatte und aufgrund deren er sein aus Ekuador stammendes Exemplar mit einem der Originalstücke vergleichen konnte. Da dies Exemplar in der inneren Organisation bis auf die Samentaschen der rechten Seite vollkommen zerstört war, musste auch das zweite Exemplar geöffnet werden, um die von Michaelsen so kennzeichnend gehaltenen Verschiedenheiten in der Gestaltung der vorderen und hinteren Kalkdrüsen erkennen zu können. Dies auch deswegen schon, da in der Originalbeschreibung von COGNETTI diesbezügliche Hinweise nicht vorliegen. Es handelt sich um Unterschiede in den ersten drei Paar Kalkdrüsen der Segmente 7.—9., die im allgemeinen bedeutend grösser sind, eine von MICHAELSEN sogenannte »aufgeblähte Kalkdrüsenform« aufweisen und »abgeplattet bohnenförmigen Körper« besitzen. Besonders hervorzuheben ist, daß am

konkaven Innenrande dieses bohnenförmigen Körpers ein keulenförmiger Zapfen entspringt. Die verschiedene Form der Kalkdrüsen im 7.—9. Segment sowie der keulenförmige Anhang der Chylustaschen veranlassen MICHAELSEN zu phylogenetischen Folgerungen, deren nach eine Differenzierung der Gattungen *Rhinodrilus* und *Aptodrilus* aus der früheren Gattung *Thamnodrilus*, jetzt *Martiodrilus*, hervorgegangen sein soll. Vorläufig mag diese Annahme von MICHAELSEN noch hingestellt bleiben, im vorliegenden Fall soll bestätigt werden, dass ein solcher Zapfen und eine aufgeblähte Form der vorderen drei Chylustaschenpaare so beim Originalstück von COGNETTI wie bei allen von mir untersuchten Exemplaren und zu *euzonus* gestellten Individuen nachgewiesen werden konnte. Dieser Umstand und die sehr konstante Lage des Gürtels vom 15.—24. Segment, sowie die der Pubertätsstreifen vom 19, 2/3 19—24. Segment (vergleiche auch MICHAELSEN, 1910, p. 153) veranlassen mich die von uns in Ekuador gesammelten Tiere der von COGNETTI 1904 beschriebenen *M. euzonus* einzureihen.

Bei der Durchsicht des weiteren in Ekuador gesammelten Materials, wo bei Tieren die Dissepimente hinter dem Muskelmagen nicht verdickt waren, konnte festgestellt werden, dass Abweichungen in der Lage des Gürtels oder der Pubertätsstreifen, seien diese auch ganz minimal, in den meisten Fällen eine andere Art kennzeichnen. Auf diese, sowie auf die beim Sammeln gemachten Beobachtungen ferner die von COGNETTI und MICHAELSEN bei den Arten *euzonus*, *gravis*, *tutus*, *bicolor* hervorgehobenen minimalen Unterschiede gestützt, halte ich die von RICHI als *euzonus* bekanntgegebenen Exemplare nicht dieser Art angehörend.

Da meine Tiere ansonst mit der Beschreibungen von COGNETTI (1904, 1906) und MICHAELSEN (1910a, b, 1913) vollkommen übereinstimmen, verzichte ich an dieser Stelle auf eine ausführliche Beschreibung meiner Exemplare.

Erwähnt sei bloss, dass die Testikelblasen eines Paares auf der Ventralseite durch einen median liegenden Querschlauch miteinander verbunden, die Testikelblasen einer Seite vollkommen getrennt sind. Die Samentaschen sind im allgemeinen ohne Samenkammerchen, obwohl der Ausführungsgang der Samentaschen bei einigen Exemplaren stark angeschwollen ist, und sich Samenmassen in dieser Anschwellung anhäufen.

