

MISCELLANEOUS PUBLICATION
OCCASIONAL PAPER NO. 80

Records of the Zoological Survey of India

**STUDY ON INDIAN PENTATOMOIDEA
(HETEROPTERA : INSECTA)**

by

B. DATTA, L. K. GHOSH AND MAYA DHAR

**Issued by the Director
Zoological Survey of India, Calcutta**

RECORDS
OF THE
ZOOLOGICAL SURVEY OF INDIA

MISCELLANEOUS PUBLICATION
OCCASIONAL PAPER No. 80

STUDY ON INDIAN PENTATOMOIDEA
(HETEROPTERA : INSECTA)

By

B. DATTA, L. K. GHOSH

and

MAYA DHAR

Zoological Survey of India, Calcutta



सत्यमेव जयते

Edited by the Director, Zoological Survey of India

1985

© Copyright, Government of India, 1985

Published : August, 1985

PRICE : Inland : Rs. 36.00

Foreign : £ 4.50 \$ 7.00

**Printed at The Pooran Press, 21, Balaram Ghose Street, Calcutta-700 004 and
Published by the Director, Zoological Survey of India, Calcutta.**

RECORDS
OF THE
ZOOLOGICAL SURVEY OF INDIA

MISCELLANEOUS PUBLICATION

OCCASIONAL PAPER

No. 80

1985

Pages : 1—43

CONTENTS

	<i>Page</i>
INTRODUCTION	1
SYSTEMATIC ACCOUNT	2
Family ASOPIDAE	2
CYDNIDAE	3
DINIDORIDAE	4
GRAPHOSOMATIDAE	6
PENTATOMIDAE	8
PLATASPIDAE	15
PBYLIOCEPHALIDAE	17
SCUTELLARIDAE	19
TESSAROTOMATIDAE	21
UROSTYLIDAE	24
SUMMARY	25
REFERENCES	26

STUDY ON INDIAN PENTATOMOIDEA (HETEROPTERA INSECTA)

By

B. DATTA, L. K. GHOSH and MAYA DHAR

Zoological Survey of India
34, Chittaranjan Avenue,
Calcutta-12.

INTRODUCTION

The pentatomid bugs sustain their identities from rest of hemipteran species in having singular triangulate scutellar structure. They are comprised of 5,000 species of which 589 Oriental species are delineated by Distant (1902, 1908, 1918) on taxonomic aspects. The research workers have recorded the convergence of pentatomid bugs from Neotropical, Indomalayasian and Ethiopian regions with brilliant shades of composite color pigmentation as demarcating facets of temperate forms from Tropical ones.

The present authors in conformity with the line of approach adopted by Schouteden (1909), Leston (1952, 1954), Ruckes (1963), McDonald (1966) and Ahmad and Kamaluddin (1982) have characterised the structural dissimilarities of the armatures of the parameres of sixty one species belonging to forty four genera and observed the most reliable significant key traits as sufficient to preserve the distinctiveness of the individual species. The economic importance of the respective species is further noted here. The authors have followed the existing nomenclatural status of the families.

The authors are grateful to Dr. B. K. Tikader, Director, Zoological Survey of India, Calcutta for providing the facilities and encouragement.

SYSTEMATIC ACCOUNT

Family ASOPIDAE

Genus *Asopus* Burmeister

1834. *Asopus* Burmeister, *Nov. Act. Acad. Leop.*, **16** : 292.

1. *Asopus malabaricus* (Fabricius) (Fig. 1)

1775. *Cimex malabaricus* Fabricius, *Syst. Ent.* : 718

Body densely punctate, reddish; head with a spot at base; pronotum with 3 black spots, two at anterior margin; scutellum spotted at basal angles; forewing membrane black; abdomen black, ventrally with bands.

Length : 13 mm.

Genitalia Clasper (fig. 1) robust, posterior margin distinctly rugulose, lateral margin curved and infolded, apically feebly wavy.

Distribution : North East and Western India, Burma, Java, Sumatra, Borneo and Philippines.

***Audinetia* Ellener**

1862. *Audinetia* Ellener, *Nat. Tijdschr. Nederl. Ind.*, **24** : 136

2. *Audinetia spinidens* (Fabricius) (Fig. 2, 2A)

1787. *Cimex spinidens* Fabricius, *Ment. Inst.*, **11** : 285

Body brownish yellow; head with a median lobe with blackish punctures on each side; antennal joints black; a smooth line on pronotal angles; scutellum at apex clay color; corium at lateral angles clay-color; forewing membrane smoky; body punctate ventrally; abdomen with blackish fasciae ventrad; stigmata black.

Length : 14 mm.

Genitalia : Clasper (figs. 2 & 2A) strongly curved on inner margin, gradually attenuated apicad, ventral part longitudinally infolded, basal apodeme prominent.

Distribution : North East & South India, Malaya Archipelago, Fizi, Tahiti, East Africa, Abyssinia and Mexico.

Genus **Picromerus** Amyot & Serville1843. *Picromerus* Amyot & Serville, *Ess. Hem.* : 84.3. **Picromerus obtutus** Walker (Fig. 3)1867. *Picromerus obtutus* Walker, *Cat. Het.* : 133

Body thickly punctate; antennal 3-5 joints black, base yellow; pronotal angles black, re-curved, apices emarginate; costal area rugulose; abdomen with black fasciae; femora speckled.

Length : 12 mm.

Genitalia : Clasper (fig. 3) chelate-shaped, a triangulate structure projected medially, apex spatulate.

Distribution : North East India & Burma.

Family CYDNIDAE

Genus **Cydnus** Fabricius1803. *Cydnus* Fabricius, *Syst. Rhyn.* : 1844. **Cydnus indicus** Westwood (Fig. 4)1837. *Cydnus indicus* Westwood, *Hope. Cat.*, 1 : 19

Body piceous; head coarsely punctate, laterally reflexed, pilose; antennal last segments dilated. Pronotum (male) convex, a transverse impression, densely punctate, pilose laterad; scutellum punctate, apex and basal angles impunctate; forewing membrane smoky.

Length : 7 mm.

Genitalia : Clasper (fig. 4) broader apicad, apical margin obliquely dissected, subapical margin setose, lateral margin clavate.

Distribution : Western India, South Africa, S. E. Asia, Australia.

5. **Cydnus maurus** (Dallas) (Fig. 5)1851. *Aethus maurus* Dallas, *List Hom.*, 1 : 118.

Body densely punctured, shiny; pronotum with a transversely punctured furrow; scutellum thickly punctate; corium dark, chestnut brown, veins dotted with punctures; abdomen impunctate, laterally punctate, posterior part denticulate.

Length : 7 mm.

Genitalia : Clasper (fig. 5) laminate, parallel-sided, short, apex torose.

Distribution : India, Ceylon.

Genus *Macroscytus* Fieber

1861. *Macroscytus* Fieber, *Eur. Hem.* 83 : 262.

6. *Macroscytus subaenus* (Dallas) (Fig. 6)

1851. *Æthus subaenus* Dallas, *List Hem.* 1 : 116.

Head without punctations, black, ocelli red; pronotum brassy-black, thickly punctate; scutellum sparsely punctate; forewing membrane darker at base; abdomen ventrally brassy-black, margin wrinkled; sternum black, prosternum sparsely punctate, rostrum and legs black.

Length : 9 mm.

Genitalia : Clasper (fig. 6) robust, laminate, inner margin rugulose upto middle, rest square-shaped with a notch at posterolateral margin, apical margin convex, subapically with long setae.

Distribution : Bombay, Burma.

Family DINIDORIDAE

Genus *Aspongopus* Laporte

7. *Aspongopus assamensis* Distant (Fig. 7)

1902. *Aspongopus assamensis* Distant, *Fauna Brit. India*, 1 : 285.

Body piceous, antennae and connexivium black.

Length : 16 mm.

Genitalia : Clasper (fig. 7) cordate, laterally infolded, bow-shaped, margin finely setose.

Distribution : Assam, Khasi, Naga Hills.

Remarks : Because of structural similarities of the paramere the species should be merged with *Aspongopus nigriventris* Westwood.

8. *Aspongopus nigriventris* Westwood (Fig. 8)

1837. *Aspongopus nigriventris* Westwood, *Hope. Cat.*, 1 : 26.

Pronotum and scutellum with fine transverse series of punctures; antennal 2-3 joints shorter than 4-5 joints; legs brassy-black, hind tibiae ampliate medially.

Length : 20 mm.

Genitalia : Clasper (fig. 8), robust, cordate.

Distribution South India.

Genus *Atelides* Dallas

1852. *Atelides* Dallas, *A.M.N.H.* X(2) : 360.

9. *Atelides centrolineatus* Dallas (Fig. 9)

1852. *Atelides centrolineatus* Dallas, *A.M.N.H.* X(2) : 360.

Body above brassy-brown, a central fascia from anterior margin of head to abdomen dorsally; connexivium spotted; abdomen ventromarginally fasciate.

Length : 18 mm.

Genitalia : Clasper (fig. 9) robust, basal part stalked, rest cordiform.

Distribution : Bangladesh.

Genus *Cyclopelta* Amyot & Serville

1843. *Cyclopelta* Amyot & Serville, *Ess. Herm.* : 172.

10. *Cyclopelta siccifolia* (Westwood) (Fig. 10)

1837. *Aspongopus siccifolia* Westwood, *Hope Cat.* 1 : 26.

Body totally black; pronotum wrinkled, forewing membrane brownish yellow; connexivium uniform color without spots; scutellar base with sanguineous spot; abdomen with red pigmentations; marginal spots and stigmata black.

Length : 15 mm.

Genitalia : Clasper (fig. 10) oval-shaped, distally attenuate, shaft fissate, discal margin setose.

Distribution : N. E. and South India ; Burma.

Economic status : The female adults lay eggs on *Cajanus cajan*, *Sesbania aegyptiaca* and *Erythrina indica*. The adults flock together and through punctures make brown spots on epidermal tissues of plants.

Genus *Megymenum* Laporte

1832. *Megymenum* Laporte, *Ess. Hem.*, : 52.

11. *Megymenum parallelum* Vollenhoven (Fig. 11, 11A)

1868. *Megymenum parallelum* Vollenhoven ; *Fauna Ind. Nearct.*, III : 48.

Body brassy-black ; head with lateral margins tumid ; pronotal angles spinous, deeply concavus anterolaterally, outer margins scalloped ; abdominal margins tuberculate at point of incisures papillose at centre of each segment.

Length : 16 mm.

Genitalia : Clasper (fig. 11, 11A) rod-shaped, salient lateroapically as figured.

Distribution : N. E. India, Andaman Islands.

Family GRAPHOSOMATIDAE

Genus *Adrisa* Amyot & Serville

1843. *Adrisa* Amyot & Serville, *Ess. Hem.*, : 83.

12. *Adrisa magna* (Uhler) (Fig. 12)

1860. *Acatalectus magna* Uhler, *Proc. Acad. Nat. Soc. Phil.*, : 222.

Shiny, punctured head strongly punctate laterad ; pronotum punctured excluding smooth area at anterior region ; scutellum centrally carinate, rugulate, punctate ; corium punctate, forewing membrane smoky.

Length : 11 mm.

Genitalia : Clasper (fig. 12) notched mediad, apex uncinata, broader.

Distribution : N. E. India, Burma.

Genus Podops Laporte

1832. *Podops* Laporte, *Ess. Hem.*, : 72.

13. **Podops lurida** (Burmeister) (Fig. 13)

1834. *Tetyra lurida* Burmeister, *Nov. Act. Ac. Leop.*, XVI : 288.

Body piceous; pronotal angles distinct, punctate, transverse furrow at anterior disc.

Length : 10 mm.

Genitalia : Clasper (fig. 13) broader apicad, feebly bifid, inner margin curved, lateroapically distinctly rugulate.

Distribution : N. E. India, China, Japan.

14. **Podops bispinosa** (Fabricius) (Fig. 14)

1798. *Cimex bispinosa* Fabricius, *Ent. Syst. Suppl.* : 529.

Body piceous ventrally, densely punctate; antennae apically fuscous; pronotum with a stout spine at anterior angle, lateral each angle with a slender spine. Scutellum with a piceous foveate spot at each basal angle, basally trispotted.

Length : 4 mm.

Genitalia : Clasper (fig. 14) short, divergent apicad slightly, postero-laterad subtriangulate, inner margin serrate.

Distribution : Bombay, Deccan Plateau.

Genus Stibaropus Dallas

1851. *Stibaropus* Dallas, *List Hem.*, 1 : 125.

15. **Stibaropus callidus** (Schiodte) (Fig. 15)

1849. *Scaptocoris callidus* Schiodte, *Kroy. Nat. Tidsker*, (2) : 460.

Head, pronotum, and scutellum castaneous; pronotum strongly wrinkled, a shallow transverse furrow near base; scutellum punctate, rugulate; rostrum reaching length of prosternum; corium finely punctate.

Length : 5 mm.

Genitalia : Clasper (fig. 15) unciform, elongate.

Distribution : Eastern India, Burma.

Family PENTATOMIDAE

Genus *Agonoscelis* Spinola

1837. *Agonoscelis* Spinola, *Ess. Hem.* : 327

16. *Agonoscelis nubila* Fabricius (Fig. 16)

1775. *Agonoscelis nubila* Fabricius, 1775, *Syst. Ent.*, : 712.

Body yellowish brown, black punctures along margins, median fascia to head; scutellum anterolaterally with clay-coloured rugosities; connexivium with spots at point of incisures; venation on forewing membrane black, a double series of spots on sternum and abdomen.

Length : 11 mm.

Genitalia : Clasper (fig. 16) robust, foot-shaped, infolded, inner margin with a long narrow basal plate.

Distribution : N.E. and N.W. India; Ceylon.

Economic status : The species is common on wheat and sugarcane.

Genus *Antestia* Stål

1864. *Antestia* Stål, *Hem. Afr. i* : 200

17. *Antestia anchora* (Thunberg) (Fig. 17)

1783. *Cimex anchora* Thunberg, *Nov. Ins. II* : 47

Head before each eye with a linear spot; pronotum with a series of sub-quadrate spots on posterior margin, an oblique streak on anterior margin; scutellum hexanotate, basal angle spotted; forewing membrane black, margin transparent; abdomen ventrolaterally black, extreme lateral bands intercepted.

Length : 11 mm.

