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Revision of the Oriental and Australian Agalliini (Hemiptera: Cicadellidae: Megophthalminae)

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Abstract

The tribe Agalliini of the subfamily Megophthalminae is revised for the Oriental and Australian regions. Fifteen genera and 86 species have been recognized including 6 new genera, 40 new species, 7 new synonyms and 9 new combinations. The new genera and species described are *Austroagallia balii* **sp. nov.** (Indonesia: Bali Is.), *A. distanti* **sp. nov. (**India: Karnataka), *A. prachuabensis* **sp. nov.** (India, Thailand), *Formallia* **gen. nov**., *F. ishiharai* **sp. nov.**(Taiwan), *F. longipenis* **sp. nov.** (Taiwan), *F. longistyla* **sp. nov.** (Taiwan), *F. rugosa* **sp. nov.** (Taiwan), *F. truncata* **sp. nov.** (type sepcies) (Taiwan), *Hemagallia* **gen. nov.** (type-species: *Agallia plotina* Distant), *Ianagallia* **gen. nov.** (type-species *Austroagallia bifurcata* Sawai Singh & Gill), *Igerna aurora* **sp. nov.** *(*Sunda Is, Timor Is.), *I. darjeelingensis* **sp. nov.** (India: Sikkim, West Bengal), *I. delineata* **sp. nov.** (India: Tamil Nadu), *I. himalayensis* **sp. nov.** (India: West Bengal), *I. keyae* **sp. nov.** (India: Sikkim), *I. priyankae* **sp. nov.** (India: Himachal Pradesh, Meghalaya. Nepal), *I. quinlani* **sp. nov.** (Nepal), *I. sikkima* **sp. nov.** (India: Sikkim), *I. wilsoni* **sp. nov.** (India: West Bengal), *Japanagallia asymmetrica* **sp. nov.** (China: Fukien), *J. curvata* **sp. nov.** (China: Fukien), *J. javana* **sp. nov.** (Indonesia: Java), *J. longipenis* **sp. nov.** (China: Fukien), *J. malaisei* **sp. nov.** (Myanmar), *J. mussooriensis* **sp. nov.** (India: Uttar Pradesh), *J. neotappana* **sp. nov.** (China: Fukien), *J. nepalensis* **sp. nov.** (Nepal), *J. peculiaris* **sp. nov.** (Nepal), *J. sumatrana* **sp. nov.** (Indonesia: Sumatra), *J. yoshimotoi* **sp. nov.** (Taiwan), *Nandigallia* **gen. nov.** *N. matai* **sp. nov. (**India: West Bengal; China: Fukien), *N. nandiensis* **sp. nov**. (type-species) (India: Karnataka, Maharashtra), *Paulagallia* **gen. nov.,** *P. maai* **sp. nov.** (Malaysia: Borneo: Sabah), *P. punctata* **sp. nov.** (type-species)(Malaysia: Borneo: Sabah), *Sangeeta* **gen. nov.** *S. dentata* **sp. nov.** (Indonesia: Pahang), *S. dlabolai* **sp. nov.** (Laos), *S. fyanensis* **sp. nov.** (Vietnam), *S. linnavuorii* **sp. nov.** (Vietnam), *S. nigra* **sp. nov.** *(*Indonesia: Java), *S. quadriloba* **sp. nov.** (Indonesia: Sumatra), *S. sadongensis* **sp. nov.** (type-species) (Malaysia: Sadong) and *S. sarawakensis* **sp. nov.** (Malaysia: Borneo: Sarawak) The following new combinations are proposed: *Anaceratagallia srinagarensis* (Kameswara Rao & Ramakrishnan) **comb. nov.** (*Agallia*), *Hemagallia biplagiata* (Melichar) **comb. nov**. (*Agallia*), *Hemagallia plotina* (Distant) **comb. nov.** (*Agallia*), *Ianagallia bifurcata* (Sawai Singh & Gill) **comb. nov.** (*Austroagallia*), *Igerna atrovenosa* (Melichar) **comb. nov**. (*Agallia*), *Igerna fasciata* (Osborn) **comb. nov.** (*Agalliopsis*), *Igerna quadrinotata* (Melichar) **comb. nov.** (*Agallia*), *Igerna nigrita* (Melichar) **comb. nov.** (*Oncopsis*) and *Igerna violacea* (Distant) **comb. nov.** (*Nehela*). The following species are treated as new synonyms: *Agallia pseudorobusta* Kameswara Rao & Ramakrishnan **syn. nov.** of *Anaceratagallia cuspidata* Dlabola; *Anaceratagallia delhiensis* Kameswara Rao & Ramakrishnan **syn. nov.** of *Anaceratagallia robusta* Pruthi; *Agallia campbelli* Distant **syn. nov.** and *Agallia janaka* Distant **syn. nov.** of *Hemagallia biplagiata* (Melichar); *Agallia rugosa* Distant **syn. nov.** and *Agallia bhuntra* Sawai Singh **syn. nov.** of *Hemagallia plotina* (Distant), *Austroagallia bisinuata* Viraktamath & Viraktamath **syn. nov.** of *Igerna quadrinotata* (Melichar), and *Dryodurgades bifurcatus* Cai & Shen **syn. nov.** of *Dryodurgades formosana* (Matsumura). Most of these taxa are described and illustrated. Keys to genera and species are also included.

Key words: Leafhopper, morphology, distribution, identification, key

Introduction

The agalliines, one of the smallest groups of leafhoppers with 32 genera and 600 species known around the world, were formerly treated as a separate subfamily (Agalliinae) (Oman 1949; Viraktamath 2005; Oman *et al.* 1990). They can readily be recognized by their wedge shaped body, short and broad head with ocelli on the face and lateral frontal sulci not exceeding the antennal pits, forewings with appendix poorly developed or absent, hind wings with four apical cells, hind femora with 2+1 setae at apex, hind tibiae with setae on row AV often starting at 0.5 distance from base, hind basitarsus with one or two platellae in apical transverse row and male styles usually forked caudally (not forked in *Euragallia* Oman, *Omanagallia* Dietrich, few species of *Chromagallia* Linnavuori, and *Paranagallia* Gonçalves and Nielson from the New World) (Oman 1949; Dietrich 2005; Viraktamath 2004). Most recently, the group was considered a tribe (Agalliini) of the subfamily Megophthalminae, together with Evansiolini, Adelungiini and Megophthalmini (Hamilton 1999; Dietrich 2005; Gonçalves & Dietrich 2009). Agalliini can be separated from Megophthalmini by the absence of carinate frontal sutures beteween the ocelli and antennal pits, and from Adelungiini in rarely having densely reticulate forewing venation and in the shorter connective of the male genitalia (usually about as long as or slightly longer than width at base) (Dietrich 2005; Viraktamath 2005).

The Palearctic Agalliini have been dealt with by Ribaut (1952) for France, Ossiannilsson (1981) for Fennoscandia and Denmark, Mitjaev (1969, 1971) for the Tien Shan, Karatau and Kazakhstan regions of the former USSR, and Vilbaste (1968, 1974) for the Russian Maritime Territory, Latvia and Lithuania. Emeljanov (1964) dealt with the Agalliini of the European USSR and Anufriev & Emeljanov (1988) with the Soviet Far East. Lindberg (1954, 1958) dealt with Agalliini from the Canary Islands. Theron (1970, 1979) revised the species described

by Cogan and Stål from Africa. Oman (1933, 1936, 1938), Kramer (1964), Nielson and Godoy (1995), Hamilton (1998) and others have extensively worked on the New World Agalliini. Comprehensive studies on the Old World Agalliini are lacking and the available works are scattered widely in the literature.

The first three species of the Oriental Agalliini were described by Melichar (1903) in the genus *Agallia* from Sri Lanka. Distant (1908, 1912, 1916) described seven new species of the same genus from north India besides describing one new species in the genus *Nehela* White and one new species in his new genus *Durgades* Distant from the Eastern Himalayan region. Later, Distant (1918) described the genus *Gunhilda* with one new species from south India in Jassinae and Evans (1947) transferred it to Agalliinae. Matsumura (1905, 1912) described eight species of *Agallia*: two from Japan and and six from Taiwan. Later, those Japanese species were assigned to two new genera described by Ishihara (1955): *Japanagallia* and *Onukigallia*. In 1935, Evans established the genus *Austroagallia* with *A. torrida* Evans from Australia as its type-species. The six Taiwanese species of *Agallia* described by Matsumura were reviewed and reassigned by Viraktamath (1973) to the genera *Austroagallia* (1 sp.), *Japanagallia* (1 sp.), *Onukigallia* (2 spp.), *Durgades* (1 sp.) and *Dryodurgades* (1sp.). Pruthi (1930, 1936) working on leafhoppers of the former British India, described two species of *Agallia* and two species of *Durgades*. Sawai Singh (1969) described one new species of *Agallia* from Chandigarh. Sawai Singh & Gill (1973) reported *Austroagallia* from India and described three new species from northwest India; and Bindra (1973) recorded two Palaearctic species of *Austroagallia* from northwest India. Davis (1975) examined the hind leg chaetotaxy and female ovipositor of several leafhopper subfamilies including Agalliinae and concluded that *Igerna, Nehela* and *Austroagallia* are good genera. Kameswara Rao & Ramakrishnan (1978a, 1978b) and Kameswara Rao *et al.* (1979) described three new species of *Agallia*, one new species of *Durgades* and one new species of *Austroagallia* from India. Viraktamath and Sohi (1980) reviewed the species of *Austroagallia* known from India and later, Viraktamath (2004) revised the genus *Durgades* and described six new species from Pakistan and sub Himalayan regions of India and Nepal. Khatri et al. (2010) dealt with nine species of Agalliini from Pakistan and four of these, *Agallia cuspidata* (Dlabola), *Agallia aciculata* Horváth, *Austroagallia sarobica* (Dlabola) and *Austroagallia robusta* Sawai Singh & Gill were new records for the country. Zhang (2010) dealt with seven species of *Japanagallia* from China including two new speices.

Specimens of Agalliini from the Oriental region have been collected on a number of host plants (Table 1) and at light. A few species are also known to be involved in the transmission of plant diseases (Nielson 1968, 1979). At least 14 species of Agalliinae have been incriminated as vectors of plant pathogenic viruses and phytoplasmas (Nielson 1979; Weintraub & Beanland 2006). Relatively few biological studies have been made on the Oriental Agalliini. Viraktamath & Viraktamath (1981, 1982) studied the biology of *Austroagallia bifurcata* (now *Ianagallia bifurcata*), *A. bisinuata* (now *Igerna quadrinotata*) and *Agallia campbelli* (now *Hemagallia biplagiata*).

The present author started his studies on the Old World Agalliini almost four decades ago, and recognized several new taxa. The results of these studies are being published now to help facilitate ongoing phylogenetic work on the group (see Gonçalves & Dietrich 2009). This is the first of three papers that will treat the Old World Agalliini. This paper deals with the Oriental fauna and will be followed by papers treating the faunas of the Afrotropical region and the greater part of China.

The terminologies used in the description of taxa are those of Oman (1949) and Dietrich (2005). The terminologies used for leg chaetotaxy are those of Rakitov (1998) and for female genitalia those of Davis (1975).

The following abbreviations are used for the depositories of material used in this study.

AMNH	American Museum of Natural History, New York, U.S.A.
BMNH	The Natural History Museum, London, United Kindgdom.
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.
CAS	California Academy of Sciences, San Francisco, U.S.A.
CNC	Canadian Insect Collection, Canada Agriculture, Ottawa, Canada.
EIHU	Entomological Institute, Hokkaido University, Sapporo, Japan.
FRI	Forest Research Institute, Dehradun, India.
HNHM	Hungarian Natural History Museum, Budapest, Hungary.
JWE	Dr J.W. Evans' collection, Australia.
MMB	Moravian Museum, Brno, Moravia.
NCSU	North Carolina State University, Raleigh, U.S.A.

TABLE 1. Host plants of Oriental Agalliini.

Species	Host plant	Reference
Anaceratagallia cuspidata (Dlabola)	*Trifolium alexandrinum* Linn.	Kameswara Rao & Ramakrishnan (1978a)) [as *Agallia pseudorobusta*]
Anaceratagallia robusta (Pruthi)	*Cynodon dactylon* (Linn) Pers.; *Ipomoea carnea* Jacq., *Fagonia cretica* Linn., *Medicago sativa* Linn., *Glycine max* (Linn.) Merr.	Bindra (1973) Kameswara Rao & Ramakrishnan (1978a)
Anaceratagallia pararobusta (Pruthi)	*Piper betel* Linn.	Viraktamath & Viraktamath (1995)
Austroagallia fagonica Sawai Singh & Gill	*Fagonica cretica* Linn., *Medicago sativa* Linn. *Leucas aspera* (Willd.) *Vigna unguiculata* (Linn.) Walp., *Phaseolus vuglaris* (Linn.), *Parthenium hysterophorus* Linn., *Solanum tuberosum* Linn.	Bindra (1973) Viraktamath & Viraktamath (1981, 1995)
Austroagallia nitobei (Matsumura)	*Cicer arietinum* Linn., *Cynodon dactylon, Momordica charantia* Linn., *Phaseolus mungo* Roxb. *Aerva javanica* Juss., *Cyamopsis tetragonoloba* (Linn.), *Gossypium arboreum* Linn., *Trifolium alexandrinum*, *Phaseolus aureus* Roxb. *Arachis hypogaea* Linn., *Heliotropium eichwaldi* Steid., *Sesbania sesban* (Linn.) Merr., *Linum usitatissimum* Linn., *Medicago sativa*, *Zea mays* Linn., *Cucumis melo* Linn., *Pennisetum typhoideum* Rich., *Solanum tuberosum* Linn., *Raphanus sativus* Linn., *Cajanus cajan* (Linn.) Millsp., *Oryza sativa* Linn., *Sesamum indicum* Linn., *Glycine max*, *Spinacea oleracea* Linn., *Beta vulgaris* Linn. var. *rapa* Dum., *Triticum aestivum* Linn.	New record Bindra (1973) [as *Austroagallia avicula* (Ribaut)]
Austroagallia robusta (Pruthi)	*Crotalaria burhia* Buch-Ham.	Bindra (1973)
Austroagallia sarobica (Dlabola)	*Aerva javanica* Juss., *Gossypium arboreum* Linn., *Pennisetum typhoideum* Rich., *Tribulus terestris* Linn., *Lycopersicon esculentum* Mill.	Bindra (1973)
Austroagallia sinuata (M.& R.)	*Ipomoea pes-carpae* Linn., *Vigna sinensis* (Linn.), *Aristida adscensionis* Linn., *Cynodon dactylon*, *Sorhgum helepense* (Linn.) Pers., *Arachis hypogaea* Linn., *Fagonia cretica*, *Medicago sativa*, *Zea mays* Linn., *Solanum tuberosum* Linn., *Spinacea oleracea* Linn., *Beta vulgaris* Linn. var. *rapa* Dum., *Crotalaria juncea* (Linn.)	New record Bindra (1973)
Austroagallia torrida Evans	*Medicago sativa* *Arachis hypogaea* Linn.	Evans (1940) New record
Durgades montana (Distant)	*Trifolium repense* Linn.	Ishihara (1979)
Hemagallia plotina (Distant)	Grasses	
Hemagallia biplagiata (Melicahr)	*Achyranthes aspera* Linn.	Viraktamath & Viraktamath (1982) [as *Agallia campbelli* Distant]
Ianagallia bifurcata (Sawai Singh & Gill)	*Piper betel* Linn., *Anacardium occidentale* Linn., *Alternanthera sessilis* (Linn.) R. Br. ex DC., *Amaranthus* sp., *Achyranthes aspera* Linn.	New records Bindra (1973) Viraktamath & Viraktamath (1981) [as *Austroagallia bifurcata*]
Igerna aurora **sp. nov.**	*Coffea robusta* Linn.	New record
Igerna quadrinotata (Melichar)	*Justicia betonica* Linn., *Achyranthes aspera* Linn.	Viraktamath & Viraktamath (1981) [as *Austroagallia bisinuata* Viraktamath & Viraktamath]
Igerna violacea (Distant)	*Justicia betonica* Linn.	Viraktamath & Viraktamath (1995) [as *Nehela violacea* Distant]
Nandigallia nandiensis gen. et **sp. nov.**	*Achyranthes aspera* Linn.	New record

NMNH	The National Museum of Natural History, Washington, D.C., U.S.A.
NMNL	National Museum of Natural History Naturalis, Leiden, Netherland.
NPC	National Pusa Collection, Indian Agricultural Research Institute, New Delhi, India.
NRS	Naturhistoriska Rijksmuseum, Stockholm, Sweden.
PAU	Punjab Agricultural University, Ludhiana, India.
SMNS	State Museum of Natural History Stuttgart, Suttgart, Germany.
TNAU	Tamil Nadu Agricultural University, Coimbatore, India.
UASB	The University of Agricultural Sciences, Bangalore, India.
ZMB	Zoological Museum, Berlin, Germany.
ZSI	Zoological Survey of India, Kolkata, India.

Checklist of Oriental and Australian Agallini

Agallia Curtis 1833: 193	
Agallia sinica Jacobi 1944:47	China: Fukien.
Agallia sp.	India: Jammu & Kashmir.
Anaceratagallia Zachvatkin1946: 159–160	
Anaceratagallia aciculata Horváth 1894: 186	Pakistan, Palaearctic region.
Anaceratagallia cuspidata Dlabola 1957: 298–299	India: Delhi; Pakistan, Palearctic region.
Agallia pseudorobusta Kameswara Rao & Ramakrishnan 1978a: 236–237 **syn. nov.**	
Anaceratagallia pararobusta (Pruthi) 1936: 104–105	India: Andhra Pradesh, Karnataka, West Bengal.
Anaceratagallia robusta Pruthi 1930: 10–12	Pakistan; India: Delhi, Karnataka.
Anaceratagallia delhiensis Kameswara Rao & Ramakrishnan 1978a: 241 **syn. nov.**	
Anaceratagallia srinagarensis (Kameswara Rao & Ramakrishnan)1978a: 237, 239 **comb. nov.**	India: Jammu & Kashmir, Delhi.
Austroagallia Evans 1935: 70	
Austroagallia balii **sp. nov.**	Indonesia: Bali.
Austroagallia distanti **sp. nov.**	India: Karnataka.
Austroagallia fagonica Sawai Sigh & Gill in Bindra 1973:12–14.	Pakistan; India: Punjab, Karnataka, Haryana, Delhi.
Austragallia nitobei (Matsumura) 1912: 316	India; Pakistan; Taiwan; Thailand.
Austroagallia prachuabensis **sp. nov.**	India: Karnataka; Thailand.
Austroagallia robusta Sawai Singh & Gill in Bindra 1973:14–15	India: Punjab; Pakistan.
Austroagallia sarobica (Dlabola) 1964: 246	India: Punjab, Delhi; Pakistan; Afrotropical and Palearctic regions.
Austroagallia sinuata (Mulsant & Rey) 1855: 222	India: Gujarat, Punjab; Pakistan; Palaearctic, Afrotropical and Neotropical regions.
Austroagallia torrida Evans 1935: 70	Australia; Goodenough Is.; Fiji Is.; Loyalty Is.; New Hebrides; New Guinea; Solomon Is.; Indonesia.
Dryodurgades Zachvatkin 1946: 146	
Dryodurgades dentistylus Zhang & Li 1998 :379	China: Guizhou.
Dryodurgades formosana (Matsumura) 1912: 313	China, Taiwan.
Dryodurgades bifurcatus Cai & Shen 2000: 39, Figs 4 a–j. **syn. nov.**	
Dryodurgades lamellaris Vilbaste 1968: 58–60	Taiwan.
Durgades Distant 1912: 608	
Durgades aviana Viraktamath 2004: 367	India: Himachal Pradesh.

Durgades breviceps (Matsumura)1912: 317	Taiwan.
Durgades confusa Viraktamath 2004: 368	Nepal.
Durgades dunchensis Viraktamath 2004: 368	Nepal.
Durgades idiocera Pruthi 1930: 13–15	Pakistan.
Durgades mirabilis Pruthi 1930: 12–13	India: Sikkim.
Durgades montana (Distant) 1912: 607	India: Himachal Pradesh.
Durgades nigropicta Distant 1912: 609	India: West Bengal, Meghalaya; Nepal.
Durgades distanti Kameswara Rao & Ramakrishnan 1978b: 238	
Durgades saura Viraktamath 2004: 373	India: Himachal Pradesh.
Durgades spatulata Viraktamath 2004: 374	Nepal.
Durgades sympatrica Viraktamath 2004: 374	Pakistan.
Formallia **gen. nov.**	
Formallia ishiharai **sp. nov.**	Taiwan.
Formallia longipenis **sp. nov.**	Taiwan.
Formallia longistyla **sp. nov.**	Taiwan.
Formallia rugosa **sp. nov.**	Taiwan
Formallia truncata **sp. nov.**	Taiwan
Gunhilda Distant 1918: 88	
Gunhilda noctua Distant 1918: 88	India: Tamil Nadu.
Hemagallia **gen. nov.**	
Hemagallia biplagiata (Melichar) 1903: 150 **comb. nov.**	India: Karnataka, Tamil Nadu, Kerala; Sri Lanka.
Agallia campbelli Distant 1916: 229 **syn. nov.**	
Agallia janaka Distant 1916: 230 **syn. nov.**	
Hemagallia plotina (Distant) 1908: 194 **comb. nov.**	India: Punjab, Haryana, West Bengal.
Agallia bhuntra Sawai Singh 1969: 359–361 **syn. nov.**	
Agallia rugosa Distant 1912: 607 **syn. nov.**	
Ianagallia **gen. nov.**	
Ianagallia bifurcata (Sawai Singh & Gill) in Bindra 1973: 11–12 **comb. nov.**	India; Pakistan.
Igerna Kirkaldy 1903: 13	
Igerna atrovenosa (Melichar) 1903: 152 **comb. nov**.	Sri Lanka.
Igerna aurora **sp. nov.**	Sunda Is; Timor Is.
Igerna darjeelingensis **sp. nov.**	India: Sikkim, West Bengal.
Igerna delineata **sp. nov.**	India: Tamil Nadu.
Igerna fasciata (Osborn) 1934: 164–165 **comb. nov.**	Samoa.
Igerna himalayensis **sp. nov.**	India: West Bengal.
Igerna keyae **sp. nov.**	India: Sikkim.
Igerna nigrita (Melichar) 1914: 121 **comb. nov.**	Indonesia: Java.
Igerna priyankae **sp. nov.**	India: Himachal Pradesh, Meghalaya; Nepal.
Igerna quadrinotata (Melichar) 1903: 151 **comb. nov.**	India: Karnataka, Tamil Nadu; Sri Lanka.
Austroagallia bisinuata (Viraktamath & Viraktamath) 1981: 80 **syn. nov.**	
Igerna quinlani **sp. nov.**	Nepal.
Igerna sikkima **sp. nov.**	India: Sikkim.
Igerna violacea (Distant) 1916: 233 **comb. nov.**	India: Karnataka, Kerala, Tamil Nadu.
Igerna wilsoni **sp. nov.**	India: West Bengal.
Japanagallia Ishihara 1955: 215, 217	
Japanagallia asymmetrica **sp. nov.**	China: Fukien.
Japanagallia curvata **sp. nov.**	China: Fukien.
Japanagallia dentata Cai & He in Cai *et al.* 2001:201	China: Zhejiang.
Japanagallia hamata Zhang & Li 1999: 107	China: Guizhou, Guangxi.

Japanagallia javana **sp. nov.**	Indonesia: Java.
Japanagallia lamellata Zhang 2010: 56	China: Hainan.
Japanagallia longa Cai & He in Cai *et al.* 2001: 200	China: Zhejiang.
Japanagallia longipenis **sp. nov.**	China: Fukien.
Japanagallia malaisei **sp. nov.**	Myanmar.
Japanagallia mussooriensis **sp. nov.**	India: Uttar Pradesh.
Japanagallia neotappana **sp. nov.**	China: Fukien.
Japanagallia nepalensis **sp. nov.**	Nepal.
Japanagallia peculiaris **sp. nov.**	Nepal.
Japanagallia pteridis (Matsumura)1905: 68	China: Zhejiang; Japan.
Japanagallia spinosa Zhang 2010: 53	China: Yunnan.
Japanagallia sumatrana **sp. nov.**	Indonesia: Sumatra.
Japanagallia tappana (Matsumura) 1912: 313	Taiwan.
Japanagallia yoshimotoi **sp. nov.**	Taiwan.
Nandigallia **gen. nov.**	
Nandigallia matai **sp. nov.**	India: West Bengal; China: Fukien.
Nandigallia nandiensis **sp. nov**.	India: Karnataka, Maharashtra.
Onukigallia Ishihara 1955: 215, 217	
Onukigallia arisana (Matsumura) 1912: 134	Taiwan.
Onukigallia onukii (Matsumura) 1912: 315	China: Henan, Zhejiang; Japan.
Onukigallia fangjingensis Zhang & Li 1999: 108	China: Guizhou.
Onukigallia tenuis (Matsumura) 1912: 315	Taiwan.
Paulagallia **gen. nov.**	
Paulagallia maai **sp. nov.**	Malaysia: Borneo: Sabah.
Paulagallia punctata **sp. nov.**	Malaysia: Borneo: Sabah.
Sangeeta **gen. nov.**	
Sangeeta dentata **sp. nov.**	Malaysia: Pahang.
Sangeeta dlabolai **sp. nov.**	Laos.
Sangeeta fyanensis **sp. nov.**	Vietnam.
Sangeeta linnavuorii **sp. nov.**	Vietnam.
Sangeeta nigra **sp. nov.**	Indonesia: Java.
Sangeeta quadriloba **sp. nov.**	Indonesia: Sumatra.
Sangeeta sadongensis **sp. nov.**	Malaysia: Sadong.
Sangeeta sarawakensis **sp. nov.**	Malaysia: Borneo: Sarawak.

Key to genera of the Oriental and Australian Agalliini

1. Face with dorsal part striated (Fig. 526) or rugose; pronotum either punctate (Fig. 10) or antero-laterally strongly depressed (Fig. 576) 2
- Face with dorsal part not striated or rugose (Fig. 8), but granulose or shagreen; pronotum not punctate or strongly depressed 3
2. Pronotum, scutellum (Fig. 10) and proximal half of forewings punctate (Fig. 20); pronotum without antero-lateral depressions; claval veins fused or connected by cross vein; corium with accessory cross veins . . . . . *Paulagallia* **gen. nov.**
- Pronoutm scutellum (Fig. 525) and proximal half of forewings not punctate (Fig. 552); pronotum with anterolateral depressions; claval veins separate; corium without accessory cross veins . . . . . .*Sangeeta* **gen. nov.**
3. Forewings with reticulate venation (Fig. 169)). . . . . *Dryodurgades* Zachvatkin
- Forewings without reticulate venation (Fig. 15) (except *Austroagallia robusta* where the anteapical cells are subdivided) . . .4
4. Hind margin of vertex not curved or, if so, evenly curved behind eyes (Figs 3, 7) 5
- Hind margin of vertex sinuately curved behind eyes (Figs 5, 289) 13
5. Hind wings either absent or reduced to small lobes; forewings either reaching tip of abdomen or exposing 4 or more abdominal terga 6
- Hind wings well developed; forewings exceeding tip of abdomen 8
6. Forewings reaching tip of abdomen, apically rounded or pointed 7
- Forewings truncate apically; exposing at least 5 abdominal terga (India: Nilgiri Hills) . . . . . *Gunhilda* Distant
7. Inner arm of styles long, abruptly broadened at apex with one subapical tooth (Figs 276, 283); aedeagal shaft C-shaped with

subapical gonopore (Figs 277, 278, 285) (India, SriLanka) . . . . . *Hemagallia* **gen. nov.**

- Inner arm of styles shorter, gradually widened with two lateral and one median subapical teeth (Figs 292–293) (India, China) . . . . . *Nandigallia* **gen. nov.** (Part)

8. Pronotum transversely rugose 9
- Pronotum not rugose 10
9. Styles with inner arm robust, apically expanded with two lateral and one median teeth (Figs 492); aedeagus with gonopore apical; pygofer without caudo-ventral spine-like prolongation (India, China) . . . . . *Nandigallia* **gen. nov.**
- Styles with inner arm slender, narrowed towards pointed apex, with one subapical tooth (Figs 102, 108); pygofer with caudo-ventral spine-like prolongation (Figs 100, 106) . . . . . .*Anaceratagallia* Zachvatkin
10. Forewings with claval veins connected by one or more cross veins (Figs 207, 221) (India, Pakistan, China) . *Durgades* Distant
- Forewings with claval veins not connected by cross vein (Figs 14, 15). 11
11. Clypellus narrow at base, apically broadened, broadest at apex of genae (Figs 11, 526, 545). 12
- Clypellus parallel sided (Fig. 2) or slightly narrowed apically (Fig. 4) . . . . . .*Agallia* Curtis
12. Subgenital plates with long hair-like setae on dorsal surface (Figs 252, 266, 267)) or with small macrosetae (Fig. 262); pygofer produced ventrally either broadly (Fig. 244) or conically (Figs 239) (Taiwan) . . . . . .*Formallia* **gen. nov.**
- Subgenital plates with both macrosetae and long hair-like setae arising from ventral surface (Fig. 498); pygofer variable but not as above (Figs 496, 504) (China, Japan, Taiwan) . . . . . .*Onukigallia* Ishihara
13. Forewing claval veins joined by one or more cross veins (Fig. 19); vertex medially shorter and dorsally upturned (China, Japan, India, Indonesia, Malaysia, Taiwan) . . . . . *Japanagallia* Ishihara
- Forewing claval veins separate (Figs 14, 15); vertex not greatly shortened in middle, not dorsally upturned. 14
14. Aedeagal shaft slender, terminating in attenuated bifid prolongation (Fig. 396); dorsal apodeme subequal to bifid preatrial process (Fig. 398) (India, Thailand, China) . . . . . *Ianagallia* **gen. nov.**
- Aedeagal shaft stout, not apically attenuated, without preatrial bifid process (except in *Igerna wilsoni* **sp. nov.**); preatrial process when present, distinctly longer than dorsal apodeme (Figs 307, 365) 15
15. Base of aedeagus ventrally produced; often sunk into dorsal apodeme basally (Fig. 296), usually symmetrical, dorsal apodeme well developed (Figs 314, 319, 329); anal collar simple (except in *Igerna violacea*) face somewhat polished, slightly curved from frons to clypellus; ocelli located in relatively shallow pits . . . . . *Igerna* Kirkaldy
- Base of aedeagus not sunk into dorsal apodeme; asymmetrical (Figs 131, 138,150); anal collar well developed, with hooks or distally dentate; face finely granulose, not slightly curved from frons to clypellus; ocelli located in rather deep pits . . . . . .*Austroagallia* Evans

Genus *Agallia* Curtis

Agallia Curtis, 1833: 193. Type-species: *Agallia consobrina* Curtis, by monotypy.

Morphology. Head wider than pronotum. Vertex short, of uniform length, posterior margin evenly curved (Fig. 1). Face, vertex, pronotum and scutellum finely granulated. Face wider than long. Transclypeal suture complete (Fig. 2). Distance between ocelli either as long as or longer than distance from adjacent eye. Pronotum rarely rugulose. Macropterous or brachypterous. Forewings with three anteapical cells, inner anteapical cell open or closed basally (Figs 12, 15). Forefemora with arched row of intercalary setae (IC), AV without prominent setae (Fig. 22). Hind tibial macrosetae PD 7±2, AD 6±1, AV 6±1. Hind basitarsus with one platella on distal transverse row.

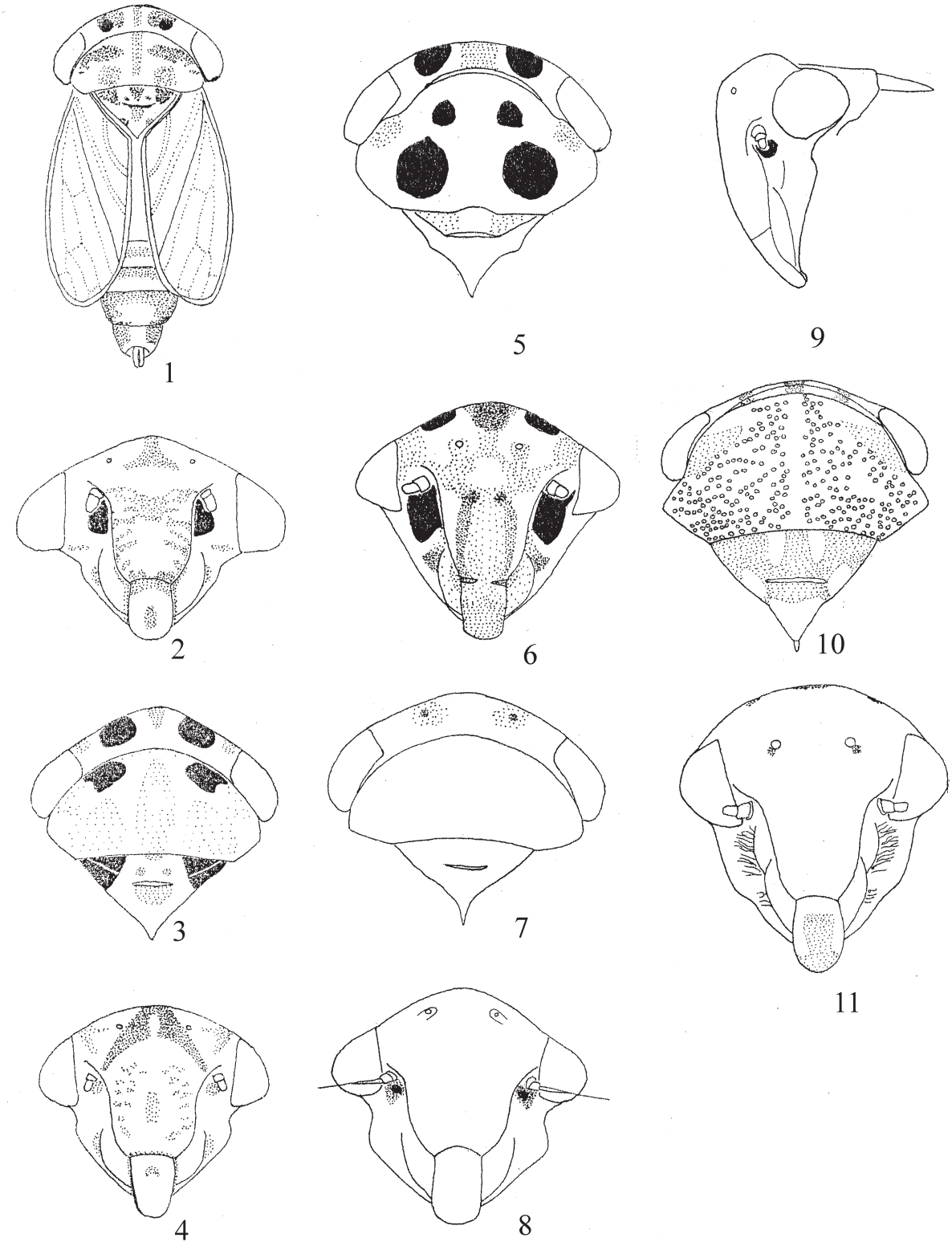
Male genitalia. Pygofer caudally rounded and without processes (Fig. 92). Subgenital plates slender, not fused, with macrosetae (Fig. 93). Styles with inner arm longer than outer, with subapical tooth and apically narrowed (Figs 98, 99). Connective short and about as broad as long. Aedeagus simple, symmetrical with well developed dorsal apodeme, preatrium poorly developed; shaft rarely with process, gonopore apical (Figs 96, 97). Anal collar process often well developed (Fig. 94).

Female genitalia. First pair of valvulae with well organised sculpturing, submarginal in median region, occupying less than half length of dorsal margin (Figs 37, 38). Second pair of valvulae with toothed area occupying about half length of dorsal margin, teeth uniformly serrate, without denticles, ventroapical area crenulated (Figs 39, 40).