Abschliessend sei noch auf die Widerrufung der von MICHAELSEN, 1910b, angeführten phyletischen Erläuterungen in Bezug auf die Chylustaschen hingewiesen. Es ist anzunehmen, dass MICHAELSEN seine, über die Verschiedenheiten in der Form der Chylustaschen bei *euzonus* angeführten Betrachtungen, wo angenommen wird, dass die drei vorderen Chylustaschen den Ursprung der Gattung *Rhinodrilus*, die fünf hinteren den Ursprung der Gattung *Aptodrilus* bilden, ohne besondere Begründung deswegen ändert, da er dem inneren Bau der Chylustaschen aufgrund seiner neueren Untersuchungen (MICHAELSEN, 1918) Priorität einräumt.

Fundorte: AF 286, 16 + 10 juv. Ex., Prov. Cotopaxi, Cotopaxi Paramo-Vegetation, 4150 m; 26. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 498, 11 + 2 juv. Ex., Prov. Pichincha Antisana, 4200 m, Paramo-Vegetation; 16. IV. 1987; leg.: LOKSA + ZICSI. — AF 500, 1 + 2 juv. Ex., Prov. Imbabura San José de Minas, 10 km von der Gemeinde entfernt, neben einem Bächlein; 21. IV. 1987, leg.: BENAVIDES + LOKSA + ZICSI. — AF 502, 2 + 1 juv. Ex., Fundort wie zuvor, 12 km von der Gemeinde entfernt, im Wald; 21. IV. 1987, leg.: BENAVIDES + LOKSA + ZICSI. — AF 501, 3 + 5 juv. Ex., Prov. Pichincha, Cochasqui Pyramiden; 26. IV. 1987, leg.: LOKSA + ZICSI.

### *Martiodrilus bicolor* (MICHAELSEN, 1913)

Von verschiedenen Fundorten liegen einige Adulte und Präadulte dieser Art vor, die sich in der Grösse wesentlich von der in Literatur angegebenen und aus Kolumbien beschriebenen Stammform unterscheiden. Die im nörlichen Teil von Ekuador gesammelten Exemplare sind 90—100 mm lang, Segmentzahl 163—220. Obwohl es sich um bedeutend kleinere Tiere handelt, ist die Segmentzahl nicht so wesentlich geringer als bei dem in der Originalbeschreibung bekanntgegebenem Exemplar (250). Kennzeichnend ist die dunkelviolet bis braunschwarze Farbe der Dorsalseite, die in Höhe der cd Borsten plötzlich und sehr scharf gegen die pigmentlose Ventralpartie sich absetzt. Auch der rüsselförmige Kopflappen stimmt mit der Originalbeschreibung überein, und unterscheidet diese Art auch dadurch von *M. euzonus*. Der Gürtel erstreckt sich bei den Tieren aus Ekuador deutlich und stark sattelförmig hervorstehend vom 15.—24. Segment, Übergänge auf das 25. Segment konnten nicht erkannt werden. Die Pubertätsstreifen verlaufen vom 19., 1/2 19.—1/2 24. Segment. Die innere Organisation stimmt mit der der Originalbeschreibung überein, die Samenkammerchen der Samentaschen konnten deutlich nachgewiesen werden. Die vorderen Chylustaschen sind in der Form noch etwas von den hinteren verschieden, bei einigen Exemplaren konnte ein kleiner Stümmel des an der Innenseite der Chylustasche vorhandenen Zapfens, wie dies auch bei *euzonus* nachgewiesen werden konnte, erkannt werden.

Fundorte: AF 309, 2 + 1 juv. Ex., Prov. Napo, Saloya, 1450 m; 20. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 505, 1 + 5 juv. Ex., Prov. Pichincha, Tandajapa hinter Nono, Urwald am Wegrund; 8. IV. 1987, leg.: LOKSA + ZICSI. — AF 507, 1 präad. + 2 juv. Ex., Prov. Imbabura, 30 km von Otavalo in Richtung Selva Alegre, 3900 m, Paramo-Vegetation; 22. IV. 1987, leg.: LOKSA + BENAVIDES + ZICSI.

### *Martiodrilus onorei* sp. nov.

Es liegen einige Exemplare von verschiedenen Fundorten aus einer Höhe von über 4000 m vor.

Länge des Holotypus 85 mm, Breite 4 mm, Segmentzahl 125. Bei den übrigen Tieren: Länge 52—90 mm, Breite 3,8—4,2 mm, Segmentzahl 118—144. Farbe rot, rot-violett.