Genitalia : Clasper (fig. 17) sharply geniculate medially, marginally infolded with an elongate chitinised structure extending apicad, margin setose.

Distribution : N.E. India, Burma.

18. **Antestia cruciata** (Fabricius) (Fig. 18)

1775. *Cimex cruciata* Fabricius, *Syst. Ent.* : 714

Head with a pair of median streaks, spots near each eye.

Length : 8 mm.

Genitalia : Clasper (fig. 18) robust, arched along inner margin, infolded marginally.

Distribution : Sikkim, Calcutta, Bombay, Nilgiri Hills, Ceylon

Economic status : The species has tremendous economic bearing. It occurs in great numbers usually in November and continues to stay till advent of rainy season. The incidence of the species is involved in the destruction of fruits and vegetables and cereal crops. These are common on coffee, fruits of *Citrus*, *Santalum album* and on *Zyzyphus* sp.

Genus **Eusarcocoris** Puton

1866. *Eusarcocoris* Puton, *Cat.* : 11

19. **Eusarcocoris capitatus** Distant (Fig. 19)

1902. *Eusarcocoris capitatus* Distant, *Fauna Brit. India*, 1 : 169.

Body brownish yellow, finely punctate; head deflected; pronotum with a round spot on anterior area, densely punctate, a median fascia, black, extending from meso-sterna to abdomen; rostrum at apex black; corium coarsely punctate; scutellum at base darker.

Length : 4 mm.

Genitalia : Clasper (fig. 19) abruptly narrowed, apex uncinatè.

Distribution : N.E. India.

Genus **Stenozygum** Fieber

1861. *Stenozygum* Fieber, *Eur. Hem.* : 345

20. **Stenozygum speciosum** (Dallas) (Fig. 20)

1851 *Strachia speciosum* Dallas, *List Hem.* I : 261.

Head trinotate, a central fascia with a spot on each side, two spots on anterior margin, median fascia extending from pronotum to

scutellum; basal angle spotted, subapically with a triangular patch; connexivum black, spotted yellow; sternum with double series of spots.

Length : 8 mm.

Genitalia : Clasper (fig. 20) $\frac{3}{4}$ broader, rest smoothly curved out forming an uncinatè structure, a bunch of stiff hairs at point of curvature.

Distribution : N.W. and Southern India.

Genus *Strachia* Hahn

1831. *Strachia* Hahn, *Wanz.* i, : 180

21. *Strachia crucigera* Hahn (Fig. 21)

1831. *Strachia crucigera* Hahn, *Wanz.* I : 184

Body black; longitudinal fascia from pronotum to scutellum, later one transversely branched; corium near membrane white, forewing membrane smoky; abdomen ventrally black, intercepted by a line.

Length : 9 mm.

Genitalia : Clasper (fig. 21) arched along inner margin, sagittal groove distinct, along margin densely setose, clavate, ventro-mesal margin rugose.

Distribution : Khasi Hills, Burma, Malaya Peninsula, Indonesian Islands.

Genus *Zicrona* Amyot & Serville

1843. *Zicrona*. Amyot & Serville *Ess. Hem.*, : 86

22. *Zicrona caerulea* (Linnaeus) (Fig. 22)

1758. *Cimex caerulea* Linnaeus, *Syst. Nat. ed.* 10 : 445

Body sky blue; antennal segments and forewing membrane black; surface finely punctate; scutellum hump-shaped.

Length : 10 mm.

Genitalia : Clasper (fig. 22) geniculate mediad, basally divergent, abruptly narrowed to a long process, at right angle to long axis of body, inner margin infolded, spatulate.

Distribution : Burma, N.W. & N.E. India, Malaya Archipelago.

Genus **Canthecona** Amyot & Serville

1843. *Canthecona* Amyot & Serville, *Ess. Hem.*, : 81.

23. ***Canthecona furcellata*** (Wolff) (Fig. 23)

1801. *Cimex furcellata* Wolff, *lc. V.*, : 182.

Body clay color, densely punctate; lateral lobes of head brassy-black; rostrum reddish at apex, pronotal angles projected into short black spines; scutellum thickly punctate, apically white; abdominal margin with a series of green spots.

Length : 15 mm.

Genitalia : Clasper (fig. 23) geniculate basad, rest scimitar-shaped with a prominent basal apodeme.

Distribution : Naga Hills.

Economic status : Predaceous. The insect feeds on caterpillar stages of lepidopteran insects. Adults paralyse caterpillar by injecting saliva into caterpillar. 1st nymphal stages are sap-suckers and 2nd stages onward become predatory.

Genus **Cappaea** Ellener

1862. *Cappaea* Ellener, *Nat. Tijdschr. Nederl. Ind. XXIV* : 146.

24. ***Cappaea taprobanensis*** (Dallas) (Fig. 24)

1851. *Pentatoma taprobanensis* Dallas, *List Hem.*, i : 244.

Body black with yellow markings; central fascia extending from tip of head to scutellar apex; pronotum laterally with linear reticulations, ventrolaterally spotted black; forewing membrane smoky, with brown spots.

Length : 10 mm.

Genitalia : Clasper (fig. 24) scimitar-shaped.

Distribution : N. E. India, Indonesian Islands.

Genus **Dalpada** Amyot & Serville

1843. *Dalpada* Amyot & Serville, *Ess. Hem.*, : 105.

25. ***Dalpada affinis*** Dallas (Fig. 25).

1851. *Dalpada affinis* Dallas *List Hem.* : 185.

Paler hue; pronotum tuberculate laterad; abdomen with sparse punctations, disc impunctate, larger.

Length : 18 mm.

Genitalia : Clasper (fig. 25) robust, foot-shaped, apex pointed, lateral margin infolded, densely nodulate, inner apical margin dentate.

Distribution : N. E. India, Burma.

26. **Dalpada oculata** (Fabricius) (Fig. 26)

1775. *Cimex oculata* Fabricius, *Syst. Ent.*, : 703.

Body marked olive green ; head with a fascia, close to eyes some spots ; pronotal angles dark green with apical spot ; connexivium with alternate green and yellow pigmentations ; abdomen black ventrally with a series of spots.

Length : 11 mm.

Genitalia : Clasper (fig. 26) $\frac{3}{4}$ broader, apex clavate.

Distribution : N. E. India, Burma.

Genus **Fernelius** Distant

1900. *Fernelius* Distant, *Trans. Ent. Soc.*, : 173.

27. **Fernelius indicus** Distant (Fig. 27).

1900. *Fernelius indicus* Distant, *Trans. Ent. Soc.*, : 173.

Chestnut brown, covered with yellowish spots ; antennae with black spots ; corium at apical area spotted, scutellar angles spotted ; abdomen reddish-yellow ; connexivium spotted black ; tibiae, tarsi, sterna, stigma black.

Length : 18 mm.

Genitalia : Clasper (fig. 27) robust, $\frac{3}{4}$ distinctly broader, laterally fluted in form of a beak.

Distribution : N. E. India, Burma.

Genus **Gulielmus** Distant

1901. *Gulielmus* Distant, *Entomologist* : 347.

28. **Gulielmus lateralis** Distant (Fig. 28)

1901. *Gulielmus lateralis* Distant, *Entomologist* : 347.

Extremity of head thickly punctate ; pronotum binotate anteriorly, scutellar apex with a black spot ; scutellum basally spotted ; connexivium black ; abdomen with a black fascia laterad, punctate.

Length : 9 mm.

Genitalia : Clasper (fig. 28) robust, inner margin fluted basad, densely rugulate, foot-shaped, apical margin dissected.

Distribution : Western India.

Genus **Hoplistodera** Westwood

1837. *Hoplistodera* Westwood, *Hope Cat. i* : 18.

29. **Hoplistodera virescens** Dallas (Fig. 29).

1851. *Hoplistodera virescens* Dallas, *List Hem.*, : 217.

Head orange yellow, sparsely punctate; antennal joints tawny; pronotum strongly punctate, anterior margin binotate, salient laterad; scutellum tetranotate, punctate apicad; corium punctate.

Length : 8 mm.

Genitalia : Clasper (fig. 29) $\frac{3}{4}$ divergent apically unciform.

Distribution : Sikkim, Naga Hills, Burma.

Genus **Menida** Motschulsky

1861. *Menida* Motschulsky, *Et. Ent.*, X : 23.

30. **Menida formosa** (Westwood) (Fig. 30)

1837. *Pentatoma formosa* Westwood, *Hope Cat.*, Hem. I : 34.

Body chestnut brown, shiny; head trifasciate, a small spot before each eye; pronotum at anterior margin annulate followed by fasciae; scutellum with a catapult-marking, whitish, central line with a series of longitudinal markings; sternal disc castaneous.

Length : 7 mm.

Genitalia : Clasper (fig. 30) robust, apical third triangulate, apex pointed.

Distribution : Bombay, S. E. Asian countries.

31. **Menida histrio** (Fabricius) (Fig. 31)

1787. *Cimex histrio* Fabricius, *Mant. Inst. II* : 296.

Body punctate, black; head tetralineate; pronotum with a pair of annulate markings at anterior margin; scutellum at basal angle

spotted; forium with a black spot at apex; connexivium spotted black; a series of spots on abdomen.

Length : 7 mm.

Genitalia : Clasper (fig. 31) stalked basad, abruptly broader apical half, densely wrinkled.

Distribution : N. E. India, Burma.

Remark : The species is common on wheat and sugarcane.

32. *Menida varipennis* (Westwood) (Fig. 32)

1837. *Pentatoma varipennis* Westwood, *Hope Cat. Hem.* : 43.

Body brassy black; each eye with a spot at posterior margin; pronotum fasciate with linear markings; scutellum basally spotted corium with a discal spot, abdominal spines reaching mid-coxae.

Length : 7 mm.

Genitalia : Clasper (fig. 32) foot-shaped, rugulate, apex truncate.

Distribution : N. E. India, Sikkim, Burma.

Genus *Nezara* Amyot & Serville

1843. *Nezara* Amyot & Serville, *Ess. Hem.* : 143.

33. *Nezara viridula* (Linn.) (Fig. 33)

1758. *Cimex viridula* Linn., *Syst. Nat. ed. 10* : 444.

Body dark green, densely punctate; head binotate; antennae green, apically brown; abdomen ventrolaterally black; pronotum trinotate; corium with green spots.

Length : 14 mm.

Genitalia : Clasper (fig. 33) robust, foot-shaped, strongly geniculate, densely rugulate, apex sharply bent.

Distribution : Bombay, South India.

Remark : The species is called green rice bug and also occurs on wheat millets, and fibre crops.

Genus **Priassus** Walker

1867. *Priassus*, Stål, *Ofv. Vct.—AK. Forh* : 518.

34. **Priassus exemptus** (Walker) (Fig. 34)

1868. *Prionaca exemptus* Walker, *Cat. Het. iii* : 569.

Body with fine pigmentation in form of punctures; head and pronotum with reddish pigmentation; corium coarsely punctate; abdomen with a long spine reaching intermediate coxae.

Length : 18 mm.

Genitalia : Clasper (fig. 34) robust, sagittal length infolded, forked asymmetrically at apex.

Distribution : Naga Hills, Burma.

Family PLATASPIDAE

Genus **Brachyplatys** Boisduval

1835. *Brachyplatys* Boisduval, *Voy. Astr. Ent. ii* : 627.

35. **Brachyplatys punctipes** Montand (Fig. 35).

1894. *Brachyplatys punctipes* Montand, *Ann. Mus. Civ. Gen.* **34** : 122.

Body shiny, olive color tinged with black, finely punctate; head hexanotate; antennae piceous, pronotum with an oblique line submarginally; scutellum with four brown spots; sternum pitchy black; abdomen with a series of fasciae, intercepted by a black stripe; femur with distinct brown spots.

Length : 8 mm.

Genitalia : Clasper (fig. 35) robust, feebly geniculate, cymbiform along long axis, apex salient.

Distribution : N.W India, Burma, China.

36. **Brachyplatys radians** Vollenhoven (Fig. 36)

1863. *Brachyplatys radians* Vollenhoven, *Fauna Ind. Neerl.* **I** : 53

Head with two transverse lines; pronotum binotate, yellowish; scutellum based binotate; head, sternum, abdomen with ray-like yellowish fasciae, acute, shorter.

Length : 7 mm.

Genitalia : Clasper (fig. 36) strongly geniculate, apical half baculiform, apex subtriangulate.

Distribution : Andaman Islands, Malaya Archipelago, Philippines.

37. **Brachyplatys subaeneus** (Westwood) (Fig. 37)

1837. *Plataspis subaeneus* Westwood, *Hope Cat. Hem.* I : 17

Shiny black ; head with two bands ; antennae piceous ; pronotal disc with two spots similarly on scutellar base ; abdomen with brownish ray-like conical short fasciae, a series of submarginal spots.

Length : 7 mm.

Genitalia : Clasper (fig. 37) foot-shaped, proximally at point of curvature with a bunch of setae, rest of shaft placed at right angle, sagittally infolded, apex obliquely dissected.

Distribution : Andaman Islands, Malaya Archipelago, Celebes.

Genus **Coptosoma** Dallas

1851. *Coptosoma* Dallas, *List Hem.* i : 61

38. **Coptosoma contectum** Montand (Fig. 38)

1893. *Coptosoma contectum* Montand, *Ann. Soc. Ent. Belg.* 37 : 567.

Head with a spot at base of central lobe ; II, III, IV segments with a double series of linear spots, rest with a single series of spots, sternum piceous ; abdomen black, shiny.

Length : 4 mm.

Genitalia : Clasper (fig. 38) subapically scimitar-shaped laterally salient slightly.

Distribution : N.E. India.

39. **Coptosoma cribarium** (Fabricius) (Fig. 39)

1798. *Cinix caribarium* Fabricius, *Ent. Syst. Suppl.* : 531.

Body greenish yellow, ventrally black, thickly punctate ; behind each eye an oblique spot ; pronotum with a transverse series of punctures, anterior angle with angulated striae ; scutellum punctate ; last abdominal segment with a ray-like fascia intercepted by a dark line.

Length : 5 mm.

Genitalia : Clasper (fig. 39) slender, attenuate distad, apical $\frac{1}{3}$ curved in form of a beak, point of curvature with minute setae.

Distribution : N.E. India, South India, Burma.

Remark : The species is a common pest on Leguminosae and Compositae.