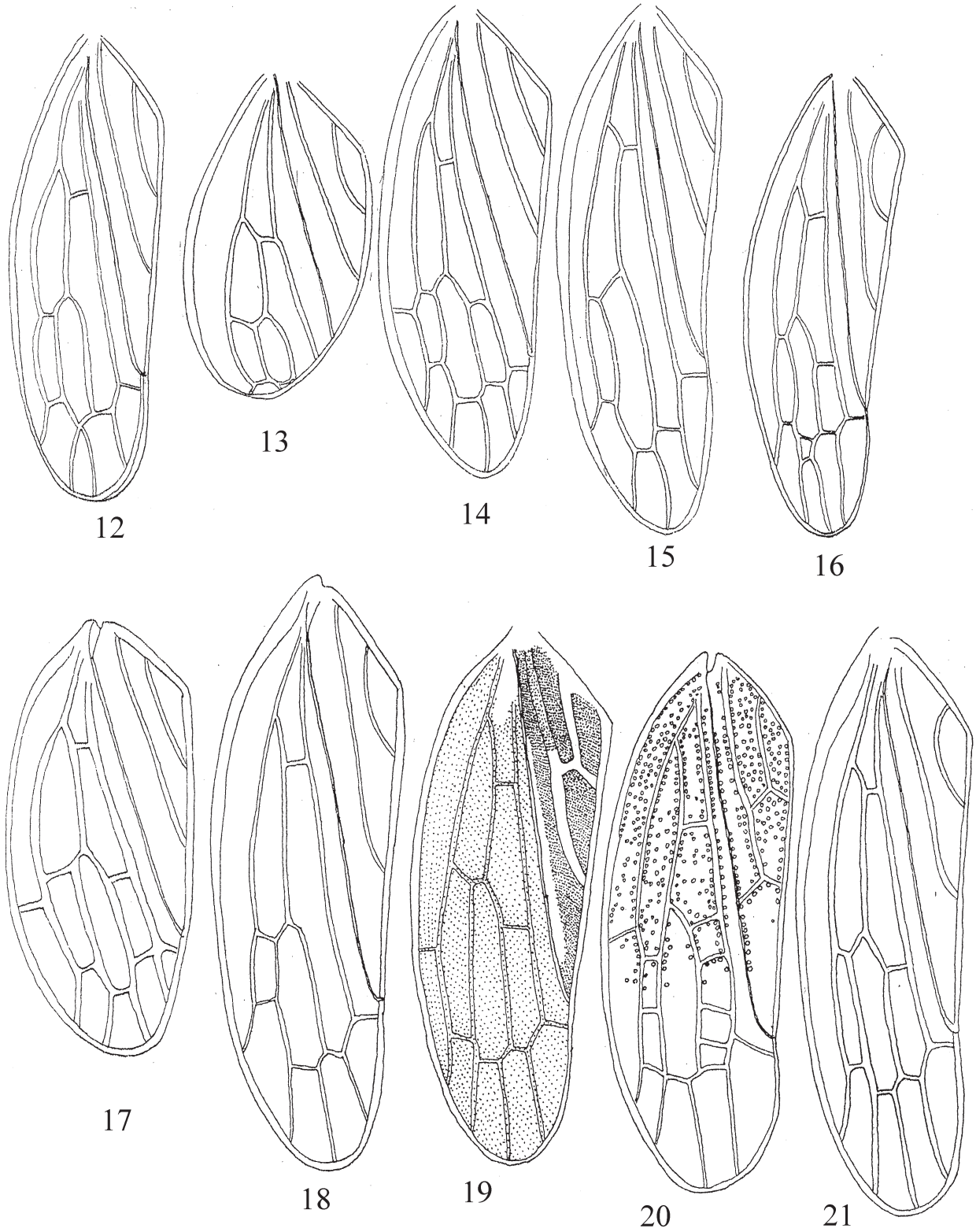
Distribution. Predominantly Palaearctic genus but also distributed in northern limits of Afrotropical and Oriental regions.

Remarks. At present many unrelated species are placed in the genus *Agallia* by various authors. Nast (1972) included all Palaearctic species of *Anaceratagllia* in this genus. The genus is defined here in a restricted sense so as to make it more homogeneous. The Nearctic species of *Agallia* are not congeneric with the Palaearctic *Agallia* (Viraktamath 1980; Hamilton & Langor 1987). True *Agallia* from the Palaearctic region, for example *Agallia consobrina* (Figs 12, 22, 37–40, 92–99) has the head of uniform length throughout the width; the male pygofer is simple without the caudal appendages; the anal collar is well developed with a simple claw-like caudal process and the

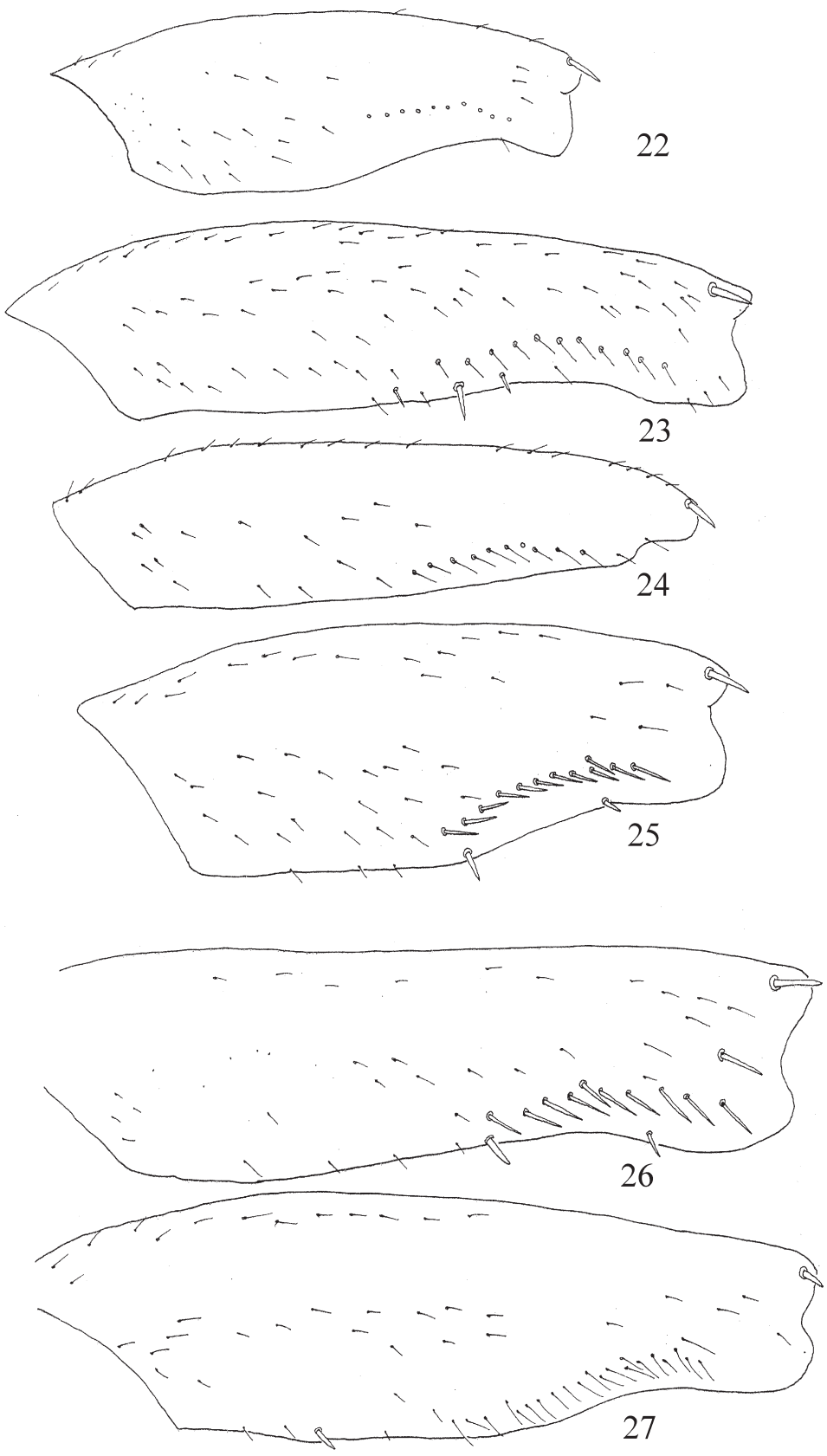
main body of the collar has a few punctures; the aedeagus is symmetrical with a well-developed dorsal apodeme, rarely with a process, and lacking the preatrium. No species of *Agallia* were found from the Oriental region except an undescribed brachypterous female specimen from India (Jammu & Kashmir: Srinagar) (Figs 1, 2, 562, 591). *Agallia sinica* Jacobi (China) was not studied; however, by the original description, it does not appear to belong to the genus *Agallia* but to *Anaceratagallia*.



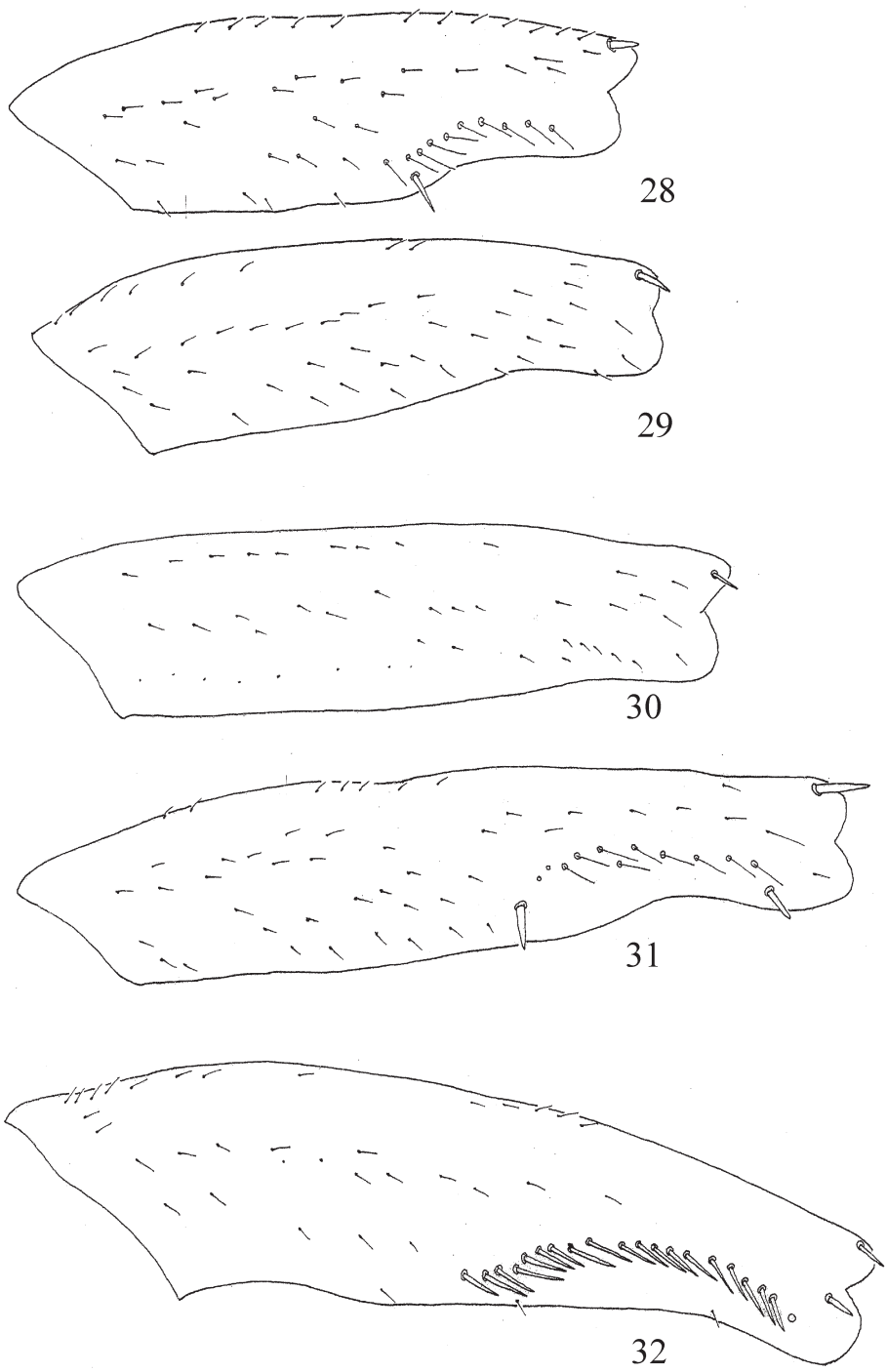
FIGURES 1–11. Species of Agalliini: 1–2. *Agallia* sp.; 3–4. *Anaceratagallia robusta* (Pruthi); 5–6. *Austroagallia balii* **sp. nov.**; 7–9. *Hemagallia biplagiata* (Melichar) comb. nov.; 10–11. *Paulagallia punctata* **sp. nov.**



FIGURES 12–21. Forewings of Agalliini: 12. *Agallia consobrina* Curtis; 13. *Agallia* sp.; 14. *Anaceratagallia robusta* (Pruthi); 15. *Igerna violacea* (Distant) comb. nov.; 16. *Formallia rugosa* **sp. nov.**; 17. *Hemagallia biplagiata* (Melichar); 18. *Ianagallia bifurcata* (Sawai Singh & Gill) comb. nov.; 19. *Japanagallia sumatrana* **sp. nov.**; 20. *Paulagallia punctata* **sp. nov.**; 21. *Sangeeta nigra* **sp. nov.**



FIGURES 22–27. Forefemora of Agalliini: 22. *Agallia consobrina* (Curtis); 23. *Anaceratagallia robusta* (Pruthi); 24. *Austroagallia sinuata* (Mulsant & Rey); 25. *Dryodurgades antoniae* (Melichar); 26. *Durgades nigropicta* Distant; 27. *Formallia rugosa* **sp. nov.**



FIGURES 28–32. Forefemora of Agalliini: 28. *Hemagallia biplagiata* (Melichar); 29. *Ianagallia bifurcata* (Sawai Singh & Gill); 30. *Japanagallia mussooriensis* **sp. nov.**; 31. *Nandigallia nandiensis* **sp. nov.**; 32. *Paulagallia punctata* **sp. nov.**

Genus *Anaceratagallia* Zachvatkin Status revised

Anaceratagallia Zachvatkin, 1946: 159–161. Type-species: *Agallia venosa* Fallén, by original designation.

Color. Brown with two spots on vertex, two on anterior margin of pronotum and at base of scutellum, black. Pronotum often with lateral triangular and median spindle-shaped dark brown patches (Fig. 3).

Morphology. Robust, wedge-shaped leafhoppers. Vertex longer medially than next to eyes, hind margin evenly rounded. Face and vertex shagreened, transclypeal sulcus complete, gena behind eyes sinuate. Pronotum coarsely and transversely irregularly rugose. Forewing venation prominent with four apical and three anteapical cells, inner anteapical cell closed posteriorly by cross vein (Fig. 14). Forefemora with intercalary (IC) setae forming arched row, antero-ventral (AV) row with one stout, long prominent and two subprominent setae (Fig. 23). Hind tibial macrosetae PD 9±1, AD 7±1, AV 5±1. Hind basitarsus with two platellae on distal transverse row.

Male genitalia. Pygofer well sclerotized, caudal lobe produced ventrally into spine-like process or triangular expansion with acute ventral angle (Figs 100, 106, 123). Subgenital plates together boat-shaped, with short macrosetae arranged in mesal submarginal row. Styles with inner arm longer than outer, usually apically narrowed with subapical tooth. Aedeagus without long processes, often with denticles, dorsal apodeme well developed, preatrium short, gonopore subapical. Anal collar process well developed.

Female genitalia. First pair of valvulae with papillose sculpturing (Figs 41, 42), sculpturing in middle section submarginal, dorsal two rows not aligned, rest aligned with distinct interspaces, dorsal sculpture on 0.75 length. Second pair of valvulae with dorso-apical margin angularly elevated about distal 0.25, teeth smooth, without denticles, ventroapical area serrated (Figs 43, 44).

Distribution. Predominantly a Palaearctic genus but also distributed in the Afrotropical and Oriental regions.

Remarks. *Anaceratagallia* closely resembles *Bergallia* Oman, *Aceratagallia* Kirkaldy, *Hemagallia* **gen. nov.** and *Nandigallia* **gen. nov.** (see below). Nast (1972), Ossiannilsson (1981) and Oman *et al.* (1990) treated this genus as a junior synonym of *Agallia* without justification. Anufriev & Emeljanov (1988) however, considered *Anaceratagallia* as a genus distinct from *Agallia*. The structure of head, pronotum, forewing venation, pygofer, aedeagus and style distinguish this genus from *Agallia*. The subgenital plates in *Anaceratagallia* and *Nandigallia* **gen. nov.** are boat-shaped; however, they differ in the structure of the inner arm of the style, which is broad in *Nandigallia* and narrowed in *Anaceratagallia*.

Key to species of *Anaceratagallia* of the Oriental region

1. Anal collar process tridentate (Fig. 100); aedeagus wih two subapcial teeth-like processes (Figs 104, 105) (north India) . . . . . *A. cuspidata* (Dlabola)
- Anal collar process with one or two distal subacute projections; aedeagus without processes 2
2. Anal collar process with ventral subacute and dorsal acute projections (Figs 109, 113), caudal margin between them either smooth or crenulated (Fig. 115) (India) . . . . . *A. robusta* (Pruthi)
- Anal collar process with only one subacute projection (Figs 106, 121) 3
3. Aedeagal shaft with one subapical tooth on dorsal margin. . . . . *A. aciculata* Horváth
- Aedeagus lacking subapical tooth on dorsal margin 4
4. Anal collar process obliquely truncate (Fig. 121) (north India) . . . . . *A. srinagarensis* (Kameswara Rao & Ramakrishnan)
- Anal collar process with dorsal margin slightly curved, with finger-like blunt projection of more or less uniform width, its origin on the main body marked by thickening (Fig. 106) (India) . . . . . *A. pararobusta* (Pruthi)

Anaceratagallia aciculata (Horváth)

Agallia venosa var.aciculata Horváth 1894: 186. Type, Georgia [not examined]
Agallia aciculata;Vilbaste 1962: 134.
Anaceratagallia aciculata; Metcalf 1966:79.

Remarks. Specimens of this speices was not studied from the Oriental region. However, Khatri et al. (2010) recorded this species from Pakistan and illustrated the male genitalia.

Anaceratagallia cuspidata Dlabola

Figs 100–105.

Anaceratagallia cuspidata Dlabola 1957: 298–299, figs 106–110. HOLOTYPE ♂, AFGHANISTAN, [Not examined].
Agallia pseudorobusta Kameswara Rao and Ramakrishnan 1978a: 236–237, fig. 1 a–l. HOLOTYPE ♂, INDIA: Delhi [NPC, Examined] **syn. nov.**

Color. Coloration and structure as in *Anaceratagallia robusta* (see below).

Male genitalia. Pygofer with short, ventrally directed spine-like projection. Subgenital plates with a few short setae on ventral margin. Styles with inner arm gradually boradened distally, with truncate apex, longer than inner arm. Aedeagal shaft gradullay narrowed distally, with pair of denticles at distal 0.33. Anal collar with caudal lobe tridentate.

Measurements. Male 3.3 mm long, 1.3 mm wide across eyes.

Material examined. HOLOTYPE ♂ of *Agallia pseudorobusta* Kameswara Rao and Ramakrishnan, INDIA: Delhi, Berseem, 2.iv.1974, P.K.R (NPC). PARATYPES, 3 ♂, Delhi, light dome and Berseem, ii.1974, P.K.R (NPC).

Remarks. This species externally resembles *A. robusta* (see below). However, it can be easily distinguished by the tridentate anal collar process and the tooth-like paired projections on the aedeagal shaft. This species may not be a true member of *Anaceratagallia* as it has the inner arm of the style broad as in *Nandigallia* **gen. nov.** (see below), but has the male pygofer more typical of *Anaceratagallia*.

Anaceratagallia pararobusta (Pruthi) comb. nov.

Figs 3, 4, 14, 106–108.

Agallia pararobusta Pruthi 1936: 104–105, fig. 119, pl. VIII, fig. 4. HOLOTYPE ♀, INDIA: Guvvalucherru [ZSI, examined].

Color. Two rectangular spots on vertex placed obliquely, black. Other features as in *A. robusta* (see below).

Male genitalia. Pygofer produced caudo-ventrally into spine-like process of variable width (Figs 109–112). Aedeagal shaft slender, with slender dorsal apodeme. Anal collar process directed ventrally with finger-like process on dorsal angle.

Female genitalia. Hind margin of seventh sternite broadly concave.

Measurements. Male 3.20–3.30 mm long, 1.06–1.10 mm wide across eyes. Female 3.7 mm long, 1.25 mm wide across eyes.

Material examined. INDIA: Andhra Pradesh: HOLOTYPE ♀, Guvvalucherru, 500 ft (152 m), Palkonda Hills, 1–3.viii.1929, at light, H.S. Pruthi (ZSI); 2 ♂, 3 ♀, Delhi, 1969, H.M. Harris (UASB). West Bengal: 1 ♀, Purneah dist.: Katihar, 7–31.viii.1910, C.Paiva (BMNH).

Remarks. This species closely resembles *A. laevis* (Ribaut) but differs in having a more slender aedeagal shaft.

Anaceratagallia robusta (Pruthi) comb. nov.

Figs 3, 4, 14, 23, 41–44, 109–120, 563, 577, 592.

Agallia robusta Pruthi 1930: 10–12, Figs.10–12, pl.1, figs 5, 5a. SYNTYPES ♂ ♀, PAKISTAN: Murre Hills [ZSI, examined].
Agallia delhiensis Kameswara Rao and Ramakrishnan 1978a: 241, fig. 3 a–l. HOLOTYPE ♂, INDIA: Delhi [NPC, examined].
syn. nov.

Color. Ochraceous. Vertex with two large round spots and median fuscous stripe. Face with fuscous markings, lateral areas of fronto-clypeus marked with dark brown spots. Pronotum with two semicircular spots on anterior margin of pronotum, black; median larger spot and lateral somewhat triangular spot on either side on posterior margin, dark brown. Basal triangles of scutellum, two dots near middle, black; posterior half of scutellum brown. Forewings with fuscous veins and some cells infuscated.

Male genitalia. Ventral spine-like process of pygofer slender, short. Aedeagus with shaft of uniform width, gonopore subapical with length in lateral aspect equal to length of shaft beyond it. Anal collar process with dorsal finger-like projection, with caudal margin oblique, crenulate to smooth.

Female genitalia. Hind margin of seventh sternite concave with lateral margins slightly caudally produced.

Measurements. Male 3.37 (3.0–3.6) mm long and 1.1 mm wide across eyes. Female 3.77 (3.5–3.9) mm long and 1.3 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂ and 7 ♂ PARATYPES: Delhi, 2.iv.1974, ex Berseem, P. Kameswara Rao, *Agallia delhiensis* (NPC). Additional material: 1 ♂, 2 ♀, Delhi, 23.iv.1975, C.A. Viraktamath (UASB). Karnataka: 2 ♂, 2 ♀, Dharwar, ii.1970 (1 ♂), 22.x.1969 (2 ♀), H.M. Harris (UASB). PAKISTAN: 1 ♂, 1 ♀, SYNTYPES (male with abdomen missing), Murree Hills, x.1928, H.S. Pruthi, *Agallia robusta* Pruthi (ZSI). Wazaristan: N.W. India: iii–iv.1930, Rev G. Palacios B.M. 1931-1 (BMNH).

Remarks. This species closely resembles *A. laevis* (Ribaut) from which it can be differentiated by the shape of the anal collar process.

Anaceratagallia srinagarensis (Kameswara Rao and Ramakrishnan) comb. nov.

Figs 121–123.

Agallia srinagarensis Kameswara Rao and Ramakrishnan 1978a:237, 239, fig. 2 a–l. Holotype ♂, INDIA: Dal Lake [NPC, examined].

Color. Coloration very similar to *A. robusta.*

Male genitalia. Caudal margin of pygofer with triangular projection. Aedeagus short, robust, with shaft extending beyond gonopore in lateral view; dorsal apodeme short and robust. Anal collar process short, parallel sided for most part, with apex obliquely truncate, caudo-dorsal angle acute.

Female genitalia. Hind margin of seventh sternite broadly concave.

Measurements. Male 2.75– 3.00 mm long, 1.06–1.10 mm wide across eyes. Female 3.35 mm long, 1.20 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂, Jammu and Kashmir: Dal Lake, 22.ix.1938, H.S. Pruthi (NPC). PARATYPES: 3 ♂, Delhi, 20.iv.1965, R. Menon, 28.ii.1974, 11.xi.1974, Lamp Dome, P. Kameswara Rao; 1 ♂, Delhi, ix–xi.1939, at light, W. Kerr (NPC). Additional material: 3 ♂, 1 ♀, INDIA: Jammu & Kashmir: Srinagar, 3.x.1981, Dworakowska (UASB).

Remarks. This species resembles *A. brevispina* (Linnavuori) from Morocco but can be distinguished by the parallel-sided anal collar process, which is obliquely truncate near apex, and by the shape of the aedaegal shaft.

Genus *Austroagallia* Evans

Austroagallia Evans, 1935: 70. Type-species: *Austroagllia torrida* Evans, by monotypy.
Peragallia Ribaut, 1948: 59. Type specis: *Bythoscopus sinuatus* Mulsant and Rey, by original designation; synonymy by Le Quesne, 1964: 73.

Color. Usually light brown in color with two round spots on vertex and two on posterior half of pronotum, black (Fig. 5).

Morphology. Small leafhoppers. Head wider than pronotum. Hind margin of vertex sinuately curved laterally behind eyes. Ocelli distinctly closer to each other than to adjacent eyes, situated in deep depressions facing laterally. Fronto-clypeus rather narrow, surface shagreen and face usually not forming single convex surface. Clypellus slender, elongate. Gena narrow and elongate. Pronotum arcuate often with punctures. Forewings with three anteapical cells, inner anteapical cell opened basally. No cross vein between claval veins. Forefemora with intercalary setae arranged in arched row, AV setae not prominently stout. Macrosetae of hind tibia PD 6±1, AD 6±1, AV 5±1. Hind basitarsus with two rows of spine-like setae (Fig. 34) on planta (except in *A. robusta*) and one platella on distal transverse row.

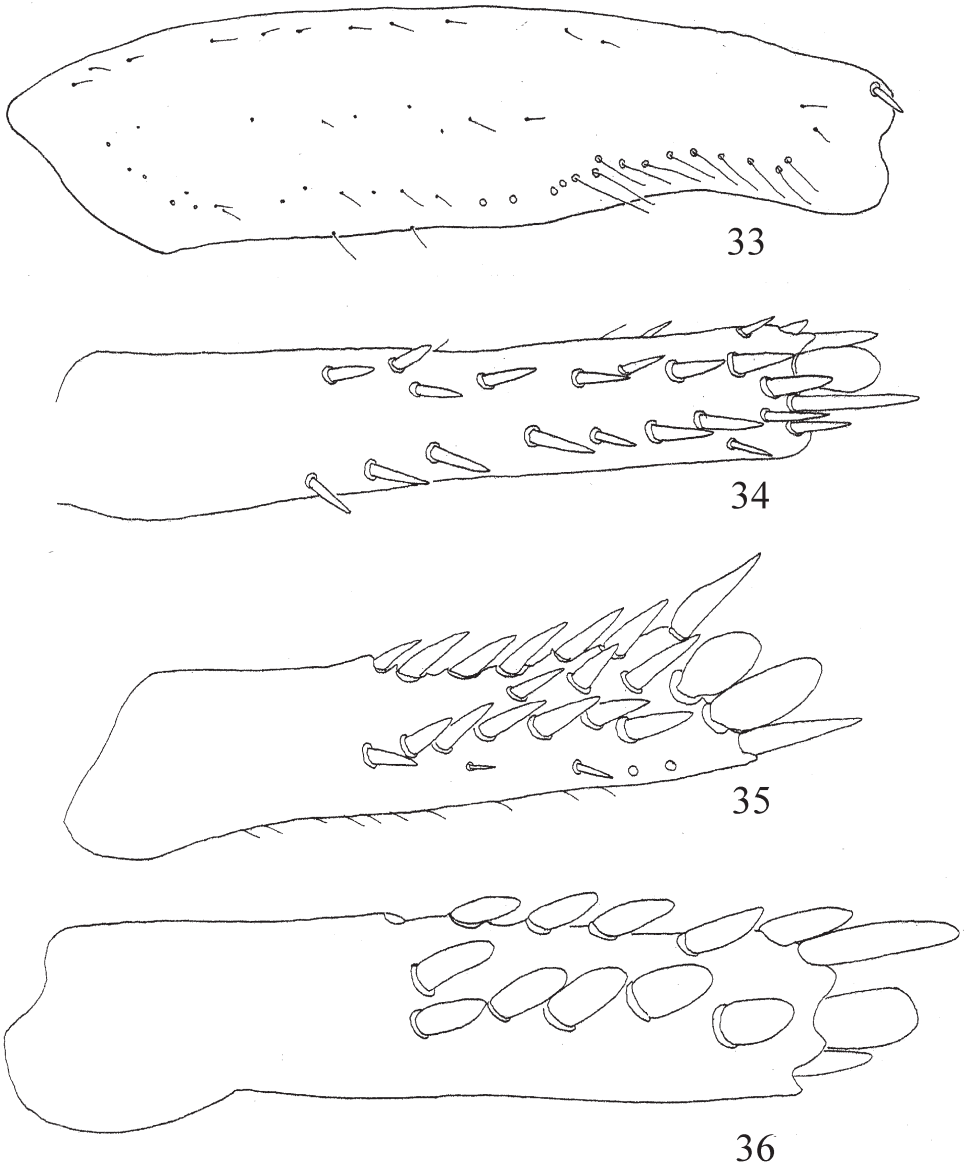
Male genitalia. Pygofer lobe either smoothly rounded or dorsocaudally produced into rounded lobe. Styles slender distally forked with inner arm either as long as or shorter than outer arm. Aedeagus asymmetrical, either with laminate processes or with finger-like short apical or subapical or both processes. Preatrium usually poorly developed. Gonopore apical or subapical. Anal collar well developed, either distally rounded with crenulate border or strongly hooked or branched.

Female genitalia. Hind margin of seventh sternite usually straight or slightly sinuate, ninth sternite often well sclerotized. First pair of valvulae with elongate, alveolate sculpturing occupying more than half length, submar-

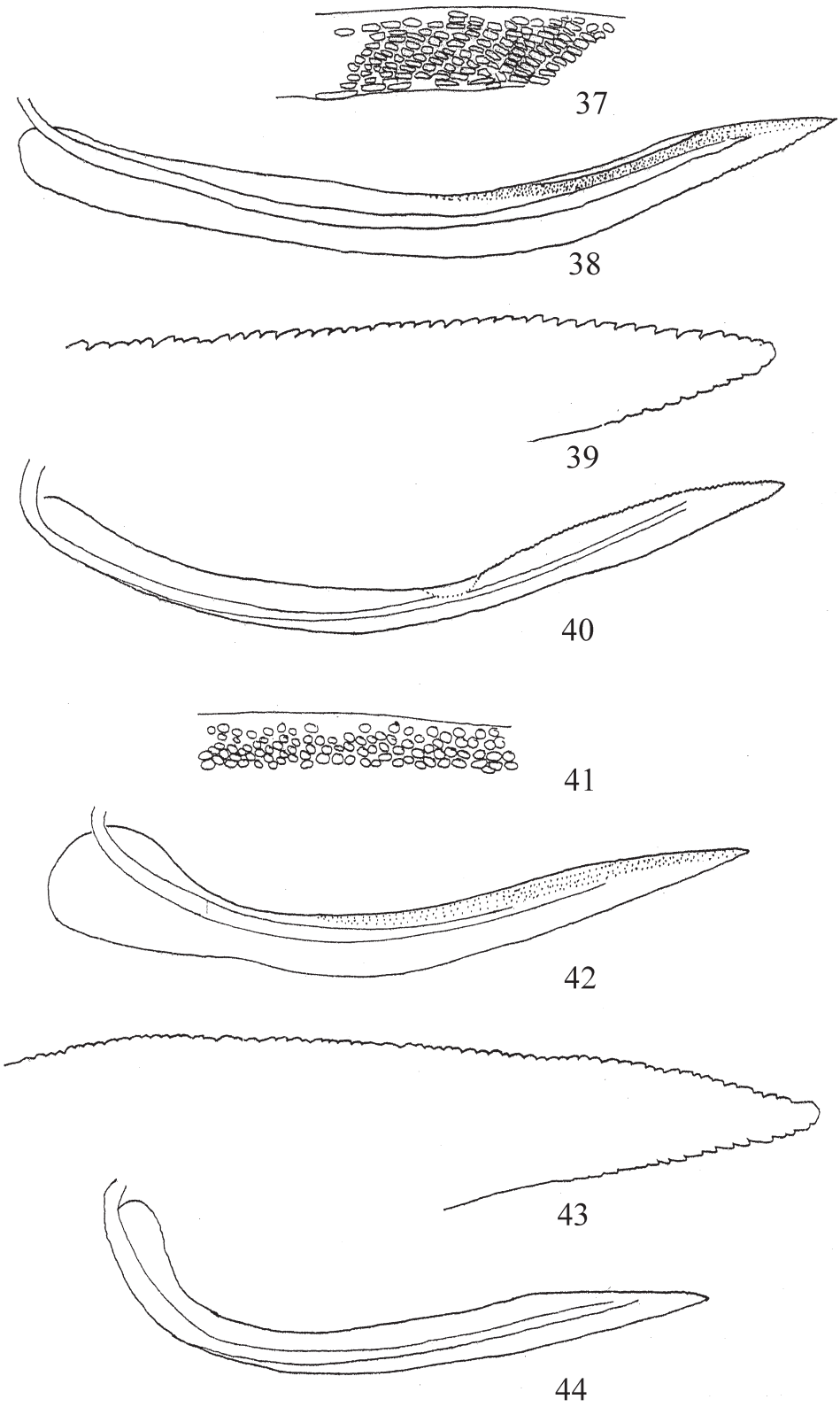
ginal in middle section (Figs 45, 46). Second pair of valvula with dorsal surface toothed, some teeth bearing denticles, dorsal margin of toothed area bisinuate (Figs 47–50).

Distribution. Australian, Afrotropical, Oceanic, Oriental and Palaearctic.