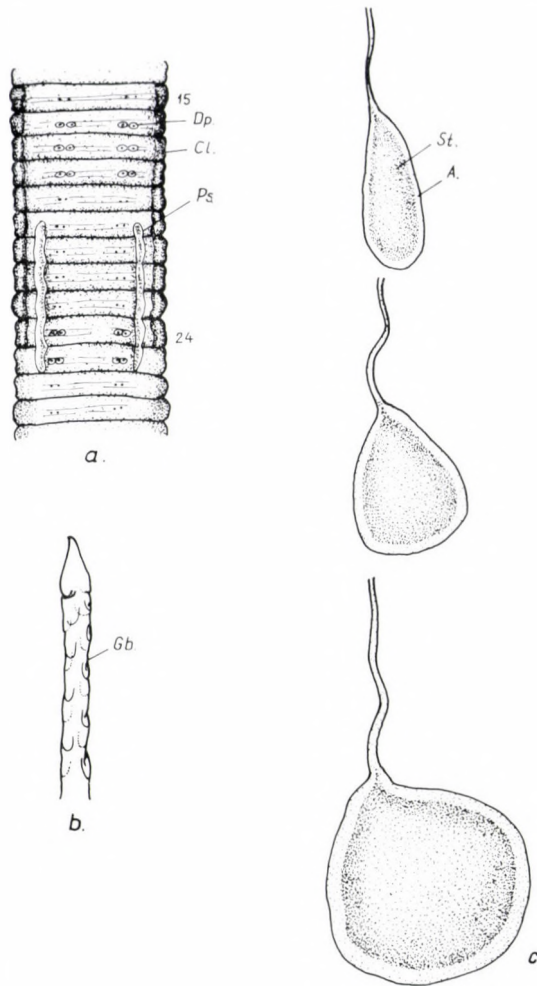


Abb. 1. *Martiodrilus onorei* sp. n. a = Ventralansicht, b = Geschlechtsborste, c = Form der Semantaschen

Kopflappen kurz, rüsselförmig, eingezogen.

Segmente einfach geringelt, Borsten am ganzen Körper eng gepaart, Borsten am Hinterkörper hackenförmig gebogen. Borsten *ab* etwas grösser als *cd*, Borsten *aa* etwa gleich *bc*. Sämtliche Borsten beginnen am 3. Segment. Borsten *ab* vom 9., 16., 17., 18., 24., 25. von Papillen umgeben, zu Geschlechtsborsten umgewandelt. (Abb. 1a, b).

Nephridialporen im 3. Segment beginnend, in der Borstenlinie *cd*.

Weibliche Poren am hinteren Rand des 14. Segmentes, etwas oberhalb der Borstenlinie *b*. Männliche Poren am 21. Segment, auf den Pubertätsstreifen, im vorderen Teil des Segmentes.

Gürtel vom 15.—24. Segment, bei einigen Exemplaren nur auf der Dorsalseite in Form eines dünnen Striches auch auf dem 25. Segment übergehend. Pubertätsstreifen vom 1/2, 1/4 20.—25. Segment, dünne Streifen die eindeutig um ein Segment über den Gürtel hinausreichen.

Samentaschenporen drei Paar auf Intersegmentalfurche 6/7—8/9, in der Borstenlinie *cd*. Die Samentaschenporen sind von aussen nicht immer zu erkennen.

Innere Organisation. Schlund durch drei starke Querbinden an die Intersegmente 6/7—8/9 befestigt. Dissepimente nicht verdickt. Vordere Dissepimente hinter dem Muskelmagen nicht zu erkennen, vom 9/10 beginnend ausgebildet, und bis zum 13/14 Dissepiment immer dicker werdend. Muskelmagen im 6. Segment gross. Acht Paar nahezu gleichgrosse Chylustaschen im 7.—14. Segment (Wabentaschen), am freien Ende abgeschnürt.

Blutgefäss-System. Dorsales Rückengefäss vom 10.—18. Segment perlschnurartig angeschwollen. Lateralherzen vom 7.—9. Segment, Intestinalherzen vom 10.—11. Segment, gross, letzte Herzen im 12. Segment schlingenförmig, dünn.