Genus **Tarichea** Stål

1865. *Tarichea* Stål, *Ann. Soc. Ent. Fr.* V (4) : 163

40. **Tarichea nitens** (Dallas) (Fig. 40)

1851. *Plataspis nitens* Dallas, *List Hem.* I : 74

Body black, tinged with olive green, median fascia extending to abdomen; sternum piceous, head ventrally with a spot; antennal apex black.

Length : 9 mm.

Genitalia : Clasper (fig. 40) scimitar-shaped, sagittal groove distinct.

Distribution : N.E. India.

Family **PBYLIOCEPHALIDAE**

Genus **Gonopsis** Amyot & Serville

1843. *Gonopsis* Amyot & Serville, *Ess. Hem.* : 180

41. **Gonopsis coccinea** (Walker) (Fig. 41)

1868. *Macrina coccinea* Walker, *Cat. Het.* III : 497

Body sanguiniscens; antennae apically black; head with anterior margin of pronotum punctate, black, posterior margin rugulose, laterally pigmented upward, a transverse ridge between two projections, laterally serrate; sternum densely punctate; abdomen with fine longitudinal and marginal series of black punctures; stigmata black.

Length : 16 mm.

Genitalia : Clasper (fig. 41) geniculate mediad, apex blunt, strongly infolded sagittally.

Distribution : N.E. India, Burma, Malaya.

Genus **Tetroda** Amyot & Serville1843. *Tetroda* Amyot & Serville, *Ess. Hem.* : 17742. ***Tetroda divaricata*** Dallas, (Fig. 42)1851. *Tetroda divaricata* Dallas, *List Hemp. I* : 357

Thickly punctate; head, antennae, pronotum, corium laterobasally piceous; abdomen, legs punctate.

Length : 13 mm.

Genitalia : Clasper's (fig. 42) apical part foot-shaped, posterior margin rugulose.

Distribution Nepal.

Genus **Fitha** Walker1867. *Fitha* Walker, *Cat. Het. i* : 45.43. ***Fitha ardens*** Walker (Fig. 43)1867. *Fitha ardens* Walker, *Cat. Het. I* : 45.

Body elliptical, coarsely punctate; antennal first joint reddish, rest black; pronotal disc and lateral margins hexanotate; scutellum uniformly colored, abdomen on each side with purple stripes, an yellow patch at base and apex; legs red.

Length : 8 mm.

Genitalia : Paramere (fig. 43) at basal half broader, sagittal groove distinct, geniculate medially, shaft densely wrinkled at posterior half, apex gradually attenuated.

Distribution : All over India.

Genus **Hotea** Amyot & Serville1843. *Hotea* Amyot & Serville, *Ess. Hem.* : 41.44. ***Hotea curculionoidea*** (Herrich-Schaffer) (Fig. 44)1843. *Pachycoris curulionoidea* Herrich-Schaffer, *Wanz. Ins. III* : 106, 331.

Body coarsely punctate; head and lateral pronotal angles piceous, pronotum trifasciate; scutellum with central longitudinal line extending to apical spots.

Length : 9 mm.

Genitalia : Paramere (fig. 44) robust, with a flat projection mediad, subapically scimitar-shaped, apex feebly salient, subgeniculate medially.

Distribution : N. E. India, Burma.

Genus **Lamprocoris** Stål

1864. *Lamprocoris* Stål, *Hem. Afr.* i : 34.

45. **Lamprocoris spiniger** (Dallas) (Fig. 45)

1849. *Callida spiniger* Dallas, *Trans. Ent. Soc.* V : 186.

Body dorsoventrally metallic green; inner margin of each eye and anterior angle of pronotum with a spot, with a fascia upto anterior margin, on each side 3 oblique linear spots; scutellum basally pentanotate, posterior one crescentic, 3-4 spots united to a patch.

Length : 20 mm.

Genitalia : Paramere (fig. 45) strongly hamate, shaft $\frac{3}{4}$ strongly geniculate.

Distribution : Sikkim, Bhutan, Khasi, Naga Hills, Burma.

Family SCUTELLARIDAE

Genus **Poecilocoris** Dallas

1848. *Poecilocoris* Dallas, *Trans. Ent. Soc.* V : 100.

46. **Poecilocoris hardwickii** (Westwood) (Fig. 46)

1837. *Poecilocoris hardwickii* (Westwood) (*Tectocoris*) in *Hope Cat.* i : 13.

1839. *Pachycoris nepalensis* Herrich-Schäffer, *Wanz. Ins.* IV : 1.

Dark reddish yellow; pronotal base binotate, black; scutellum with 11 spots, black; antennae, ventral part violet-black.

Length : 20 mm.

Genitalia : Paramere (fig. 46) hamate, $\frac{3}{4}$ part flattened.

Distribution : N. E. India, Burma.

47. **Poecilocoris latus** Dallas (Fig. 47)

1848. *Poecilocoris latus* Dallas, *Trans. Ent. Soc.* V : 101.

Body thickly punctate, reddish yellow; anterior angle of pronotum with a spot, base with two spots; scutellar base with a patch, basal

angle spotted, beyond middle tetraspotted, last abdominal segment with a spot; rostrum, legs violet-black; coxae, antennae I & II segments reddish yellow.

Length : 21 mm.

Genitalia : Clasper (Fig. 47) with a bunch of setae just below the ventromedial line robust, unciform, subapically tapered.

Distribution : N.E. India, Burma.

Remark : It is a common tea seed bug. The species also attacks flowers.

48. *Poecilocoris purpurascens* (Westwood) (Fig. 48)

1837. *Tectocoris purpurascens* Westwood, *Hope Cat.* I : 14

Body violet color, some specimens with tinge of black pigmentations; pronotum tetraspotted, apical margin bright red; body; ventrally shiny, brassy green; abdominal segments 2-5 with red streaks; legs antennae, rostrum black.

Length : 18 mm.

Genitalia : Clasper (fig. 48) with shaft drawn out to a whip-like process, strongly curved upward, apex pointed.

Distribution : N.E. India, Nagaland.

Genus *Scutellera* Lamarck

1801. *Scutellera* Lamarck, *Syst.* : 293

49. *Scutellera fasciata* (Panzer) (Fig. 49)

1798. *Cimex fasciata* Panzer, *Voet. Col.* IV : 108.

Body metallic green; inner margin of each eye with a short fascia; pronotum trifasciate, central one continued to scutellum, 7 spots on each side of fascia along central axis of scutellum and pronotum; body ventrad, legs, rostrum reddish yellow, abdomen laterad fasciate; femora tibiae, tarsal apex indigo-blue.

Length : 20 mm.

Genitalia : Clasper (fig. 49) robust, apex clavate, inner margin curved.

Distribution : N.E. India, Burma, Malaya Archipelago.

50. **Scutellera nobilis** (Fabricius) (Fig. 50)

1775. *Cinex nobilis* Fabricius, *Syst. Ent.* : 697

Body metallic green, without transverse fascia; scutellum with a median fascia, hexanotate on disc, spots placed in pairs.

Length : 19 mm.

Genitalia : Clasper (fig. 50) cylindrate more than half, bifid apex, cheliform apicad, robust.

Distribution : Sind, Karachi, Dehra Dun, Assam, Manipur, Trivandrum, Ceylon, Bombay, Calcutta.

Remark : The species is common on Sandal Wood plantation, *Santalum album*, *Phyllanthus emblica*, and also on agricultural crops.

Genus **Solenostethium** Spinola

1837. *Solenostethium* Spinola, *Ess. Hem.* : 360

51. **Solenostethium rubropunctatum** (Guerin) (Fig. 51)

1830. *Scutellera rubropunctatum* Guerin, *Voy. Cog. Zool.*, 2(II) : 157.

Body chestnut brown; antennae black, II and I joints red, pronotum heptanotate, reddish color; scutellum with ten reddish spots.

Length : 16 mm.

Genitalia : Clasper (fig. 51) abruptly narrowed mediad, feebly serrate at middle, strongly rostriform.

Distribution : N. E. India, South East Asian countries.

Family TESSAROTOMATIDAE

Genus **Empysurus** Martin

1904. *Empysurus* Martin, *Bull. Mus. Paris.*, : 315.

52. **Empysurus johni** Oshanin (Fig. 52)

1907. *Empysurus johni* Oshanin, *Ann. Mus. Zool. Acad. Imp. Sci. Soc. St. Petersh.* xii, : 416.

Antennae yellowish brown; scutellum at opaque part of base of membrane narrow, olive green; forewing membrane vitreous, uncolored, connexivum olive green, laterally bordered by two fine black lines;

ventrally yellowish-green, meta- and mesosterna, sides of posterior and intermediate coxae brownish, stigmata dark brown; femora yellowish-green, tibiae greenish.

Length : 26 mm.

Genitalia : Clasper (fig. 52) robust, fissate into two arms, longer one twice shorter one, margin infolded, apex rounded, shorter arm obliquely truncate, margin with stiff setae.

Distribution : Ceylon.

Genus *Eusthenes* Laporte

1832. *Eusthenes* Laporte, *Ess. Hem.* : 64.

53. *Eusthenes hercules* Stål (Fig. 53)

1870. *Eusthenes hercules* Stål, *Ent. Hem. I.* : 231.

Body piceous; corium chestnut brown; connexivium black; reddish brown spot at base of each segment; scutellar apex chestnut brown; legs black; tarsi chestnut brown.

Length : 40 mm.

Genitalia : Clasper (fig. 53) robust, strongly divergent, $\frac{3}{4}$ densely setose on disc, lateroposteriorly with a digitiform projection.

Distribution : N. E. India.

54. *Eusthenes robustum* Le Peletier & Serville (Fig. 54)

1825. *Tessaratomya robustum* LePeletier & Serville, *Enc. Meth. X* : 591.

Body dark brown, thickly punctate; pronotum laterally wrinkled; forewing membrane brassy yellow; tarsi chestnut brown; legs, antennae black.

Length : 36 mm.

Genitalia : Clasper (fig. 54) laterally sharply salient, arched, posterior margin densely setose.

Distribution : N. E. India, Indonesian Islands.

55. **Eusthenes saevus** Stål (Fig. 55)1863. *Eusthenes saevus* Stål, *Trans. Ent. Soc.*, I(3) : 597.

Body blackish with rusty brown reflections; corium obscured by dark color, antennal apical joints, scutellum chestnut brown as tarsal segments; hind femora with double series of obsolete spines.

Length : 25 mm.

Genitalia : Clasper (fig. 55) robust, densely setose, apex cheliform, shape as figured.

Distribution : N. E. India, North China.

56. **Eusthenes scutellaris** (Herrich-Schaffer) (Fig. 56)1839. *Tessarotoma scutellaris* Herrich-Schaffer, *Wanz. Inst.* IV : 81.

Body brown; pronotum and scutellum striate corium punctate membrane brassy brown; posterior femur with a long spine at base; apical half with a double series of spines on ventral abdominal segments.

Length : 25 mm.

Genitalia : Clasper (fig. 56) at apical margin truncate, chelate-shaped, chitinised mesal margin deeply sculiform.

Distribution : Nepal, Khasi Hills, Shillong.

Genus **Pycanum** Amyot & Serville1843. *Pycanum* Amyot & Serville, *Ess. Hem.* : 171.57. **Pycanum ponderosum** Stål (Fig. 57)1854. *Pycanum ponderosum* Stål, *Oft. Vet.-Ak. Forh.* : 234.

Dull obscure clay-color; antennae, extreme lateral margin of head and pronotum, legs piceous; scutellar apex, connexivium pale clay-color, with large blackish spots; forewing membrane very pale brassy brown; pronotal shapes resemble *Mattiphus oblongus*, anterior angle quadrate; *P. ponderosum* is separated from *M. oblongus* as no central plate (elevated) present on metasternum of *ponderosum*.

Length : 32 mm.

Genitalia : Clasper (g. 57) subrectangulate, robust, with circlet of long stiff setae, densely arranged along margins.

Distribution : Assam, Southern India, Burma, Tenassarim.

Genus **Tessaratoma** Le Peletier and Serville

1824. *Tessaratoma* Le Peletier and Serville, *Encycl. Meth.* **X**, : 590.

58. **Tessaratoma nigripes** Dallas (Fig. 58)

1851. *Tessaratoma nigripes* Dallas, *List Hemp.* **I** : 341.

Body brownish yellow, ventrally chestnut brown; head margin bordered black; scutellar apex black; forewing membrane bronzy; sternum with dark markings; abdomen with distinct central ridge; transverse striae close to stigmal spots; legs; rostrum, antennae dark chestnut brown.

Length : 30 mm.

Genitalia : Clasper (fig. 58) $\frac{3}{4}$ shaft broader, divergent abruptly drawn out to a robust process arched inwardly, elongate.

Distribution : Sikkim, Malabar, S.E. Asian countries.

Family UROSTYLIDAE

Genus **Urostylus** Westwood

1837. *Urostylus* Westwood, *Hope Cat.* **i** : 45.

59. **Urostylus gracilis** Dallas (Fig. 59)

1851. *Urostylus gracilis* Dallas, *List Hemp.* **I** : 315.

Head without punctations; antennal II segment, pronotum, scutellum, corium green; body ventrad, legs brownish yellow, rostral apex black.

Length : 10 mm.

Genitalia : Clasper (fig. 59) appearing scimitar-shaped, basally tumescent, pointed apex, discal part with short setae.

Distribution : Sikkim, N.E. India.

60. **Urostylis punctigera** Westwood (Fig. 60)

1837. *Urostylis punctigera* Westwood, *Hope Cat.* **I** : 45.

Body punctate; pronotum binotate, sometimes absent; rostral apex black, corium impunctate with black discal spots.

Length : 11 mm.

Genitalia : Clasper (fig. 60) elongate, cylindrate, sagittally infolded, apex hamate.

Distribution : Sikkim, Khasi Hills.

Remarks : Common pests on Magnoliaceae in Bengal, Assam. Highest incidence has been recorded from the foot hills of Darjeeling and Kurseong. The nymphs suck sap from the terminal foliage and uppermost branches of the plants, which ultimately lead to withering of trees. The adults penetrate stylets into the shoots, main stems of young plants and disintegrate the tissues and developing cells. The affected trees are further attacked by fungus namely *Fusarium* sp. and *Diplodea* sp.

Genus *Urochela* Dallas

1850. *Urochela* Dallas, *Trans. Ent. Soc.* I : 2.

61. *Urochela quadripunctata* Dallas (Fig. 61)

1850. *Urochela quadripunctata* Dallas, *Trans. Ent. Soc.* I : 3.