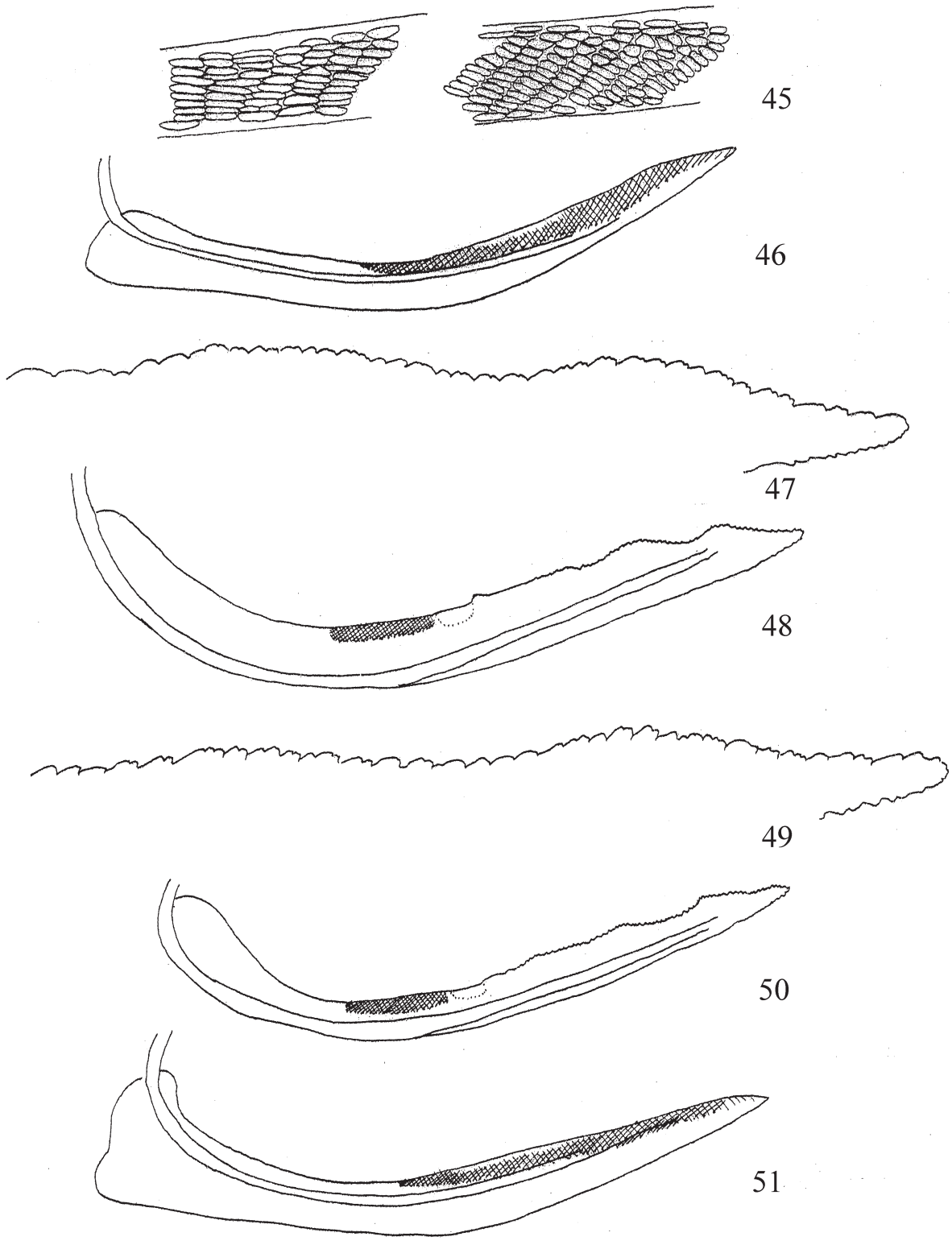
Remarks. This genus closely resembles *Igerna* Kirkaldy. It can be distinguished from the latter by the following combination of characters: (1) face not forming an even regular convex surface; (2) ocelli situated in comparatively deep depressions and prominent; (3) gena comparatively narrow; (4) frontoclypeus comparatively narrow; (5) anal collar of male with distally hooked or branched or with crenulated border; (6) aedeagus with rather weakly developed preatrium and strongly asymmetrical. Coloration is very uniform except in darker specimens (even in the same species) additional smaller spots anterior to pronotal spots may be found, the head pronoutm and forewings are marked with additional brown markings. The genus also shares the sinuate hind margin of vertex with *Stonasla* White, *Nehela* White, *Japanagallia* Ishihara, and the New World *Brasopsis* Linnavuori and *Agalliopsis* Kirkaldy. It differs from *Stonasla* in not having the gena laterally expanded and from *Nehela, Japanagallia* and *Agalliopsis* in having asymmetrical male genitalia. The genus *Brasopsis* is known only from the unique female type.



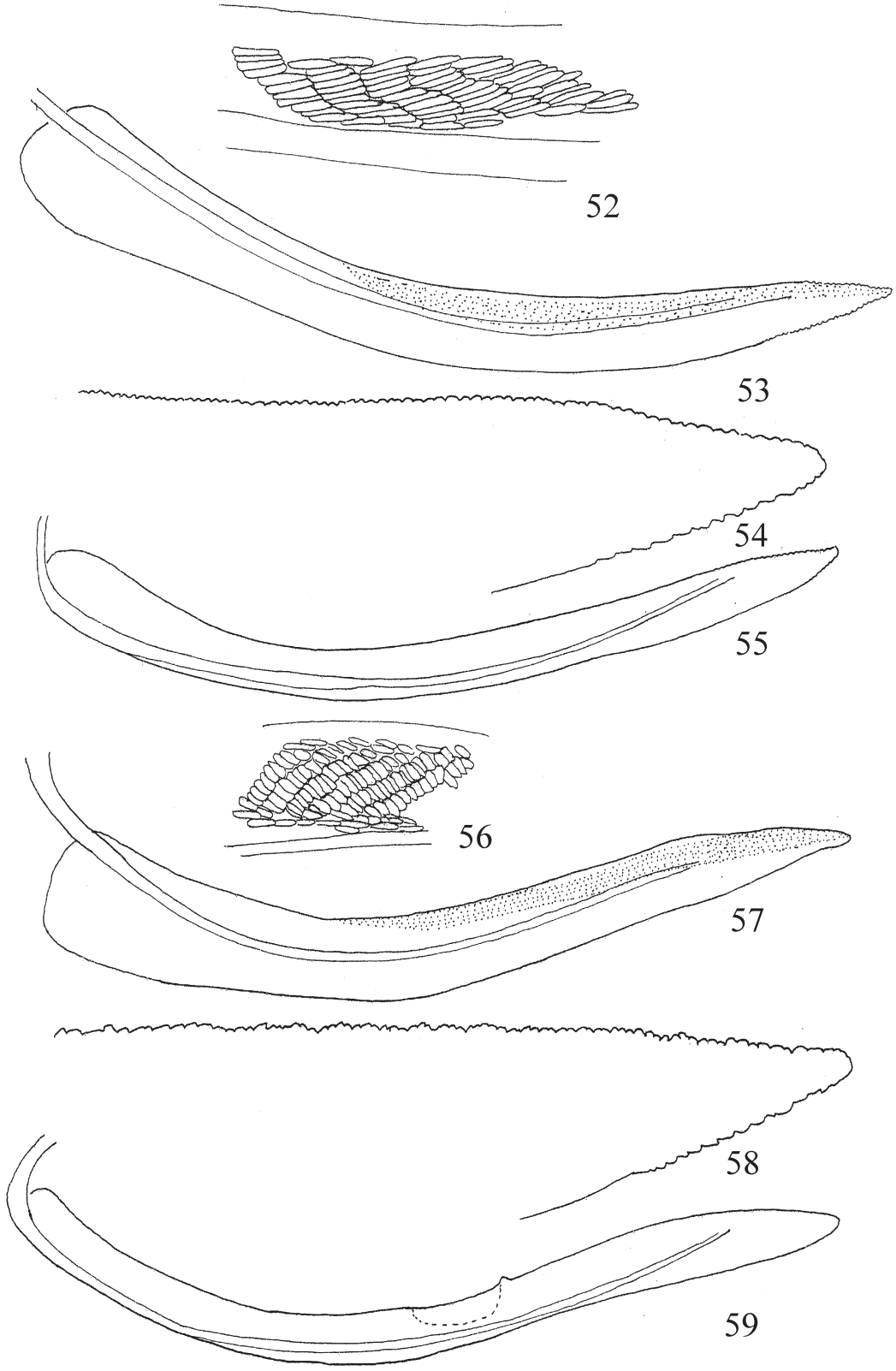
FIGURES 33–36. Forefemora and meta basitarsus of Agalliini: 33. Forefemora of *Sangeeta nigra* **sp. nov.**; 34–36. Meta basitarsus of Agalliini: 34. *Ianagallia bifurcata* (Sawai Singh & Gill); 35. *Hemagallia biplagiata* (Melichar); 36. *Austroagallia robusta* Sawai Singh & Gill.



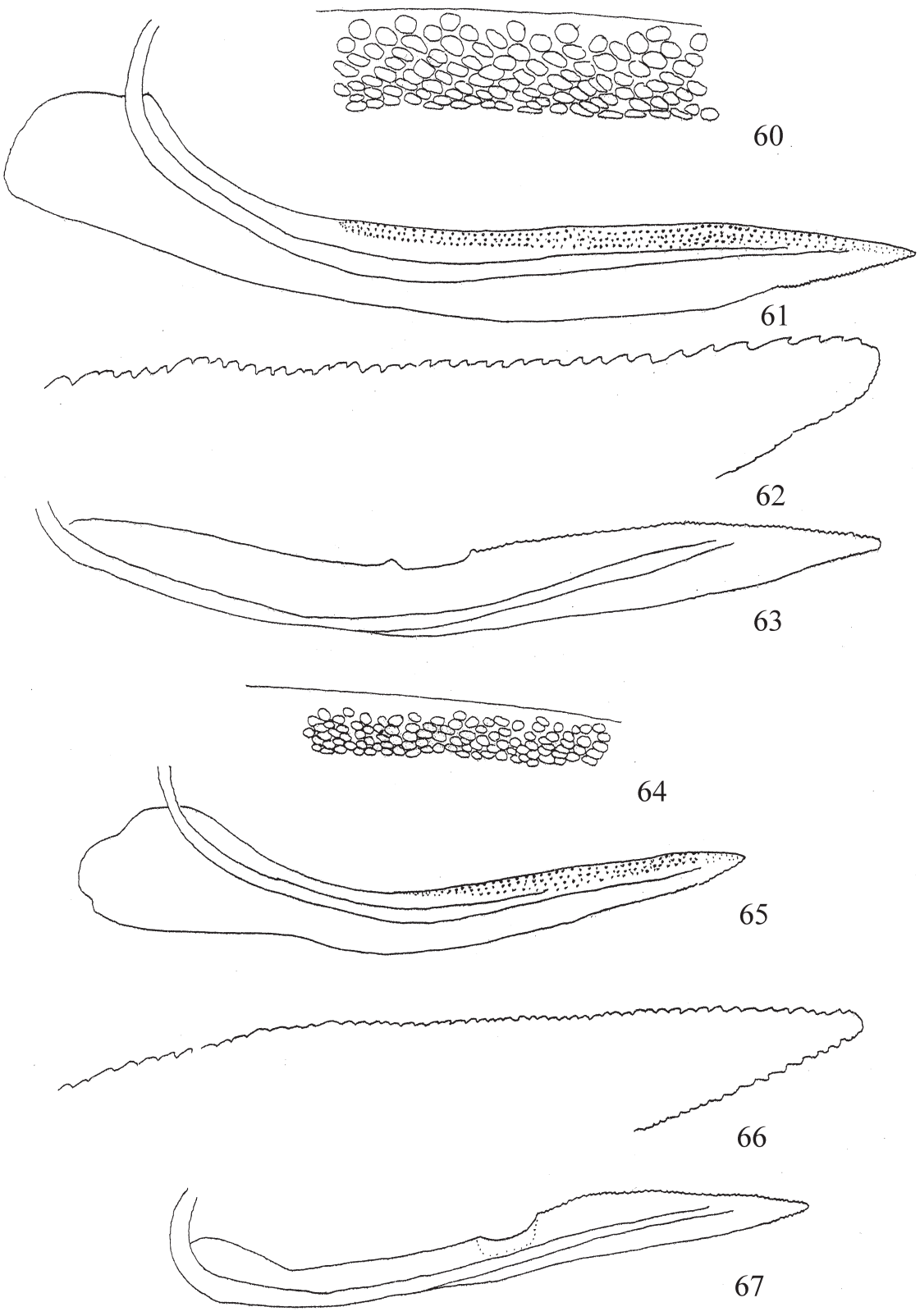
FIGURES 37–44. First and second pair of valvulae of Agalliini: 37–40. *Agallia consobrina* Curtis: 37. Dorsal sculpturing on first pair of valvula; 38. First pair of valvula; 39. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 40. Second pair of valvula; 41–44. *Anaceratagallia robusta* (Pruthi): 41. Dorsal sculpturing on first pair of valvula; 42. First pair of valvula; 43. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 44. Second pair of valvula.



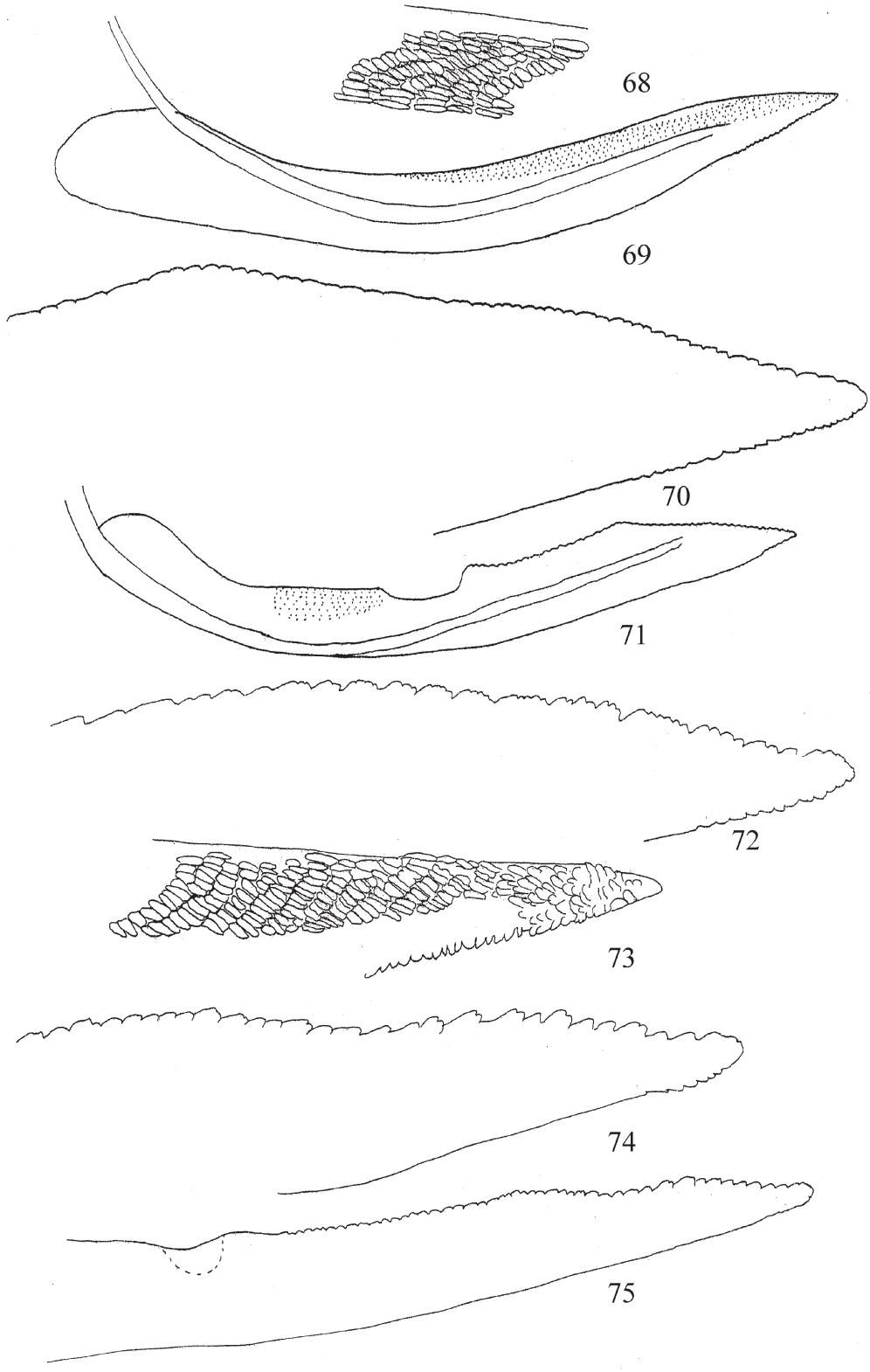
FIGURES 45–51. First and second pair of valvulae of Agalliini: 45–48. *Austroagallia fagonica* Sawai Singh & Gill: 45. Dorsal sculpturing on first pair of valvula; 46. First pair of valvula; 47. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 48. Second pair of valvula; 49–51; *Austroagallia sinuata* (Mulsant & Rey): 49. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 50. Second pair of valvula; 51. First pair of valvula.



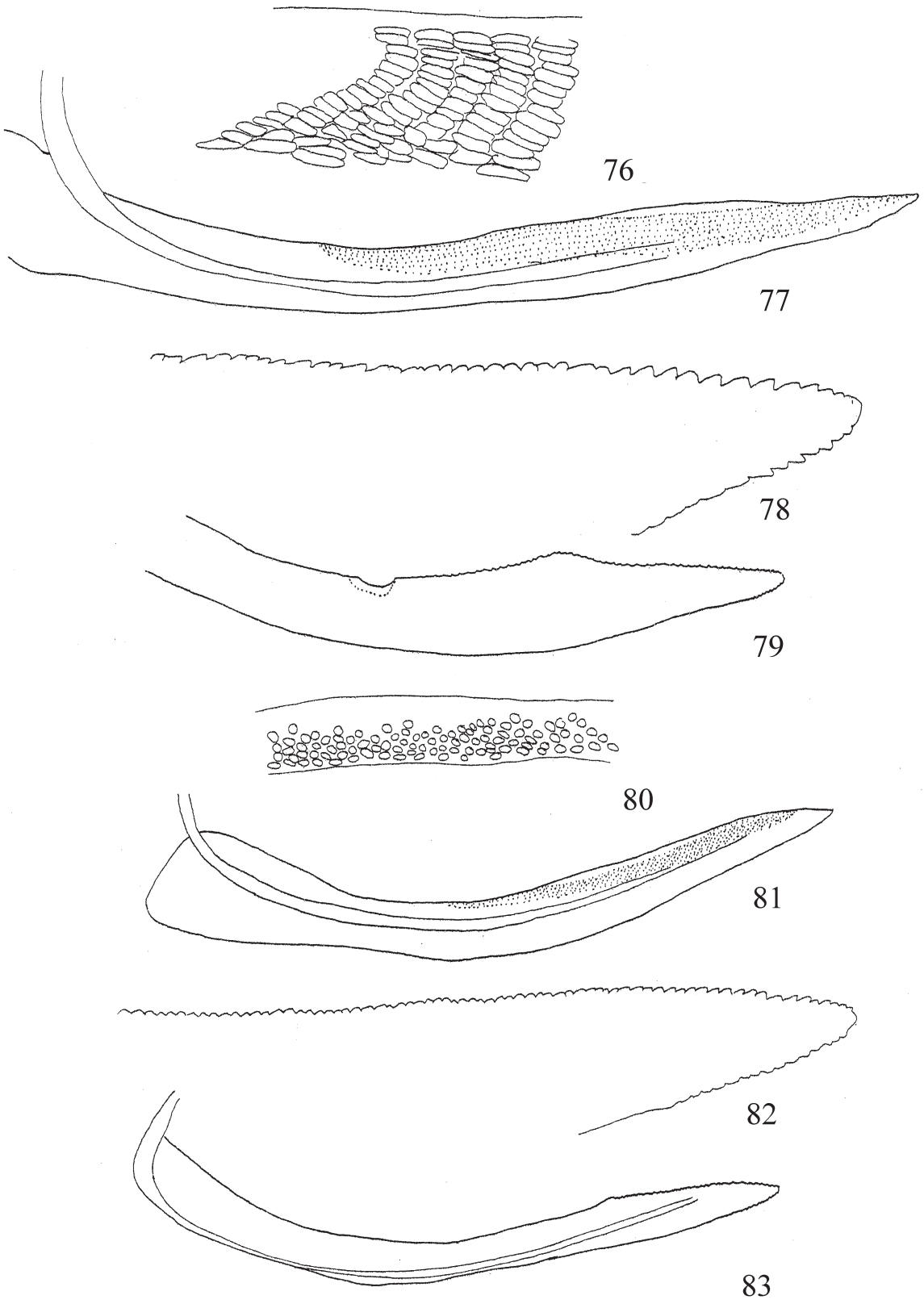
FIGURES 52–59. First and second pair of valvulae of Agalliini: 52–55. *Dryodurgades antoniae* (Melichar): 52. Dorsal sculpturing on first pair of valvula; 53. First pair of valvula; 54. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 55. Second pair of valvula; 56–59. *Durgades nigropicta* Distant. 56. Dorsal sculpturing on first pair of valvula; 57. First pair of valvula; 58. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 59. Second pair of valvula.



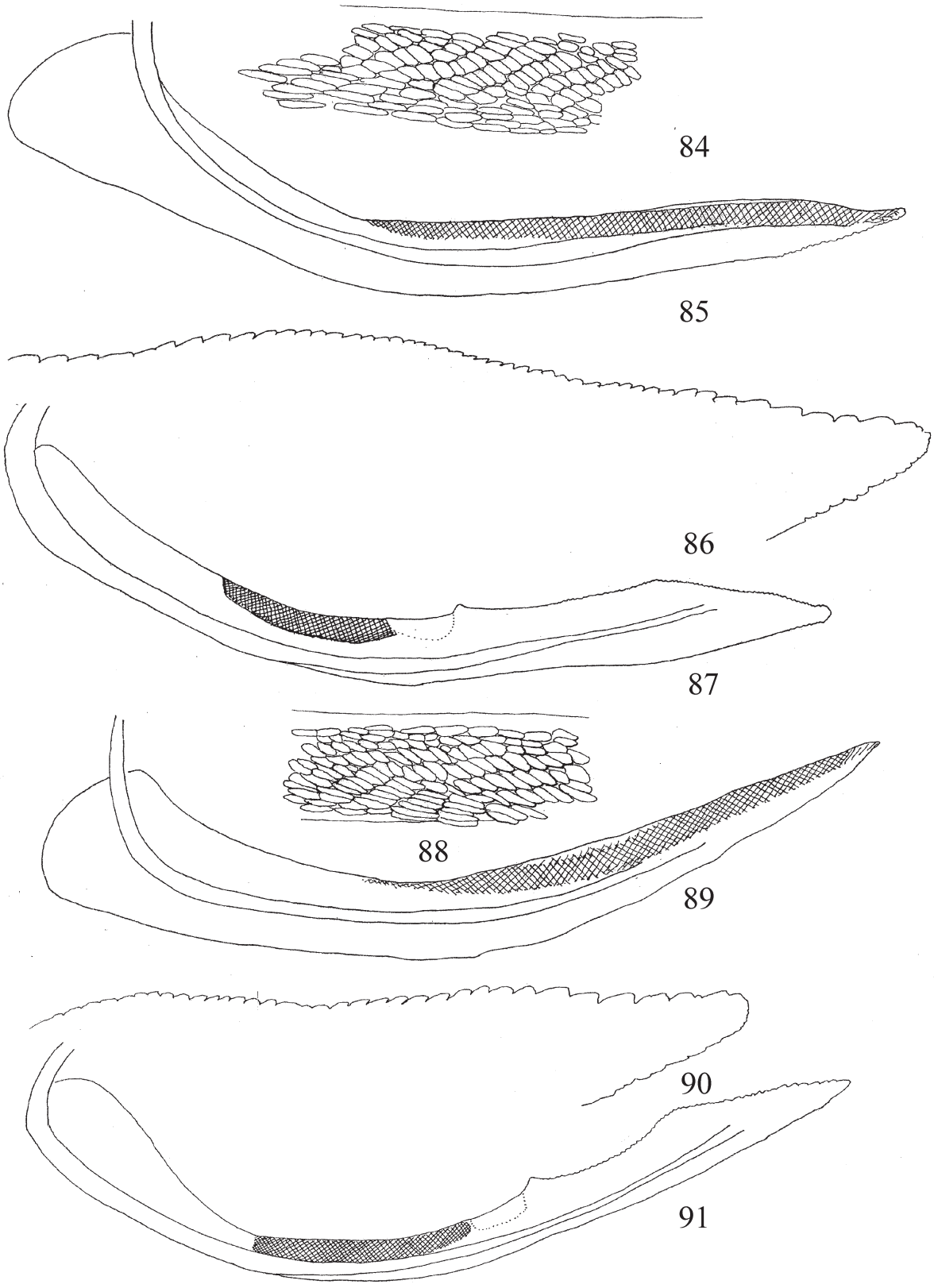
FIGURES 60–67. First and second pair of valvulae of Agalliini: 60–63. *Formallia rugosa* **sp. nov.**: 60. Dorsal sculpturing on first pair of valvula; 61. First pair of valvula; 62. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 63. Second pair of valvula; 64–67. *Hemagallia biplagiata* (Melichar): 64. Dorsal sculpturing on first pair of valvula; 65. First pair of valvula; 66. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 67. Second pair of valvula.



FIGURES 68–75. First and second pair of valvulae of Agalliini: 68–71. *Igerna priyankae* **sp. nov.**: 68. Dorsal sculpturing on first pair of valvula; 69. First pair of valvula; 70. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 71. Second pair of valvula; 72. *Igerna sikkima* **sp. nov.** Second pair of valvula; 73–75. First and second pair of valvulae of *Ianagallia bifurcata* (Sawai Singh & Gill): 72. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 73. Higher magnification of dorsal sculpturing on first pair of valvula; 74. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 75. Second pair of valvula.



FIGURES 76–83. First and second pair of valvulae of Agalliini: 76–79. *Japanagallia mussooriensis* **sp. nov.**: 76. Higher magnification of dorsal sculpturing on first pair of valvula; 77. First pair of valvula; 78. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 79. Second pair of valvula; 80–83. *Nandigallia nandiensis* **sp. nov.**: 80. Higher magnification of dorsal sculpturing on first pair of valvula; 81. First pair of valvula; 82. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 83. Second pair of valvula.



FIGURES 84–91. First and second pair of valvulae of Agalliini: 84–87. *Paulagallia punctata* **sp. nov.**: 84. Higher magnification of dorsal sculpturing on first pair of valvula; 85. First pair of valvula; 86. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 87. Second pair of valvula; 88–91. *Sangeeta* sp.: 88. Higher magnification of dorsal sculpturing on first pair of valvula; 89. First pair of valvula; 90. Higher magnification of dorsal and ventroapical teeth on second pair of valvula; 91. Second pair of valvula.

Key to species of *Austroagallia* Evans of Oriental and Australian regions

1. Forewing with brownish reticulate venation (Fig.151); minute dot-like marks on vertex and pronotum (Fig. 148) (northern India, Pakistan) . . . . . *A. robusta* Sawai Singh and Gill
- Forewing venation not reticulated; spots on vertex large, prominent (Figs 5, 128) 2
2. Aedeagal shaft with basal stout, elongate process (Figs 154, 155) (north India, Pakistan) . . . . . *A. sarobica* (Dlabola)
- Aedeagal shaft lacking basal process, or if present, short, tooth-like (Fig.131) 3
3. Aedeagal shaft either with apical laminate process (Fig. 142) or laminately expanded laterally (Figs 147, 164) 4
- Aedeagal shaft neither laminately expanded nor with laminate process (Figs 131, 136) 8
4. Anal collar process with single curved hook (Figs 141, 159); laminate process of shaft short, either borne at midlength or apex (Figs 142, 163, 164) 5
- Anal collar process with one or more dentate hooks (Figs 145, 156); aedeagal shaft laminately expanded medially (Figs 147, 157) 7
5. Aedeagal shaft with laminate process surrounding gonopore (Figs 142, 143); anal collar hook spindle-shaped (Fig. 141) (India, Pakistan, Taiwan, Thailand, Sri Lanka, Vietnam) . . . . . *A. nitobei* (Matsumura)
- Aedeagal shaft with short lamellate process at midlength (Figs 163, 164); anal collar hook apically attenuated (Figs 159, 160) (Indonesia, Goodenough Island, New Caledonia, New Hebrides, New Guinea, Solomon islands and Fiji, Australian region) . . . . . *A. torrida* Evans
6. Base of anal collar hook slender; dorsal denticle short, slender (Fig. 156) (Oriental: Northwest India, Pakistan; Palaearctic region) . . . . . *A. sinuata* (Mulsant & Rey)
- Base of anal collar hook stout, dorsal denticle stout, well demarcated, ventral hook curved and apically slightly expanded, crenulate (Fig.145) (India, Thailand) . . . . . *A. prachuabensis* **sp. nov.**
8. Aedeagus with pair of finger-like processes at apex (Figs 136, 138) (India, Pakistan) . . . . . *A. fagonica* Sawai Singh and Gill
- Aedeagus with pair of longer processes directed ventrally (Figs 127, 131) 9
9. Anal collar hook short and robust (Fig.130); aedeagus with each process arising at different level on shaft (Figs 131, 133) (south India) . . . . . *A. distanti* **sp. nov.**
- Anal collar hook longer and slender (Fig. 124); aedeagus with each process arising at same level (Figs 126, 127) (Indonesia: Bali) . . . . . *A. balii* **sp. nov.**

***Austroagallia balii* sp. nov.**
Figs 5, 6, 124–127.

Color. Ochraceous, vertex with median stripe, round spot on either side of median line, dark brown to black; face with brown markings on fronto-clypeus and clypellus; antennal pits with large black spot. Pronotum with pair of smaller rather round spots on anterior half and pair of larger roundish spots on posterior half. Basal triangles at base of scutellum brown. Forewings dark brown with claval veins, inner margin, claval suture and costal margin, pale ochraceous. Pleural areas of thorax dark brown to black.

Male genitalia. Pygofer about as long as height, caudal margin bilobed, caudodorsal area with mesal rounded lobe. Subgenital plates triangular. Connective with slightly concave anterior margin, broadest at posterior margin, with rounded less sclerotized lateral lobes. Aedeagus with well developed dorsal apodeme, preatrium short, robust, shaft tubular, robust at base, with minute denticles on dorsal margin, with pair of short ventrally directed processes, left process slightly broader with crenulate margin; gonopore apical. Anal collar process large, hook-like, distal end attenuated; dorsal margin serrated at base.

Measurements. 3.45 mm long, 1.1 mm wide across eyes.

Material examined. HOLOTYPE ♂, INDONESIA: Bali, G. Abang, 1200–1300m, 19.vii.1990, I. Dworakowska (UASB).

Remarks. *A. balii* resembles *A. distanti* **sp. nov.** (see below) but differs in the shape of the anal collar process and the aedeagal processes. The denticles found on the dorsal margin of shaft in *A. balii* are absent in *A. distanti*. The aedeagal shaft processes in *A. distanti* arise at different levels on the shaft, whereas in *A. balii* they arise at the same level.

***Austroagallia distanti* sp. nov.**
Figs 128– 133.

Color. Ochraceous. Two round spots closer to eyes than to each other on vertex, black; median stripe on vertex continued on face forming inverted Y below ocelli, inner margins of eyes, ocello-ocular area, narrow submarginal

stripe on frontoclypeus, pale brown; small spot on anterior part of antennal cavity black. Anterior half of pronotum, median stripe, pale brown; two large somewhat round spots on posterior submargin, black, remaining pronotum pale yellow. Scutellum anteriorly pale brown with median pale yellow spot, posterior half ochraceous. Clavus very pale brown but subhyaline, veins pale brown. Legs and sterna ochraceous, claws piceous.

Male genitalia. Caudal lobe of pygofer mesally produced into short lobe. Connective broader than long. Dorsal apodeme of aedeagus well developed, aedeagal shaft broad at base and narrowed apically in lateral aspect, bearing one tooth on left side near base and subapically pair of unequal, lateroventrally directed processes, left process shorter than right one. Anal collar apically broad and hook-like.

Female. Unknown.

Measurements. Male 2.86 mm long, 1.0 mm wide across eyes.

Material examined. HOLOTYPE ♂, INDIA: Karnataka, Bangalore, 3.x.1969, H.M. Harris (UASB). PARATYPE: 1 ♂, data as for holotype but collected on ix.1969 (UASB). Additonal material: INDIA: Andhra Pradesh: 1 ♂, Javadi Hills, Amadi, 7.v.1984, K.R.Rao (UASB).

Remarks. Externally this species resembles *Ianagallia bifurcata* (Sawai Singh & Gill) in coloration. The asymmetrical subapical processes and structure of pygofer processes distinguish *A. distanti* from this and other species of *Austroagallia*.

Austroagallia fagonica Sawai Singh & Gill

Figs 45–48, 134–140.

Austroagallia fagonica Sawai Singh & Gill 1973, In Bindra, 1973: 12–14, pl. 3, figs. 1–11; Viraktamath and Sohi, 1980: 287, figs 17–21. HOLOTYPE ♂, INDIA [PAU, examined].

Color. Ochraceous with round spot on either side of median line on vertex and posterior half of pronotum, black. Ocelli adjacent area black.

Male genitalia. Pygofer with caudodorsal rounded lobe-like prolongation dorsally. Inner arm of styles as long as outer arm. Aedeagus simple with well developed dorsal apodeme, shaft terminated by two finger-like processes directed in different directions making aedeagus asymmetrical, base of shaft often swollen. Anal collar process hook-like with or without small tooth on dorsal margin.

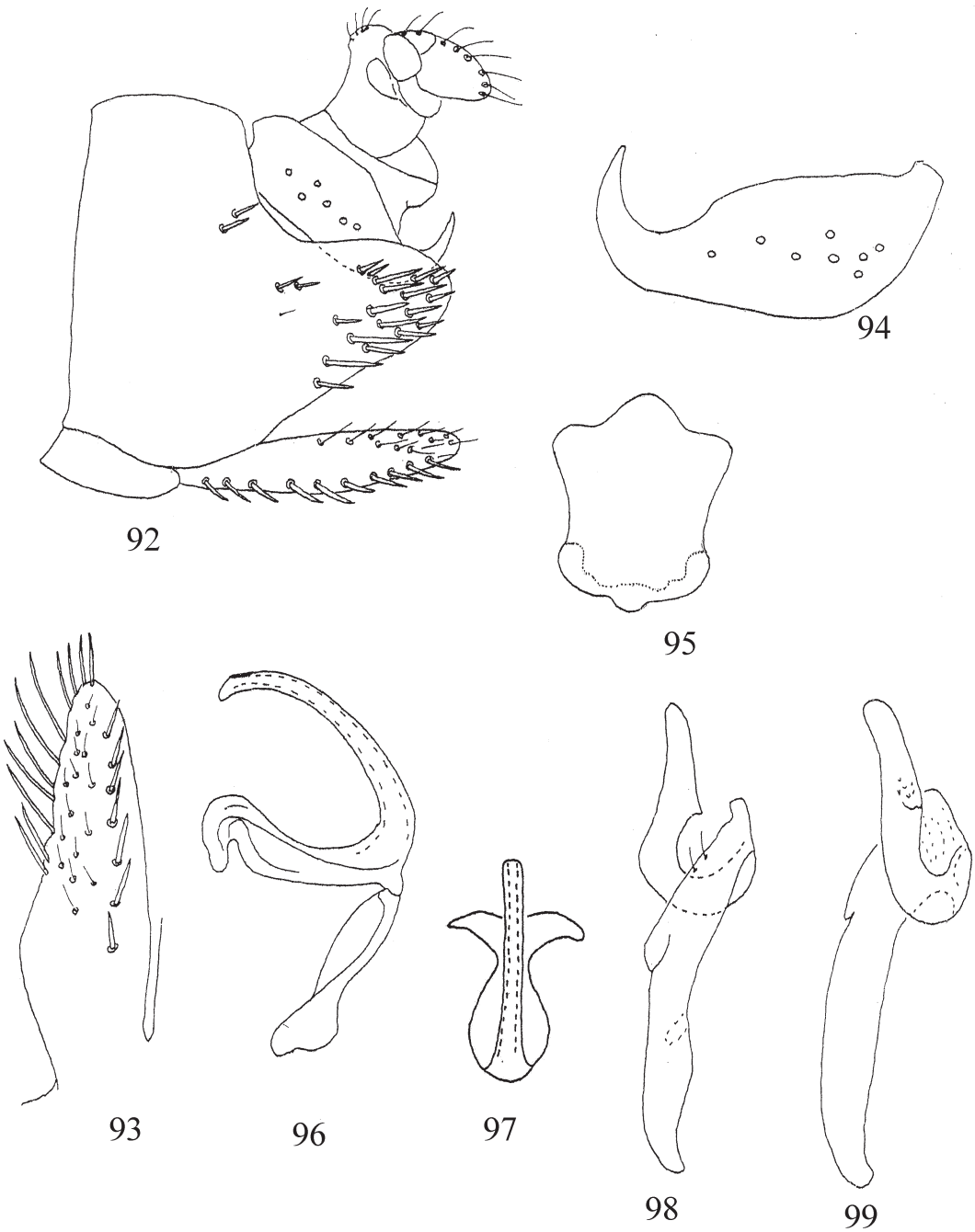
Female genitalia. Hind margin of seventh sternite almost straight.

Measurements. Male 3.05–3.1 mm long, 0.95–1.00 mm wide across eyes. Female 3.5 mm long, 1.07 mm wide across eyes.