Männliche Geschlechtsorgane. Zwei Paar mässig grosse hypooesophageale Testikelblasen im 10. und 11. Segment, die Testikelblasen eines Segmentes sind miteinander nicht verbunden, setzen sich in einem Schlauch in die Samensäcke fort. Zwei Paar Samensäcke im 11. und 12. Segment, besitzen einen langen Stiel und einen, nach vorne gerichteten länglichen Sack, der des 11. Segmentes reicht auch über den Muskelmagen hinaus, und schmiegt sich seitlich an diesen an. Samentaschen drei Paar im 7., 8. und 9. Segment, nach hinten zu bedeutend grösser werdend. Die Samentaschen besitzen einen langen Stiel, der manchmal auch die Grösse der Ampulle übertreffen kann. Die Ampulle besitzt eine plattgedrückte, birnenförmige Form (Abb. 1 c).

Die neue Art steht *M. gravis* am nächsten, unterscheidet sich jedoch von dieser in der Lage des Gürtels und der Pubertätsstreifen, sowie in der Form der Samentaschen.

Die neue Art wird zu Ehren mit bestem Dank von Herrn Professor DR. G. ONORE, Katholische Universität Quito, benannt, der unsere Untersuchungen in Ekuador weitgehend unterstützt.

Fundorte: Holotypus: AF 568, Prov. Pichincha, Pichincha Gebirge, Aguagua Schutzhütte, 4500 m, spärliche Paramo-Vegetation; 19. IV. 1987, leg.: ZICSI + LOKSA. — Paratypen: AF 569, 2 Ex., Fundort wie beim Holotypus. — AF 570, 5 + 2 juv. Ex., Prov. Pichincha, Antisana, Schutzhütte der Universität, 4200 m, Paramo-Vegetation; 16. IV. 1987, leg. LOKSA + ZICSI. — AF 287, 17 + 3 juv. Ex., Prov. Cotopaxi, 4150 m, Paramo-Vegetation am Cotopaxi-Vulkan, 26. II. 1986, leg.: ZICSI + LOKSA + BENAVIDES.

**Martiodrilus poncei** sp. nov.

Es liegen mir von einem Fundort mehrere Exemplare dieser interessanten Art vor, die mächtige, turmförmige Exkreme ablegen, deren Ausgang abgeschlossen wird.

Holotypus: Länge 185 mm, Breite 5 mm, Segmentzahl 156. Bei den anderen Exemplaren: Länge 110–190 mm, Breite 5–6 mm, Segmentzahl 118–170.

Farbe dorsal rötlich braun, unterhalb der Borstenlinie *cd* plötzlich weiss werdend.

Kopflappen kurz, rüsselförmig, eingezogen. Erstes Segment mit dem 2. Segment verwachsen, 2. Segment mit deutlichen Querstreifen versehen.

Borsten zart, sehr eng gepaart, *aa* kleiner als *bc*, *ab* = *cd*. Borsten am Hinterkörper *aa* grösser als *bc*. Borsten *ab* vom 19.–24. Segment auf Drüsenpapillen angeordnet, zu Geschlechtsborsten umgewandelt. Borsten *cd* des

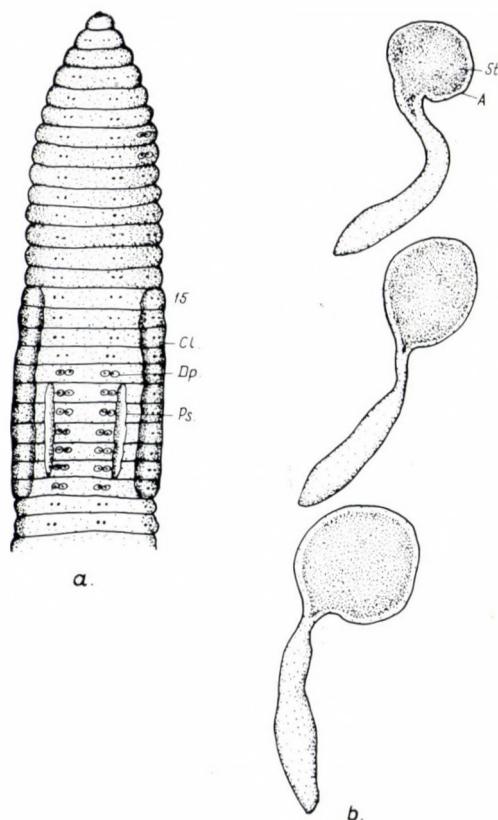


Abb. 2. *Martiodrilus poncei* sp. n. a = Ventralansicht, b = Form der Samentaschen