Brownish yellow; antennal segments black except 1st joint; pronotum with a central line along with lateral lines extending to scutellum; corium each side with 2 spots; connexivium black; abdomen with a spot on each segment, another one on lateral margin black; rostral apex black; femora with dusty patches.

Length : 9 mm.

Genitalia : Clasper (fig. 61) slender, subapically serrate, sagittally infolded, convergent to a blunt apex.

Distribution : N.E. India, Burma.

SUMMARY

The paper sets out to provide a comprehensive account on the genitalic armatures and colour notes of sixty one species belonging to forty four genera of the Superfamily Pentatomoidea. The economic

importance of the species is mentioned wherever possible. Distribution of all the species is incorporated. All the species are illustrated. References to the original literature are also given in the paper.

REFERENCES

- AHMAD, I. and KAMALUDDIN, S. 1982. A Revision of the genus *Poecilocoris* Dallas (Pentatomoidea : Scutelleridae) from Indopakistan subcontinent with descriptions of three new species. *Orient. Insects*, 16(3) : 259-295.
- DISTANT, W. L. 1902. Rhynchota—Heteroptera. *The Fauna of British India including Ceylon and Burma*, 1 : 1-330. London (Taylor and Francis)
- DISTANT, W. L. 1908. Rhynchota—Heteroptera, *Ibid.*, 4 : 420-466.
- DISTANT, W. L. 1918. Rhynchota—Homoptera : Appendix, Heteroptera : Addenda, *Ibid.*, 7 : 110-151.
- LESTON, D. 1952. Notes on the Ethiopian Pentatomoidea (Heteroptera) VIII. Scutelleridae Leach of Angola, with remarks upon the male genitalia and classification of the subfamily. *Publ. Cult. Cemp. diam Angola*, 16 : 9-26.
- LESTON, D. 1954. Notes on the Ethiopian Pentatomoidea (Heteroptera) xx. *Steganicerus* Mayr (Scutelleridae) and the structure of the Aedeagus. *Proc. Roy. ent. Soc. Lond.* (B), 23(9-10) : 164-166.
- MCDONALD, F. J. D. 1966. The genitalia of North American Pentatomoidea (Hemiptera : Heteroptera). *Quaest. Ent.*, 2 : 7-150.
- RUCKES, H. 1963. *Insects of Micronesia* (Heteroptera : Pentatomoidea) 7(7) : 307-356.
- SCHOUTEDEN, H. 1909. Catalogues raisonnés de la faune entomologique du Congo Belge, Hemipteres, fam. Pentatomidae. *Ann. Mus. Congo Belge, Ser.* 1(1) : 1-88.

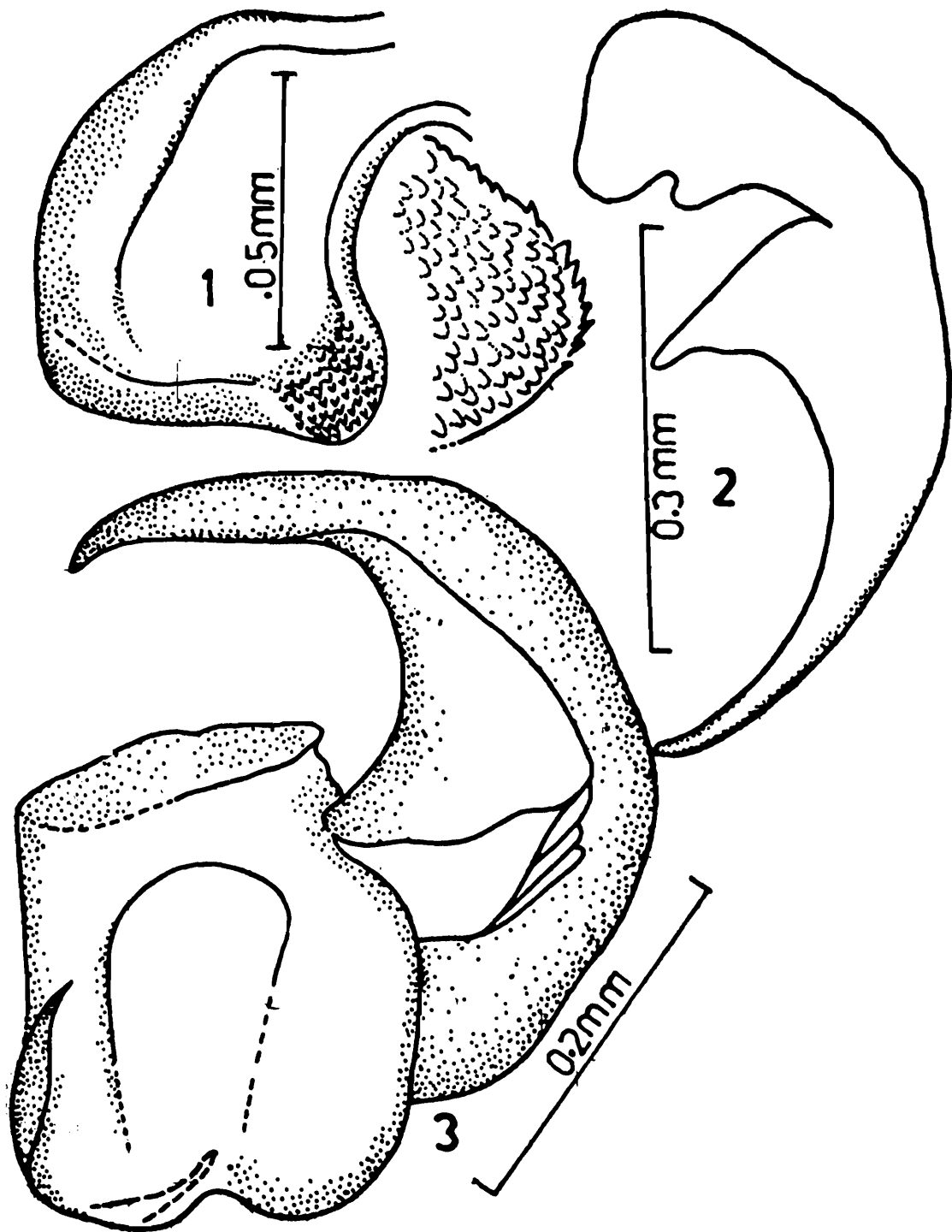


Fig. 1. *Asopus malabaricus* Fabr.
 Fig. 2. *Audinetia spinidens* (Fabr.)
 Fig. 3. *Picromerus obtusus* Walker

Clasper
 "
 "

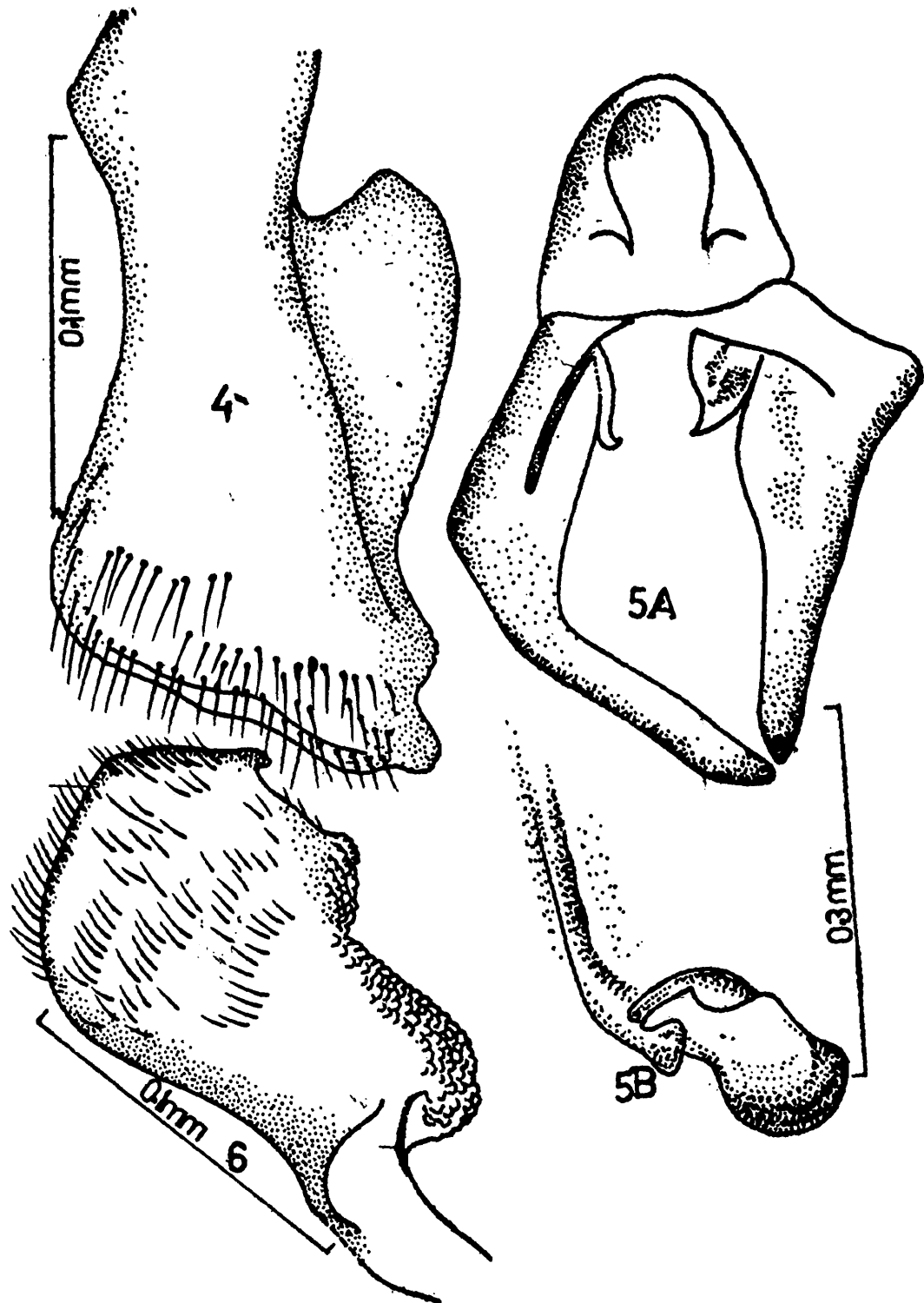


Fig. 4. *Cydnus indicus* Westw.
 Fig. 5A. *C. maurus* (Dall.)
 Fig. 5B. *C. maurus* (Dall.)
 Fig. 6. *Macroscyus subaenus* (Dall.)

Clasper
 Part of genitalia
 Clasper
 "

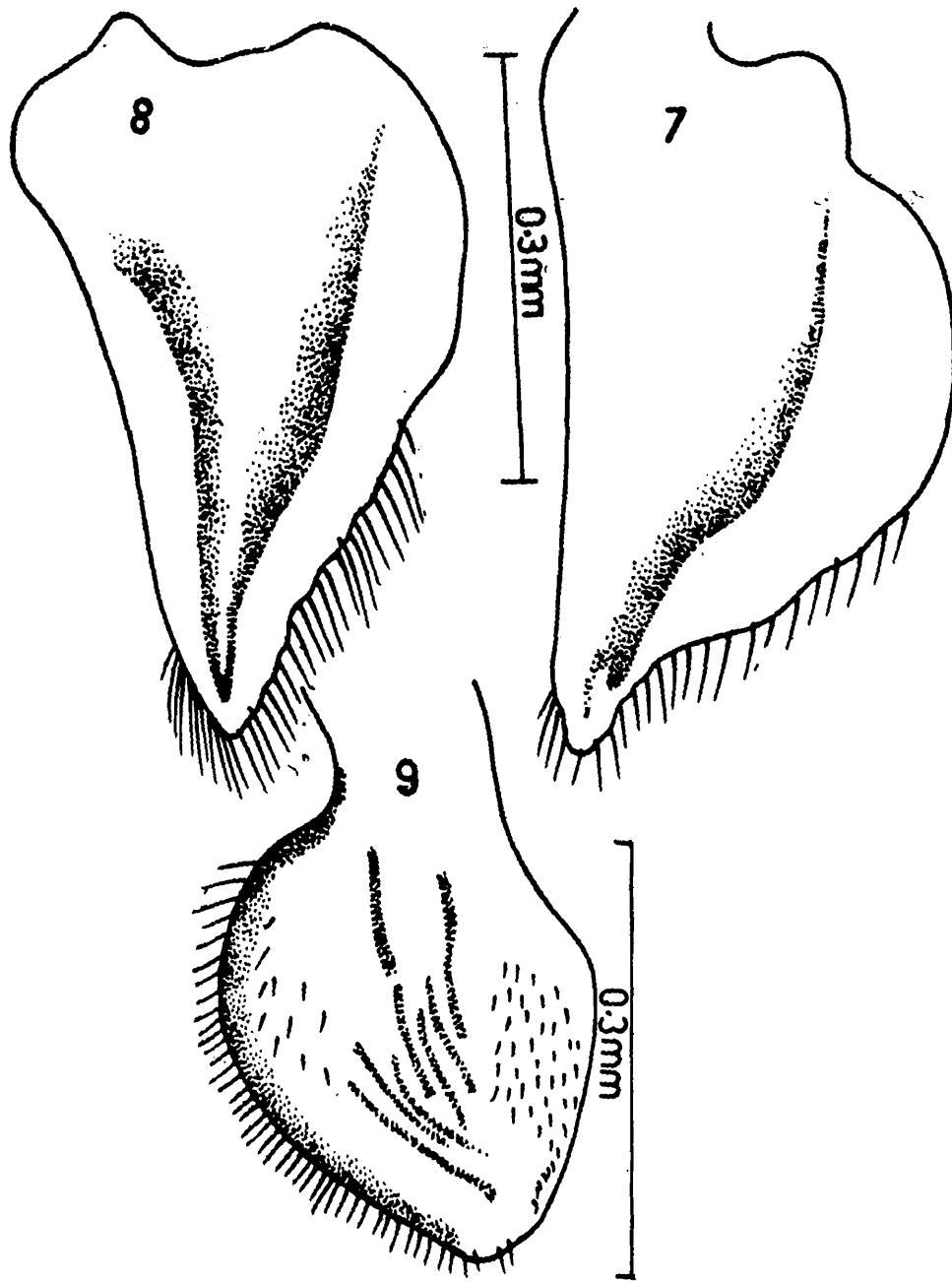


Fig. 7. *Aspongopus assamensis* Dist.
 Fig. 8. *A. nigriventris* Westw.
 Fig. 9. *Atelides centrolineatus* Dall.