Material examined. INDIA: Punjab: HOLOTYPE ♂, Abohar, 22.iv.1968, on *Fagonica cretica* L. (PAU). Paratype: 1 ♂, same data as holotype. Additonal material: INDIA: Delhi, 6 ♂, 9 ♀, IARI Campus, 1968, H.M.Harris; 2 ♂, 9 ♀, 1969, H.M. Harris (UASB); Haryana: 1 ♀, Kalka, 29.i.1979, C.A,Viraktamath; Jammu & Kashmir: 6 ♂, 14 ♀, Srinagar, 3.x.1981, Dworakowska (UASB); Karnataka: Bangalore 1 ♂, 15.ii.1974, 3 ♂, 8 ♀, , 2 nymphs, ex *Leucas aspera*; 2 ♂, 17 ♀, 14–17. 1974, ex *Medicago sativa*; 1 ♂, 1 ♀, 6.iii.1975; 1 ♀, 21.i.1976, all collected by C.A. Viraktamath (UASB); Channapatna, 1 ♂, 3 ♀, 15.vii.1977; Dharwad, 1 ♂, 1 ♀, x.1969; 1 ♀, xi.1969, at light; 2 ♂, 17 ♀, ii.1970, at light; 4 ♂, 2 ♀, 20 Km N Kanakapura, 13.vii.1977 all collected by C.A. Viraktamath; 3 ♂, Gadag, 27.ii.1978; 1 ♂, Nandi Hills, 17.vii.1978, S. Viraktamath; Raichur, 2 ♀, 1969, H.M. Harris; Punjab: 2 ♂, Abohar, 22.iv.1962, ex *Fagoncia cretica*, A.S. Sohi(UASB). PAKISTAN: 3 ♀, Karachi, J. Maldonado; 2 ♂, 8 females, Lahore, x–xi.1957, J. Maldonado (NMNH).

Remarks. Specimens from Srinagar are darker and larger. They also have a median stripe on the vertex and pronotum, and a brownish stripe on the inner margin of the eye, the antennal pit has a basal black spot and the forewing veins and cells are infuscated with brown. Males measure 3.6 mm long and 1.15 mm wide across eyes and females 3.80 mm long and 1.2 mm wide across eyes. Male genitalia are similar to those found in the type, but the aedeagal shaft is longer, and more slender in the basal half compared to the typical form, both finger-like processes are directed on one lateral side and the anal collar process lacks a dorsal marginal tooth. These variations are interpreted as intraspecific variation. The typical form of the species has been reared in the laboratory on *Leucas aspera* (Willd.) (Lamiaceae) at Bangalore.

Austroagallia fagonica, as discussed by Viraktamath and Sohi (1980) resembles the Egyptian species *Austroagallia canopus* Linnavuori (1969) from which it differs in having a simple anal collar process compared to the branched process found in *A. canopus*.



FIGURES 92–99. Male genitalia of *Agallia consobrina* Curtis: 92. Genital capsule, lateral view; 93. Subgenital plate, ventral view; 94. Anal collar process, lateral view; 95. Connective, anterodorsal view; 96. Connective and aedeagus, lateral view; 97. Aedeagus caudodorsal view; 98. Style, dorsal view; 99. Style, ventral view.

Austroagallia nitobei (Matsumura)

Figs 141–143.

Agallia nitobei Matsumura 1912: 316. TYPE ♂, ♀, TAIWAN [EIHU, examined].
Austroagallia nitobei (Matsumura): Viraktamath 1973: 307–308, figs 1, 2; Viraktamath & Sohi, 1980:285, figs. 1–4.

Color. Coloration as discussed by Viraktamath (1973) very variable, usually ochraceous with typical black spots on vertex and pronotum. Antennal pit with one small round spot at ventral extremity; in darker specimens, upper extremity near base of antennae narrowly black.

Male genitalia. Pygofer caudally conically rounded. Styles with inner arm as long as outer arm. Connective with caudal margin strongly bilobed. Aedeagus with well developed dorsal apodeme, shaft with fold-like tubercle, gonopore surrounded by elongate oval plate with crenulate margin ventrally. Anal collar process hook-like, hook spindle-shaped.

Female genitalia. Hind margin of seventh sternite almost straight.

Measurements. Male 3.30 (3.00–3.70) mm long, 1.02 (0.97–1.05) mm wide across eyes. Female 3.60 (3.30–3.90) mm long, 1.1 (1.05–1.15) mm wide across eys.

Material examined. INDIA: Bihar: Pusa, 1 ♀, 30.v.1935, H.S. Pruthi (NPC); 1 ♂, at light, *Nehela bimaculicollis* (Stål). H.S. Pruthi det. (misidentification) (FRI); Delhi: 1 ♂, New Delhi, NPC campus, 6.ix.1934, R. Saran, *ex* cowpea; 12 ♀, 21.iv.1939, R. Saran, ex Lucerne and sannhemp (NPC); 4 ♀, xi.1963, R. Menon (NPC); 3 ♂, 17 ♀, 23.iv.1975, C.A. Viraktamath (UASB). Haryana: 1 ♀, Kalka, 29.i.1979, C.A. Viraktamath (UASB). Karnataka: 1 ♀, Bangalore, 25.viii.1975, C.A. Viraktamath (UASB); 1 ♂, 4 ♀, Dharwar, 21.i.1973, C.A. Viraktamath; 1 ♂, 1 ♀, Gulbarga, 17.xi.1978, C.A. Viraktamath (UASB). Madhya Pradesh: 5 ♂, 1 ♀, Pachamarhi (NMNH). Punjab: Ludhiana 1 ♂, 28.vii.1968, *ex Sesbania aegyptiaca*; 31 ♀, 22–30.vi.1968, ex Lucerne; 1 ♀, 6.vii.1968, cowpea; 53 ♀, 6–7.vii.1968, *ex Cajanus cajan*, M.I.P.K. Gill (PAU). Maharashtra: 1 ♂, 2 ♀, Rajagurunagar (Poona), 1975, on potato and grasses, CIE A7761 (BMNH). PAKISTAN: 1 ♂, Lahore, 18 ♂ and ♀, Karachi (NMNH). SRI LANKA: 3 ♂, 1 ♀, Peradeniya (BMNH); 46 ♂ and ♀, Ratmalana (CAS). THAILAND: 2 ♂, Chiangmai (NMNH; 3 ♂, 5 ♀, Chumphon (CAS); 8 ♂ and ♀, Rat Buri (NMNH). VIETNAM: 1 ♂, 12 ♀, M'Drak E. of Ban Me Thout, 4–600 m, xi–xii. 1960, C.M. Yoshimoto (BPBM).

Remarks. Viraktamath (1973) recognised variation in populations of this species from Sri Lanka, Thailand, Vietnam and India. This species resembles the Palaearctic *A. avicula* (Ribaut) both externally and in the aedeagus. In *A. nitobei,* the fold-like tubercle of the aedeagus is considerably basad, the aedeagal shaft is slender, and the apical process of the aedeagus is elongate and oval with a crenulated lower border. In *A. avicula*, the tubercle of the aedeagal shaft is considerably distad, the aedeagal shaft is comparatively robust and the apical process of the aedeagus is triangular and short.

***Austroagallia prachuabensis* sp. nov.**
Figs 144–147.

Color. Pale ochraceous. Two small round spots on vertex black; median stripe, inner margins of eyes, submarginal row of spots on fronto-clypeus, facial sutures, spot on ventral margin of antennal pits, pale-brownish. Ocelli brownish, margin on inner side marked with brown. Pronotum with pair of larger (compared to spots on vertex) black spots on posterior submargin, rest either pale ochraceous or suffused with pale brown or pale yellow on median line and along anterior margin. Scutellum with basal triangles either pale brown or yellow, posterior half paler than anterior half. Claval veins, inner claval cell and cubitus suffused with brown; other veins either suffused with pale brown or concolorous with tegmina. Tip of labium, claws and abdominal tergites medially piceous.

Morphology. Face as long as wide, shagreen. Pronotum finely punctured, less than twice as wide as long, anterior margin strongly convex, posterior margin very slightly concave in middle or straight. Scutellum shorter than pronotum.

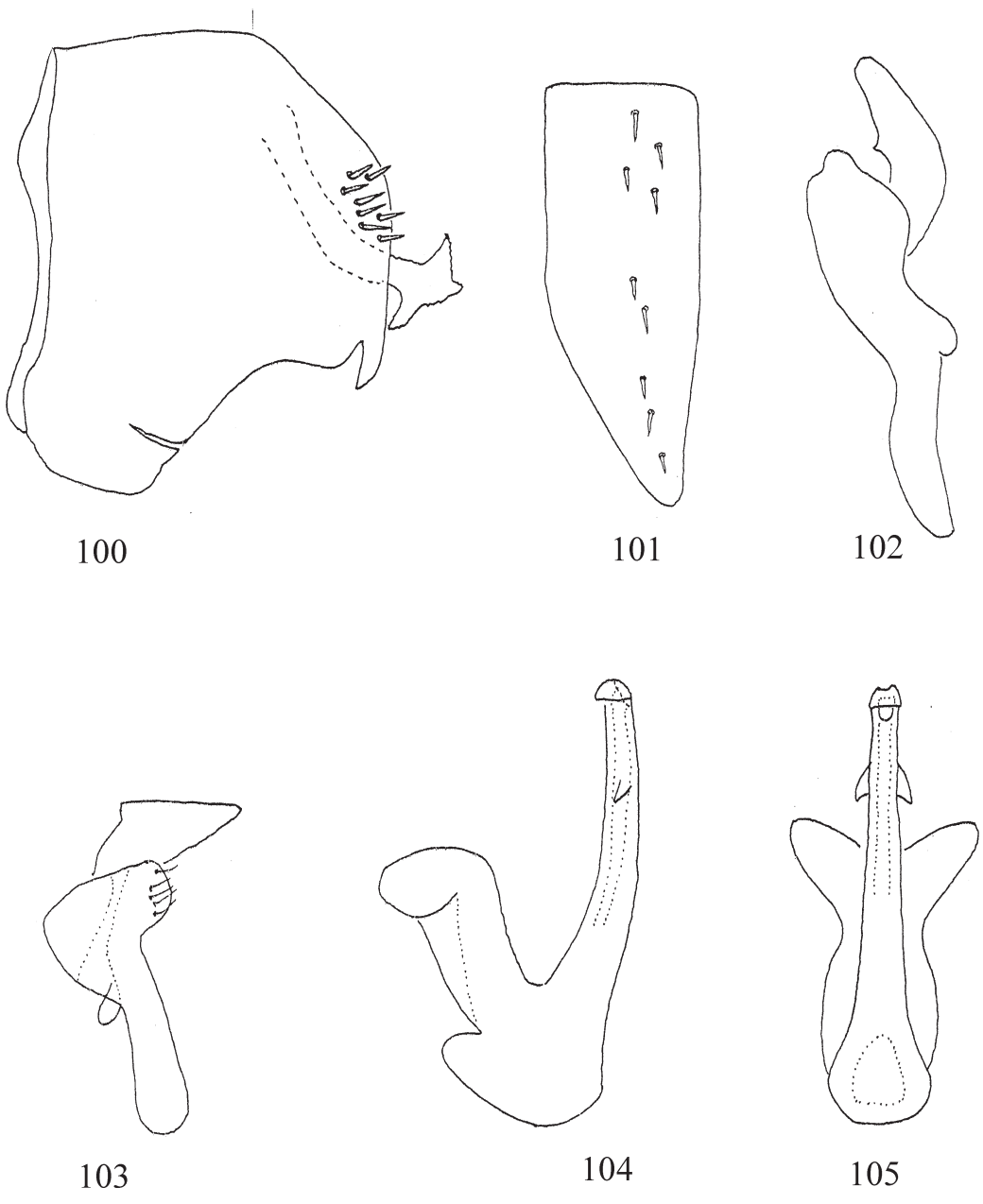
Male genitalia. Pygofer simple, caudally triangularly produced. Styles as in *A. sinuata*, both inner and outer arms of equal length. Aedeagal shaft with lateral angulate, laminate expansions, apically pointed beyond gonopore; gonopore subapical. Anal collar process with dorsal broad tooth and ventrally drawn out into process directed ventrally and mesally, apex broad and crenulated (Fig.145).

Measurements. Male 3.1 mm long, 1.00 mm wide across eyes. Female 3.4 mm long, 1.1 mm wide.

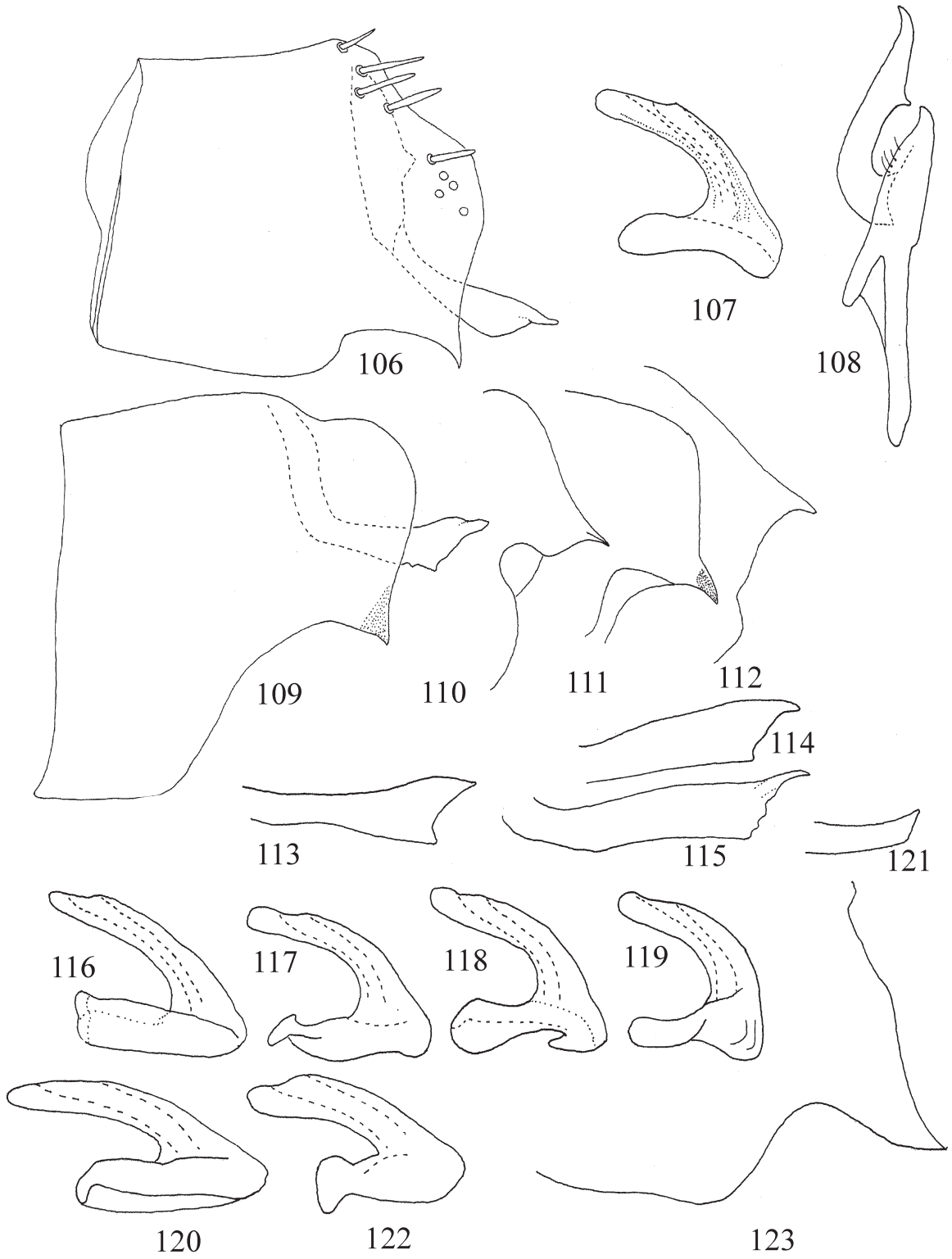
Material examined. THAILAND: HOLOTYPE ♂, Prachuab, 6.vii.1962, E .S. Ross & D. Q. Cavagnaro (CAS). PARATYPES: 3 ♂, 3 ♀, data as for holotype (CAS). Additonal material: 3 ♂, 4 ♀, INDIA: Karnataka: Bangalore (UASB); 1 ♂, Mysore (UASB).

Remarks. *A. prachuabensis* closely resembles *A. sinuata* from which it can be distinguished by the following characters: (1) male subgenital plates slightly more elongate and pointed in *A. prachuabensis* compared to shorter and apically rounded plates in *A. sinuata*; (2) anal collar process bears basally broad and stout upper denticle in *A. prachuabensis* compared to slender, basally narrow upper denticle in *A. sinuata*; (3) apex of the anal collar hook forms a shallow concave curve ventrally in *A. prachuabensis* but it is deeply concave, almost U-shaped ventrally in *A. sinuata*; (4) The lamellate aedeagal shaft process is broad in *A. prachuabensis* but it is comparatively narrow in *A. sinuata*.

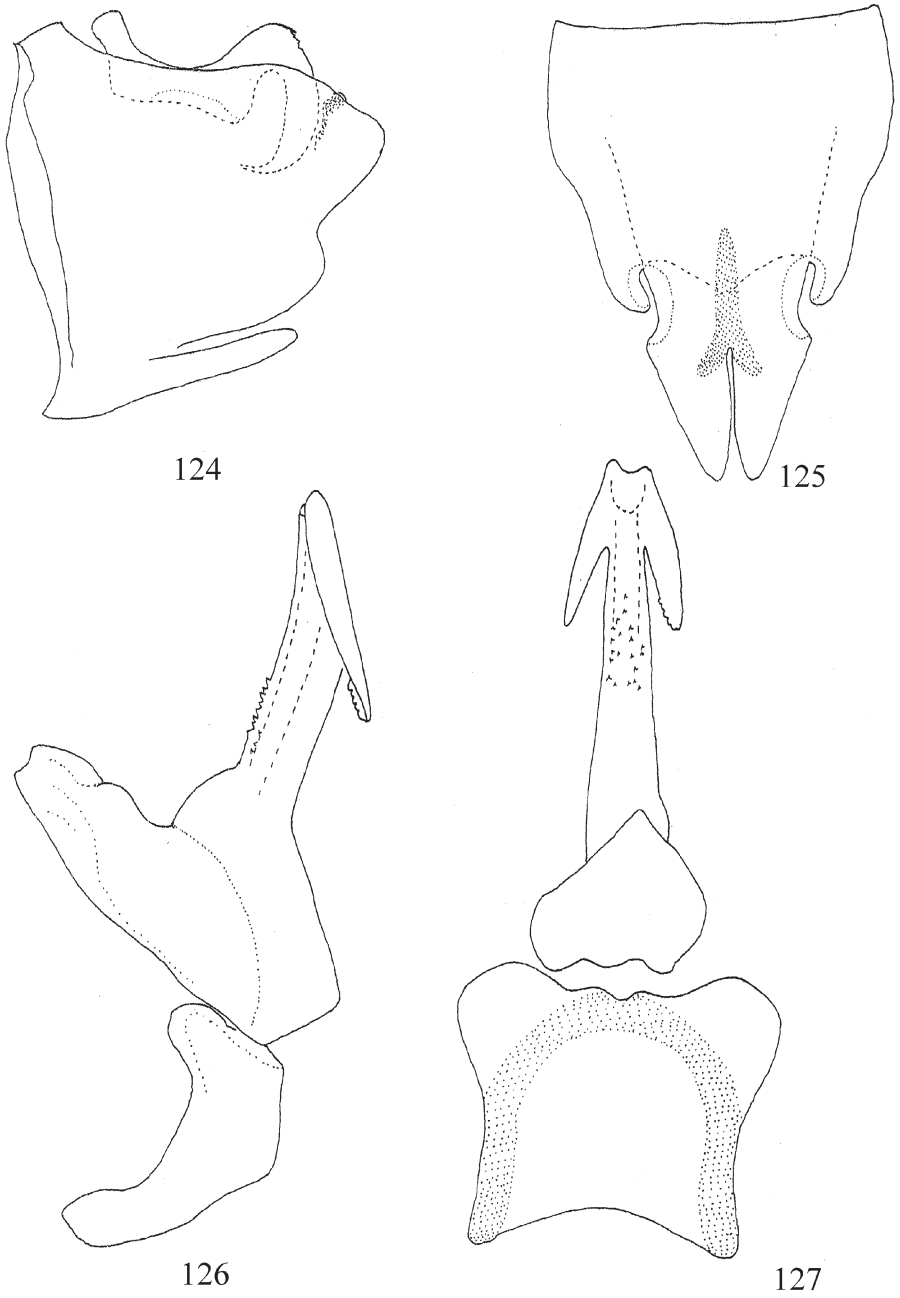
Some specimens are lighter in color and lack the brown markings on the head and thorax.



FIGURES 100–105. Male genitalia of *Anaceratagallia cuspidata* Dlabola: 100. Pygofer and anal collar process, lateral veiw; 101. Subgenital plate, ventral view; 102. Style, dorsal view; 103. Style, dorsolateral view; 104. Aedeagus, lateral view; 105. Aedeagus, posterior view.



FIGURES 106–123. Male genitalia of *Anaceratagallia* species: 106–108. *Anaceratagallia pararobusta* (Pruthi): 106. Pygofer and anal collar process, lateral view; 107. Aedeagus, lateral view; 108. Style, dorsal view; 109–120. *Anaceratagallia robusta* (Pruthi): 109–112. Variation in ventroposterior prolongation of pygofer; 113–115. Variation in anal collar process, lateral view; 116–120. Variation in aedeagus, lateral view. 121–123. *Anaceratagallia srinagarensis* Kameswara Rao & Ramakrishnan: 121 Anal collar process, lateral view; 122. Aedeagus, lateral view; 123. Ventroposterior process of pygofer, lateral view.



FIGURES 124–127. Male genitalia of *Austroagallia balii* **sp. nov.**: 124. Pygofer and anal collar process, lateral view; 125. Valve and subgenital plates, ventral view; 126. Connective and aedeagus, lateral view; 127. Connective and aedeagus, antero-dorsal view.

Austroagallia robusta Sawai Singh and Gill

Figs 36, 148–151.

Austroagallia robusta Sawai Singh and Gill 1973, In Bindra, 1973: 14–15, pl 4: figs 1–11; Viraktamath and Sohi, 1980: 287, figs 11–16. Holotype ♂, INDIA [PAU, examined].

Color. Creamy white, one tiny spot on either side of median line on vertex and on posterior half of pronoutm, dark brown.

Morphology. Forewings narrowed posteriorly, anteapical cells with numerous cross veins. Hind basitarsus with scale-like seate on plantar surface (Fig. 36).

Male genitalia. Dorsal margin of pygofer with small hump before posterior apex. Aedeagus with dorsal apodeme well developed, shaft with subapical gonopore, apex acutely pointed beyond gonopore; ventral lamellate pro-

cess with crenulate margin, angle of dorsal lamellate process more dorsal than ventral lamellate process. Inner arm of styles about as long as outer arm. Anal collar process terminated by rather stout hook, apex of hook not exceeding ventral margin of process.

Female genitalia. Hind margin of seventh sternite shallowly concavely curved.

Measurements: Male 4.1 mm long, 1.25 mm wide across eyes. Female 4.35 mm long, 1.3 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂, INDIA: Punjab: Gumjal, *ex Crotolaria burhia*, 10.xi.1968 (PAU). Additonal material: Delhi: 1 ♀, Delhi, IARI Campus, 24.iv.1975, C.A. Viraktamath (UASB); Rajasthan: 3 ♂, 4 ♀, Bikaner, 8–10.xi. 1968, Sawai Singh (PAU).

Remarks. *A. robusta* has an aedeagus of the *sinuata-prachuabensis* type, but it differs in having a simple curved, rather stout anal collar process. Externally it differs from these and other species of *Austroagallia* in having a pair of very small speckle-like spots on the vertex and pronotum and reticulate piceous venation on the disc of the corium. Bindra (1973) collected this species on *Crotalaria burhia* Buchan. (Papilionaceae).

Austroagallia sarobica (Dlabola)

Figs 152–155.

Peragallia sarobica Dlabola, 1964: 246. HOLOTYPE ♂ [not examined].
Austroagallia sarobica (Dlabola): Dlabola, 1972: 218, generic placement; Bindra, 1973: 4; Viraktamath & Sohi, 1980: 289, figs 29–33.

Color. Yellowish white. Two small round spots on vertex and posterior part of pronotum, black. Two spots on corium, one spot at tip of clavus and spots on some veins pale fuscous. Pronotum with minute punctures.

Male genitalia. Dorsal margin of pygofer sinuate, caudal lobe rounded. Anal collar process tridentate. Aedeagus with well developed dorsal apodeme, shaft narrowed distally, with short preatrium, with basal process arising on one side of shaft about as long as shaft, with serrated margins; in caudal view shaft broad basally with triangular projection at base of shaft, gonopore apical.

Measurements. Male 4.0 mm long and 1.3 mm wide across eyes. Female 4.3 mm long and 1.4 mm wide across eyes.

Material examined. INDIA: Punjab: 4 ♂, 4, ♀ Abohar, 6.xi.1968, *ex Amaranthus* sp., A. S. Sohi; 25 ♂, Punjab Rajasthan border: 10.xi. 1968, *ex Aerva javanica*, A.S. Sohi (PAU); Rajasthan: 1 ♂, Jamsar (N. Bikaner), 16.xi.1968, *ex Aerva tomentosa* (BMNH).

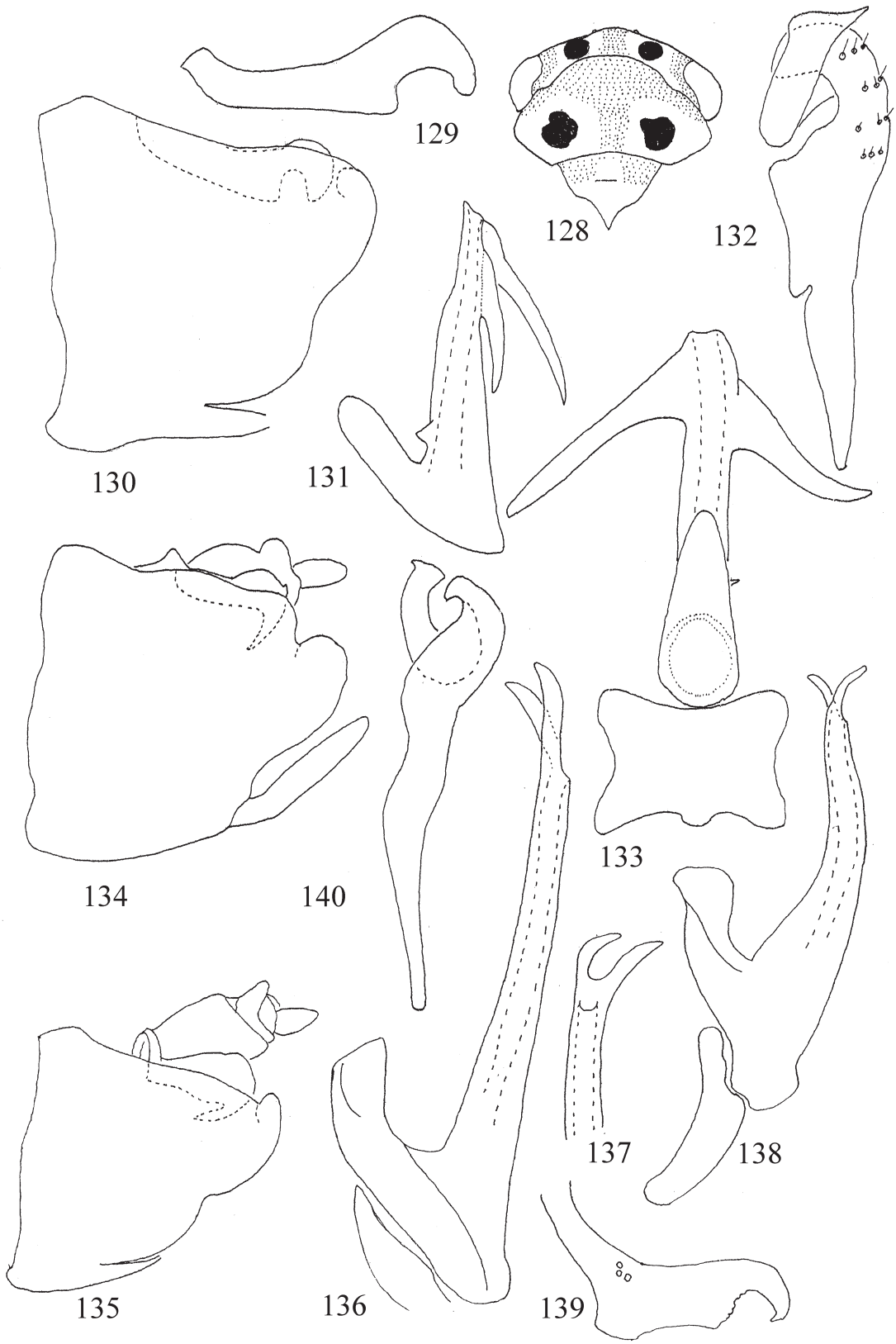
Remarks. This species closely resembles *A. robusta* externally in having smaller round spots on the vertex and pronotum, but has entirely different male genitalia and forewings lack subdivided anteapical cells. This species is apparently widely distributed in the Afrotropical, southern Palaearctic, northern and north-western parts of Oriental region (Sawai Singh and Gill 1973; Viraktamath and Sohi 1980). Bindra (1973) collected this species on *Aerva javanica* Juss., *Amaranthus* (Amaranthaceae), *Gossypium arboreum* Linn. (Malvaceae), *Pennisetum typoideum* Rich. (Poaceae), *Tribulus terrestris* Linn. (Zygophyllaceae), and *Lycopersicon esculentum* Mill. (Solanaceae).

Austroagallia sinuata (Mulsant & Rey)

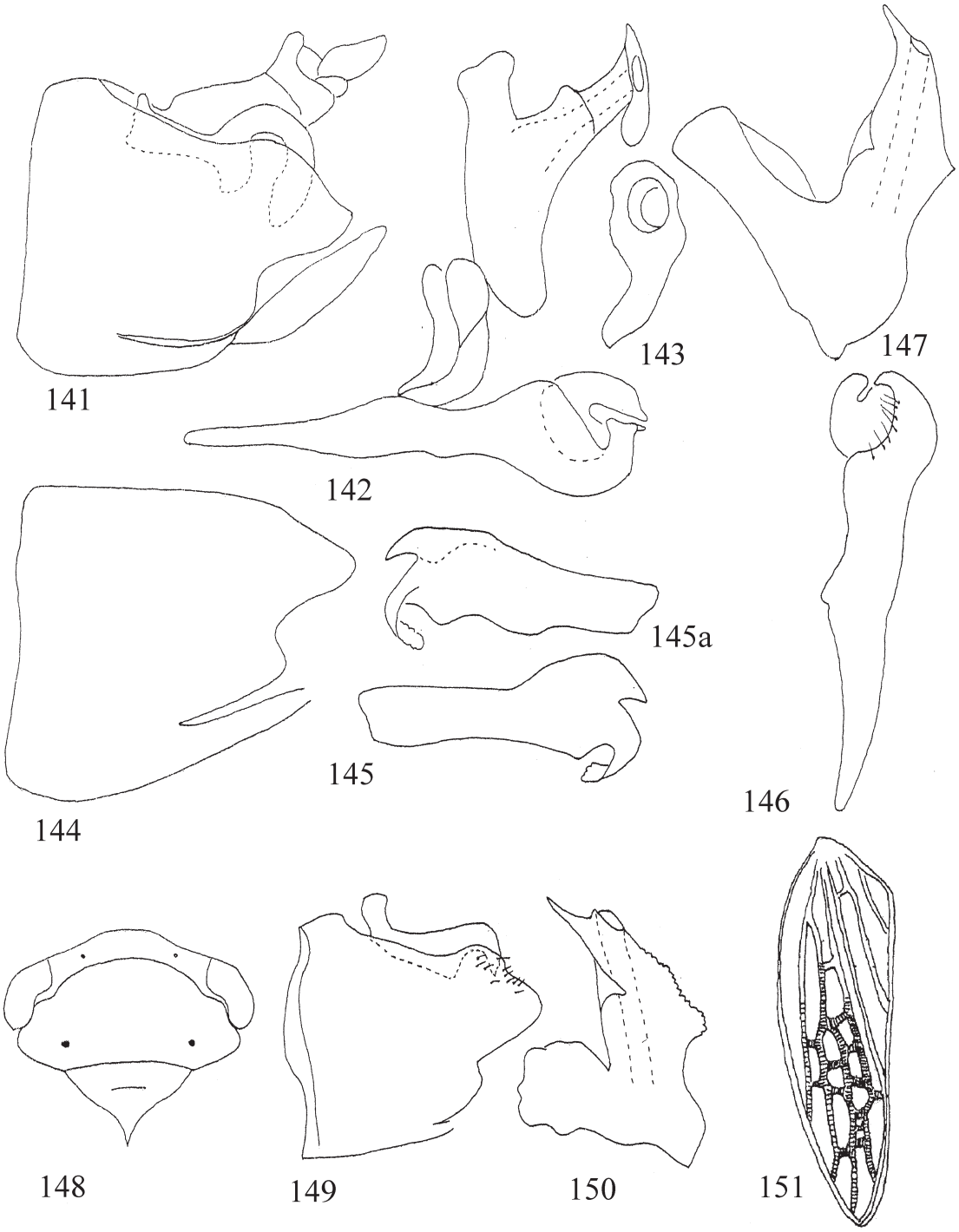
Figs 24, 49–51, 156–158.

Bythoscopus sinuatus Mulsant and Rey 1855: 222 [Type not examined].
Agallia quadrisignata Flor, 1861: 557, synonymy by Fieber 1868: 462.
Agallia homeyeri Kirschbaum, 1868:32, synonymy by Fieber 1872: 32.
Agallia fieberi Vismara, 1878: 41, synonymy by Löw 1885: 346.
Austroaagallia afganistanensis Kameswara Rao, Ramakrishnan and Ghai 1979: 655–656. HOLOTYPE ♂, AFGHANISTAN [NPC, examined], synonymized by Viraktamath & Sohi 1980: 285.

Color. Yellowish white. Two round spots on vertex and two on posterior half of pronotum black. Darker specimens with median stripe on vertex, stripes along inner margins of eyes, brown. Face with Y-shaped stripe on upper part, submarginal stripe on frontoclypesus, facial sutures, one spot at base of antennae and another ventral to it, brown. Pronotum with anterior and median infuscations. Forewings with claval cells and corial veins brown. Tarsi chocolate brown.



FIGURES 128–140. Male genitalia of *Austroagallia* species: 128– 133. *Austroagallia distanti* **sp. nov.**: 128. Head and thorax dorsal view; 129. Anal collar process, lateral view; 130. Pygofer, lateral view; 131. Aedeagus, lateral view; 132. Style, dorsal view; 133. Connective and aedeagus, anterodorsal view; 134–140. *Austroagallia fagonica* Sawai Singh & Gill: 134, 135. Variation in pygofer, lateral view; 136. Aedeagus, lateral view, specimen from Srinagar; 137. Apex of aedeagus, anterior view, specimen from Srinagar; 138. Connective and aedeagus, lateral view, specimen from Dharwad; 139. Anal collar process, lateral view specimen from Srinagar; 140. Style, dorsal view, specimen from Dharwad.



FIGURES 141–151. Species of *Austroagallia*: 141–143. *Austroagallia nitobei* (Matsumura): 141. Male genital capsule, lateral view; 142. Style, connective and aedeagus, lateral view; 143. Apex of aedeagal shaft, posterior view; 144–147. *Austroagallia prachuabensis* **sp. nov.**: 144. Male pygofer, lateral view; 145–145a. Anal collar processes, lateral and mesal views, respectively; 146. Style, dorsal view; 147. Aedeagus, lateral view; 148–151. *Austroagallia robusta* Sawai Singh & Gill: 148. Head and thorax, dorsal view; 149. Male pygofer and anal collar process, lateral view; 150. Aedeagus, lateral view; 151. Forewing venation.

Male genitalia. Dorsal margin of pygofer either straight or with median convexity, pygofer lobe rather truncate. Upper tooth of hook of pygofer process as stout as elongated hook that exceeds ventral margin of process, but twisted near midlength. Styles with inner arm slightly longer than outer arm. Aedeagus with well developed dorsal apodeme, lamellate process of aedeagus broad, concave on dorsal surface, ventral angular projection of lamellate process at same level as angular projection of dorsal lamellate process.