7.—8. Segments, manchmal auch bis zum 10. Segment, von Borstenpapillen umgeben. (Abb. 2 a).

Nephridialporen am 3. Segment beginnend, in der Borstenlinie *cd*.

Weibliche Poren auf dem 14. Segment, in der Borstenlinie *a*. Männliche Poren am 19.? Segment.

Gürtel vom 15.—25. Segment, dorsal eine dünne strichförmige Verdickung auch auf das 26. Segment übergehend. Pubertätsstreifen konstant vom 20.—24. Segment.

Samentaschenporen drei Paar in den Intersegmentalfurchen 6/7, 7/8 und 8/9, in höhe der Borstenlinie *cd*.

Innere Organisation. Dissepimente vom 8/9 vis 17/18 zart, aber deutlich zu erkennen. Schlund durch kräftige Querbinden in 8/9 Intersegment befestigt. Muskelmagen im 6. Segment. Acht Paar Chylustaschen im 7.—14. Segment (Wabentaschen). Die vorderen Paare sind am Ende nicht so deutlich abgesetzt wie die der hinteren Paare. Form der Chylustaschen bohnenförmig.

Blutgefäss-System. Lateralherzen vom 7.—9. Segment, Intestinalherzen im 10.—11. Segment, gross. Schlauchförmige Herzen im 12. Segment. Dorsalgefäss perlschnurartig verdickt, weit nach hinten reichend.

Männliche Geschlechtsorgane. Zwei Paar perioesophageale Testikelblasen im 10. und 11. Segment. Die Testikelblasen des 10. Segments sind dorsal miteinander verbunden. Die des 11. Segmentes sind ebenfalls verbunden, doch aufgefranzt. Testikelblasen des 11. Segmentes schliessen die Samensäcke des 11. Segmentes ein. Lappenförmige Samensäcke im 11. und 12. Segment, sie sind auf die beiden Segmente beschränkt.

Drei Paar Samentaschen im 7., 8. und 9. Segment, spitz zulaufende Ampullen (Abb. 2 b) die bei der Ausführung angeschwollen sind und über Samenkammerchen verfügen.

Die neue Art steht dem *M. benhami* (COGNETTI, 1904) am nächsten, unterscheidet sich jedoch von dieser in der Lage des Gürtels und der Pubertätsstreifen, sowie dadurch, dass sie über Samenkammerchen verfügt.

Die neue Art wird zu Ehren mit bestem Dank nach Herrn P. PONCE, Katholische Universität Quito, benannt, der uns beim Sammeln des Materials weitgehend behilflich war.

Fundort: Holotypus: AF 571, Prov. Napo, Rio Puzuno, hinter der Hängenrücke, Urwald; 11. IV. 1987, leg.: ZICSI + LOKSA + PONCE. — Paratypen: AF 572, 6 + 5 präad. + 7 juv. Ex., Fundort wie beim Holotypus.

### **Martiodrilus colomai sp. n.**

Von dieser, in verschiedenen Bromelien gesammelten Art liegt nur ein mehr oder weniger geschlechtsreifes und zwei juvenile Tiere zur Beschreibung vor.



Länge des Holotypus 75 mm, Breite 7 mm, Segmentzahl 138.

Farbe: auf der Dorsalseite schwarz-violett, die schwarz-violette Färbung geht in Höhe der Borstenlinie *cd* plötzlich und sehr scharf in eine pigmentlose graue Färbung der Lateralseite über, diese graue Farbe wiederum setzt sich in der Höhe der Borstenlinie *ab* in ein helles Weiss der Ventralseite *ab*.