Clasper

”

”

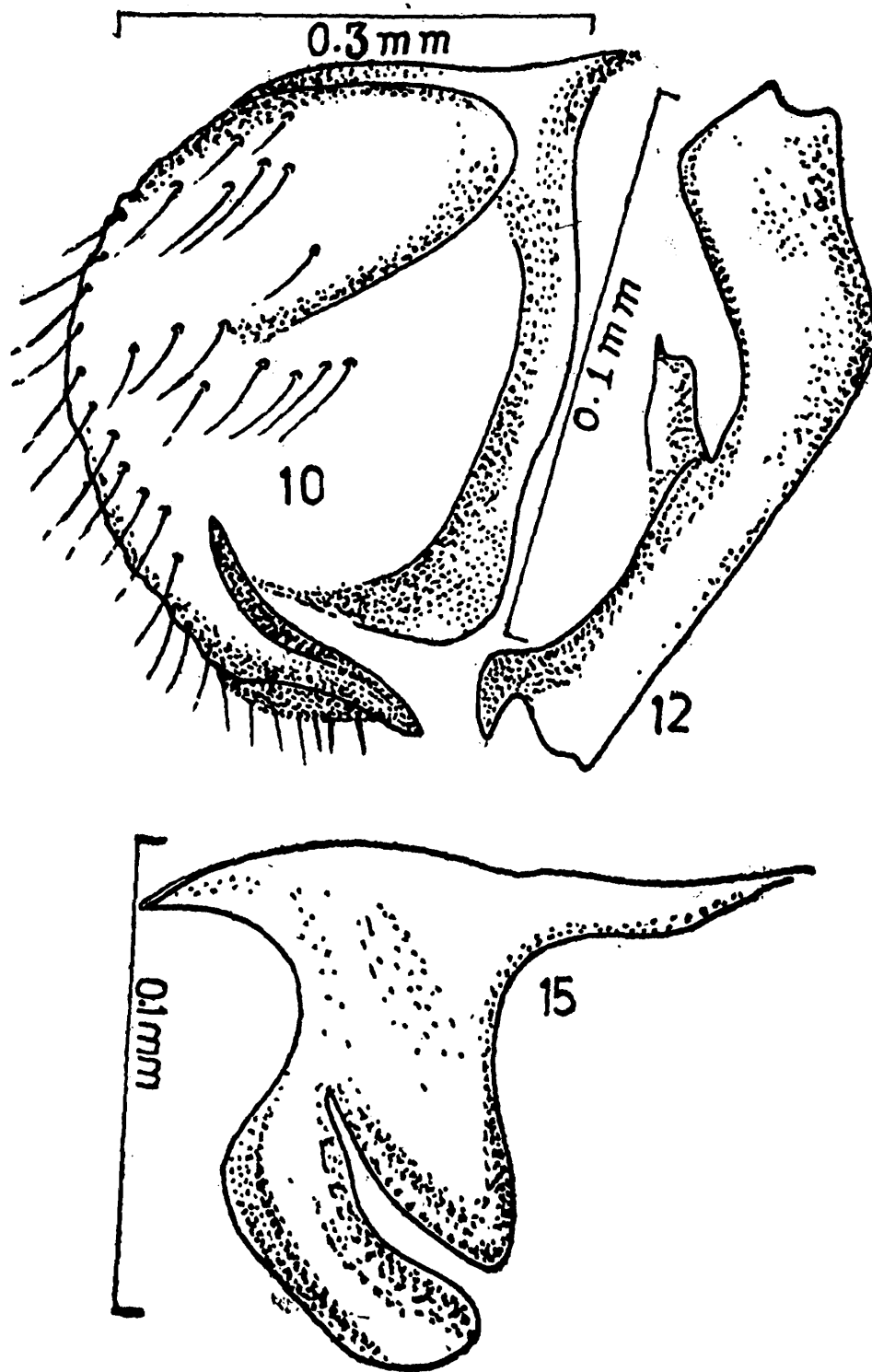


Fig. 10. *Cyclopetta siccifolia* Westw.

Fig. 12. *Adrisa magna* (Uhler)

Fig. 15. *Stibaropus callidus* (Sch.)

Clasper

"

"

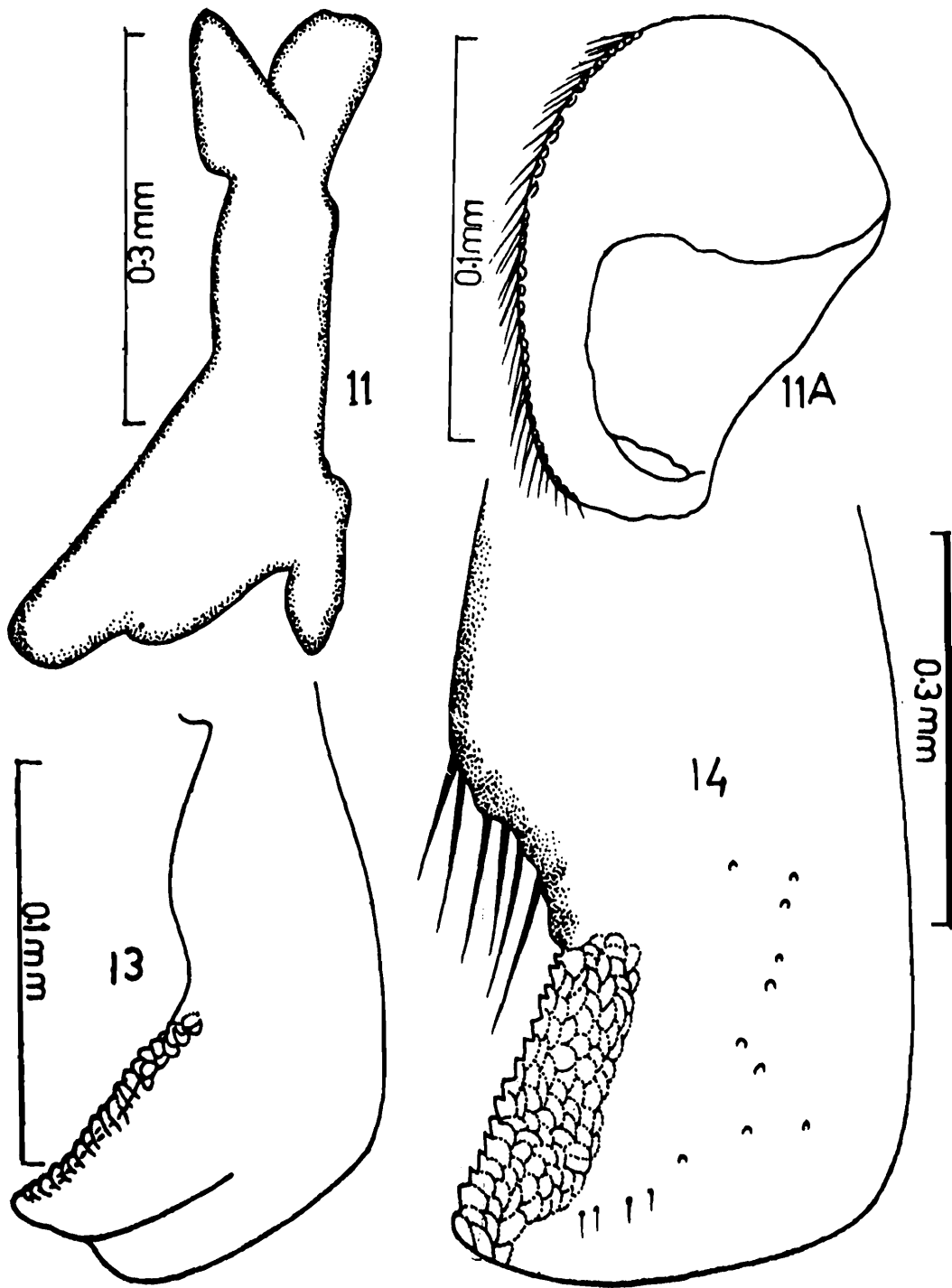


Fig. 11. *Megymenum parallelum* Voll.

Fig. 11A. *M. parallelum*

Fig. 13. *Podops lurida* (Burma.)

Fig. 14. *P. bispinosa* (Fabr.)

Clasper
part of genitalia

Clasper

"

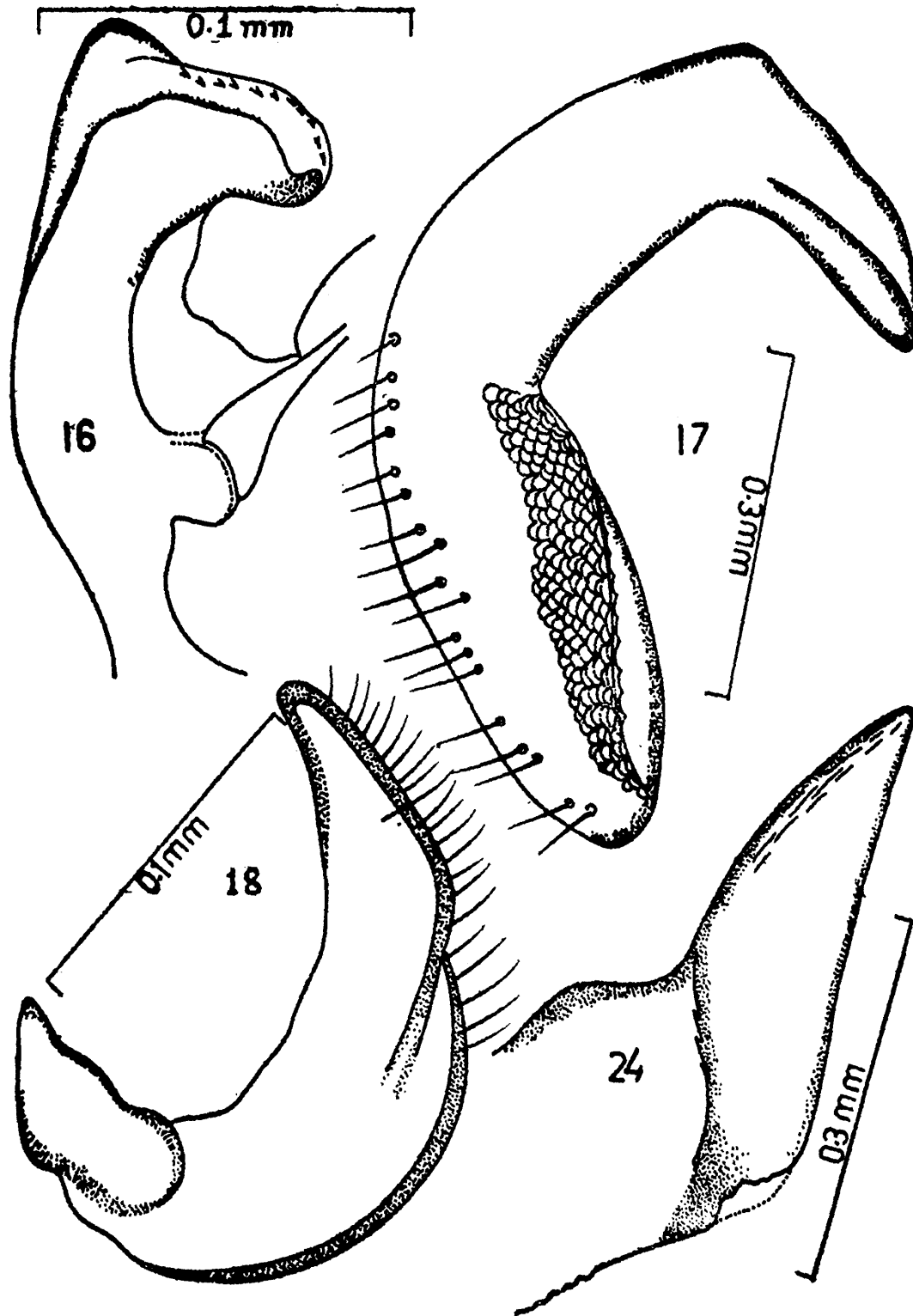


Fig. 16. *Agonoscelis nubila* Fabr.

Fig. 17. *Antestia anchora* (Thurb.)

Fig. 18. *A. cruciata* (Fabr.)