Female genitalia. Hind margin of seventh sternite slightly concave in middle.

Measurements: Male 3.4–3.5 mm long, 1.05–1.07 mm wide across eyes. Female 3.8–4.0 mm long, 1.2–1.25 mm wide across eyes.

Material examined. INDIA: 520 ♂,♀, Gujarat: Somnath, S. and C.A. Viraktamath (UASB). Himachal Pradesh: 5 ♂, 6 ♀, Kutrain (Kulu), 20.vi.1967, *ex* potato, A.S. Sohi; Punjab: 1 ♂, Ludhiana, 28.viii.1967, *ex Medicago sativa*, A.S.Sohi (PAU).

Remarks. *A. sinuata* is a widely distributed species found in the southern Palaearctic, Afrotropical and Western Oriental and Neotropical regions. It shows great variation in the structure of both the anal collar process and aedeagus. It may prove to be a species complex. A detailed study of the species throughout its range of distribution is necessary. Large populations of *A. sinuata* in Gujarat were found on vegetation along the sea shore dominated by *Ipomoea pes-caprae* (Linneaus) (Convolvulaceae).

Austroagallia torrida Evans

Figs 159–164, 564, 578, 593.

Austroagallia torrida Evans 1935: 70. Nielson 1968: 39–41. TYPE ♂, ♀, AUSTRALIA [not examined].

Color. Ochraceous. Two round spots on either side of median line, median stripe and stripe along inner margins of eyes, black. Face with brown markings in upper part and submarginally on frontoclypeus; sutures on face dark brown; antennal cavity with dark brown to black spot, in some specimens divided into two spots. Pronotum with two larger spots on posterior half and in many specimens smaller round spots anterior to them, dark brown to black; anterior margin and median stripe in darker specimens fuscous. Forewing venation and claval cells brown. Claws dark brown.

Male genitalia. Pygofer with dorsal margin convex in posterior half, caudal lobe either rounded or sinuate, with slight thickning running on dorsal half. Anal collar with posterior slender hook with its apex exceeding ventral margin of process. Aedeagus with triangular expansion on shaft and on dorsal apodeme, latter variable and totally lacking in some specimns, dorsal apodeme well developed.

Female genitalia. Seventh sternite truncate caudally.

Measurements. Male 3.53 (3.4–3.7) mm long, 1.08 (1.06–1.12) mm wide across eyes. Female 3.68 (3.6–4.0) mm long, 1.15 (1.12–1.2) mm wide across eyes.

Material examined. AUSTRALIA: 4 ♂ and ♀, Brisbane (JWE); 3 ♂, Coonabarabran, 19.i.1965, M.I. Nikitin (BMNH); 3 ♂, 4 ♀, Narrobri, 28.xii.1959, M.I.Nikitin (BMNH); 7 ♂ and ♀, Perth, J.W. Evans (JWE). GOOD ENOUGH IS: 2 ♂, 1 ♀, Virigran, 8–23.ii.1952, G.M. Rio (NMNH). LOYALTY IS: 1 ♂, 2 ♀, Mare Is, La roche, iii.1959, N.L.H. Krauss (BPBM). NEW HEBRIDES: 1 ♂, Makekula: Amok, 17.ix.1958, B. Malkin (BPBM). SOLOMON Is: 1 ♂, 2 ♀, Guadal Canal, Kukum, 16.ii.1964, M. Mc. Quilan (BMNH). INDONESIA: 1 ♂ 1 ♀, Jogdjakarta, viii.1971, *ex Arachis hypogea* Linn., Triharso (UASB); 2 ♂, Java, Bogor, 400m, 24.xi–1.xii.1986, M.R. Wilson, BM 1987-204 (BMNH).

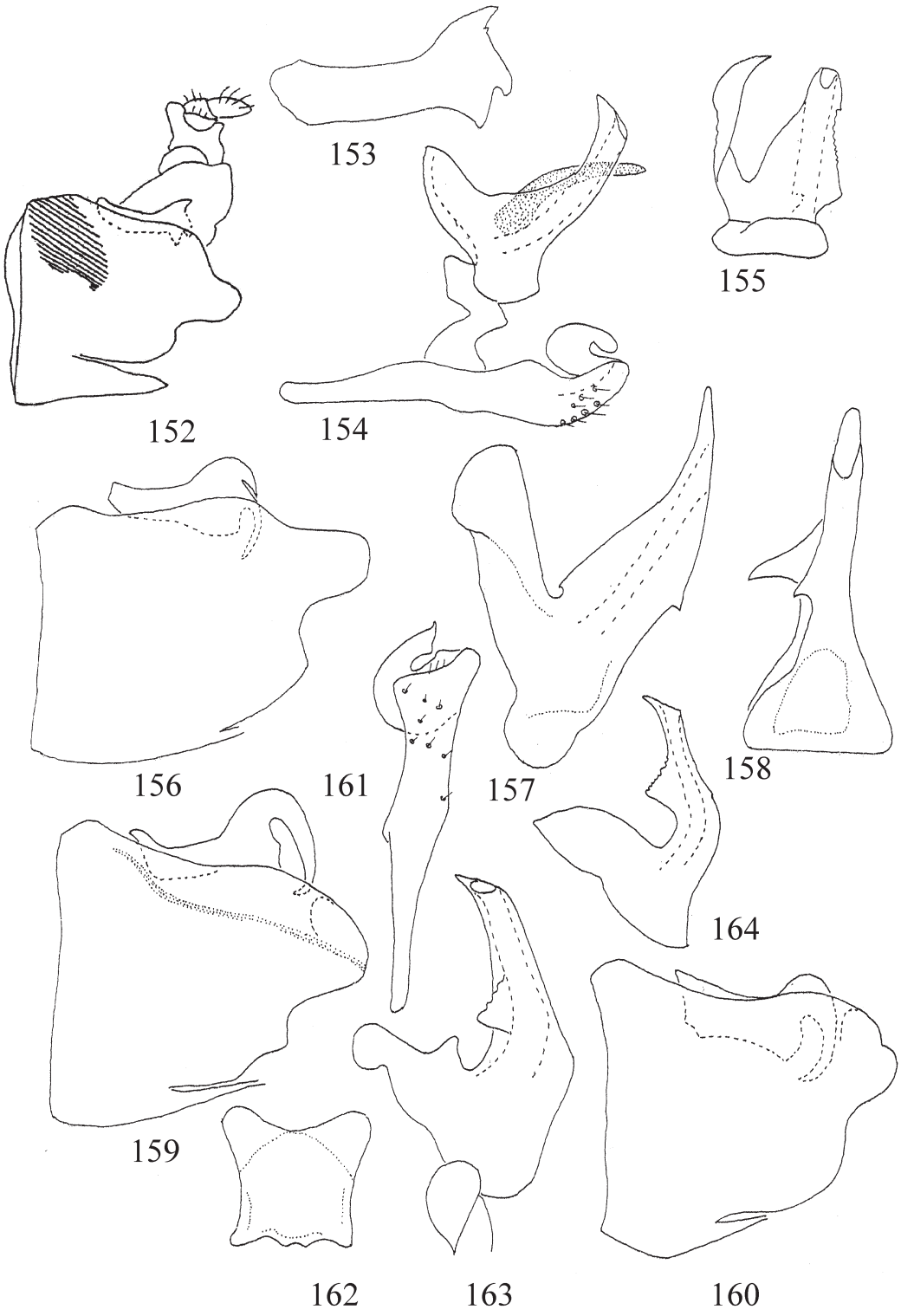
Remarks. This species has a wider distribution than Evans (1971) reported. A male specimen from the New Hebrides is darker in color with the pronotum bearing two large lateral dark brown stripes, and a median light brown stripe. The aedeagus in this specimen is similar to typical *A. torrida* but the triangular expansion on the shaft is smaller. One male specimen from Indonesia is similar in coloration but lacks the triangular process on the dorsal apodeme, however, the specimens from Bogor (though similar) have a small projection on the dorsal apodeme.

Genus *Dryodurgades* Zachvatkin

Durgades (*Dryodurgades*) Zachvatkin, 1946: 146. Type-species: *Agallia reticulata* Herrich-Schäffer, by original designation. *Dryodurgades* Zachvatkin: Wagner, 1963: 1.

Morphology. Head short, wider than pronotum. Hind margin of vertex sinuately curved laterally behind eyes. Ocelli closer to adjacent eyes than to each other. Transclypeal sulcus complete, lora often tumid. Head and thorax

granulate. Forewings with numerous accessory cross veins. Forefemora with intercalary setae arranged in arched row, two setae of row AV stout, one of them long and prominent (Fig. 25). Hind tibial macrosetae PD 10±2, AD 7±1, AV 6±1. Hind basitarsus with one platella on distal transverse row of setae.



FIGURES 152–164. Male genitalia of *Austroagallia*: 152–155. *Austroagallia sarobica* (Dlabola): 152. Genital capsule, lateral view; 153. Anal collar process, lateral view; 154. Style, connective and aedeagus, lateral view; 155. Aedeagus, dorsal view; 156–158. *Austroagallia sinuata* (Mulsant & Rey); 156. Pygofer and anal collar process, lateral view; 157. Adeagus, lateral view; 158. Aedeagus, posterior view; 159–164. *Austroagallia torrida* Evans: 159–160. Variation in male pygofer and anal collar process, lateral view; 161. Style, dorsal view; 162. Connective, anterior view; 163, 164. Variation in aedeagus, lateral view.

Male genitalia. Subgenital plates without macrosetae, triangular, apically pointed. Pygofer without processes, caudal lobe rounded. Connective broader than long. Aedeagus symmetrical, dorsal apodeme and socle well developed, shaft usually compressed and with apical and often subapical branched processes. Gonopore apical or slightly subapical. Anal collar often well developed.

Female genitalia. First pair of valvulae with sculptured area occupying more than half length, sculpture elongate, cell-like, closely packed in oblique rows, submarginal, cells more or less of uniform size (Figs 52, 53). Second pair of valvulae of uniform width except apically, teeth crenulate, very minute, ventroapical margin crenulate (Figs 54–55).

Distribution. Palaearctic and Oriental.

Remarks. *Dryodurgades* closely resembles *Igerna* Kirkaldy in the shape of the vertex and style. It differs from *Igerna* in the following features: 1. numerous cross veins on forewings; 2. face more coarsely granulate and flat; 3. pronotum flat; 4. aedeagus with well developed but laterally compressed dorsal apodeme and 4. connective broader than long. The genus is largely Palaearctic but two species occur in the Oriental region in addition to an undescribed species represented only by females from Myanmar (BMNH). The Palaearctic *Drydurgades reticulata* (Herrich-Schaffer) is also illustrated (Figs 565, 579, 594) here to facilitate recognition of the genus.

Key to Oriental species of *Dryodurgades* Zachvatkin

1. Aedeagus with unbranched pair of apical processes (Figs 167, 168); anal collar process narrow, hook-like (Fig. 165) . . . . . *D. formosana* (Matsumura)
- Aedeagus with branched pair of apical processes (Fig. 171) 2
2. Aedeagus with both pairs of processes apically bifurcate (Fig. 171) . . . . . *D. lamellaris* Vilbaste
- Aedeagus with only more distal pair of pocesses forked . . . . . *D. dentistylus* Zhang & Li

Dryodurgades dentistylus Zhang & Li

Dryodurgades dentistylus Zhang & Li 1998: 379, fig. 6. HOLOTYPE ♂, CHINA [Not examined]

Remarks. No specimen of this species was examined. Illustrations provided by Zhang & Li (1998) are useful in identifying this species. In their figures the processes of the aedeagal shaft of both sides are shown for the lower pair. Extensive black markings on the face and pronotum are unique features of this species.

Dryodurgades formosana (Matsumura)

Figs 165–169.

Agallia formosana Matsumura, 1912: 313. HOLOTYPE ♂, TAIWAN [EIHU, examined]
Dryodurgades formosana (Matsumura): Viraktamath, 1973: 309–310, figs. 4–7.
Dryodurgades bifurcatus Cai & Shen 2000:39, figs 4 a–j. **syn. nov.**

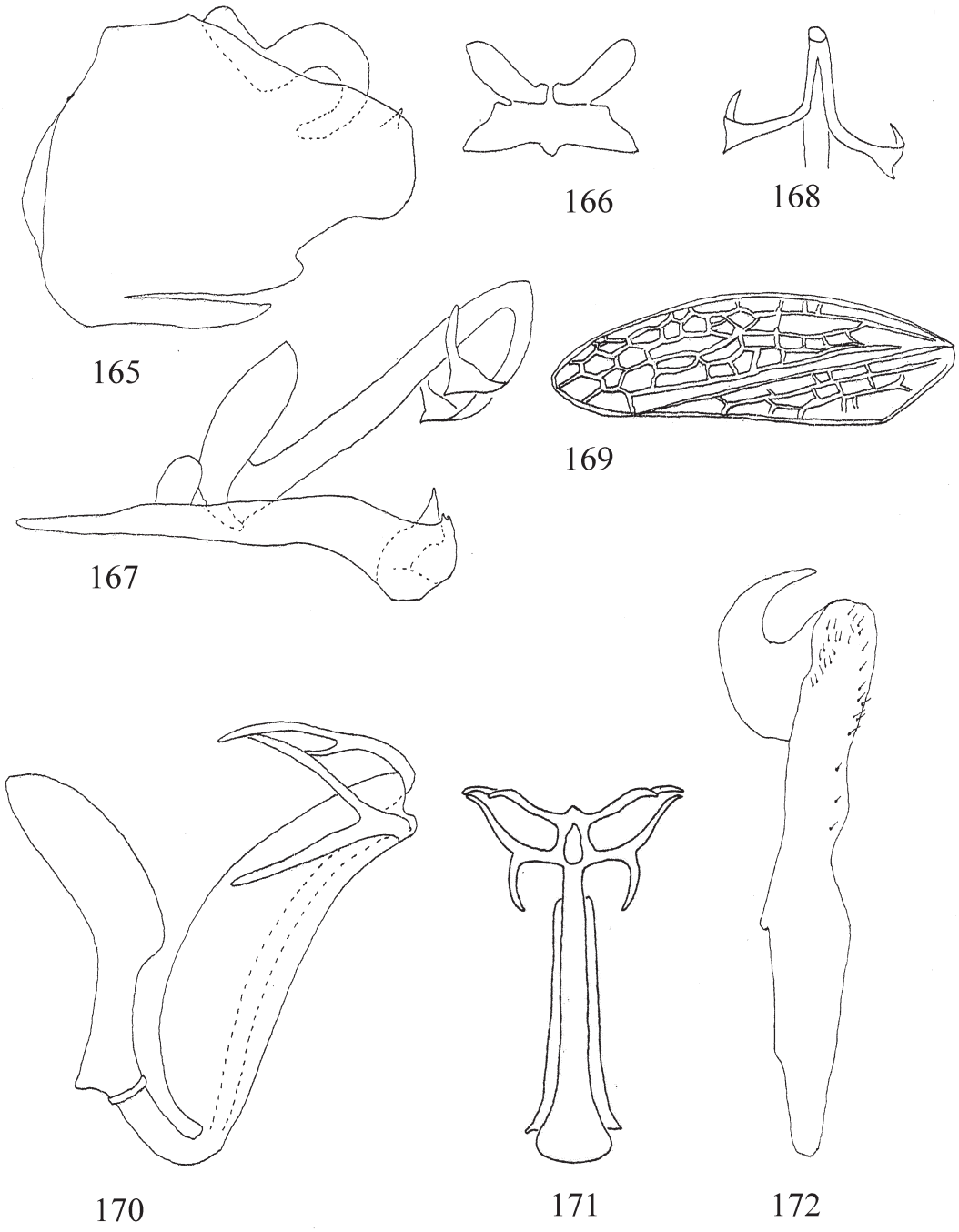
Color. Pale brown with small dark markings.

Male genitalia. Caudal lobe of pygofer rather truncate, with inner small spine-like projection on caudodorsal area. Anal collar caudoventrally curved, hook-like. Connective broad, deeply excavated on lateral margins, caudal margin with broadly V-shaped excavation. Styles with inner arm shorter than outer arm. Dorsal apodeme of aedeagus well developed. Aedeagal shaft elongate, with pair of ventrally directed, apically broadened, curved processes, with lateral tooth-like projection.

Measurements. Male 4.0 mm long, 1.4 mm wide across eyes. Female 4.2 mm long, 1.5 mm wide across eyes.

Material examined. TAIWAN: HOLOTYPE ♂, Tappan, 24.iv.1907, Matsumura (HU). CHINA: 1 ♂, Fukein (BPBM). Other material: TAIWAN: 2 ♀, M. Kato (BMNH).

Remarks. *D. formosana* externally resembles *D. reticulatus* in coloration and structure. It differs from *reticulatus* in having unbranched aedeagal processes. The types of *D. bifurcatus* were not studied. However, illustrations of the male genitalia provided by Cai & Shen (2000) clearly show that this species is a junior synonym of *D. formosana*.



FIGURES 165–172. Species of *Dryodurgades*: 165–169. *Dryodurgades formosana* (Matsumura): 165. Male pygofer and anal collar, lateral view; 166. Connective, anterior view; 167. Style, connective and aedeagus, lateral view; 168. Aedeagal apex, posterior view; 170–172. *Dryodurgades lamellaris* Vilbaste: Aedeagus, lateral view; 171. Aedeagus, anterior view; 172. Style dorsal view.

***Dryodurgdes lamellaris* Vilbaste**
Figs 170–172.

Dryodurgades lamellaris Vilbaste, 1968: 58–60, fig. 45. HOLOTYPE ♂, RUSSIA: Maritime Territory [Not examined]

Color. Coloration and structure similar to *D. reticulata*.

Male genitalia. Pygofer similar to that of *reticulata*. Styles with inner arm longer than outer arm. Dorsal apodeme of aedeagus more than 0.75 as long as shaft, strongly compressed in lateral aspect, its anterior margin strongly convex, constricted at base, with pair of apical and pair of forked subapical processes.

Measurements. Male 4.30 mm long, 1.4 mm wide across eyes. Female 4.50–4.6 mm long, 1.5 mm wide across eyes.

Material examined. CHINA: 6 ♂, 10 ♀, Fukien (BPBM). 1 ♂, 2 ♀, Tainan (NMNH).

Remarks. *D. lamellaris* closely resembles *D. reticulata* from which it differs in having two pairs of processes.

Genus *Durgades* Distant

Durgades Distant 1912: 608; 1916: 237; Viraktamath 2004: 365–366. Type-species: *Durgades nigropictus* Distant, type by original designation.

Color. Males usually darker compared to paler females.

Morphology. Sexually dimorphic, males smaller than females. Head, thorax and forewings covered with sparse fine hair. Head wider than pronotum. Vertex extremely short, posterior margin often upturned in middle forming ridge and stops short at about 0.75 width of hind margin of protruding eyes (Fig. 209). Ocelli closer to inner margin of adjacent eyes than to each other, located in shallow depression facing eyes. Face wider than long, surface finely granulose. Outer margin of genae sinuate below eyes. Lora extending beyond genae. Transclypeal sulcus incomplete. Clypellus narrowed both anteriorly and posteriorly, extending beyond lora. Frons with shallow depression between and below ocelli, forming poorly defined ridge, ocelli situated on anterior margin of ridge, often visible in dorsal aspect in males. Pronotum and scutellum finely granulose, former more than twice as wide as long, lateral margins short but distinct, surface transversely wrinkled and slightly depressed on either side of median line anteriorly and laterally near posterior angles. Scutellum slightly shorter or about as long as median length of pronotum, wider than long. Forewing venation prominent with fine setae along veins, claval veins either confluent or joined by one or two cross veins or separate. Forefemora with AM1 prominently stout, elongate; intercalary setae arranged in arched row, AV setae with one stout, long seta and one stout and short seta (Fig. 26). Hind femoral spinultion 2+1. Hind tibial setal formula PD 9 ±1, AD 6 ±1, AV 7±1. Hind basitarsus with one platella on distal transverse row. Sternal apodemes at the base of abdomen poorly developed or absent, tergal apodemes well developed but short.

Male genitalia. Tergum of ninth segment of male membranous except for a very narrow anterior band. Pygofer either elongated caudally or upturned, or truncate, with spine-like processes or with dorsal marginal blade-like process. Subgenital plates more or less elongate, covered sparsely with scattered microscopic setae, yellow in color contrasted with brown or black pigmented valve and major part of pygofer. Styles bifid caudally with inner arm slighly longer than outer. Connective plate-like, heavily sclerotized and pigmented. Aedeagus symmetrical; aedeagal shaft and dorsal apodeme with processes; gonopore apical.

Female genitalia. Seventh sternite variable. First pair of valvulae slightly arched, spulptured area on 0.66 length of valvula, sculpture closely obliquely stacked with rather rectangular alveoli, submarginal in middle (Figs 56, 57). Second pair of valvulae arcuate, of uniform width for most part but slightly wider near apex, with one basal prominent tubercle, teeth small, bearing denticles, ventroapical margin crenulated and serrate (Figs 58, 59).

Distribution. Foot hills of Himalayas.

Remarks. *Durgades* resembles some species of *Japanagallia* Ishihara but differs in the structure of vertex, position of ocelli, and features of the male genitalia. Considerable variation in the forewing venation, even on the two wings of the same individual occurs.

Key to species of *Durgades* of the Oriental region

(*D. breviceps* (Matsumura) and *D. mirabilis* Pruthi are not included as their male genitalia are not known)

1. Aedeagal shaft with basal pair of processes (Figs 213, 214) (north and northeast India, Nepal) . . . . . *D. nigropicta* Distant
- Aedeagal shaft lacking basal pair of processes (Figs 117, 188, 217) 2
2. Aedeagus dorsal apodeme with pair of processes (Figs 187, 188, 217, 218, 224, 225) 3

- Aedeagus dorsal apodeme lacking processes (Fig. 177, 178, 202, 203). 5
3. Dorsal pygofer process exceeding pygofer lobe (Fig.222) (Nepal) . . . . . *D. spatulata* Viraktamath
- Dorsal pygofer process not exceeding pygofer lobe (Figs 181, 215) 4
4. Aedeagal shaft in lateral view with subapical process on ventral margin (Fig. 217) (India: Simla) . . . . . *D. saura* Viraktamath
- Aedeagal shaft in lateral aspect lacking subapical process on ventral margin (Fig. 188) (Nepal) . . . . . *D. confusa* Viraktamath
5. Pygofer lobe curved dorsoanteriorly (Figs 175, 191) 6
- Pygofer lobe either conically rounded (Fig. 230) or caudally truncate (Fig.198). 7
6. Aedeagal shaft in lateral view robust with apex avicephaliform (Fig. 177) (India: Simla, Manali) . . . . . *D. aviana* Viraktamath
- Aedeagal shaft in lateral view slender with apex blunt (Fig. 193) (Nepal) . . . . . *D. dunchensis* Viraktamath
7. Pygofer caudally truncate with two marginal short teeth (Fig. 198 (India: Simla) . . . . . *D. montana* (Distant)
- Pygofer lobe conically rounded (Fig. 230) 8
8. Aedeagus with four finger-like processes surrounding gonopore (Fig.197) (Pakistan: Murree Hill) . . . . . *D. idiocera* Pruthi
- Aedeagus with three finger-like subapical processes (Figs233–235) (Pakistan: Murree Hill) . . . . . *D. sympatrica* Viraktamath

Durgades aviana Viraktamath

Figs 173–179.

Durgades aviana Viraktamath 2004: 367, figs 1–8. HOLOTYPE ♂, INDIA: Simla (UASB, examined).

Color. Ochraceous. Face with median inverted Y-shaped marking on upper part, arms fused with lateral stripes on face, latter anteriorly fused with each other and occupying entire clypellus, apices of lora, black. Elongate oval to oval spot on either side of median line near vertex, transverse stripe connecting outer margin of ocellus with inner margin of eyes and broader near eye, black. Antennal cavities black, ledge of antennae ochraceous. Spot on inner margin of gena near lorum black in some specimens. Pronotum anteriorly broadly, with lateral, caudal and median slender color extensions not reaching lateral and caudal margins, black. Scutellum black with lateral, and caudal apex beyond median impressed line, ochraceous. Forewings with some segments of venation and some cells brown. Forefemora marked with brown. Thoracic pleura and abdominal segments chocolate brown with ochraceous margins. Subgenital plates ochraceous.

Male genitalia. Pygofer dark pigmented, caudodorsally produced into attenuated process with preapical finger-like process. Styles elongate, delicate, inner arm longer than outer arm and apically pointed. Connective black, wider at base and as wide as long. Aedeagus in lateral view with short dorsal apodeme with bifid membranous sclerite, preatrium shorter than in *D. dunchensis* and bears short process, shaft basally bulbous in lateral view and apex resembles head of bird with beak; gonopore apical, large, with lateral lamellate expansion. Anal collar process simple, produced into short finger-like process.

Measurements. Male 3.82 (3.6–4.0) mm long and 1.37 mm wide across eyes.

Material examined. HOLOTYPE ♂, INDIA: Himachal Pradesh: Simla, 2133m, 14.x.1979, C.A. Viraktamath (UASB). PARATYPES: 10 ♂, same data as holotype except collected by K.D. Ghorpade (2 ♂), A.R.V. Kumar (8 ♂); 9 ♂, with same data as holotype except 18–21.x.1981 by I. Dwrakowska; 5 ♂, Manali, 10.x.1979, C.A. Viraktamath (UASB).

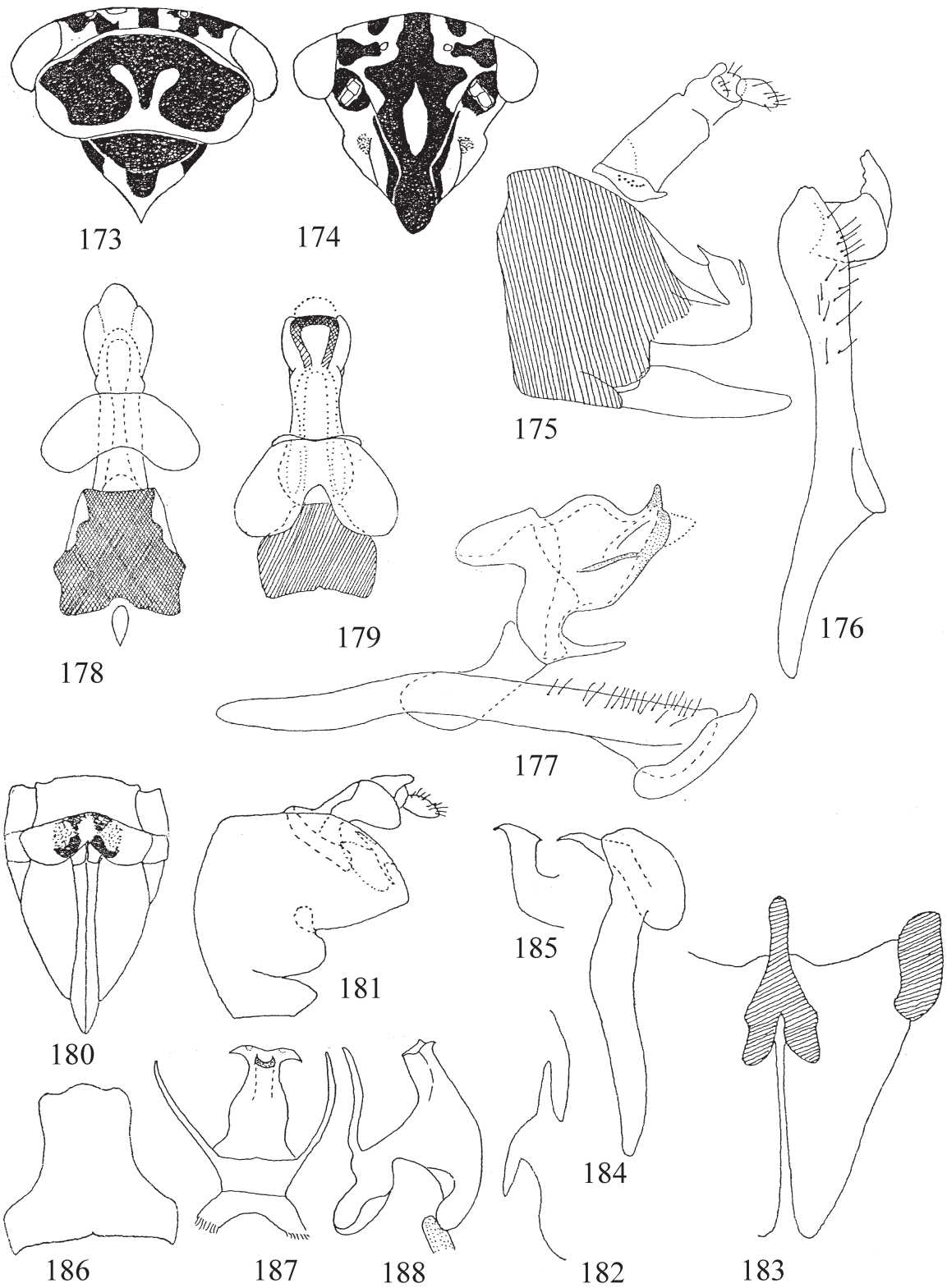
Remarks. This species can easily be recognized by the two cross veins between the claval veins of the forewings and by the structure of the male genitalia. It resembles *D. dunchensis*, but differs in the structure of the pygofer and aedeagus.

Durgades breviceps (Matsumura)

Agallia breviceps Matsumura 1912: 317. HOLOTYPE ♀, TAIWAN [EIHU, examined].
Durgades breviceps (Matsumura): Viraktamath 1973: 309, fig. 3.

This species is based on a single female type and the male remains unknown. Matsumura has given a good color description of this species.The posterior margin of the female seventh sternite is medially excavated.

Material examined. TAIWAN: HOLOTYPE ♀, Arisan, 20.iv.1907, Matsumrua (EIHU).



FIGURES 173–188. Species of *Durgades*: 173–179. *Durgades aviana* Viraktamath: 173. Head and thorax; 174. Face; 175. Male genital capsule, lateral view; 176. Style, dorsal view; 177. Style, connective and aedeagus, lateral view; 178. Aedeagus and connective, anterodorsal view; 179. Aedeagus and connective, dorsal view; 180–188. *Durgades confusa* Viraktamath: 180. Apical portion of female abdomen, ventral view; 181. Pygofer, lateral view; 182. Pygofer process, dorso-posterior view; 183, Subgenital plate, ventral view; 184. Style, lateral view; 185. Inner fork of style; 186. Connective; 187. Aedeagus, dorsal view; 188. Aedeagus, lateral view.

Durgades confusa Viraktamath

Figs 180–188.

Durgades confusa Viraktamath 2004: 368, figs 9–16. HOLOTYPE ♂, NEPAL: Dunche (BPBM, examined).

Color. Coloration and structure similar to *D. aviana*.

Male genitalia. Pygofer caudally rounded with bifurcate process dorso-mesally, one of the arm directed anteriorly and the other caudally (Fig. 182). Pygofer with large divided unpigmented area along dorsocaudal margin. Preatrium of aedeagus poorly developed, without process; dorsal apodeme well developed, with elongate process on each lateral corners; gonopore large, with two lateral fangs, shaft short and stout.

Measurements. Male 3.2 mm long, 1.3 mm wide across eyes.

Material examined. HOLOTYPE ♂, NEPAL: Dunche, 28 Km N of Trisuli (Nuawakot), 1950m, 7–12.xi.1965, L. W. Quate (BPBM).

Remarks. This species is closely related to *D. montana* and *D. dunchensis* but lacks a pre-atrial process and long processes on the dorsal apodeme.

Durgades dunchensis Viraktamath

Figs 189–195.

Durgades dunchensis Viraktamath 2004: 368–369, figs 17–23. HOLOTYPE ♂, NEPAL: Dunche [BPBM, examined].

Sexually dimorphic.

Male (color). Black. Ochraceous areas as follows: two spots on inner margin of eye on face and vertex, two spots on either side of median line on vertex continued on face as rectangular area, one oblique stripe from each ocellus to antennal ledge, antennal ledge, upper median spot on frontoclypeus, outer margin of gena, inner margin of gena and upper margin of lorum. Hind margin of pronotum and connected two discal spots. Scutellum with two posterolateral areas ochraceous to ivory. Forewing cells with brownish suffusions. Abdomen black with ochraceous hind margins. Subgenital plates ochraceous.

Male genitalia. Subgenital plates slender, triangular. Dorsum of ninth segment membranous narrow, anterior margin, pigmented. Pygofer caudo-dorsally strongly curved and terminated by spine and subapically forked on caudal margin. Styles slender, elongate, articulated with connective at about anterior 0.33 of length, inner arm longer than outer and with subapical tooth. Preatrium of aedeagus well developed with unpaired elongate process, atrium elongate, shaft short and stout; gonopore terminal, large and surrounded by rim of varying width, dorsal apodeme deeply bifurcate. Tenth segment sclerotized.

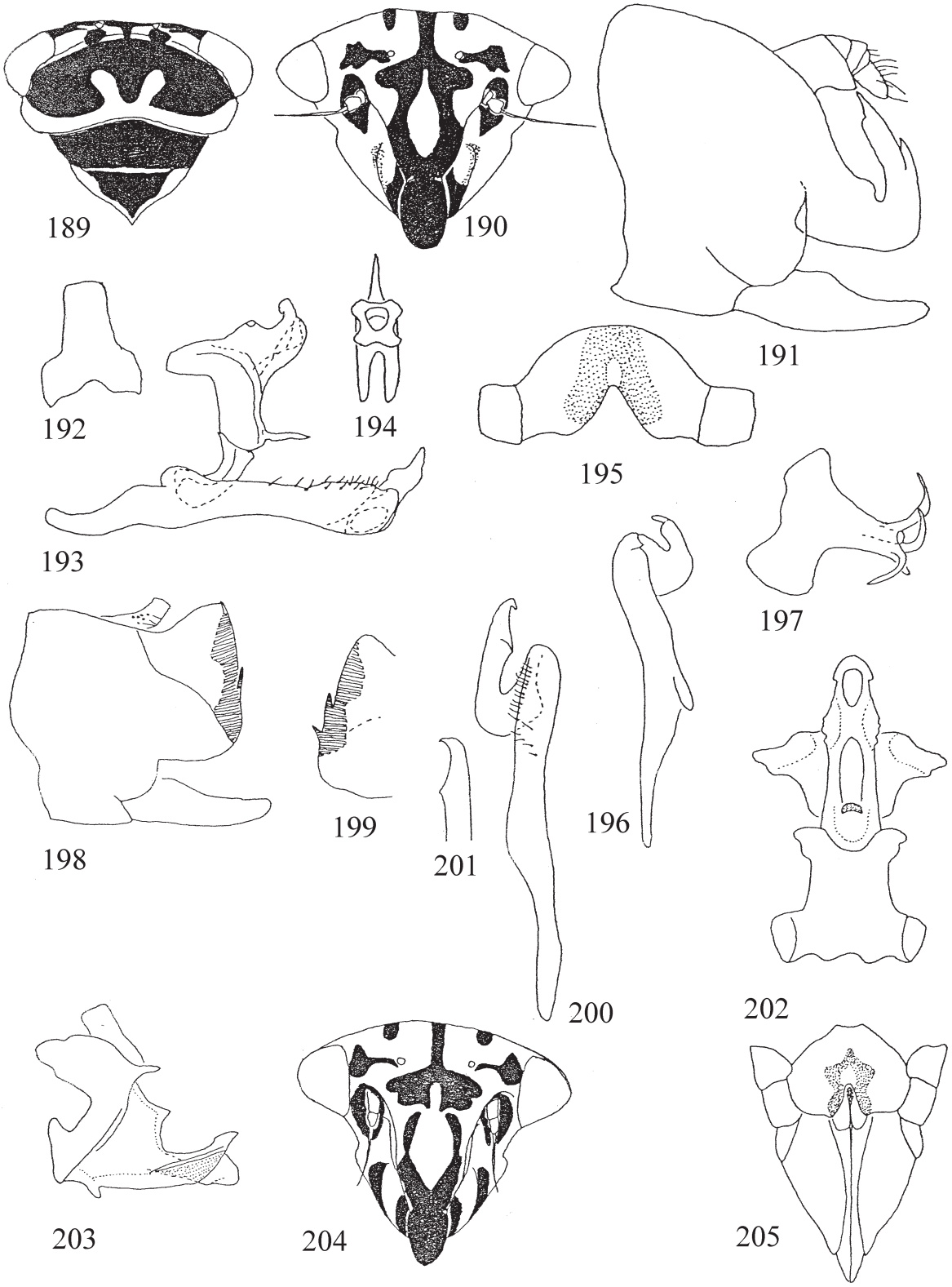
Female (color). Pale brown. Two small spots on vertex, two spots on outer margin of ocellus, transverse band across antennal ledges, series of specks to frontoclypeus and apical 0.66 of clypellus, four spots on scutellum, black. Seventh sternite medially fuscous.