Kopflappen mehrfach gefaltet und eingezogen. Erstes und zweites Segment verwachsen. Drittes Segment mit Längsfurchen versehen. Segmente ungeringelt. Borsten am ganzen Körper zart, eng gepaart, lateral und ventral vom 3. Segment beginnend. Borsten vor dem Gürtel *aa* etwa doppelt so gross wie *bc*, Borsten *ab* etwas grösser als *cd*, am Hinterkörper Borsten *aa* etwa so gross wie *bc*, *ab* = *cd*.

Nephridialporen vom 3. Segment beginnend, in Höhe der Borstenlinie *c*.

Gürtel vom 14.—28. Segment, nur durch eine noch dunklere Farbe angedeutet. Pubertätsstreifen vom 20.—27. Segment.

Drei Paar Samentaschenporen auf Intersegmentalfurche 6/7—8/9 in Höhe der Borsten *cd*.

Innere Organisation. Dissepimente 9/10 und die dahinter liegenden zart, verdickt. Dissepimente gleich hinter dem Muskelmagen nicht zu erkennen.



Abb. 3. *Martiodrilus colomai* sp. n. Form der Samentaschen

Muskelmagen im 6. Segment. Acht Paar Chylustaschen im 7.—14. Segment, mehr oder weniger gleichgrosse, gestreckte Gebilde, die am Ende abgeschnürt sind. Die Abschnürung beträgt  $\frac{1}{3}$  der Chylustaschengrösse. Typische Wabentaschen.

Blutgefäss. Drei Paar Lateralherzen im 7.—9. Segment, zwei Paar grosse Intestinalherzen im 10—11. Segment, im 12. Segment mächtige, schlingenförmige, dünne Herzen.

Männliche Geschlechtsorgane. Zwei Paar hypo-oesophageale Testikelblasen im 10. und 11. Segment, die ventral durch einen Schlauch miteinander verbunden sind. Samensäcke im 11. und 12. Segment, klein. (Vielleicht nicht ganz geschlechtsreif!). Samensäcke sind auf die betreffende Segmente beschränkt. Drei Paar nahezu gleichgrosse Samentaschen im 7., 8. und 9. Segment, die beim Ausführungsgang breiter sind, Ampulle läuft etwas verdünnt zu (Abb. 3), Samenkammerchen sind nicht erkannt worden.

Interessant ist die Erscheinung, dass der Mitteldarm in Höhe des 26. Segmentes ein Paar Blindsäcke führt, die gleichgross und an den Mitteldarm angeschmiegt sind. Bei beiden juvenilen Tieren waren diese Blindsäcke ebenfalls entwickelt.

Die neue Art steht dem *M. friderici* (MICHAELSEN, 1918) am nächsten, da diese die einzige mir bekannte *Martiodrilus*-Art ist, die über einen Blindsack verfügt. Von dieser unterscheidet sie sich jedoch durch die Lage des Gürtels und der Pubertätsstreifen, und dadurch, dass die neue Art nur drei Paar Samentaschen besitzt, und nicht vier Paare, wie *M. friderici*.

Die neue Art wird zu Ehren mit bestem Dank von A. COLOMA, Katholische Universität, Quito, benannt, der uns bei unseren Sammlungen im Terrain weitgehend behilflich war.

Fundort: Holotypus: AF 495, Prov. Bolivar, hinter Malpote, am Ufer des Rio Chimbo, in Bromelien des Urwaldes; 5. IV. 1987, leg.: COLOMA + LOKSA + ZICSI. Zwei juvenile Exemplare vom selben Fundort.

### *Martiodrilus agricola* (COGNETTI, 1904)

Obwohl diese Art seit der Erstbeschreibung weder aus Ekuador (zwei Fundorte: Quito, 2880 m, und Papallacta, 3100 m), noch aus anderen Andenländern wieder gesammelt wurde, scheint sie die in Ekuador am weitesten verbreitete Art zu sein.