Fig. 24. *Cappaea taprobanensis* (Dall.)

clasper

"

"

"

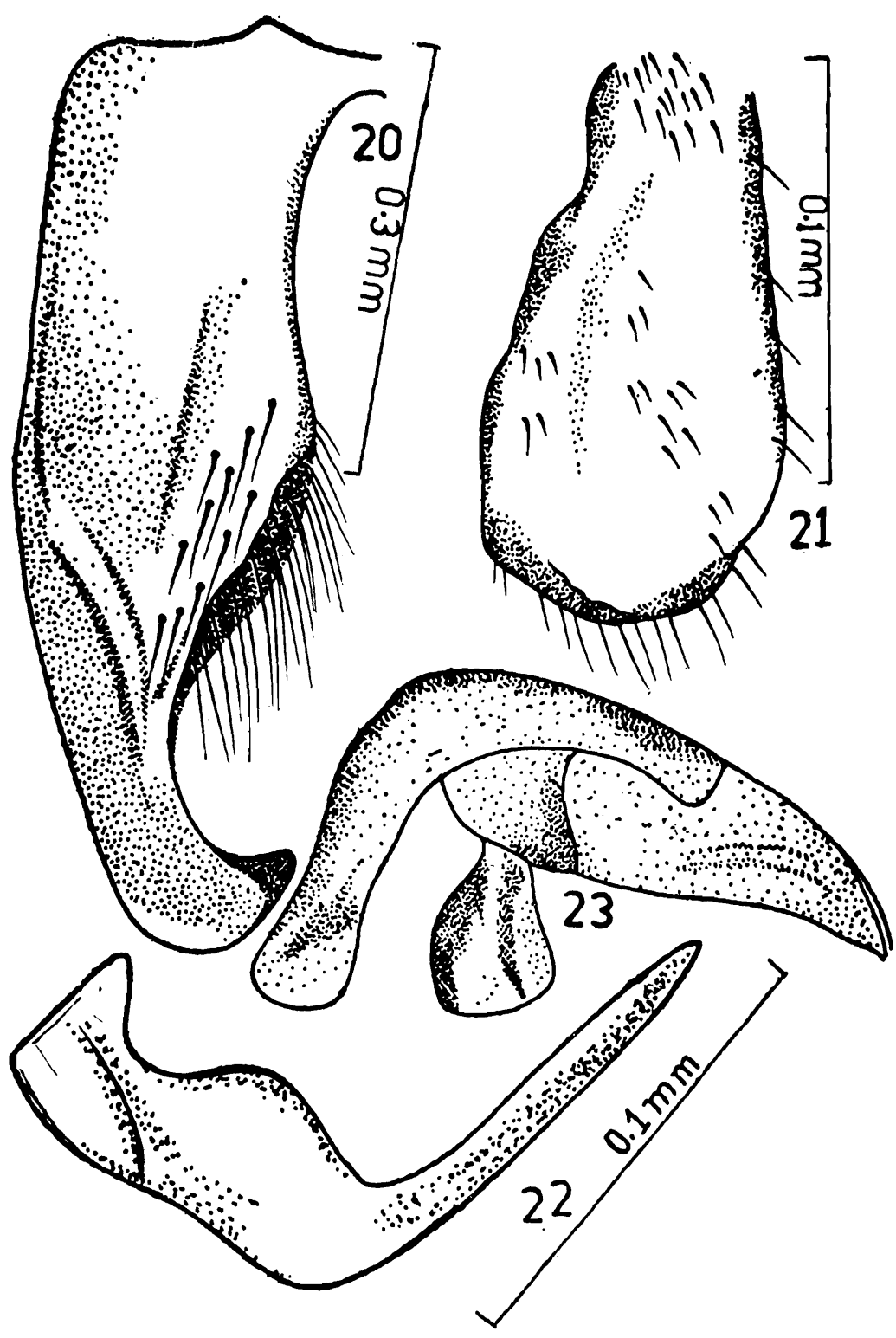


Fig. 20.	<i>Stenozygum speciosum</i> (Dall.)	Clasper
Fig. 21.	<i>Strachia crucigera</i> Hahn.	"
Fig. 22.	<i>Zycrona caerulea</i> (Linn.)	"
Fig. 23.	<i>Canthecona furcellata</i> Wolf	"

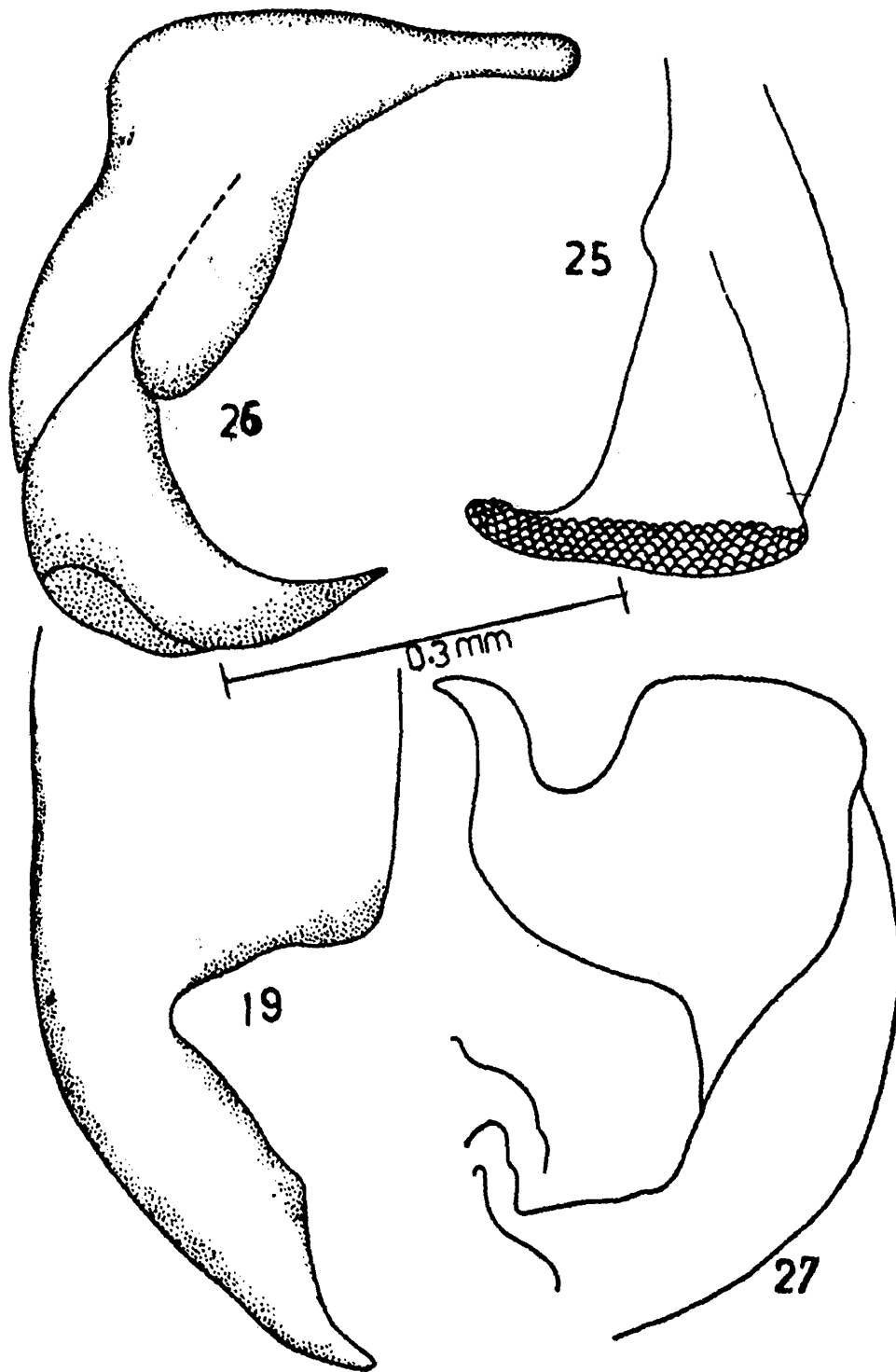


Fig. 19. *Eusarcocoris capitatus* Dist.

Fig. 25. *Dalpada affinis* Dall.

Fig. 26. *D. oculata* (Fabr.)

Fig. 27. *Fernelius indicus* Dist.

Clasper

”

”

”

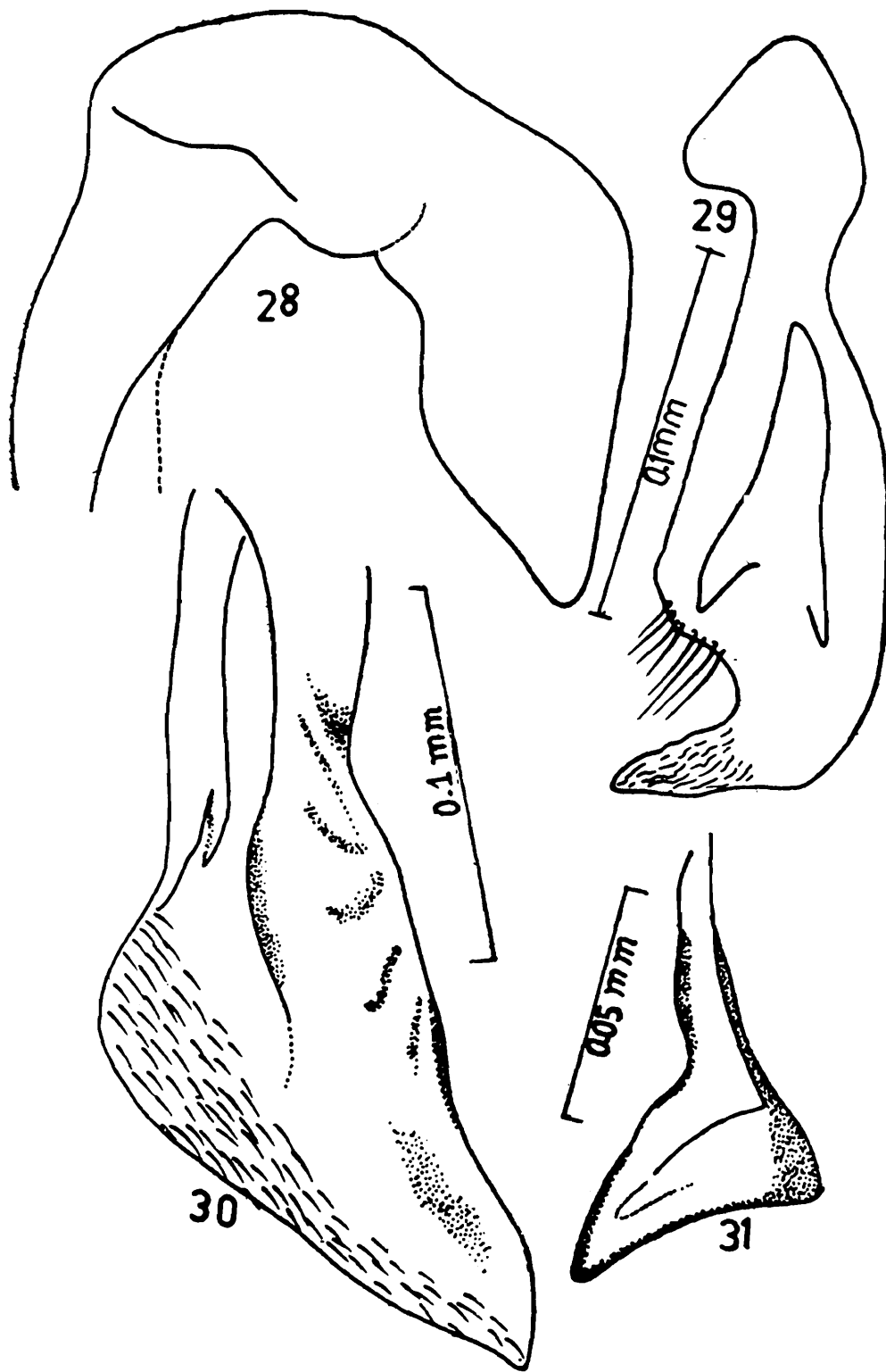


Fig. 28.	<i>Gulielmus lateralis</i> Dist.	Clasper
Fig. 29.	<i>Hoplistodera virescens</i> Dall	"
Fig. 30.	<i>Menida formosa</i> (Westw.)	"
Fig. 31.	<i>M. histrio</i> (Fabr.)	"

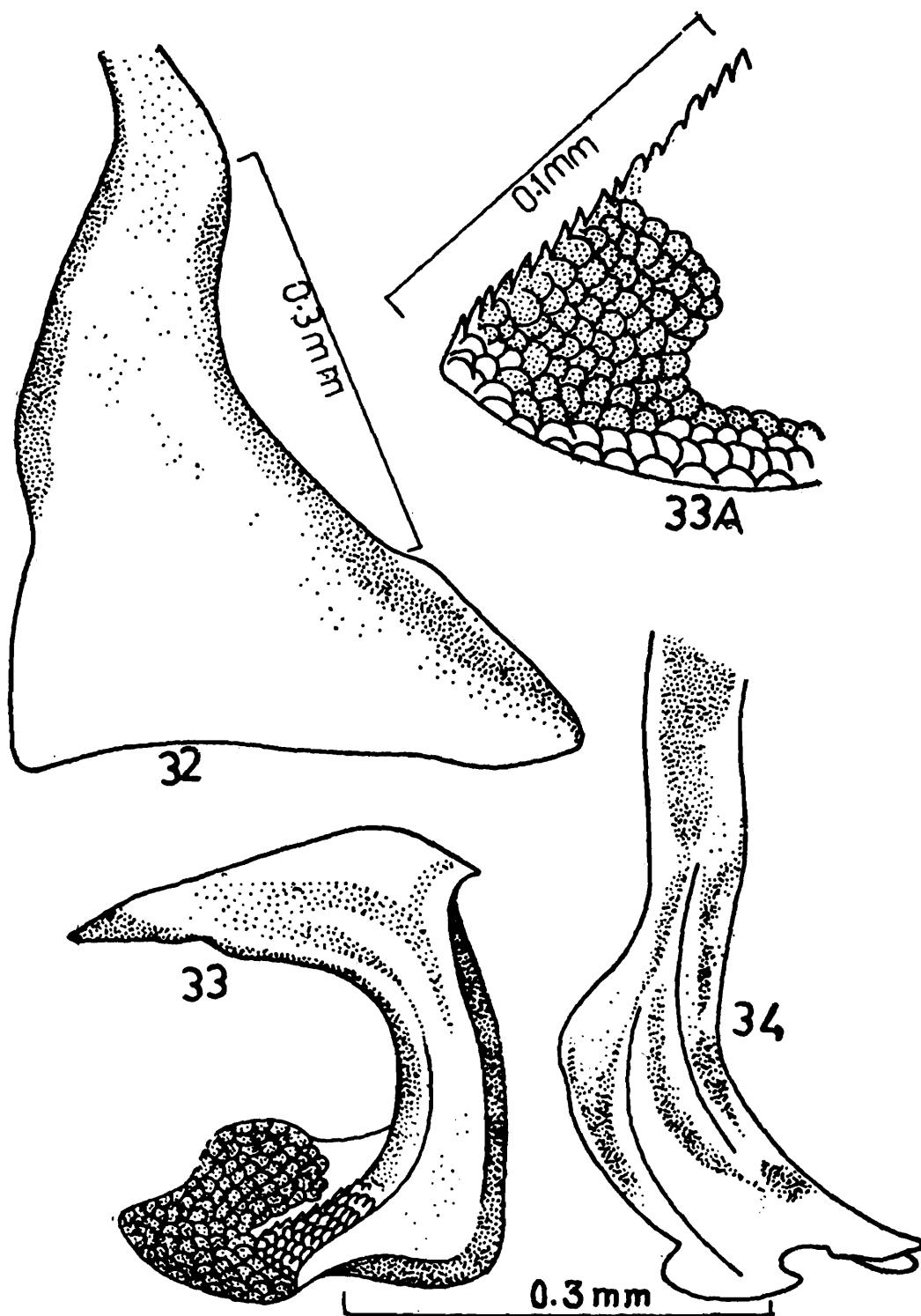


Fig. 32.	<i>M. varipennis</i> (Westw.)	Clasper
Fig. 33.	<i>Nezara viridula</i> (Linn.)	"
Fig. 34.	<i>Priassus exemptus</i> (Walk.)	"