Female genitalia. Hind margin of seventh sternite deeply excavated in middle.

Measurements. Male 3.7 (3.4–3.9) mm long, 1.8 mm wide across eyes. Female 4.05 mm long and 2.0 mm wide across eyes.

Material examined. HOLOTYPE ♂, NEPAL: Dunche, 28 Km N. of Trisuli (Nuawakot), 1950m, 7–12.xi.1965, L.W. Quate (BPBM). PARATYPES: 6 ♂, 1 ♀, same data as holotype; 1 ♂, Bokaihunde, 20 Km N of Trisuli (Nuawakot), 2100m, 13–17.xi.1965, L.W.Quate (BPBM). Additional material: NEPAL: 2 ♀, Ulleri, Godavari 4.xi.1981; 5 ♂, 3 ♀, Chitre, 5.xi.1981; 3 ♀, Phalate, 6.xi.1981; 3 ♂, 3 ♀, Kaku, 9.xi.1981; Letekhola, 1 ♂, 1 ♀, 9.xi.1981; 2 ♂, 1 ♀, Kalopani, 10.xi.1981; 7 ♂, 3 ♀, Lete, 10–11.xi.1981; all collected by I. Dworakowska (BMNH, NPC, UASB, NMNH, ZSI). Other material: INDIA: 3 ♂, 1 ♀, Himachal Pradesh: Simla, on clover, No.S21, CIEA 9478, Durgades sp. Det. MSK, Ghauri, 1977 (BMNH).

Remarks. This species is closely related to *D. montana* from which it can be easily distinguished by its long preatrial process of the aedeagus.



FIGURES 189–205. Species of *Durgades*: 189–195. *Durgades dunchensis* Viraktamath: 189. Head and thorax; 190. Face; 191. Male genital capsule, lateral view; 192, Connective, anterodorsal veiw; 193. Style, connective and aedeagus, lateral view; 194. Aedeagus, dorsal view; 195. Female seventh sternite; 196–197. *Durgades idiocera* Pruthi: 196. Style, dorsal view; 197. Aedeagus, lateral veiw; 198–205. *Durgades montana* (Distant): 198. Genital capsule, lateral view; 199. Posterior margin of pygofer; 200. Style, dorsal view; 201. Inner fork of style; 202. Connective and aedeagus, anterior view; 203. Aedeagus, lateral view; 204. Face; 205. Apical portion of female abdomen, ventral view.

Durgades idiocera Pruthi

Figs 196–197.

Durgades idiocera Pruthi 1930: 13–15; figs.15–17, pl II, figs. 1, 1a, 2. Viraktamath 2004: 369–370, figs 24–25. SYNTYPES ♂ ♀, PAKISTAN: Murree Hills [ZSI, examined].

Male genitalia. Pygofer shorter than subgenital plates with internal short tooth. Aedeagus with short shaft and apical gonopore surrounded by three curved finger-like processes and one straighter process.

Material examined. SYNTYPES: PAKISTAN: 3 ♂, 6 ♀, Murree, Kachhut, 4412 ft (1247m), 7.ix.1928 (1 ♂, reg. No. 517); Jikka Gal, 6730 ft (2041 m), 17.ix.1928 (1 ♂); Kuldauana, 7006 ft (2124m, 13.ix.1928 (1 ♂) on wild grass, H.S.Pruthi (ZSI).

Remarks. Pruthi's (1930) description is quite adequate. This species differs from the other known species of *Durgades* in lacking cross vein between the claval veins of the forewings. It appears closely related to *D. mirabilis* judging from the shape of the female seventh sternite.

Durgades mirabilis Pruthi

Durgades mirabilis Pruthi 1930: 12–13, figs 13, 14, pl. I, figs 6, 6a, 7, 7a, 7b. SYNTYPES ♂ ♀, INDIA: Yatung [ZSI, examined].

"Fuscous, male darker than female. Head distinctly broader than pronotum. Vertex extremely short, especially in the middle, marked with threee black stripes (rather faint and indistinct in the female), which are continued on the frons, where the median one bifurcates and its branches end at the bases of the antennae. Face broader than long; frons flat, its lower half with broad, black stripes (broken in irregular patches in the female) along the lateral margins. Ocelli conspicuous. Clypeus [Clypellus] rectangular, with a dark median longitudinal fascia in the female. Lorae and genae not reaching the apex of the clypeus. Genae deeply sinuate below the eyes. Pronoutm short, broad, with a pair of minute dark spots near the anterior margin, which is slightly produced between the eyes; the posterior margin deeply notched in the middle; a median longitudinal black stripe on the disc present only in the male. Scutellum deeply, transversely impressed about the middle of its length" (Pruthi, 1930).

Material examined. SYNTYPES 2♂, 3♀, SIKKIM: Yatung, 10,000 ft (3033m), viii–ix.1927, F.M.Bailey (ZSI).

Remarks. As Pruthi did not dissect the male genitalia of the type specimens and the author was not allowed to dissect the same, no comment can be made on the relationships of the species. However, Pruthi's (1930) description is quite adequate to distinguish the species based on the pronotal color.

Durgades montana (Distant)

Figs 198–205.

Nehela montana Distant, 1912: 607; 1916:231, fig. 170. HOLOTYPE ♂, INDIA: Simla [BMNH, examined].
Durgades nigropictus Distant: Ishihara 1979: 102–103, figs 7–16 (misidentification).
Durgades montana (Distant): Viraktamath 2004: 370–371, figs 26–33.

Color. Distant (1912, 1916) gave adequate description and illustration. Ishihara (1979) gave good figures of male and female. Coloration with darker areas much reduced than in *D. aviana* so much so that often the anterior dark black band is discontinuous medially and with short suspended median stripe on thorax. Facial markings are also much reduced in size. Female paler, black markings either reduced or as in *D. dunchensis*.

Male genitalia. Pygofer caudally truncate with marginal sclerotized area armed with one or two subdorsal tooth-like processes, subcaudal area membranous. Anal collar process not well developed, caudally broadened and truncate with number of punctures. Subgenital plate triangular, devoid of macrosetae, basally fused. Styles elongate, inner arm longer than outer arm, with a subapical tooth and apically narrowed and curved. Connective broad at base, caudal margin excavated and as in Fig. 202. Aedeagus with well-developed dorsal apodeme bearing short

process, preatrium short with short process, shaft robust at base, angularly produced on dorsal margin near base, with lateral ridge having serrated margin, with pair of subapical denticles. Gonopore large, oval, surrounded by membranous area, extending beyond gonopore.

Female genitalia. Hind margin of seventh sternite deeply excavated in middle.

Measurements: Male 4.4 (4.2–4.6) mm long and 1.42 mm wide across eyes. Female 4.7 (4.5–4.9) mm long and 1.6 mm wide across eyes.

Material examined. HOLOTYPE ♂, INDIA: Simla, Distant Coll. (BMNH). Additonal material: INDIA: Himachal Pradesh: 2 ♀, Simla, 14.x.1979, C.A.Viraktamath; 3 ♀, 30.x.1962 ex grasses; 7 ♂, 5 ♀, Kufri, 17 Km N of Simla, 15.x.1979, K.D.Ghorpade (2 ♂), A.R.V.Kumar (3 ♂, 5 ♀), C.A.Viraktamath (2 ♂) (UASB).

Remarks. This species is related to *D. dunchensis* with which it shares the character of coloration and general structure of the aedeagus. However, it differs in having shorter preapical aedeagal process and a differently shaped aedeagal shaft. Ishihara (1979) misidentified the specimens of this species collected in Simla as *Durgades nigropictus*. Though his diagrams are excellent, the Figure 13 depicting the aedeagus is erroneous.

Durgades nigropicta Distant

Figs 26, 56–59, 206–214, 566, 580, 595.

Durgades nigropicta Distant 1912: 609; 1916: 238, fig. 175. Viraktamath 2004: 371–373, figs 34–42. HOLOTYPE ♀, E. HIMALAYAS [BMNH, examined].

Durgades distanti Kameswara Rao and Ramakrishna, 1978b:358. HOLOTYPE ♂, INDIA [NPC, examined] synonymized by Viraktamath 2004: 371.

Male (color). Kameswara Rao and Ramakrishnan (1978b) have described male of this species adequately.

Male genitalia. Pygofer gradually narrowed caudally and produced into slightly curved process terminated in stout spine. Subgenital plates shorter than pygofer, somewhat elongate, triangular with rounded apex. Styles caudally twisted laterally and posteriorly, mesal arm longer than outer arm, fairly attenuated, shaft of styles deeply constricted cephalad of twist. Connective broad, lateral margins sinuate. Aedeagus with well developed apodeme bearing one medially cleft lamellate process, each lobe of cleft bearing finger-like process, socle broad, stout, with strongly curved outer margin, shaft broad with three ridges around gonoduct, two lateral and one caudal and laterally appearing broad, with additional pair of dorsally directed processes.

Female (color). Testaceous, two tiny spots on vertex, markings on outer margin of ocelli, transverse narrow band between antennal ledges, facial sulci, areas of pronotum behind eyes parts of anal margin of forewings and parts of vein M, fuscous. Antennal pits and meso and metapleura dark brown; vertex, upper parts of face, clypellus, apices of lora, posterior and lateral margins of pronotum, lateral extremes of impressed line on scutellum, ochraceous. Abdomen irregularly marked with fuscous. Transverse carina of vertex not as acute as in males. Pronotum flat. Forewings extend beyond abdomen, but hind wings not reaching apex of abdomen.

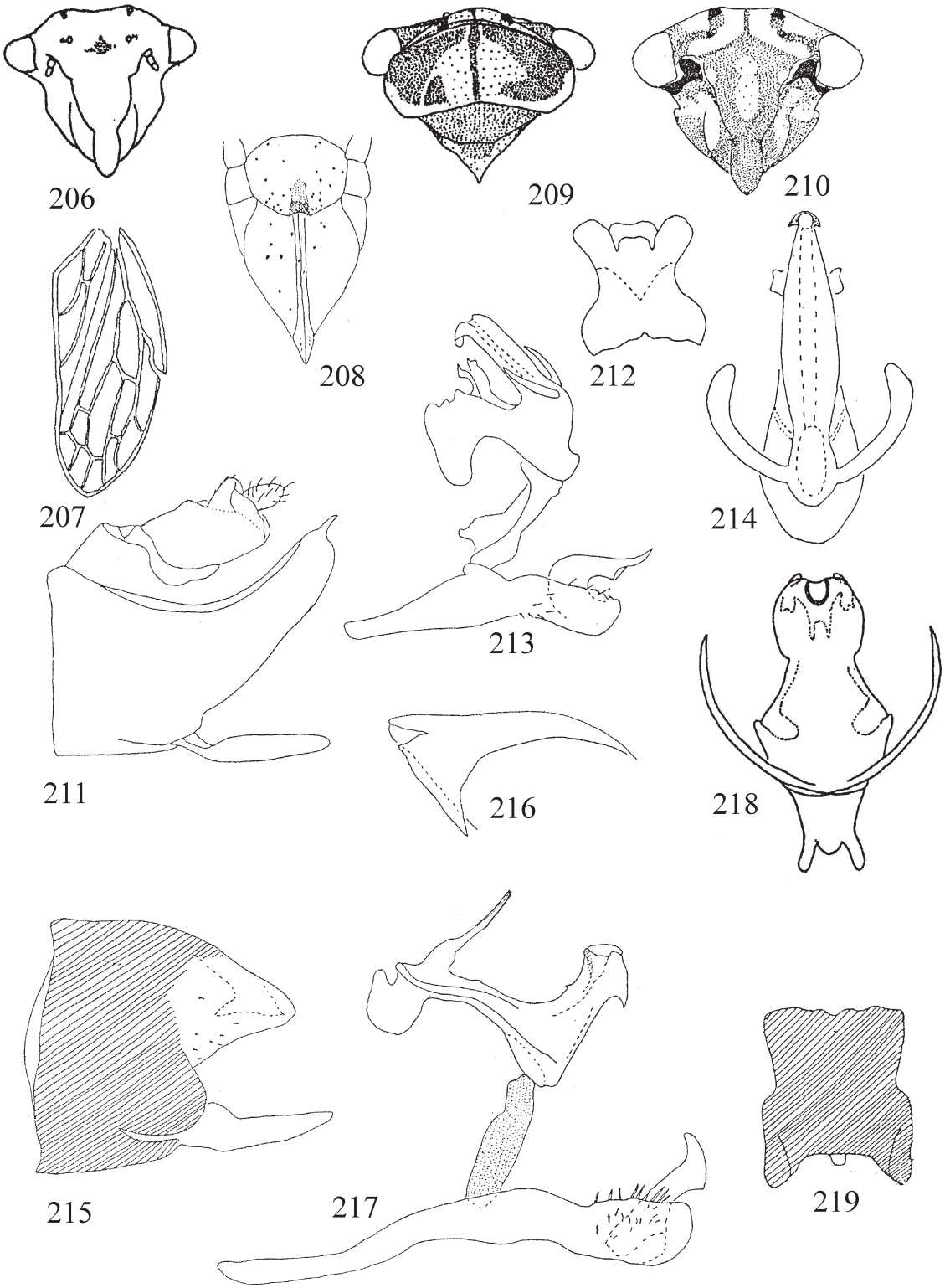
Female genitalia. Seventh sternite longer than sixth, posteriorly marked with brown, hind margin convex, medially slightly excavated. Pygofer with fine setae, ovipositor longer than pygofer.

Measurements. Male and female 3.57–3.74 mm long, and 1.4 mm wide across eyes.

Material examined. HOLOTYPE ♀ of *Durgades nigropictus* Distant, E. Himalayas, Distant Coll. 1911–383, Brit. Mus. (BMNH). HOLOTYPE ♂ of *Durgades distanti*, India: Assam: Shillong, 30.v.1918, A.G.R., *ex Lantana* (NPC). PARATYPE ♂, Cherrapunjee, 30.v.1918, A.G.R. (NPC). Additonal material: INDIA: West Bengal: Darjeeling, 11 ♂, 6 ♀, 1 nymph, 23.x.1981; Tiger Hill, 2245m, 52 ♂, 23 ♀, 1 nymph, 24.x.1981; Ghoom, 2247m, 25 ♂, 19 ♀, 25.x.1981 Algarha, 1638m, 8 ♂, 3 ♀, 9 nymphs, 27.x.1981; Kurseong, 1 ♂, 1 ♀, 22.x.1981; Meghalaya: Cherrapunjee, 6 ♂, 1 nymph, 5.xi.1981; Shillong, 2 ♂, 3.xi.1981; 1 ♂, 5.xi.1981 all collected by C.A.Viraktamath and S. Viraktamath (UASB). NEPAL: 4 ♂, 1 ♀, Ulleri, Godavari,4.xi.1981, I. Dworakowska; Kathmandu, Chandragiri, 21.vii–25.xi.1979, V.K. Thapa (UASB); 4 ♂, 1 ♀, Bokaihunde, 20 Km N of Trisuli (Nuawakot), 2100m, 13–17.xi.1965, L.W.Quate; 2 ♂, Dunche, 28 Km N of Trisuli (Nuawakot), 1950m, 7–12.xi.1965, L.W.Quate (BPBM).

Remarks. Distant (1916) redescribed and adequately illustrated this species. The female holotype has blackish brown spots on the pygofer and is comparatively small. However, the size of the female is quite variable and also

there is variation in the curvature of the female seventh sternite, fusion of the claval veins and size of the inner anteapical cell of the forewings.



FIGURES 206–219. Species of *Durgades*: 206–214. *Durgades nigropicta* Distant: 206. Face; 207. Forewing venation; 208. Apical portion of female abdomen, ventral view; 209. Head and thorax; 210. Face; 211. Male genial capsule, lateral view; 212. Connective; 213. Style, connective and aedeagus, lateral view; 214. Aedeagus, posterior view; 215–219. *Durgades saura* Viraktamath: 215. Pygofer, lateral view; 216. Mesal process of pygofer; 217. Style, connective and aedeagus, lateral view; 218. Aedeagus, dorsal view; 219. Connective, anterodorsal veiw.

Durgades saura Viraktamath

Figs 215–219.

Durgades saura Viraktamath 2004: 373, figs 43–47. HOLOTYPE ♂, INDIA: Simla [UASB, examined].

Color. Coloration and structure similar to *D. duchensis* but frontoclypeus entirely black. Claval veins connected by two cross veins, one near midlength and other at apex of inner claval vein.

Male genitalia. Pygofer lobe triangular, membranous, not exceeding subgenital plates; dorsal margin with blade-like process not exceeding pygofer lobe. Styles with inner arm longer than outer arm. Connective broader at anterior region than caudal region. Aedeagus similar to that in *D. spatulata* (see below) but more slender, with posterior ventrally directed tooth-like process, pair of short denticles on anterior margin, dorsal apodeme with long slender processes describing arch in cephalic view. Tenth segment long.

Measurements. Male 3.7 mm long and 1.37 mm wide across eyes.

Material examined. Holotype ♂, INDIA: Himachal Pradesh: Simla, 22.x.1981, I. Dworakowska (UASB).

Remarks. Externally *D. saura* is very similar to *D. spatulata* but differs mainly in having shorter pygofer process and in the shape of the aedeagus.

Durgades spatulata Viraktamath

Figs 220–228.

Durgades spatulata Viraktamath 2004: 374, figs 48–56. HOLOTYPE ♂, NEPAL: Ghara [UASB, examined].

Color. Coloration and forewing venation similar to those in *D. saura*.

Male genitalia. Pygofer triangularly produced caudally with dorsal spatulate process having acute dorsal angle, margin minutely crenulate on distal 0.25, dark pigmented, triangular lobe paler. Subgenital plates triangular with short setae. Inner arm of styles slightly longer. Connective widest at base. Aedeagus with dorsal apodeme longer than shaft, with pair of elongate slender processes one on either angle distally; shaft robust with pair of caudal and pair of cephalic short spine-like processes, gonopore larger, apical, laterally expanded near apex. Anal collar weakly developed. Tenth segment elongate.

Female genitalia. Seventh sternite medially broadly angularly excavated, margin blackish.

Material examined. HOLOTYPE ♂, NEPAL: Ghara, 8.xi.1981, I. Dworakowska (UASB). PARATYPES: 2 ♂, 3 ♀, same data as holotype; 3 ♂, 9 ♀, Kopchepanj; 1 ♂, Kyumnu, 16.xi.1981; 1 ♂, Dana, 11.xi.1981; 2 ♂, 1 ♀, Sikha, 6.xi.1981; 2 ♂, Kaka, 9.xi.1981; 1 ♀, Sarkju, 15.xi.1981; 1 ♂, 1 ♀, Kamrang forest, 17.xi.1981; 1 ♀, Kabre, 8.xi.1981; 2 ♂, 1 ♀, Landrung, 18–19.xi; 1 ♀, Choomro kyummu, 17.xi.1981; 1 ♀, Ghandrung, 16.xi. 1981, all collected by I. Dworakwska; 1 ♂, Kathmandu, Chandrafin, 21.vii.1988–26.xi.1979, V.K. Thapa (UASB).

Remarks. *D. spatulata* and *D. saura* are closely related species and also resemble each other. However, they differ in the structure of the male pygofer process and the aedeagus as given in the key.

Durgades sympatrica Viraktamath

Figs 229–237.

Durgades sympatrica Viraktamath 2004: 374, figs 57–65. HOLOTYPE ♂, PAKISTAN: Murre Hills [BMNH, examined].

Color. Coloration similar to that in *D. idiocera*.

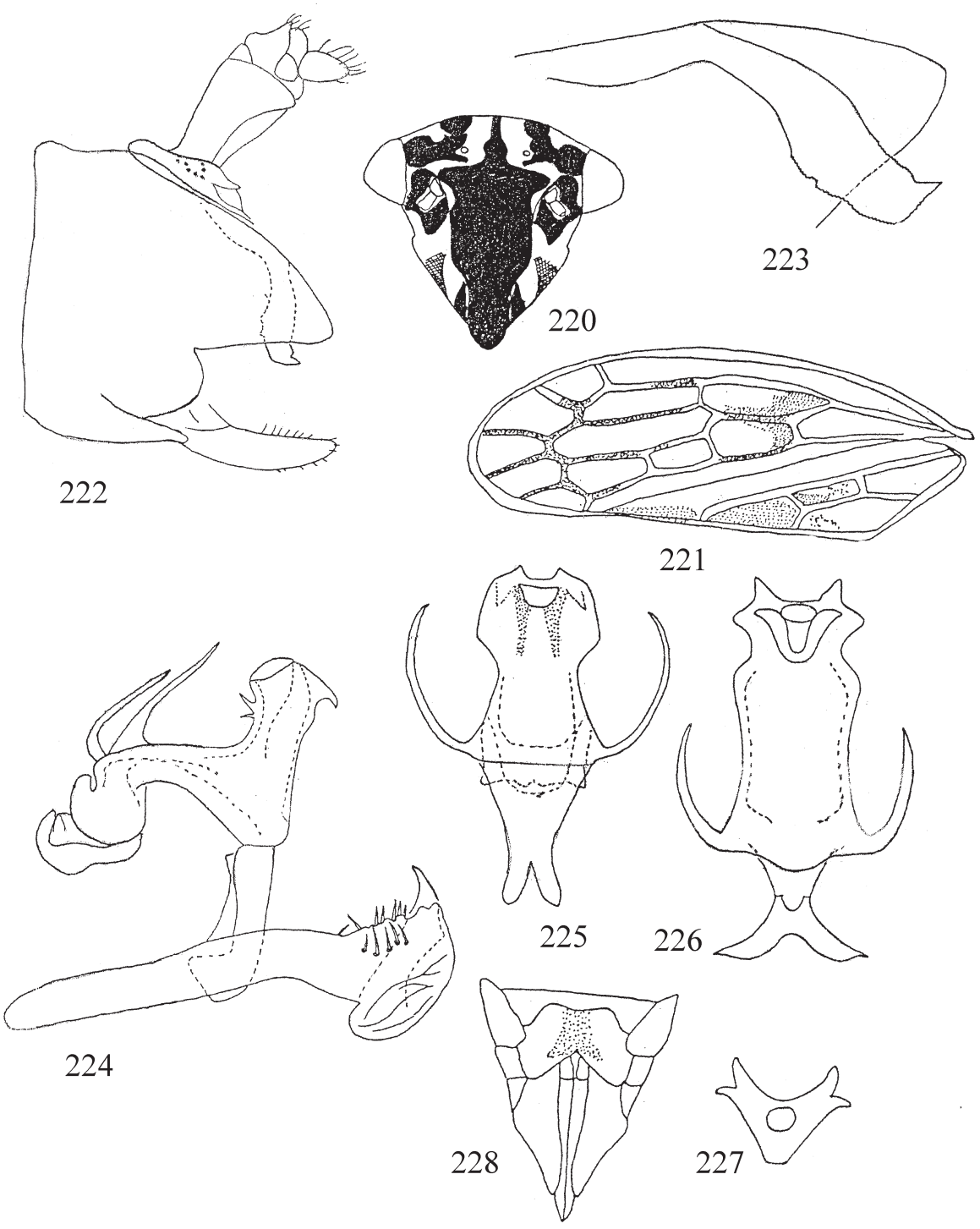
Male genitalia. Pygofer lobe angularly produced caudally but rounded, with dorsal marginal anteriomesally directed process. Styles as in *D. idocera*. Connective distally prominently bilobed. Aedeagus broad basally narrowed distally with pair of lateral and one unpaired caudal subapical process, the caudal process slightly expanded distally, bilobed with corrugated margin, gonopore apical.

Female genitalia. Seventh sternite with hind margin medially slightly concavely excavated and with median black stripe.

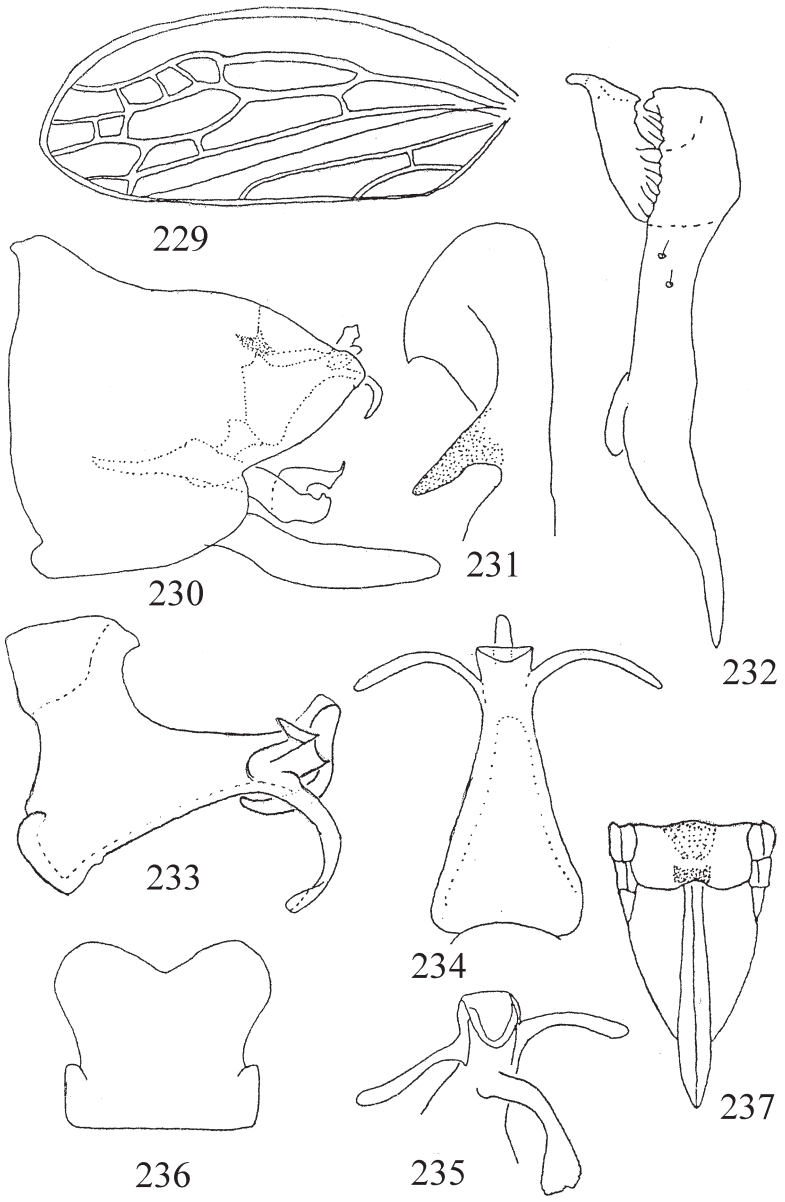
Measurements. Male 3.2 mm long and 1.42 mm wide across eyes and female 5.1 mm long and 1.7 mm wide across eyes.

Material examined. HOLOTYPE ♂, PAKISTAN: Punjab, Muree Hills, 3 km N Sunnybank, 30.viii.1985, C.W. & L.B. O'Brien, Brit. Mus. 1986-238 (BMNH). PARATYPES: 2 ♀, same data as holotype (BMNH).

Remarks. This species is probably very close to *D. idiocera* but differs in having three subapical aedeagal processes of which, one is distally bilobed with serrated margin.



FIGURES 220–228. *Durgades spatulata* Viraktamath: 220. Face; 221. Forewing venation; 222. Male genital capsule, lateral view; 223. Pygofer dorsal process; 224. Style, connective and aedeagus, lateral view; 225, 226. Different views of aedeagus; 227. Apex of aedeagal shaft, dorsal view; 228. Apical portion of female abdomen, ventral view.



FIGURES 229–237. *Durgades sympatrica* Viraktamath: 229. Forewing venation; 230. Male genital capsule, lateral view; 231. Mesal process of pygofer; 232. Style, lateral view; 233. Aedeagus, lateral view; 234. Aedeagus, dorsal view; 235. Apex of aedeagal shaft, posterior view; 236. Connective, lateral view; 237. Apical portion of female abdomen, ventral view.

Genus *Formallia* nov.

Type-species: *Formallia truncata* **sp. nov.**

Morphology. Long, slender leafhoppers measuring 5 to 6 mm in length. Vertex medially shorter than next to eye, posterior margin evenly rounded. Ocelli closer to adjacent eye than to each other. Face slightly wider than long, clypellus broader apically, projecting beyond lora, transclypeal suture complete. Lora projecting beyond normal curvature of genae. Pronotum arcuate, disc finely but conspicuously punctured. Scutellum either as long as or shorter than median length of pronotum. Forewings with three anteapical cells and four apical cells, inner anteapical cell closed posteriorly by cross vein, claval veins separate (Fig. 16). Forefemora with intercalary setae forming sinuate row, one AV seta near base of femur stout and long (Fig. 27). Hind femoral macrosetae 2+1; hind tibial macrosetae PD 13±1, AD 8±1, AV 8±1. Hind basitarsus with two platellae on distal transverse row.

Male genitalia. Ninth tergum well sclerotized, often with well developed anterior apodemes in some species. Male pygofer usually caudo-ventrally terminated into triangular plate with acute ventral angle. Dorsal surface of

male subgenital plates with long hair-like setae, lacking ventral stout setae (except in *F. longistyla* **sp. nov.**). Connective broad at base, somewhat triangular and apically bilobed. Aedeagal shaft U-shaped, without processes, preatrium variously developed, gonopore apical or subapical. Anal tube and anal style short, anal collar process well developed.

Female genitalia. Posterior margin of female seventh sternite usually membranous and translucent. First pair of valvulae rather straight, dorsal sculptured area about 0.75 length, sculpture papillose, papillae for most part rounded loosely packed in oblique rows except papillae on one or two dorsal rows arranged irregularly (Figs 60, 61). Second pair of valvulae serrate in distal half, teeth rather prominent, ventroapical area crenulated, one prominent tubercle in basal half before ovipore (Figs 62, 63).

Distribution. Taiwan.

Remarks. This genus resembles *Onukigallia* Ishihara but differs in the following characters: finely but conspicuously punctate pronotum, caudo-ventral triangular process of pygofer, apically bilobed triangular connective, long hair-like setae confined to dorsal surface of male plates and ventral surface without stout or long hair-like setae.

Key to species of *Formallia* gen. nov.

1. Pronotum coarsely punctate, nearly unspotted; aedeagus with long strap-like preatrium, longer than aedeagal shaft (Fig. 246); hind margin of female seventh sternite slightly convexly produced medially, black in middle (Fig. 249) . . . . . *F. longipenis* **sp. nov.**
- Pronotum finely punctate, with definite pattern of dark spots (Fig. 238); preatrium of aedeagus shorter than shaft; female seventh sternite variable 2
2. Subgenital plates without hair-like setae (Fig. 262); inner arm of style considerably longer than outer arm (Figs 263). . . . . *F. longistyla* **sp. nov.**
- Subgenital plate with long hair-like setae (Fig. 267); inner arm of style about as long as or shorter than outer arm (Figs 242, 248) 3
3. Male pygofer with caudo-ventral lobe gradually narrowed to form spine-like process (Fig. 266); subgenital plate truncate apically (Fig. 267); style stout with outer arm hooked (Fig. 271); hind margin of female seventh sternite almost straight . . . . . *F. truncata* **sp. nov.**
- Caudo-ventral lobe of male pygofer either abruptly narrowed to spine-like process (Fig. 239) or bluntly conical (Fig. 252); subgenital plate and style not as above 4
4. Male pygofer with caudoventral lobe abruptly narrowed to spine like process (Fig. 239); anal collar process apically broad (Fig. 239); aedeagal shaft not flared near apex (Fig. 241) . . . . . *F. ishiharai* **sp. nov.**
- Male pygofer with caudoventral lobe bluntly conical (Fig. 252); anal collar process apically narrowed (Fig. 253); aedeagal shaft with apex flared (Fig. 257). . . . . *F. rugosa* **sp. nov.**

Formallia ishiharai sp. nov.

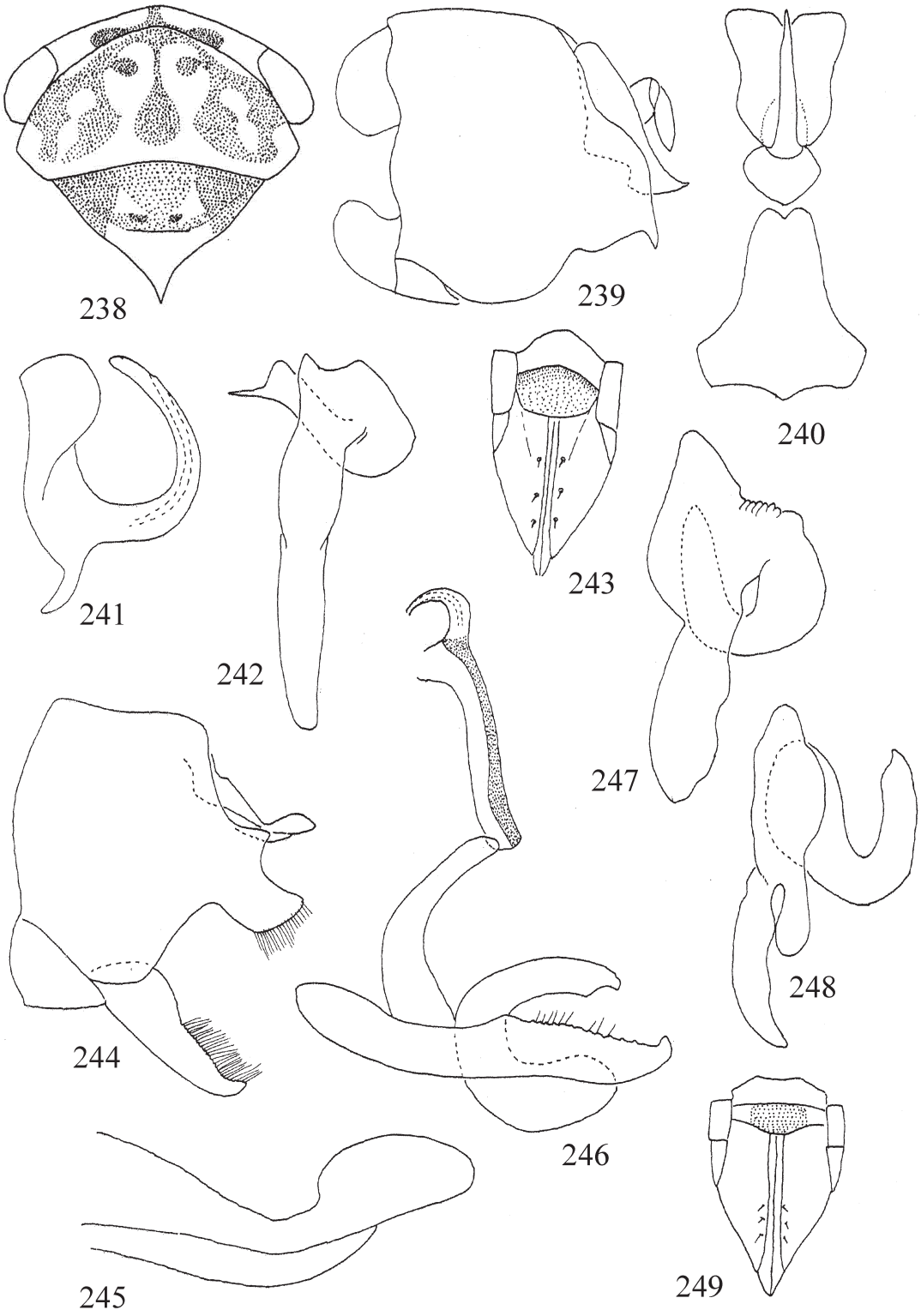
Figs 238–243.