Eigentlich lässt sie sich aufgrund der vorzüglichen Beschreibung von COGNETTI 1904 und 1906 einwandfrei identifizieren, trotzdem sollen einige Kennzeichen erörtert werden die entweder in der Beschreibung nicht angeführt wurden, oder anhand des reichen Untersuchungsmaterials ergänzt werden können.

Zuerst sei erwähnt, dass die Pubertätsstreifen selbst bei Exemplaren vom *Locus typicus* (Quito, Papallacta) bis auf 1/4 27. Segment übergehen, und nur ausnahmsweise auf das 26. Segment beschränkt sind. Der Gürtel erstreckt sich im allgemeinen konstant vom 15.—24. Segment, doch konnten auch Tiere mit einem Gürtel bis 1/2 24. oder 1/2 25. Segment bestimmt werden. Die Drüsenpapillen tragenden Segmente variieren innerhalb einer Population. Am häufigsten sind die Borsten des 17., 24., 25., 27. von Drüsenpapillen umgeben. Die weiblichen Poren konnten am hinteren Rand des 14. Segmentes in der Borstenlinie *b* erkannt werden, die männlichen Poren sind auf den Pubertätsstreifen am 21. Segment, im vorderen Teil des Segmentes. Innen verlaufen die Samenleiter parallel nebeneinander, und münden in Höhe des 20.—21. Segmentes in die wallförmigen Pubertätsstreifen ein. Die auch von innen wallförmigen Pubertätsstreifen werden nach hinten zu immer unscheinbarer. Diese wallförmige Erhebung konnte nicht bei allen untersuchten Exemplaren nachgewiesen werden.

Die Form der Samentaschen und Samensäcke kann auch stark variieren. Die Samentaschen besitzen manchmal einen dünnen langen Stiel, bei anderen Exemplaren sind sie kurzstielig mit grosser lappenförmiger Ampulle. Die Samensäcke können manchmal gänzlich fehlen (Exemplare vom Vulkan Cotopaxi), oder sind mächtig gross und nach vorne gerichtet, und erinnern so an die von *M. savanicola* (MICHAELSEN, 1900). Die Testikelblasen eines Segmentes sind ventral durch einen kleinen Schlauch miteinander verbunden, also unpaarige Gebilde, die Testikelblasen der verschiedenen Segmente (10. und 11.) sind nicht miteinander verbunden.

Fundorte: AF 266, 4 Ex., Prov. Cotopaxi, Naranchito, Urwald; 9. II. 1986. — AF 269, 4 Ex., Naranchito, Wiese, 9. II. 1986. — AF 276, 2 Ex., San Francisco de las Pampas, 1550 m; 10. II. 1986. — AF 282, 2 Ex., Naranchito, Urwald; 10. II. 1986. Die bisher angeführten Tiere wurden von LOKSA + ONORE + ZICSI gesammelt. — AF 288, 9 Ex., Cotopaxi Vulkan, 3900 m, am Ufer eines Sees; AF 289, 100 juv. Ex., Fundort wie zuvor; 26. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 291, 12 Ex., Cotopaxi Vulkan, Pinus-Wald, 3750 m, 26. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 294, 6 Ex., zwischen Puyili und Zumbagua, 3800 m, 16. II. 1986, leg.: LOKSA + ZICSI. — AF 296, 7 Ex., ebenda, 4000—4200 m, 16. II. 1986, leg.: LOKSA + ZICSI. — AF 301, 14 Ex., Pueblo Quemado; 16. II. 1986, leg.: LOKSA + ZICSI. — AF 305, 3 + 9 juv. Ex., Prov. Pichincha, Paschoa Nationalpark, 2800—2880 m; 6. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 311, 2 Ex., Prov. Pichincha, Saloya, 1450 m; 20. II. 1986, leg.: LOKSA + ZICSI. — AF 316, 2 Ex., 17 km hinter Santo Domingo in Richtung Quinde; 20. II. 1986, leg.: LOKSA + ZICSI. — AF 328, 1 Ex., in Richtung Paschoa, Nationalpark, Wiese; 6. II. 1986; leg.: LOKSA + ZICSI. — AF 474, 1 + 11 präad. Ex., Antisana, Paramo-Grenze, 3900 m; 17. IV. 1987, leg.: LOKSA + ZICSI. — AF 476, 3 Ex., zwischen Tandajapa und Nono, Urwald; 8. IV. 1987, leg.: LOKSA + ZICSI. — AF 477, 2 + 1 juv. Ex., vor Nono, 3280 m; 4. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 478, 4 Ex., Finca los Cypresses, La Merced; 1. IV. 1987, leg.: LOKSA + ZICSI. — AF 479, 1 + 1 juv. Ex., Jaime Roldos bei Quito, 3200 m; 4. II. 1986, leg.: BENAVIDES + LOKSA + ZICSI. — AF 480, 1 Ex., Pululagua, unter trockenen Sträucher; 12. II. 1986, leg.: LOKSA + ZICSI. — AF 481, 1 + 2 juv. Ex., zwischen Nono und Quito, 3900 m; 8. IV. 1987, leg.: LOKSA + ZICSI. — AF 482, 9 juv. Ex., Pichincha Gebirge, 3100 m, Wiese; 17. IV. 1987, leg.: LOKSA + ZICSI. — AF 483, 52 Ex., Antisana, 3200—3700 m; 17. IV. 1987, leg.: LOKSA + ZICSI. — AF 484, 3 Ex., Prov. Bolivar, Las 4-esquinas, 3000 m; 2. IV. 1987, leg.: COLOMA + LOKSA + ZICSI. — AF 486, 4 + 1 juv. Ex., Prov. Cuzco, Malpote, im Dorf; 5. IV. 1987, leg.: COLOMA + LOKSA + ZICSI. — AF 487, 7 Ex., Prov. Pichincha, bei Quito, Weg zum Pichincha, 2950 m, in einem Pinus-Wald; 19. IV.