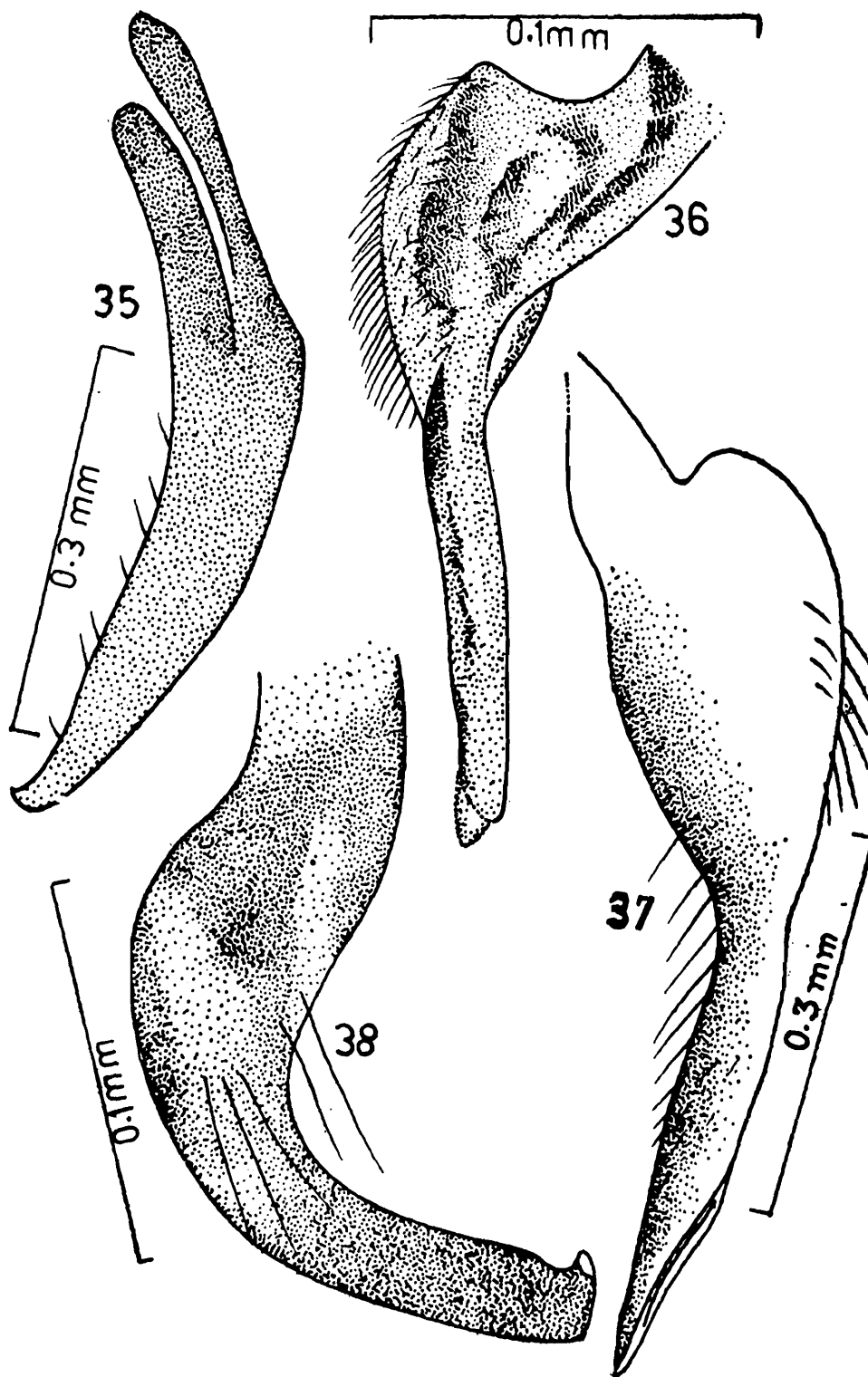
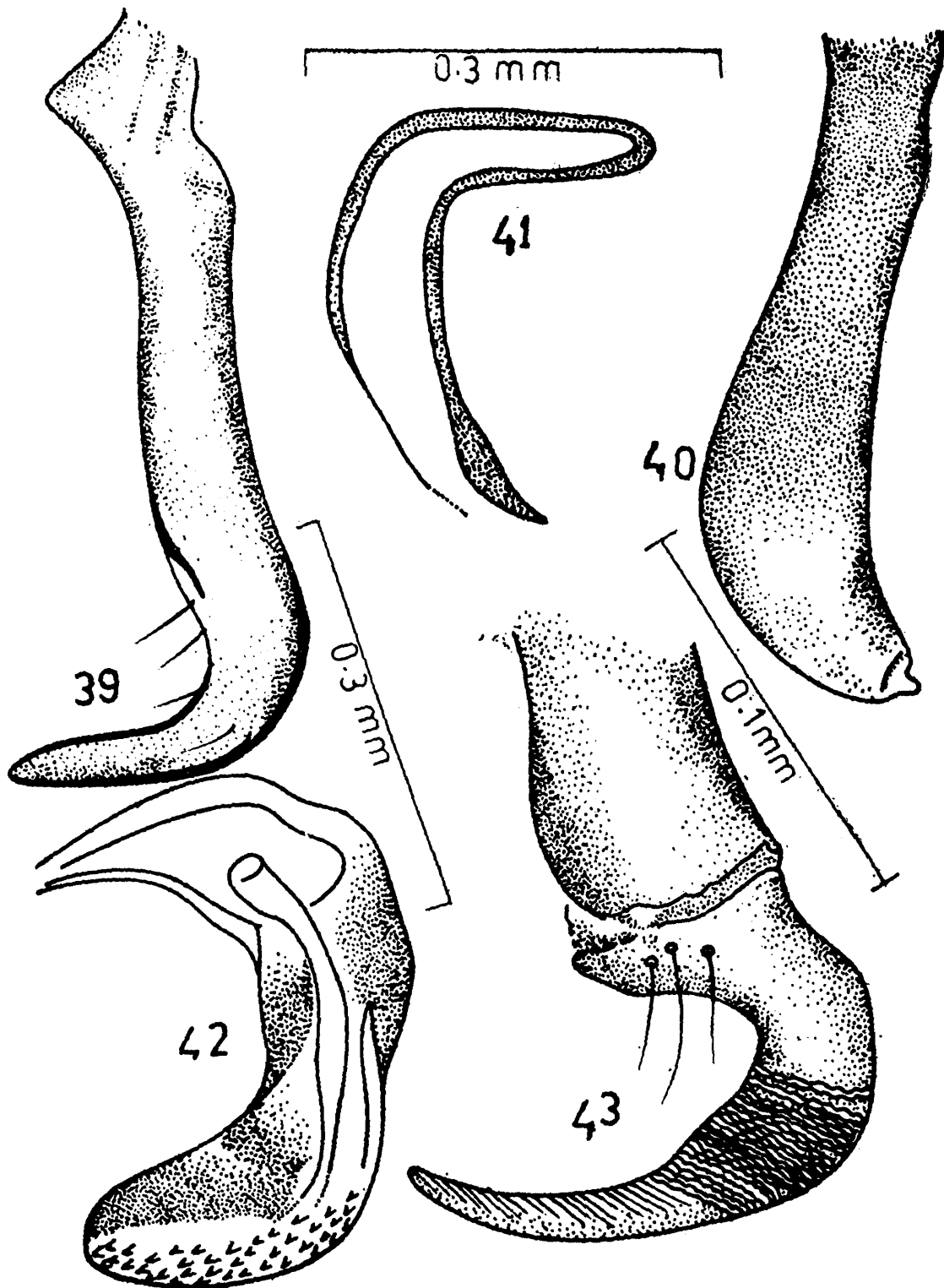


Fig. 35. <i>Brachyplatys punctipes</i> Montand.	Clasper
Fig. 36. <i>B. radians</i> Voll.	"
Fig. 37. <i>B. subaeneus</i> (Westw.)	"
Fig. 38. <i>Coptosoma contectum</i> Montd.	"



- Fig. 39. *C. cribrarium* (Fabr.)
 Fig. 40. *Tarichea nitens* (Dall.)
 Fig. 41. *Gonopsis coccinea* (Walk)
 Fig. 42. *Tetroda divaricata* Dall.
 Fig. 43. *Fitha ardens* Walk.

Clasper

"

"

"

"

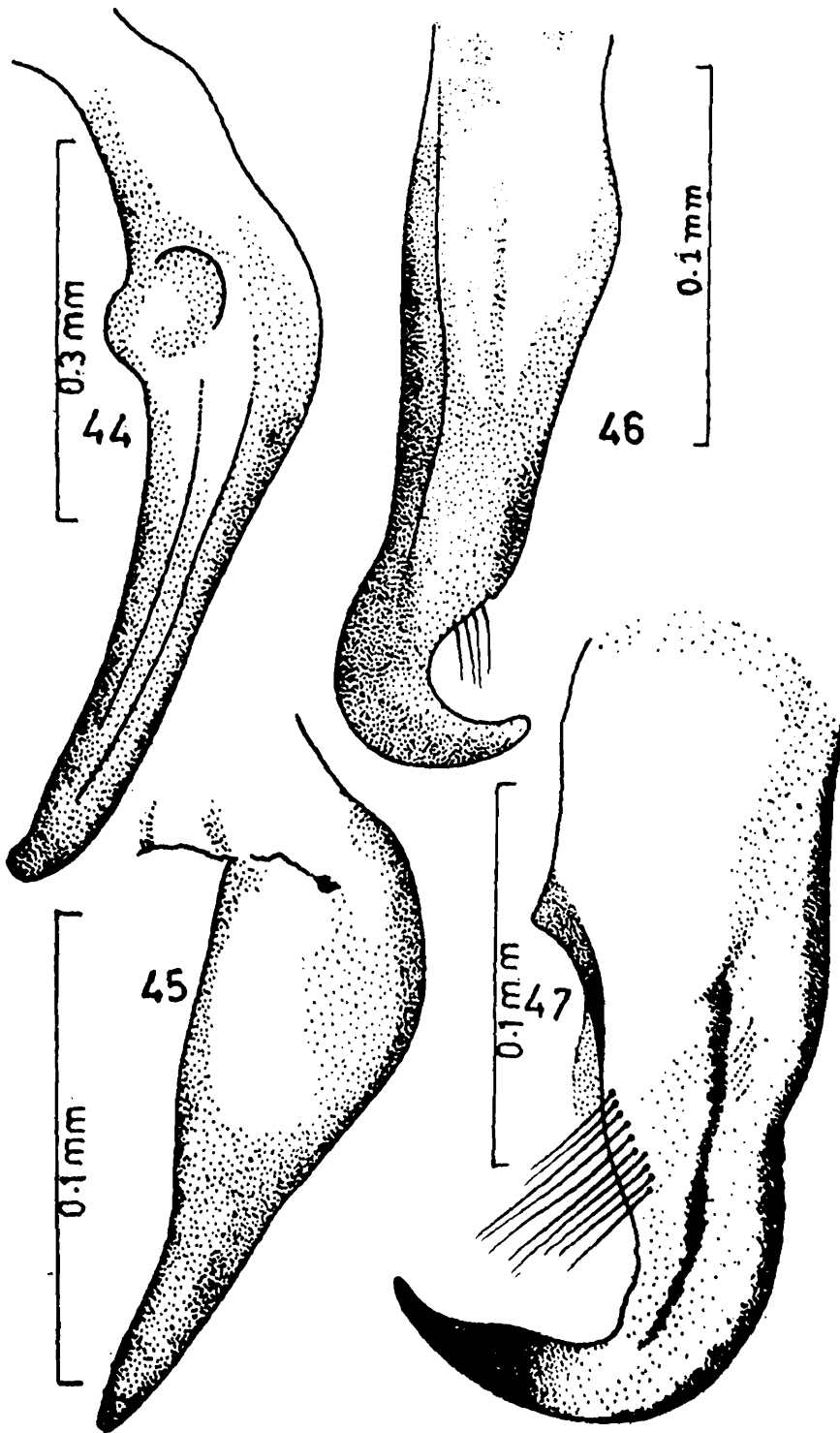


Fig. 44.	<i>Hotea curculionoides</i> (Herr.-Sch.)	Clasper
Fig. 45.	<i>Lamprocoris spiniger</i> (Dall.)	"
Fig. 46.	<i>Poecilocoris hardwicki</i> (Westw.)	"
Fig. 47.	<i>P. latus</i> Dall.	"