Color. Pale brown; two small subglobose spots on vertex black. Fuscous markings on pronotum and scutellum as in Fig 238. In one male these markings coalesce making pronotum fuscous with pale brown hind margin; face in male ochraceous; ocelli with ventral brown spot. Females with antennal sockets black. Facial sutures infuscated; obpyriform spot on clypellus and series of submarginal spots on clypeus fuscous; inverted Y on face and area mesad of eyes, orange-yellow; additional fuscous spots on face near eyes or ocelli. Prothoracic and meso thoracic pleura of female darker than in male; Apical half of seventh sternite of female translucent and fuscous.

Ninth tergal and sternal apodemes strongly developed.

Male genitalia. Spine like process of male pygofer short and directed ventrally. Subgenital plates longer than pygofer, apically pointed. Styles with inner arm longer than outer and apex of inner arm dorsally produced into short spine, corresponding ventral point knob-like; ventral surface of inner arm corrugated. Preatrium of aedeagus somewhat rhomboidal, dorsal apodeme longer than broad, outer margins sinuate and in caudal view about as long as aedeagal shaft; aedeagal shaft with microscopic scale-like sculpture on outer surface (not shown in Fig 241).

Female genitalia. Hind margin of seventh sternite broadly convex. Ovipositor with 3–4 pairs of setae on mesal margin of pygofer.



FIGURES 238–249. Species of *Formallia* **gen. nov.**: 238–243. *Formallia ishiharia* **sp. nov.**: 238. Head and thorax; 239. Male pygofer, lateral view; 240. Connective and aedeagus, anterior view; 241. Aedeagus, lateral view; 242. Style, lateral view; 243. Apical portion of female abdomen, ventral view; 244–249. *Formallia longipenis* **sp. nov.**: 244. Male genital capsule, lateral view; 245. Anal collar process, lateral view; 246. Style, connective and aedeagus, lateral view; 247. Style, ventrolateral view; 248. Style, dorsal view; 249. Apical portion of female abdomen, ventral view.

Measurements. Male 5.6 mm long, 1.51 mm wide across eyes. Female 5.7 mm long, 1.5 mm wide across eyes.

Material examined. HOLOTYPE ♂, TAIWAN: Arisan, 8.vi.1934 John L. Buys (NMNH). PARATYPES: 1 ♂, same data as holotype except 6.iv.1932 (NMNH); 4 ♂, 6 ♀, Arisan, 2130 m, 19.viii.1947, J.L. Gressitt (BPBM).

Remarks. *F. ishiharai* closely resembles *F. truncata* (see below) in characters of the head, pronoutm and scutellum, but is smaller and more slender. It can be distinguished by the elongate and apically pointed male subgenital plates, short spine-like process of the dorso-caudal margin of pygofer, attenuated extension of dorsal point of the inner arm of the style, preapical gonopore and the characters of the connective. This species is named in honour of the late Dr. Tomotsu Ishihara, well known hemipterist from Japan.

Formallia longipenis **sp. nov.**
Figs 244–249.

Color. Very pale yellowish brown. Vertex with two black spots closer to each other than to eyes. One brown speck below each ocellus. Pronotum unspotted. Female similar to male in coloration but the spots on vertex very small.

Male genitalia. Subgenital plates triangular, distally pointed with numerous long hair-like dorsal setae. Pygofer ventrally excavated with hump-like lobe on dorsal margin, truncate caudally. Anal collar well developed, apical broad area reticulated. Styles short, stout with heavy caudal arm, surface of arm reticulated; both inner and outer arms slightly hooked at apex. Aedeagus with long strap-like preatrium, dorsal apodeme weakly sclerotized, shaft strongly hooked anteriorly, gonopore apical.

Female genitalia. Hind margin of seventh sternite slightly convex in middle and with central broad black patch.

Measurements. Male 5.2 mm long, 1.4 mm wide across eyes. Female 5.3 mm long, 1.5 mm wide across eyes.

Material examined. HOLOTYPE ♂, TAIWAN: M. Kato (BMNH.). PARATYPE: 1 ♂, 1 ♀, same data as holotype (BMNH).

Remarks. *F. longipenis* resembles *F. truncata* from which it can be distinguished by the coarsely punctate almost immaculate pronotum, long aedeagal preatrium and the structure of the caudal lobe of the pygofer.

Formallia longistyla **sp. nov.**
Figs 259–264.

Color. Pale yellowish-brown. Two spots on vertex nearer to each other than to eyes, speck below each ocellus, dark brown. Triangular spot on anterior margin of pronotum behind vertex, two round spots on either side of this spot and two larger triangular spots on posterior half of pronotum, brown; anterior margin of pronotum and faint median line brown. Scutellum with basal triangles dark brown; area around median impressed line brownish. Some cross veins and apical margin of forewings brownish.

Male genitalia. Subgenital plates broad at base, somewhat triangular with sinuate lateral margins, pointed apically, with marginal short setae, lacking hair-like long setae. Pygofer lobe excavated on ventral margin, sloping down caudo-ventrally; with number of setae on caudal margin. Anal collar sptatulate with reticulate apical lobe. Connective lacking apical bilobed structure. Inner arm of styles much elongated, laterally curved with tooth on ventral aspect, inner margin corrugated. Aedeagus with short preatrium, dorsal apodeme well developed, gonopore subapical.

Female. Unknown.

Measurements. Male 5.3 mm long, 1.5 mm wide across eyes.

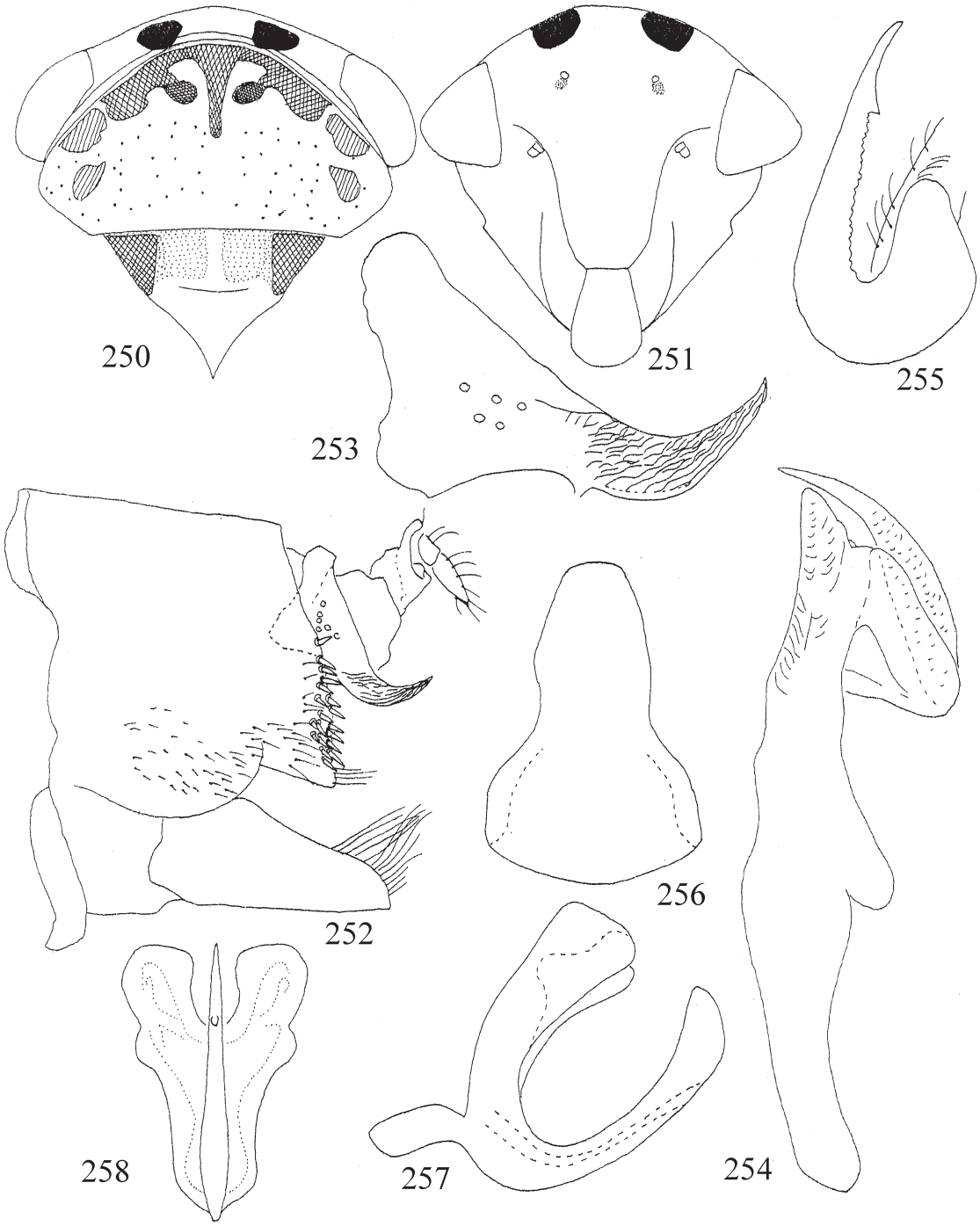
Material examined. HOLOTYPE ♂, TAIWAN: M. Kato (BMNH).

Remarks. *F. longistyla* resembles *F. ishiharai* and *F. longipenis* but differs in having an elongate inner arm of the male style and lacking hair-like setae on the subgenital plates.

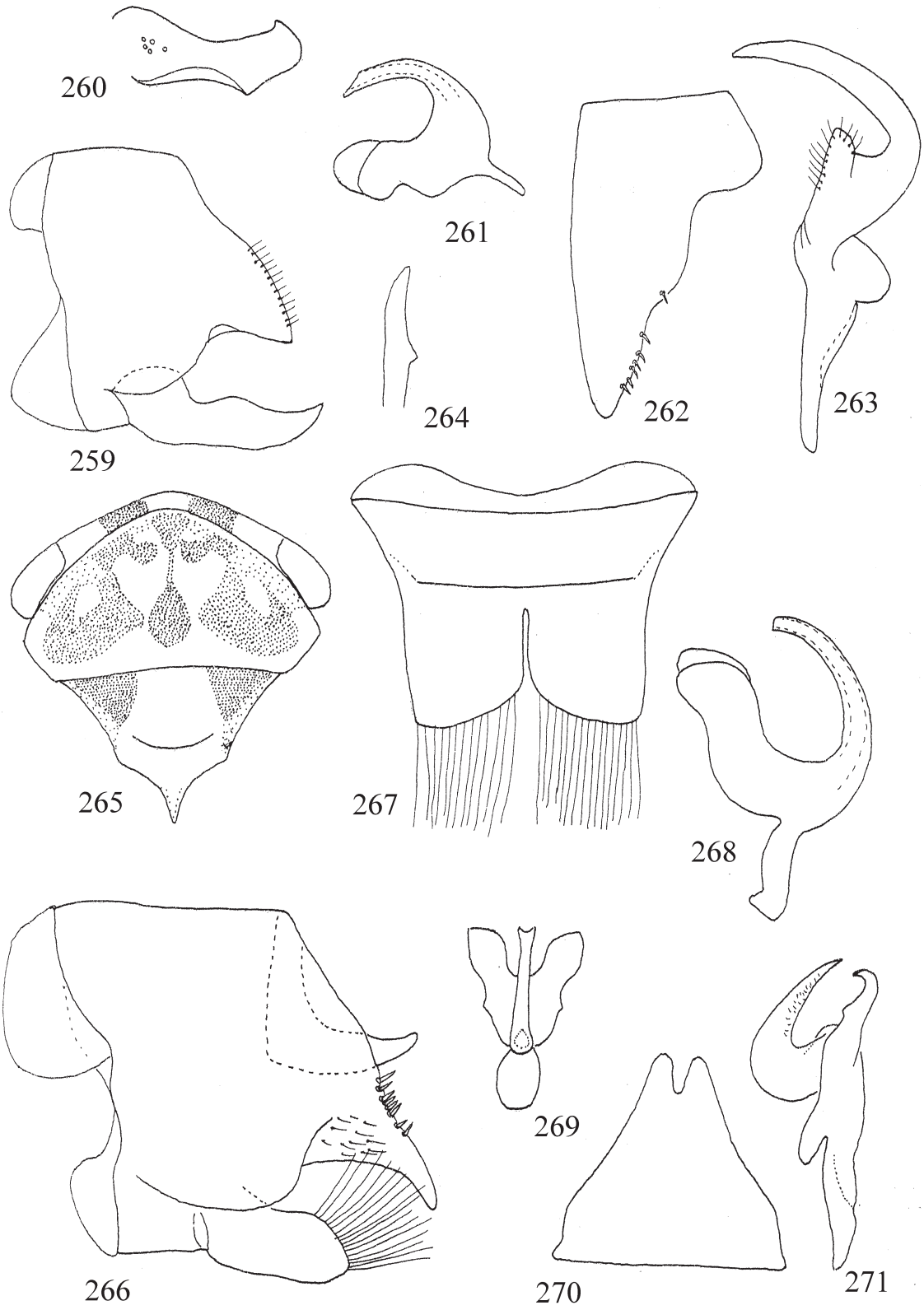
Formallia rugosa **sp. nov.**
Figs 16, 27, 60–63, 250–258, 567, 581, 596.

Color. Coloration and structure similar to *F. ishiharai* but the median stripe and lateral spots on pronotum less developed, median area on scutellum between basal dark brown colored basal triangles, fuscous.

Male genitalia. Pygofer with caudal margin of lobe ventrally produced into unpigmented membranous lobe with long hair-like setae and two rows of stout short setae along caudo-median margin. Subgenital plates longer than broad, rather triangular. Styles robust, with inner arm longer than outer, apically attenuated with subapical tooth, surface rugulose. Connective longer than broad, broadest at base, then narrowed. Aedeagus with well developed, stout, bilobed, dorsal apodeme; shaft compressed, widened distally, with subapical gonopore. Anal collar process curved, pointed, with oblique rugae.



FIGURES 250–258. *Formallia rugosa* **sp. nov.**: 250. Head and thorax; 251. Face; 252. Male genital capsule, lateral view; 253. Anal collar process, lateral view; 254. Style, ventral view; 255. Style apex, posterior view; 256, Connective; 257. Aedeagus, lateral view; 258. Aedeagus, posterior view.



FIGURES 259–271. Species of *Formallia* **gen. nov.**: 259–264. *Formallia longistyla* **sp. nov.**: 259. Male genital capsule, lateral view; 260. Anal collar process, lateral view; 261. Aedeagus, lateral view; 262. Subgenital plate, ventral view; 263. Style, dorsal view; 264, Inner fork of style, lateral view; 265–271. *Formallia truncata* **sp. nov.**: 265. Head and thorax; 266. Male genital capsule, lateral view; 267. Subgenital plates and valve, ventral view; 268. Aedeagus, lateral view; 269. Aedeagus, posterior view. 270. Connective, anterodorsal view; 271. Style, dorsal view.

Female genitalia. Hind margin of seventh sternite truncate, posterior margin membranous twice as broad as median length.

Measurements. Male 4.9 mm long, 1.4 mm wide across eyes. Female 5.2 mm long, 1.6 mm wide across eyes.

Material examined. TAIWAN: HOLOTYPE ♂, Formosa: M. Kato (BMNH). PARATYPE: 1 ♀, data as for holotype (BMNH).

Remarks. *F. rugosa* resembles *F. ishiharai* but differs in having a thinner anal collar process, much stouter style and caudally flared aedeagal shaft.

Formallia truncata sp. nov.

Figs 265–271.

Color. Pale brown. Two subglobse spots on vertex closer to each other than to eyes and two triangular spots at basal angles of scutellum, black. Markings on pronotum as in Fig. 265 fuscous to black; holotype male with these markings fuscous, not coalescing. Face ochraceous, spot below each ocellus brown.

Male genitalia. Pygofer caudally produced into narrow process. Subgenital plates shorter than pygofer, apically obliquely truncate. Styles comparatively large, outer arm terminated in short hook, mesal arm apically attenuated. Connective broader than long, with deep apical notch. Preatrium of aedeagus elliptical, plate-like, dorsal apodeme with deep U-shaped excavation, shaft strongly dorsally curved, apically narrowed; gonopore terminal. Anal collar well developed, anal tube and anal style short, dorsally visible.

Measurements. Male 5.8 mm long, 1.6 mm wide across eyes.

Material examined. HOLOTYPE ♂, TAIWAN: Arisan, 2130 m, 19.viii.1947, J.L. Gressitt (BPBM). PARATYPE: 1 ♂, TAIWAN: Arisan, 8.vi.1932, John L. Buys (NMNH). Additional material: TAIWAN: 1 ♂, 1 ♀, M. Kato (BMNH).

Remarks. *F. truncata* can be easily recognized by its truncate subgenital plates. The female is only tentatively associated with the male.

Genus *Gunhilda* Distant

Gunhilda Distant 1918: 88, fig. 52. Type-species: *Gunhilda noctua* Distant, by original designation.

Female. "Vertex of head only a little more in length than half the breadth between eyes, the lateral margins truncate before eyes and then broadly rounded; face slightly longer than broad, convex, moderately centrally carinate; pronotum about as long as vertex of head, moderately convex between eyes, the posterior margin truncate; scutellum small, considerably shorter than pronotum; tegmina short, only extending a little over base of abdomen, their apical margins rounded; tibiae spinulose, the posterior tibiae more strongly and densely spinulose" (Distant 1918). Hind tibial macrosetae PD 5, AD 6, AV 4. Six abdominal tergites exposed.

Remarks. Only the female of this genus is known. Until the male is discovered the relationship of this genus with other genera of Agalliini remains obscure. It resembles species of *Agallia* and *Anaceratagallia* from which it can be distinguished by the smaller number of hind tibial macrosetae on all the three rows and by the pitted short forewings.

Gunhilda noctua Distant

Gunhilda noctua Distant 1918: 88. Pruthi 1934: 97–98, figs 114, a, b. HOLOTYPE ♀, INDIA: Nilgiri Hills [BMNH, examined].

"Black somewhat shining; vertex of head with the anterior margin ochraceous; face dull ochraceous, lateral areas with dark striations, cheeks black; femora black, their apices and the tibiae and tarsi dark ochraceous; vertex of head (excluding anterior margin) thickly finely punctate and with a central longitudinal carination; pronotum and scutellum closely transversely striate; tegmina thickly, coarsely punctate" (Distant, 1918).

Head rounded but longer medially than next to eyes. Genae strongly concave beneath eyes. Lora narrow and long, reaching nearly half length between base of antennae and transclypeal sulcus. Elongate spot at base of antennae black. Clypellus extending beyond normal curve of gena, apically bilobed.

Female genitalia. Hind margin of seventh sternite with V-shaped median excavation.

Measurements. Female 3.0 mm long, 1.2 mm wide across eyes.

Material examined. HOLOTYPE ♀, INDIA: Nilgiri Hills, T.V. Campbell (BMNH). Additional material: 1 ♀, same data as holotype (ZSI).

Remarks. Distant (1918) misidentified the sex as male. The rounded head, pitted forewings and brachypterous form with truncate forewings exposing 6 abdominal tergites distinguish this species from all other species of Agalliini known form the Oriental region.

Genus *Hemagallia* nov.

Type-species: *Agallia plotina* Distant

Morphology. Small (2.0–2.7 mm long), robust, brownish to dark brown leafhoppers. Vertex slightly longer medially than next to eyes (Fig. 7). Two small round areas (coronal calli) near hind margin of vertex, either slightly raised from general surface or sunken, but always darker than ground color. Face wider than long, clypellus slightly broader in middle, apex truncate, genae expanded, deeply sinuate below eyes (Fig. 8). Ocelli as close to each other as to eyes. Pronotum and scutellum flat (Fig. 9), posterior half of pronotum with transverse ridges and pits. Face, vertex, anterior half of pronotum and scutellum granular. Forewings almost half as broad as long, apically narrowed and rounded, claval area with fine punctures. Hind wings reduced, lobe-like. Forefemur with intercallary setae aranged in arcuate row, AV row with one seta in distal half stout and long (Fig. 28). Hind femoral macrosetae 2+1; hind tibial macrosetae PD 8±1, AD 6±1, AV 5, setae on PV not capitate but stout setae alternated by two to four slender setae; hind basitarsus with three rows of setae on plantar suface and two platellae on apical transverse row (Fig. 35). Male sternal apodemes at base of abdomen well developed.

Male genitalia. Pygofer with caudal lobe rounded, without appendages or processes. Subgenital plates boat-shaped. Ninth tergum completely sclerotized. Styles with inner arm greatly exceeding length of outer arm, apically broadened with convex apical margin, ventrally with one tooth, outer arm short, outer margin excavated. Connective broad at base, somewhat T-shaped, apically bilobed, slightly broader than long. Aedeagus with dorsal apodeme robust, well developed, shaft slender, strongly curved, compressed, with subapical gonopore. Anal collar with hook-like appendage.

Female genitalia. Ovipositor with first pair of valvulae slightly arcuate, sculpturing occupying about half distal length dorsally, sculpture of loosely packed alveoli, with dorsal two rows irregular, submargrinal in mid region (Figs 64, 65). Second pair of valvulae rather straight, with toothed area occpying distal 0.33, teeth of uniform size, ventroapical area toothed (Figs 66, 67).

Remarks. *Hemagallia* resembles *Anaceratagallia* but differs in having reduced hind wings, a smoothly rounded caudal pygofer lobe, exceedingly drawn out and apically broadened inner arm of the style, by the shape of the aedeagus and by the presence of non-capitate setae on row PV of the hind tibia.

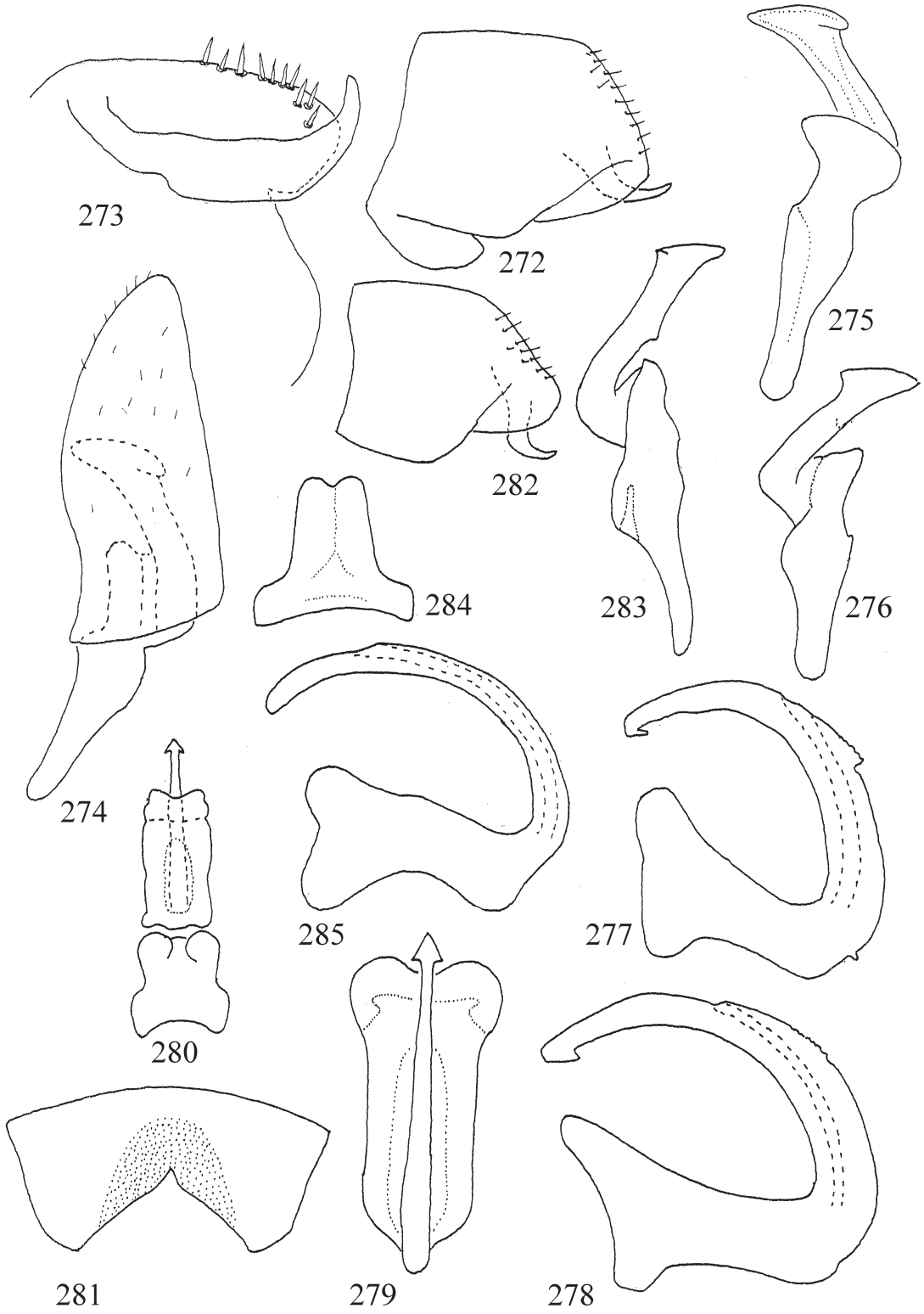
Key to species of *Hemagallia* gen. nov.

1. Apex of aedeagus arrow-head shaped (Figs 277–280); hind margin of female seventh sternite inverted V-shaped (Fig. 281) (south India, Sri Lanka). . . . . *H. biplagiata* (Melichar)
- Apex of aedeagus simple (Fig. 285); hind margin of female sternite concave (north India) . . . . . .*H. plotina* (Distant)

Hemagallia biplagiata (Melichar) comb. nov.

Figs 7–9, 17, 28, 35, 64–67, 271–281.

Agallia biplagiata Melichar 1903: 150. SYNTYPE ♂, SRI LANKA: Peradeniya [MMB, examined]
Agallia campbelli Distant 1916: 229–230. SYNTYPE ♂, INDIA: Chikballapur [BMNH, examined] **syn. nov.**
Agallia janaka Distant 1916:230–231, fig. 169. SYNTYPES ♂ ♀, INDIA: Chikballapur [BMNH, examined] **syn. nov.**



FIGURES 272–285. Species of *Hemagallia* **gen. nov.**: 272–281. *Hemagallia biplagiata* (Melichar): 272. Male pygofer, lateral view; 273. Anal collar process, lateral view; 274. Subgenital plate and style, ventral view; 275. Style, lateral view; 276. Style, dorsal view; 277, 278. Variation in aedeagus, lateral view. 279. Aedeagus, posterior view; 280. Connective and aedeagus, anterior view; 281. Female seventh sternite; 282–285. *Hemagallia plotina* (Distant): 282. Male pygofer, lateral view; 283. Style, dorsal view; 284. Connective; 285. Aedeagus, lateral view.

Color. Coloration variable. Two round spots, median stripe (absent in some specimens), antennal cavities, apical half of clypellus, facial sulci, chocolate brown to black; inverted Y on upper part of face, submarginal oblique spots to fronto-clypeus, inner margins of eyes, dark brown; rest of face brown. Pronotum dark brown to black, with lateral margins narrowly subhyaline. Scutellum dark brown to black, with paler apex. Forewings blackish brown with claval suture and costal margin broadly whitish subhyaline. Abdominal segments black. Legs ochraceous to brown with darker claws. Male valve either black or pale brown. Some males and females paler in color.

Morphology. Pronotal disc with pair of anterior depressions behind eyes with finely granulated surface about 2.37 times as wide as long, anterior margin convex, posterior margin nearly straight.

Male genitalia. Pygofer caudally rounded with membranous hyaline ventral area, dorso-caudal area with setae. Aedeagus with strongly developed elongate atrial rim, shaft apically with lateral projections resembling arrow head. Anal collar well developed, produced into dorsally directed apically pointed process.

Female genitalia. Hind margin of seventh sternite inverted V-shaped with median cleft.

Measurements. Male 2.4 (2.2–2.7) mm long, 1.1 (1.0–1.1) mm wide across eyes. Female 2.6 (2.4–2.7) mm long, 1.2 mm wide across eyes.

Material examined. INDIA: Karnataka: SYNTYPE ♂, "Chikkaballapura" "67" "Brit. Mus.., 8/2" "*Agallia campbelli* Distant, Type" (BMNH). SYNTYPES 1 ♂, 1 ♀, Chikballapur, T.V. Campbell, E.A. Butler, 1915-60, *Agallia janaka* Dist. Type; male with additional label Brit. Mus. 1926-171 (BMNH). Additional material: Karnataka: 5 ♂, 6 ♀, 3 nymphs, Dharwar, 2.viii.1972 (1♂), 14.viii.1972 (3 ♂, 3 nymphs), 3.x.1973(1 ♂, 6 ♀); 4 ♂, Belgaum, 30.vii.1973; 6 ♂, 4 ♀, Yellapur, 23.ix.1973; 2 ♂, 1nymph, Nandi Hills, 27.vii.195; 4 ♂, 2 ♀, Bannerghatta (near Bangalore), 10.xii.1975 all collected by C.A. Viraktamath(UASB); SRI LANKA: SYNTYPE *Agallia biplagiata* Melichar, ♂, Peradeniya (MMB); 1 ♂, Peradeniya, xi.1909 (BMNH).

Remarks. Examination of the syntype series of *Agallia biplagiata* Melichar, *A. campbelli* Distant and *A. janaka* Distant clearly indicated that they are conspecific. This is a very widely distributed species in south India and Sri Lanka with considerable variation in color. Coloration of male tends to be darker than in female. It was generally collected on grass mixed with dicotyledenous plants. *H. biplagiata* resembles *H. plotina* in coloration but differs in having an arrowhead shaped aedeagal tip compared to a simple tip of the aedeagus in *H. plotina*.

Hemagallia plotina (Distant) comb. nov.

Figs 282–285, 568, 582, 597.

Agallia plotina Distant 1908: 194, fig. 127. SYNTYPE ♂, INDIA: Bengal [BMNH, examined]
Agallia rugosa Distant 1912: 607; 1916: 228–229, fig. 167. SYNTYPE ♂, INDIA: N. Bengal [BMNH, examined] **syn. nov.**
Agallia bhuntra Sawai Singh 1969: 359–361, figs 60–64. HOLOTYPE ♂, INDIA: Chandigarh [PAU, not examined] **syn. nov.**

Color. Pale reddish brown to dark brown with whitish or pale marginal stripe on clavus along claval suture, more pronounced in male than in female. Face ochraceous, sutures on face, apex of clypellus, antennal pits in male, fuscous. Ocelli pink or brown. Female from Nepal and holotype male of *H. rugosa* darker in color, the lateral margins of pronotum, basal angles and central spot on scutellum, anal angle and central area of forewings, fuscous, these areas ochraceous in holotype male of *H. plotina*. Costa of forewings broadly hyaline. Thoracic pleura with fuscous areas. Abdominal sterna dark brown in male, paler in female.

Male genitalia. Pygofer elongate, caudal lobe membranous bearing number of setae; tergum completely sclerotized and pigmented. Subgenital plates pointed caudally. Aedeagus with dorsal apodeme concavely excavated both ventrally and apically, shaft strongly curved, without processes. Anal collar with hook-like process directed ventro-caudally, pointed apically.

Female genitalia. Hind margin of seventh sternite concave and medially pigmented.

Measurements. Male 2.5 (2.4–2.7) mm long, 1.0 (1.0–1.1) mm wide across eyes. Female 2.7 mm long, 1.1 mm wide across eyes.

Material examined. INDIA: West Bengal: SYNTYPE ♂, Bengal, Distant Coll., 1911-383, *Agallia plotina* Dist. (BMNH); SYNTYPE ♂, N. Bengal, Distant Coll., 1911-383, *Agallia rugosa* Dist. (BMNH). Additional material: NEPAL: 1 ♀, Pokhara, 910m, 18–29. ix.1965, L.W. Quate (BPBM).

Remarks. This species resembles *H. biplagiata* but differs in lacking the arrowhead shaped apex of the aedeagal shaft of that species and by the concave female seventh sternite. The synonymy of *A. bhuntra* is based on the published description and illustration by Sawai Singh (1969).

Genus *Ianagallia* nov.

Type-species: *Austroagallia bifurcata* Sawai Sing and Gill

Color. Ochraceous to brown, two large round black spots on vertex closer to eyes than to each other, two larger spots on posterior half of pronoutm dark brown to black.

Morphology. Small leafhoppers measuring 3–4 mm in length. Vertex comparatively broad, hind margin sinuately curved behind eyes. Ocelli closer to each other than to eyes. Face slightly wider than long. Pronotum arcuate, more than half as long as wide, finely punctured, hind margin straight. Scutellum about 0.66 length of pronotum. Forewings with 3 anteapical and 4 apical cells, inner anteapical cell open posteriorly, claval veins not joined by cross vein (Fig. 18). Forefemur with intercallary setae not arranged in arcuate row, setae on row AV not thickened (Fig. 29). Hind femoral macrosetae 2+1. Arrangement of macrosetae on hind tibia PD 5±1, AD 6, AV 5±1. Hind basitarsus with two rows of spine-like setae on plantar surface and one platella on distal transverse row (Fig. 34). Sternal apodemes at base of male abdomen well developed.

Male genitalia. Pygofer apically rounded, with an internal dorsocaudal triangular lobe. Subgenital plates without long, stout setae. Styles apically forked, inner arm shorter than outer arm. Connective slightly longer than broad, apically slightly excavated. Aedeagus very robust, asymmetrical, dorsal apodeme strongly developed, robust, longer than shaft, aedeagal shaft slender, bearing bifurcate process, ventral process long, apically asymmetrically forked, longer than shaft. Anal collar divided into two sclerites, ventral one heavily sclerotized, anteriorly apically broadened and plate-like, dorsal one apically pointed.

Female genitalia. Similar to that in *Austroagallia* (Figs 73–75).

Distribution. China, India, Thailand.

Remarks. *Ianagallia* is related to *Austroagallia* and *Igerna,* and differs in the well developed, asymmetrically bifurcate, preatrial process of the aedeagus, slender and shorter aedeagal shaft and the intercalary row of setae on forefemora not arranged in an arcuate row.

Ianagallia bifurcata (Sawai Singh and Gill) comb. nov.

Figs 18, 29, 34, 74–75,391–399, 569, 583, 598.

Austroagallia bifurcata Sawai Singh & Gill, in Bindra 1973: 11–12, pl 2, figs 1–10. Viraktamath & Sohi 1980: 287–289, figs 22–26.

Color. Ochraceous to brown with one round spot on either side of median line on vertex black. Face with brown markings, antennal cavity black. Pronotum with large spot on either side of median line black, often with additonal smaller spot anterior to these. Forewings with claval cells and corial veins fuscous.

Male genitalia. Structure and male genitalia as in generic diagnosis.

Measurements. Male 3.3 (3.1–3.4) mm long, 1.07 (1.0–1.12) mm wide across eyes. Female 3.3–3.4 mm long, 1.05–1.12 mm wide.