1987, leg.: LOKSA + ZICSI. — AF 488, 4 + 1 juv. Ex., Prov. Imbabura, nach San José de Minas, in Richtung Otavalo, Urwald; 21. IV. 1987, leg.: BENAVIDES + LOKSA + ZICSI. — AF 499, 1 Ex., Prov. Pichincha, Antisana, 4200 m, Umgebung der Schutzhütte der Katholischen Universität; 16. IV. 1987, leg.: LOKSA + ZICSI. — AF 475, 8 + 2 juv. Ex., Prov. Napo, Papallacta, Wiese; 9. IV. 1987, leg.: LOKSA + ZICSI + PONCE.

*Martiodrilus savanicola* (MICHAELSEN, 1900)

Von verschiedenen Fundorten liegen mir einige Exemplare dieser interessanten Art vor, die, wenn sie auch nur über 7 Paar Chylustraschen verfügt, mit der vorausgehend bekanntgegebenen *M. agricola* nahe verwandt ist. Die Richtigstellung der Lage der Chylustaschen vom 8.—14. Segment (MICHAELSEN, 1913) kann auch an meinen Exemplaren bestätigt werden. Besonders hervorzuheben sind die mächtigen Samensäcke des 11. und 12. Segmentes. Die des 11. Segmentes sind nach vorne gerichtet und reichen bis zum 5. Segment hinauf, wo sie zwischen den Samentaschen und dem Schlund liegen. Auch die Samensäcke des 12. Segmentes sind nicht nur auf diese Segment beschränkt, sondern reichen bis zum 17. Segment nach hinten. Auf eine Variabilität der Samensäcke in Form und Grösse wurde bereits auch bei *M. agricola* hingewiesen, wo ein bedeutend reicheres Material eingesehen werden konnte. In den übrigen Merkmalen stimmen die von mir untersuchten Exemplare mit der Beschreibung von MICHAELSEN (1900, 1913) überein.

Fundorte: AF 490, 1 + 1 juv. Ex., Kolumbien, La Rusia, Paramo-Vegetation, Bergwald; 3. X. 1986, leg.: H. STURM. — AF 491, 1 + 1 juv. Ex., Paramo de Chisacá, Bergwald; 7. IX. 1985, leg.: H. STURM. — AF 492, 1 Ex., Paramo de Chingaza, 3550 m; 13. IX. 1985, leg.: H. STURM.

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