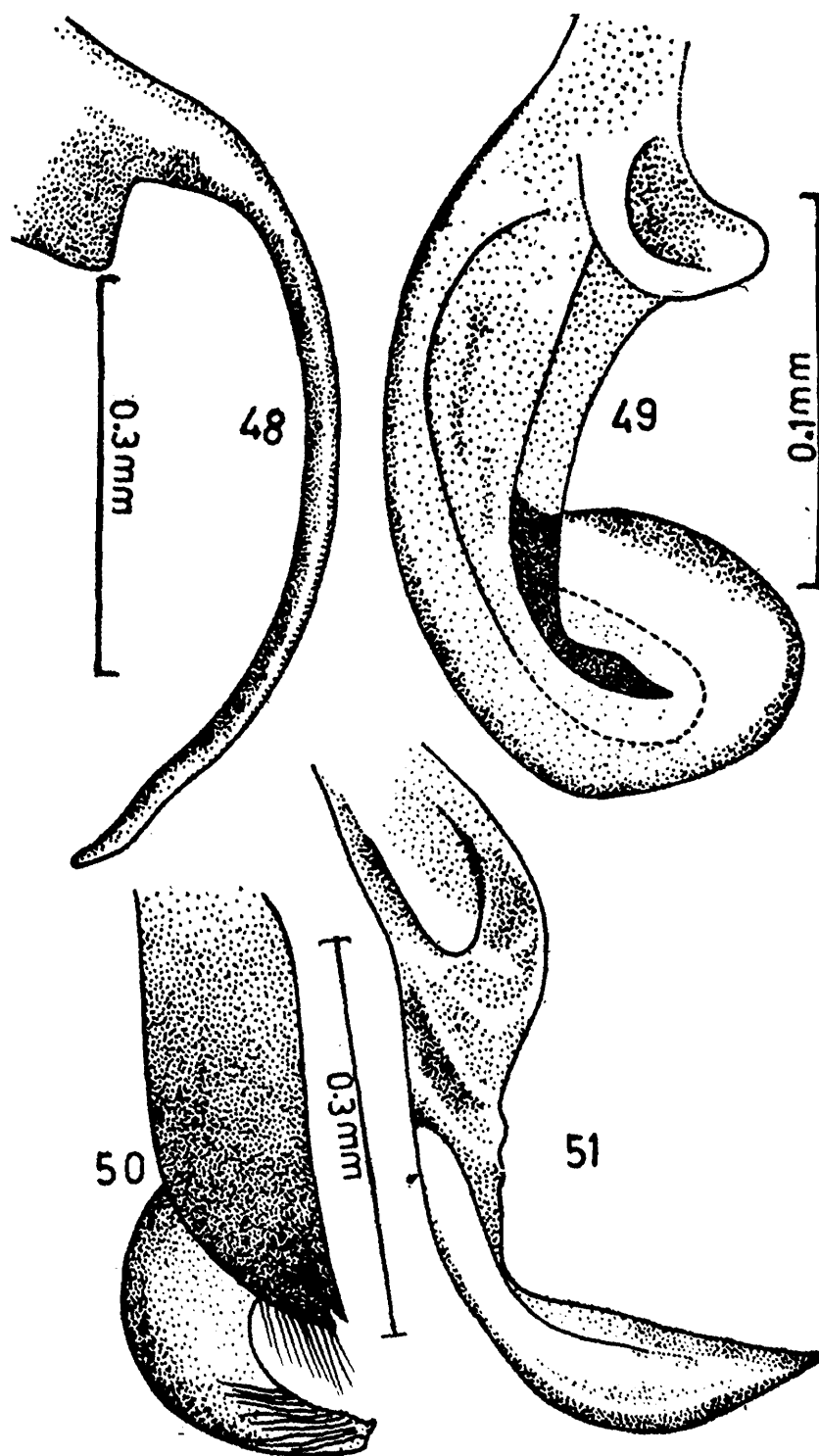


Fig. 48.	<i>P. purpurascens</i> (Westw.)	Clasper
Fig. 49.	<i>Scutellera fasciata</i> (Panz.)	"
Fig. 50.	<i>S. nobilis</i> (Fabr.)	"
Fig. 51.	<i>Solenostethum rubropunctatum</i> (Guer.)	"

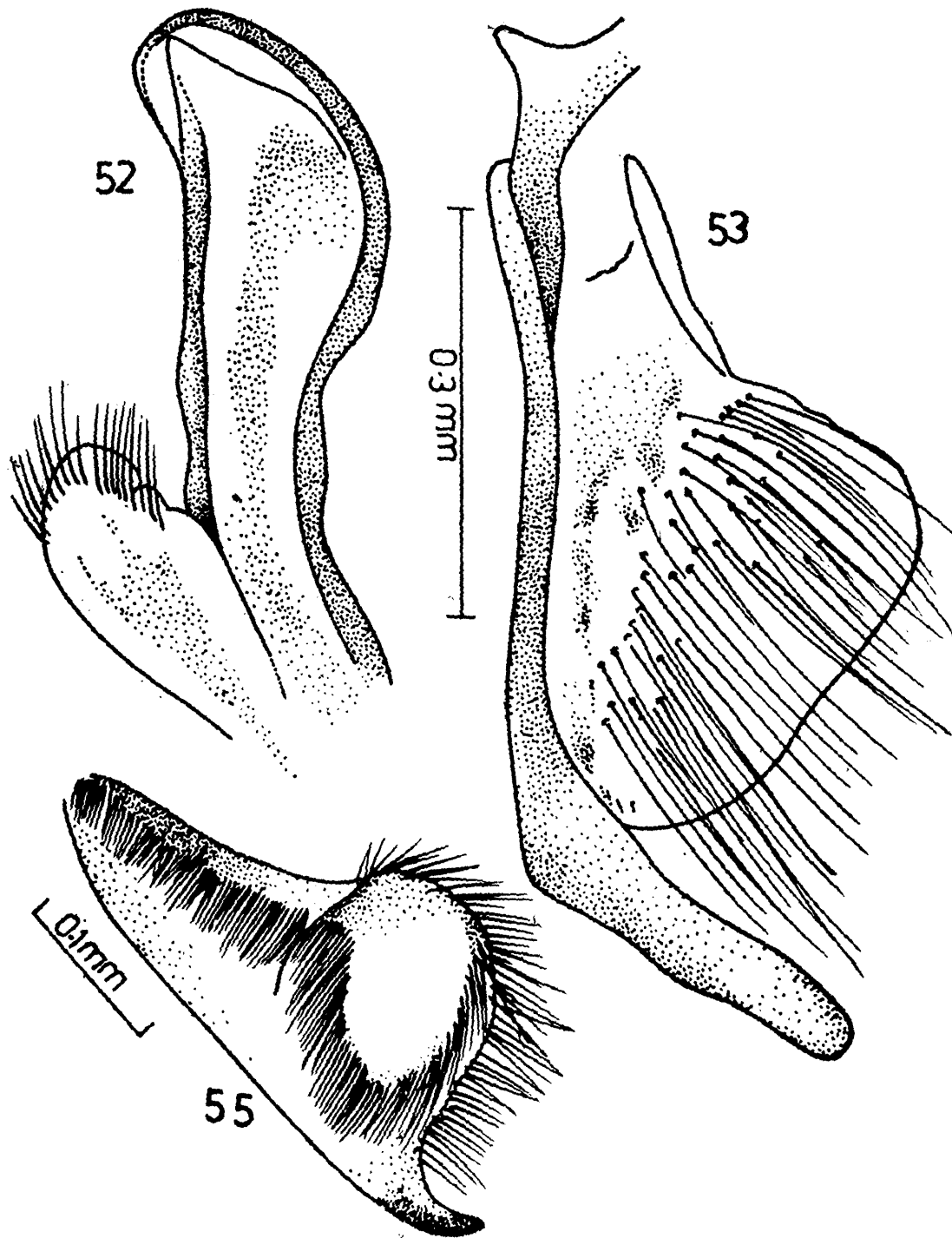


Fig. 52. *Empysurus johni* Oshan.

Fig. 53. *Eusthenes hercules* Stål

Fig. 55. *E. saevus* Stål

Clasper

"

"

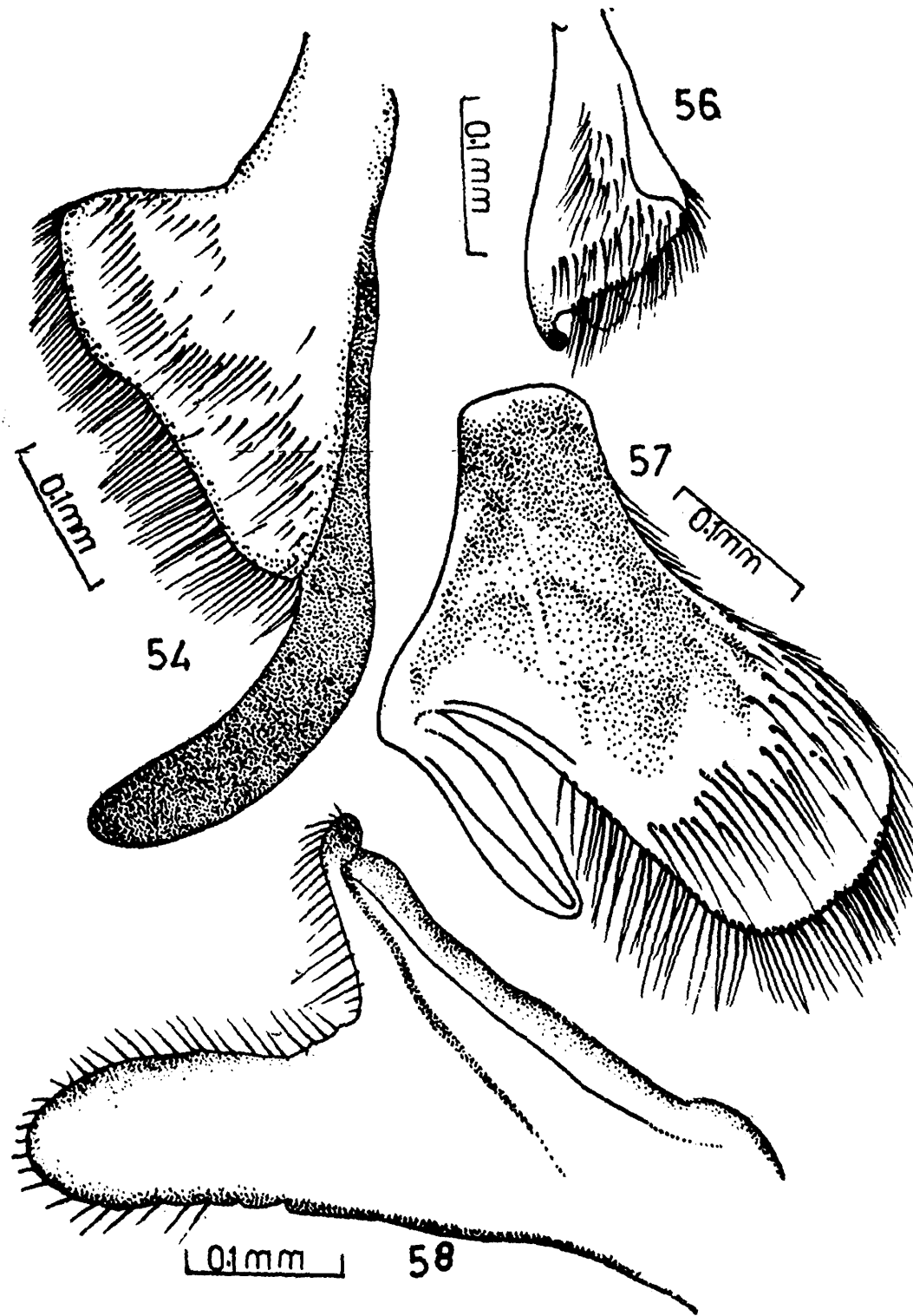


Fig. 54. *E. robustus* (Lep. & Serv.)

Fig. 56. *E. scutellaria* (Herr.-Sch.)

Fig. 57. *Pycanum ponderosum* Stål.

Fig. 58. *Tessaratomya nigripes* Dall.

Clasper

”

”

”

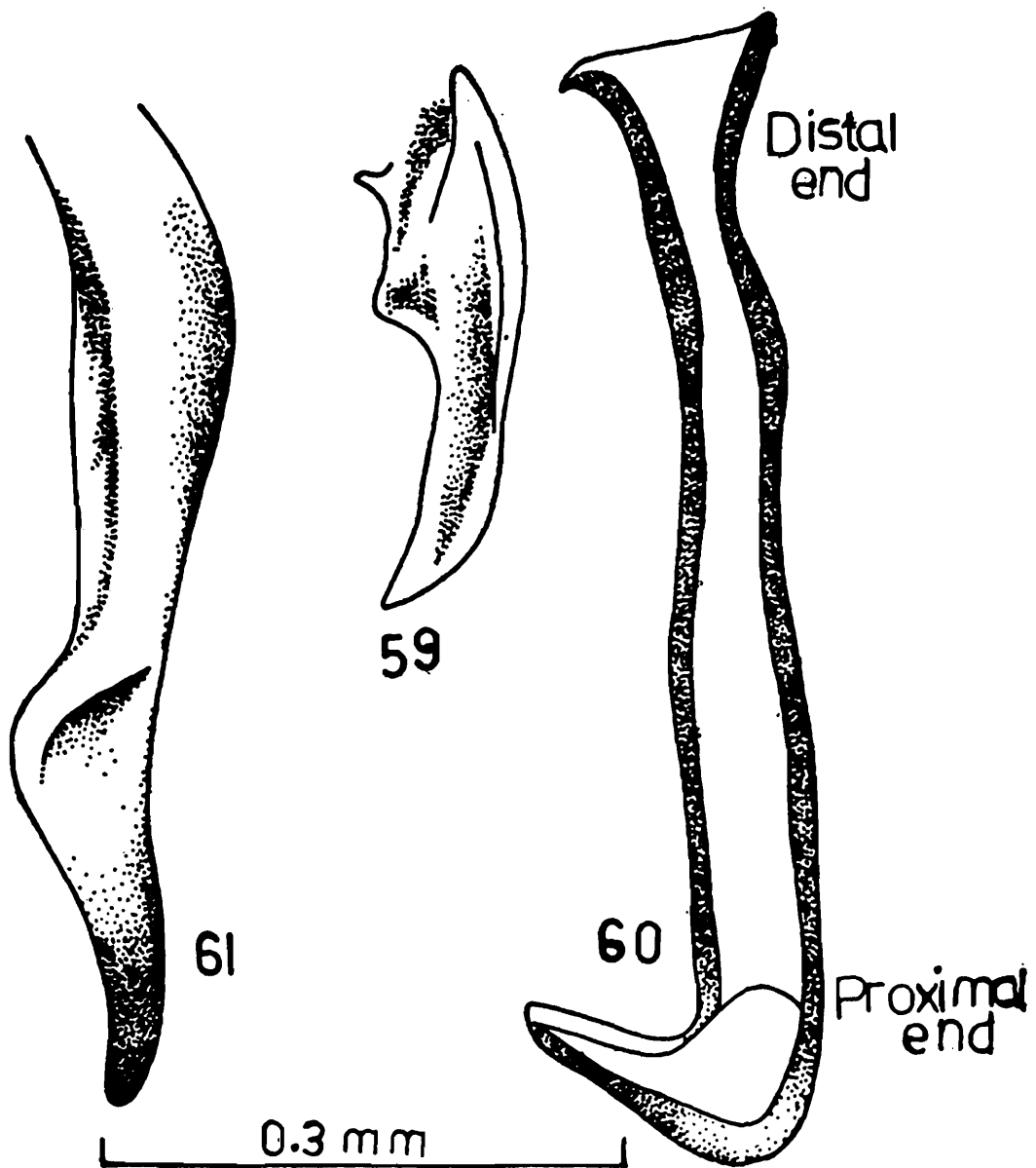


Fig. 59. *Urostylus gracilis* Dall.

Fig. 60. *U. punctigera* Westw.

Fig. 61. *Urochela quadripunctata* Dal'

Clasper

"

"