Material examined. INDIA: 40 ♂, 48 ♀, Andhra Pradesh: Hyderabad, 20.xi. 1979, ex *Achyratnthes aspera*, C. A. Viraktamath; Delhi: I.A.R.I. campus, 1 ♂, 8 ♀, *ex A. aspera*, C.A. Viraktamath; Karnataka: Bangalore 2 ♂, 1.ii.1974, C.A. Viraktamath, 7 ♂, 8 ♀, 1.ii.1975, C.A. Viraktamath, 6 ♂, 12 ♀, 30.x.1977, Shashidhar Viraktamath; 6 ♂, 9 ♀, 7–28.ii.1978, S. Viraktamath, 2 ♂, 5 ♀, 8–29.iii.1978, S. Viraktamath, 2 ♂, 2 ♀, 2.iv.1978, S.Viraktamath, 1 ♀, 4.v.1979, S. Viraktamath, 4 ♀, 7.vii. 1978, S. Viraktamath, 1 ♀, 9.i.1979, C.A. Viraktamath, 3 ♂, 2 ♀, 19.i.1979, S. Viraktamath, 1 ♂, 2 ♀, 2.ii.1979, S. Viraktamath, 4 ♀, 16.iv.1979, S. Viraktamath, 1 ♂, 10 ♀, 6.xi.1979, S. Viraktamath. Karnataka: 1 ♀, Dharwad, ii.1970; 1 ♂, 1 ♀, 11.iii.1970, C.A. Viraktamath, 1 ♂, 2 ♀, vi.1970, *ex* Betel vine and cashew, C. A. Viraktamath; 3 ♂, 8 ♀, 25.i.1972, C.A. Viraktamath; 7 ♂, 7 ♀, 23.xi.1972, C.A. Viraktamath,; 21.i.1973, C. A. Viraktamath; Nandi Hills, 1 ♂, 12.i.1978, S. Viraktamath; 1 ♂, 1 ♀, 15.xii, 1978, S. Viraktamath (UASB). Punjab: Amritsar, 1 ♂, 24.iv.191967, A.S. Sohi, *ex Amaranthus* sp. (PAU). Tamil

Nadu: 4 ♀, Coimbatore, 30.viii.1979, S. Viraktamath. Uttar Pradesh: Dehra Dun, 15 ♂, 8 ♀, 26.iv.1975, C.A. Viraktamath; Rishikesh, 1 ♀, 25.iv.1975, A.S. Sohi (UASB). West Bengal: 13 ♂, 9 ♀, Calcutta, 17.iv.1975, C.A. Viraktamath (UASB). THAILAND: 2 ♂, Rat Buri, 28.ii.1952, R.E. Elbel (NMNH). 3 ♀, Nakhon Ratchamsima (Khorat), 23.viii.1952, R.E. Elbel; 1 ♂, Khon Kaen, 25.xii.1952, R. e. elbel (NMNH); 2 ♂, 1 nymph, Prachuab, 6.vii.1962, E.S. Ross & D.Q. Cavagnaro (CAS). CHINA: 3 ♂, Macao, Kawangtang, v.1950, Krauss (BPBM).

Remarks. This species closely resembles some species of *Austroagallia* but differs in the structure of the male genitalia. Specimens from Thiland and China have the aedeagal shaft more than 0.75 as long as the preatrial process, more or less straight and not as sinuate as in the Indian population.

This species has been bred on *Achyranthes aspera* L. (Amaranthaceae) in the labortory in Bangalore (Viraktamath & Viraktamath 1981). Bindra (1973) collected this species on *Amaranthus* sp.

Genus *Igerna* Kirkaldy

Igerna Kirkaldy 1903: 13. Type-species: *Pachynus bimaculicollis* Stål, by original designation, replacement name for *Pachynus* Stål 1866 not Rafinesque 1815.

Color. Usually with black or brown markings on ochraceous background.

Morphology. Small to medium sized leafhoppers measuring 3.0–6.0 mm in length. Head shorter in middle than next to eyes, hind margin sinuately curved laterally behind eyes. Head including eyes broader than pronotum. Ocelli either slightly closer to each other than to eyes or equidistant or distinctly closer to eyes than to each other, situated in rather shallow depressions. Face forming even convex curve from vertex to tip of clypellus with surface slightly polished. Frontoclypeus dorsally slightly diverging, transclypal suture not complete in middle. Pronotum and scutellum either finely granulated or with punctures, often surface faintly wrinkled. Forewing venation without accessory cross veins, with three anteapical and four apical cells, inner anteapical cell open behind (Fig. 15), no cross vein between claval veins. Forefemur as in *Austroagallia* (Fig. 24). Hind tibial macrosetae PD 7±2 (5–12), AD 7±1, AV 5±1 (4–7). Hind basitarsus with one platella on distal transverse row (Fig. 34).

Male genitalia. Pygofer lobe either with tooth-like process on caudo-dorsal margin or caudally produced into simple or bifurcate spine-like process or elongate dorsal lobe. Styles with inner arm either as long as or longer than outer arm. Connective caudally often bilobed, about as long as broad, either articulated with aedeagus or fused with it. Aedegus symmetrical, rarely asymmetrical, shaft ventrally produced at base, dorsal apodeme and socle well developed, process on shaft when present elongate. Anal collar simple or reduced.

Female genitalia. First pair of valvulae slightly arcuate, sculptured area occupying more than half length, sculpture alveolate, submarginal in mid region, each alveoli rather elongate, ventral and dorsal two to three rows parallel to long axis of valve, remaining obliquely arranged and closely packed (Figs 68, 69). Second pair of valvulae arcuate, with toothed area occupying less than half length, with denticles (Fig. 71–72).

Distribution. Afrotropical, Oriental and Pacific Islands.

Remarks. *Igerna* closely resembles the genera *Austroagaiia* Evans, *Ianagallia* **gen. nov.** and *Japanagallia*. It differs from *Austroagallia* by having symmetrical male genitalia, more convex and polished face, from *Ianagallia* in having less robust aedeagal shaft and from *Japanagallia* in having the claval veins separate, not connected by a cross vein.

Key to Oriental species of *Igerna* Kirkaldy

1. Head, apices and bases of pronoutm and forewing claval veins and sutures, excluding black areas red (Indonesia: Java). . . . . *Igerna nigrita* (Melichar) **comb. nov.**
- Coloration ochraceous with dark brown or black spots or areas, lacking red areas 2
2. Connective with posterior margin extending beyond base of aedeagal shaft thus appearing fused with aedeagus (Figs 329, 337,371) 3
- Connective not as above; aedeagus articulated with connective (Fig.288). 5
3. Pygofer lobe rounded caudally without spine-like prjctions (Fig. 375–376), anal collar dorsally curved hook, often forked; aedeagal shaft slender, elongate, process branched, ventrally directed (Fig.371–374) (India: Nilgiri Hills). . . . . *I. violacea* (Distant)
- Pygofer lobe with two spine-like projections (Figs 328, 335) 4
4. Pygofer spines widely separated (Fig. 328); anal collar neither hook-like nor forked; aedeagal shaft stout, processes directed

caudally (Fig. 329) (Nepal) ..... *I. quinlani* **sp. nov.**

- Pygofer spines close together (Fig. 335); anal collar S-shaped (Fig. 336); aedeagal shaft slender, processes directed ventrally (Fig. 337) (India: Sikkim) ..... *I. keyae* **sp. nov.**

5. Pygofer lobe produced into attenuated apically bifid process with basal tooth (Fig.306) (India: Sub-Himalayan region) ..... *I. darjeelingensis* **sp. nov.**

- Pygofer lobe variable, if dorsally produced into an attenuated process not bifid (Figs 352, 353) 6

6. Pronotum with large triangular black spot (Figs 321, 360); pygofer with mesal lobe armed with one or two spines (Figs 322, 362) 7

- Pronotum with two black spots or entirely black; male pygofer mesal lobe when present not as above 8

7. Male pygofer with mesal lobe armed with two spines (Fig. 323), aedeagal shaft with two lateral asymmetrical processes surrounding gonopore and shaft produced beyond (Figs 325, 326) (India: Kurseong) ..... *I. himalayensis* **sp. nov.**

- Male pygofer mesal lobe armed with one spine (Fig. 364); aedeagus with two subapical and preatrial processes (Figs 365, 367) (India: Sikkim) ..... *I. sikkima* **sp. nov.**

8. Aedeagal shaft with subapical tooth (Figs 319, 320); style robust, elongate (Fig.318) (Samoa) ..... *I fasciata* (Osborn)

- Aedeagal shaft without subapical tooth; style slender of normal size (Fig. 294) 9

9. Pygofer lobe caudo-dorsally produced (Fig. 352, 353). 10

- Pygofer lobe not produced caudo-dorsally (Figs 286, 292383) 11

10. Aedeagal shaft sinuate, S-shaped in caudal view, with an apical bifurcate, caudo-ventrally directed processes (Figs 355, 356) (south India; Sri Lanka). ..... *I. quadrinotata* (Melicahr)

- Aedeagal shaft straight, aedeagal process with inner arm, laterally toothed (Figs 314, 315) (India: Kodaikanal) ..... *I. delineata* **sp. nov.**

11. Aedeagus complex, with ventral atrial process, shaft with pair of basal processes and pair of subapical teeth-like processes (Figs 388, 389, 390)) (India; Darjeeling) ..... *I. wilsoni* **sp. nov.**

- Aedeagus simpler, without ventral atrial process or with basal preatrial processes 12

12. Anal collar process long, slender with forked apex; dorsal margin of pygofer dark pigmented (Figs 346, 349); aedeagal shaft with ventrally directed short, apical process (Fig. 348)(Nepal) ..... *I. priyankae* **sp. nov.**

- Anal collar simple, not forked; pygofer without differential dark pigmentation (Fig. 386); aedeagal shaft with a pair of lateral apically forked processes directed ventrally (Figs 288, 296) 13

13. Male styles slender (Fig. 294), subgenital plates more acutely pointed, inner margins parallel sided (Fig. 287) (Sri Lanka) ..... *I. atrovenosa* (Melichar)

- Male styles robust (Figs. 299, 300); subgenital plates elongate, broadly rounded at apex and inner margins divergent (Fig. 293) (Sunda Islands). ..... *I. aurora* **sp. nov.**

Igerna atrovenosa (Melichar) comb. nov.

Figs 286–288, 570, 584, 599.

Agallia atrovenosa Melichar 1903: 152. SYNTYPE ♂, SRI LANKA (HNHM, examined); Distant 1908: 195–196, fig. 128.

Color. Ochraceous with black markings. One quadrate spot on either side of median line on vertex closer to each other than to adjacent eye, spot surrounding ocelli, antennal cavity, submarginal stripe on fronto-clypeus joined ventrally, clypellus except lateral margins, black; lateral areas of genae yellow; lateral frontal sucli, black. Pronotum with anterior margin, two elongate oval large spots on posterior half, black, often meeting anterior marginal band. Scutellum with basal triangles black. Forewings with claval cells dark brown, corial veins dark brown, more conspicuously so in male than in female, inner claval submargin yellow. Legs infuscated.

Morphology. Face slightly longer than broad. Ocelli closer to each other than to adjacent eyes.

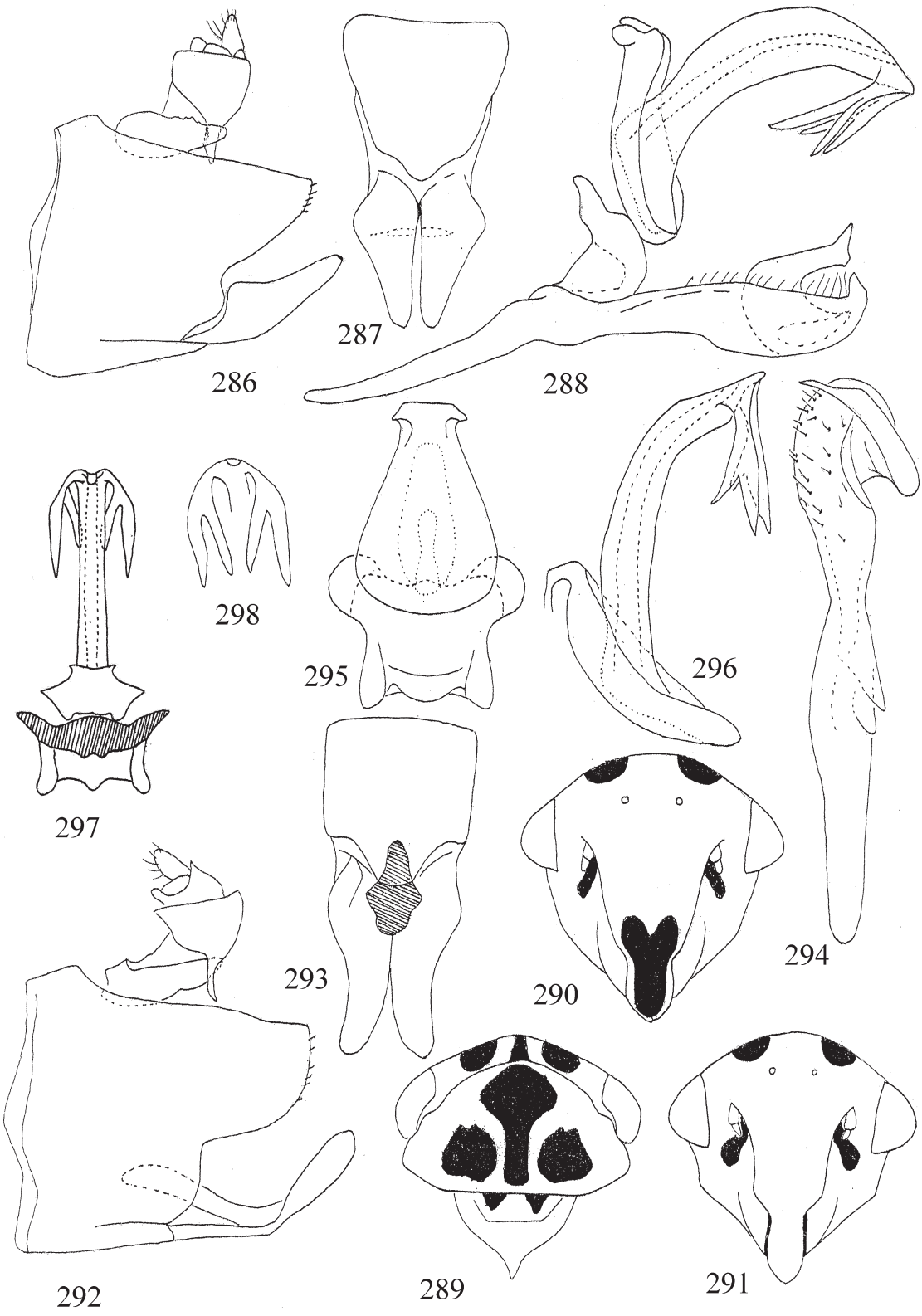
Male genitalia. Caudal lobe of pygofer with marginal stout microsetae; caudo-ventral margin oblique, shallowly excavated in middle. Subgenital plates triangular, inner margins almost parallel sided, posteriorly narrowed, covered with stout microseate. Styles elongate, slender. Aedeagus with dorsal apodeme well developed, broader than shaft at base, shaft closely appressed to dorsal apodeme and of uniform width, arcuate, some times broadened in mid section dorsally, with apical pair of bifurcate, caudo-ventrally directed processes, gonopore subapical.

Female genitalia. Seventh sternite dark pigmented, hind margin rather straight.

Measurements. Male 4.5 mm long, 1.3 mm wide across eyes. Female 5.1 mm long, 1.5 mm wide across eyes.

Material examined. SRI LANKA: SYNTYPE ♂, Newara-Eliya, Pattipola (HNHM). Additonal material: SRI LANKA: 1 ♂, 1 ♀, Pattipola, 25.viii.1979, Dworakowska (UASB).

Remarks. This is one of the larger agalliine leafhoppers of the Oriental region, others being *I. violacea, I. aurora* and *I. fasciata* (Osborn). It can be readily recognised by the coloration and male genitalia. It closely resembles *I. aurora* **sp. nov.** and *I. delineata* **sp. nov.** (see below) but differs from the former in the structure of the style, subgenital plate and from the latter in the structure of the aedeagus.



FIGURES 286–298. Species of *Igerna*: 286–288. *Igerna atrovenosa* (Melichar): 286. Male genital capsule, lateral view; 287. Valve and subgenital plates, ventral veiw; 288. Style, connective and aedeagus, lateral view; 289–298. *Igerna aurora* **sp. nov.**: 289. Head and thorax; 290, 291. Variation in coloration of face; 292. Male genital capsule, lateral view; 293. Valve and subgenital plates, ventral view; 294. Style, dorsal view; 295. Connective and dorsal apodeme, anterior view; 296. Aedeagus, lateral view; 297. Connective and aedeagus, anterodorsal view; 298. Aedagal shaft processes.

***Igerna aurora* sp. nov.**
Figs 289–303.

Color. Ochraceous. Two round spots on vertex, narrow elongate spot in antennal cavity, black; ocelli surrounded by pale brown margin. Pronotum with large piceous spot with two large round posterior spots and anterior broad spot faintly visible. Anterior half of scutellum black, posterior half yellow. Forewings brownish with whitish and ochraceous fascia, claval apex yellow. Meso and meta thoracic pleura piceous with pale borders. Female much paler than male; submarginal frontoclypeal stripe and spot on clypellus brown. Two round spots on posterior submargin of pronotum and anterior central spot, black; anterolateral margins pale brown.

Morphology. Face slightly longer than broad. Ocelli closer to each other than to eyes. Antennal cavity narrow, elongate with wrinkled surface. Pronotum slightly more than half as long as wide, finely granulose. Anterior half of scutellum declivous posteriorly, posterior half flattish.

Male genitalia. Caudal lobe of pygofer with marginal stout microsetae; caudoventral margin deeply excavated in middle, in lower half produced into pointed lobe. Subgenital plates comparatively broad, apically slightly rounded, covered with stout microseate. Connective longer than broad with well developed membranous caudolateral lobes and medially sclerotized. Styles elongate with elongated inner and outer arms. Aedeagus with dorsal apodeme well developed, broader than shaft at base, shaft closely appressed to dorsal apodeme and of uniform width to about 0.66 length then broadened on anterior margin and curved caudally, with apical pair of bifurcate, caudoventrally directed processes, gonopore subapical.

Female genitalia. Hind margin of seventh sternite broadly concavely excavated exposing small eighth sternites. Ovipositor slightly exceeding pygofer.

Measurements. Specimens from Timor Islands: Male 3.6 mm long, 1.1 mm wide across eyes. Female 4.1 mm long, 1.4 mm wide across eyes. Specimens form Sunda Islands: Male 4.0–4.2 mm long, 1.2–1.3 mm wide across eyes. Female 4.5–4.7 mm long, 1.4 mm wide across eyes

Material examined. TIMOR IS.: HOLOTYPE ♂, Hatolia, Poetia, 1–300 m, 14.vi.1963, Raimundo, No. 1138, *ex Coffea robusta*, Raiundo (BMNH). PARATYPE: 1 ♀, same data as holotype (UASB). Additional material: SUNDA IS: Sunda Exp. Rensch: 1 ♀, Lombok, Sembalon, 30–31.iii.1927; 4 ♂, 8 ♀, O. Fores, Geli Moetoe, 14–20.vii.1927 (ZMB); 3 ♀, Soembawa, Batoe Doelang, 10–15.iv.1927; 1 ♀, Lombok Segare, 5.vi.1927; 1 ♀, W. Flores, Badjawa 17.vi.1927; W. Flores, Rana Mêsê, 20–30.vi.197 (ZMB).

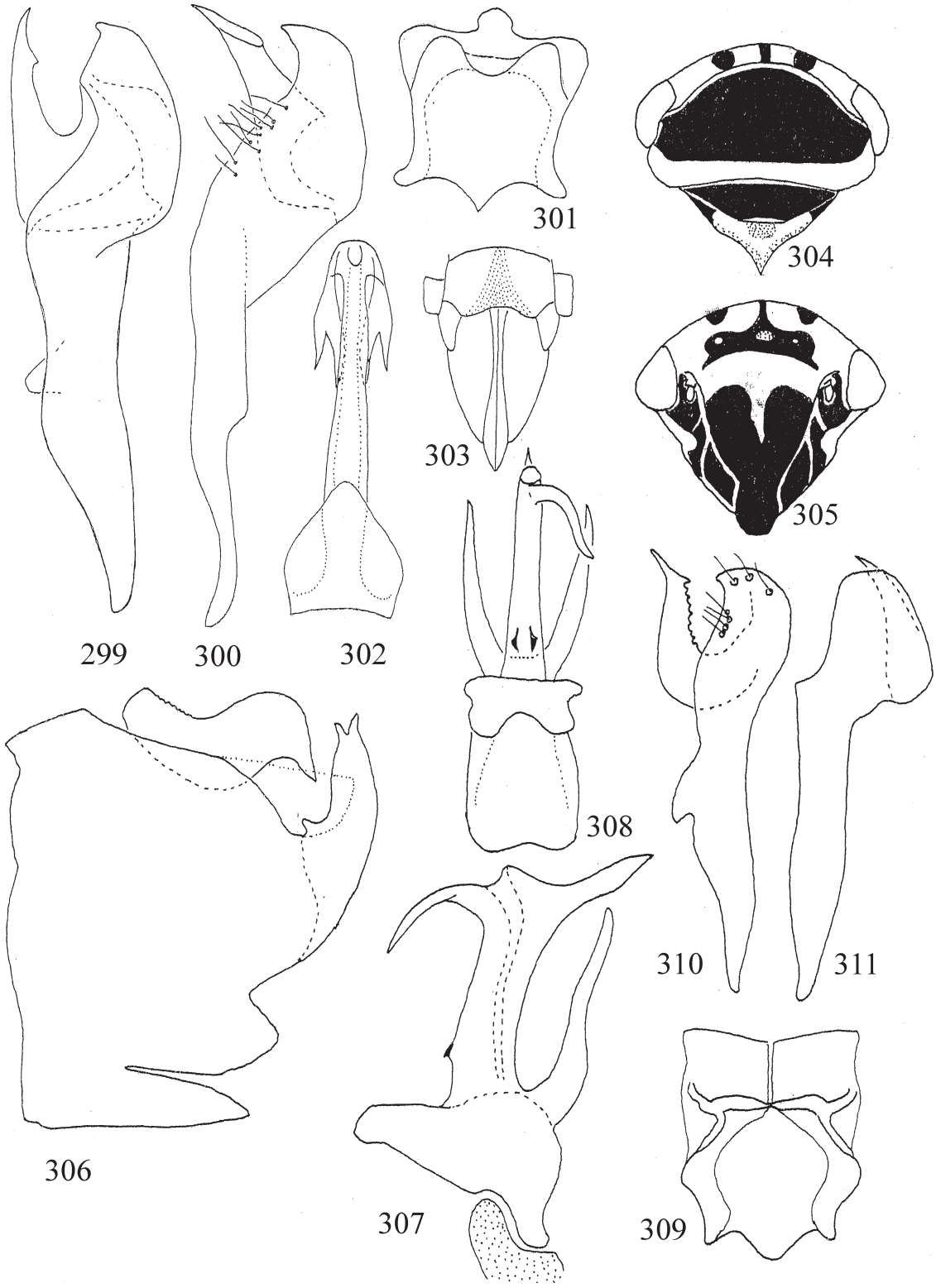
Remarks. The specimens from Sunda Islands differ from the type specimens in the following way: two large round spots on vertex, an elongate spot in antennal pit, two large spots on pronotum, median stripe broadened anteriorly and narrowed posteriorly between two spots (in four specimens these spots coalesce to form a transverse band on posterior half of pronotum), scutum except lateral margins dark brown to black. Median spot on vertex continued a short distance on face in some specimens, fuscous. Forewings pale brown to dark brown with costal margin, claval suture, inner claval margins paler. In paler specimens veins marked with brown, thoracic pleurites dark fuscous. Female with darker color similar to male in coloration but with a few specimens with a median stripe on clypellus that extends upward in the form of Y, fuscous. Median stripe on pronotum absent in paler specimens.

Male genitalia with anal collar process broad caudally, with a ventral finger-like process. Connective with median projection on anterior margin and a rounded lobe on caudal margin. Aedeagus similar to that in holotype but shaft of uniform width.

Igerna aurora closely resembles *I. atrovenosa* (Melichar) from Sri Lanka, but is darker. Both share similar aedeagus and male pygofer, however, *I. aurora* has a much more robust male style and the aedeagal shaft is either of uniform width (as in speciemens from Sunda Island) or expanded in distal 0.33 (as in the holotype), which is not so in *I. atrovenosa*.

***Igerna darjeelingensis* sp. nov.**
Figs 304–311.

Color. Vertex with median stripe continued on face and meeting broad band between and enclosing ocelli, two lateral round spots, clypeus, clypellus, gena except proximal outer margin below eyes, lorum, pronotum except two obscured brownish spots on disc and ochraceous lateral and posterior margins, scutellum anterior to median impressed line, thoracic pleurites and abdominal sternites, black. Antennal cavity shining black. Legs, basal 0.33 of clavus, basal 0.66 of forewing, fuscous; rest of face, vertex, scutellum and forewings ochraceous.



FIGURES 299–311. Species of *Igerna*: 299–303. *Igerna aurora* **sp. nov.**: 299. Style, dorsal view; 300. Style, lateral view; 301. Connective, anterodorsal view; 302. Aedeagus, anterior view; 303. Apical portion of female abdomen, ventral view; 304–311. *Igerna darjeelingensis* **sp. nov.**: 304. Head and thorax; 305. Face; 306. Male pygofer and anal collar process, lateral view; 307. Aedeagus, lateral view; 308. Aedaegus, anterodorsal view; 309. Connective, anterodosral view; 310. Style, dorsal view; 311. Style, lateral view.

Morphology. Face including eyes wider than long, uniformly smoothly rounded in front, slightly depressed between ocelli. Ocelli closer to adjacent eye than to each other.

Male genitalia. Height of pygofer more than length, caudo-dorsally produced into narrow strongly curved process with stout spine on mesal margin about midlength and two sub-equal stout spines at apex. Subgenital plates triangular, with rounded angles, without macrosetae and extending beyond pygofer. Styles with inner arm curved laterally and posteriorly, slender, pointed and slightly longer than outer arm. Connective heavily pigmented, broad in middle, bearing anterior median round lobe and two distal somewhat quadrate lobes. Aedeagus with well developed dorsal apodeme, preatrium well developed with pair of dorsally directed processes appearing U-shaped in caudal view; shaft compressed with pair of teeth proximally on dorsal margin, apically with asymmetrically curved process and with short process on caudal margin, gonopore terminal. Ninth tergum membranous except for anterior sclerotised narrow band. Tenth segment anteriorly poorly sclerotised and posteriorly stout. Anal collar laterally broad, margins sinuate, apically attenuated.

Measurements. Male 4.2 mm long and 1.27 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂, West Bengal: Darjeeling, Tiger Hill, 27.iv.1938, T.C. Maa (BPBM). PARATYPES: INDIA: Sikkim: 2 ♂, 2 ♀, Gangtok, 2123 m, 9.vi.2005, C.A. Viraktamath (UASB).

Remarks. *I. darjeelingensis* can be distinguished by its slightly asymmetrical aedeagus, peculiar pygofer and by the structure of the anal collar process.

Igerna delineata sp. nov.

Figs 312–316.

Color. Pale ochraceous. Two somewhat round spots on vertex, often joined by transverse band on hind margin of vertex of same color, inverted Y on upper part of face often encircling ocelli, two sub-marginal bands on frontoclypeus, clypellus excepting base, antennal pits, lateral frontoclypeal sulci, black. Antennae pale fuscous. Two large round spots on posterior margin of pronotum, median inverted cone shaped spot touching posterior margin of vertex, two lateral spots (often all three joined forming an anterior band), black. Two triangular spots at base of scutellum and median impressed line, black, latter connected to basal triangles by black line. Thoracic pleura fuscous. Forewings whitish with brown stripes on clavus and on main longitudinal veins. Head, thorax and abdomen often covered with waxy powder.

Morphology. Elongate, slender species, face slightly longer than broad, ocelli closer to each other than to adjacent eye, lateral margins of gena almost straight, lora elongate, apical half of clypellus depressed and flat.

Male genitalia. Pygofer with caudo-dorsal short blunt lobe. Subgenital plates comparatively short. Connective dark brown, slightly broader than long, caudally excavated in middle. Aedeagus with dorsal apodeme and socle strongly developed, shaft terminating in pair of ventrally directed forked processes, mesal fork may or may not overlap and each bear tooth on outer margin, gonopore apical.

Female genitalia. Caudal margin of seventh sternite slightly concave in middle.

Measurements. Male 5.36–5.73 mm long, 1.39–1.42 mm wide across eyes. Female 5.90–6.18 mm long and 1.39–1.56 mm wide across eyes.

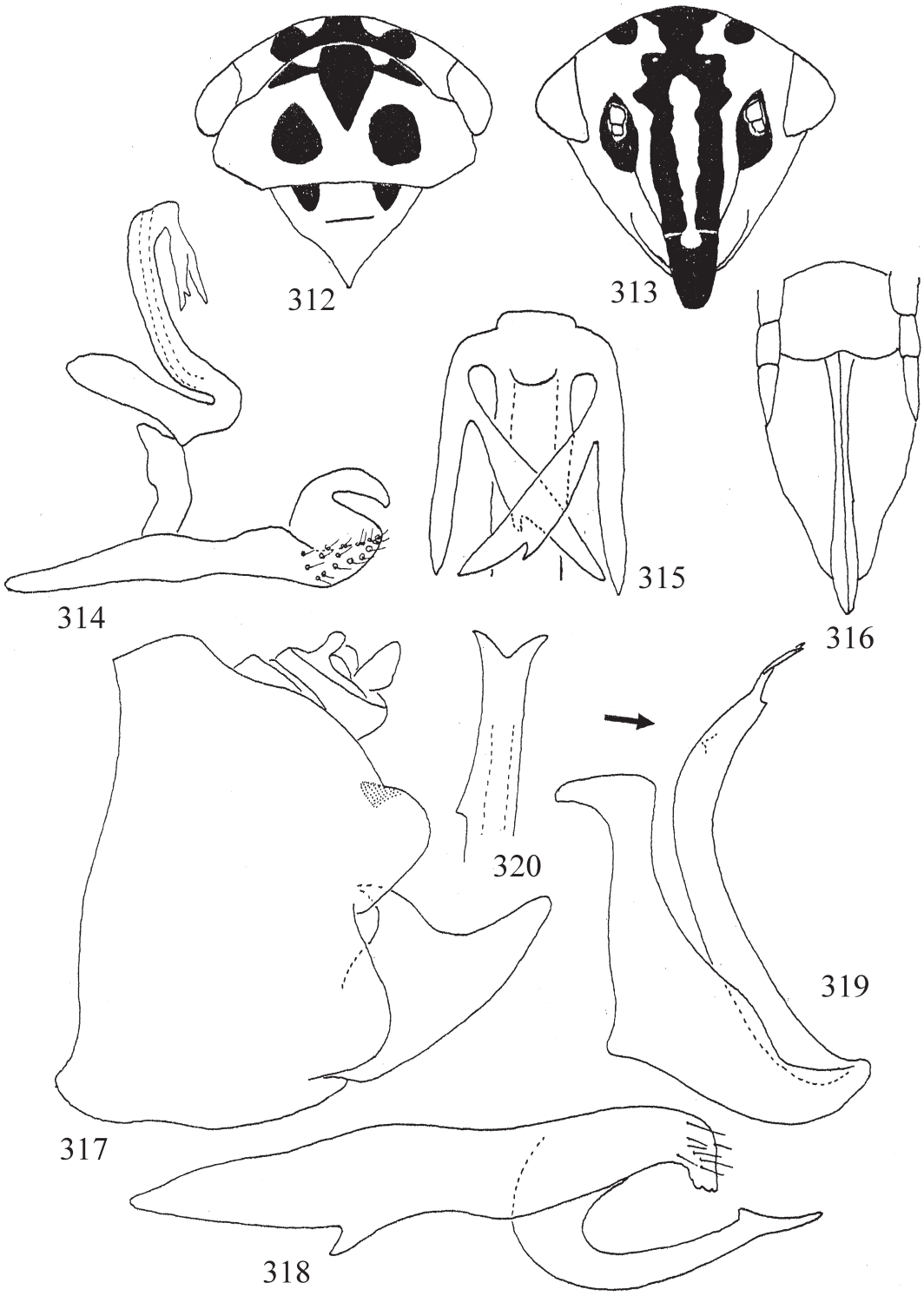
Material examined. HOLOTYPE ♂, INDIA: Tamil Nadu: Kodaikanal, v.1916, T.V. Campbell, Brit. Mus., 1912-171 (BMNH). PARATYPES: INDIA: Tamil Nadu: 7 ♂, 2 ♀, same data as holotype; 4 ♂, 7 ♀, same data as holotype except vi.1917 (BMNH); 2 ♂, 7 miles (11.20 km) NW Pykara, 6500 ft (1972 m), 12.iii.1962, E.S. Ross and D.Q. Cavagnaro (CAS); 12 ♂, 3 ♀, Dodabetta, 2670 m, 4.vi.1977, C.A. Viraktamath; 6 ♂, 1 ♀, same data but collected by S. Viraktamath (UASB).

Remarks. Distant's manuscript name "*delineata*" (on the specimen) is retained for this species. This species resembles *I. atrovenosa* and *I. aurora*. It can be easily distinguished by the aedeagus being more arcuate and sunk into the base of dorsal apodeme and by the caudodorsal lobe-like extention of the male pygofer.

Igerna fasciata (Osborn) comb. nov.

Figs 317–320.

Agalliopsis fasciata Osborn 1934: 164, fig. 1. HOLOTYPE ♀, SAMOA IS. [BMNH, examined].



FIGURES 312–320. Species of *Igerna*: 312–316. *Igerna delineata* **sp. nov.**: 312. Head and throax; 313. Face; 314. Style, connective and aedeagus, lateral view; 315. Aedeagal shaft process, posterior vew; 316. Apical portion of female abdomen, ventral view; 317–320. *Igerna fasciata* (Osborn): 317. Male genital capsule, lateral view; 318. Style, dorsal view; 319. Aedagus, lateral view; 320. Apex of aedeagal shaft, anterior view in the direction of arrow.

Color. Ochraceous with dark brown patches. Median half of vertex chocolate brown (result of fusion of two round lateral spots, median stripe, their shape more clearly visible in facial view). Face yellow, shining, lower portion of clypellus medially reddish brown. Pronotum yellowish brown with conical large chocolate brown patch reaching both anterior and posterior margins, median stripe not reaching anterior margin, yellow. Scutellum in anterior half

brown, basal triangles darker, posterior half yellow. Forewings chocolate brown, with broad costal stripe, claval suture and claval veins, yellow.

Morphology. Face flattish, transverse clypeal suture absent. Ocelli closer to each other than to eye.

Male genitalia. Caudal lobe of pygofer rounded and produced into darkly pigmented mesal lobe. Styles stout, long, inner arm slender, longer than outer arm, dorsal angle prolonged. Connective as long as wide, anteriorly produced in middle, caudal margin medially excavated. Aedeagus in lateral view V-shaped, dorsal apodeme well developed, closely oppressed to shaft, shaft slightly curved at apical 0.33 bearing subapical tooth on right lateral margin, apically terminated by two short processes, gonopore subapical.

Female genitalia. Hind margin of female seventh sternite straight.

Measurement. Male 4.9 mm long, 1.6 mm wide across eyes. Female 5.44 mm long, 1.68 mm wide across head.

Material examined. SAMOA: HOLOTYPE ♀, "Type" "Samoan Is." "Malololeleci" "Upolu 2000ft, 14–30.vi.24, P.A. Burton and G.H. Hopkins [red label]" "Holotype *Agalliopsis fasciatus* Osborn" (BMNH). Additional material: 1 ♂, Upolu: Afiamalu, 3.vi.1940, O.H. Swezey, *Agalliopsis fasciatus* Osborn, O.H. Swezey det. (BPBM).

Remarks. *I. fasciata* resembles *Agallia hilaris* Horváth from Canary Islands (Horváth 1909, Lindberg 1954) but differs in the coloration, position of the ocelli and the structure of the male genitalia.

***Igerna himalayensis* sp. nov.**
Figs 321–326.

Color. Ochraceous. Vertex with two large round black spots and median black line continued on face as inverted T-shaped patch enclosing ocelli. Most of lower part of face black. Broad triangular patch covering most of pronotum black except fuscous spot on pronotum behind eye and posterior submargin of pronotum. Scutellum black except posterior margin beyond median impressed line, dark fuscous. Forewings testaceous.

Morphology. Face including eyes as wide as long. Ocelli closer to adjacent eyes than to each other.

Male genitalia. Caudal lobe of pygofer rounded with mesal lobe ending in pair of teeth. Styles with inner arm slightly longer than outer one. Connective heavily pigmented, longer than broad, apical half thin, lamellate and bilobed. Aedeagus with poorly developed dorsal apodeme, preatrium short, stout with pair of subequal spine-like processes, shaft strongly curved caudally, apex drawn into thin process, gonopore subapical, surrounded on lower margin by collar, laterally by unequal processes and shaft prolonged beyond gonopore into elongate process (Fig.326). Anal collar caudoventrally directed, apically pointed.

Female genitalia. Hind margin of seventh sternite shallowly, concavely excavated in middle.

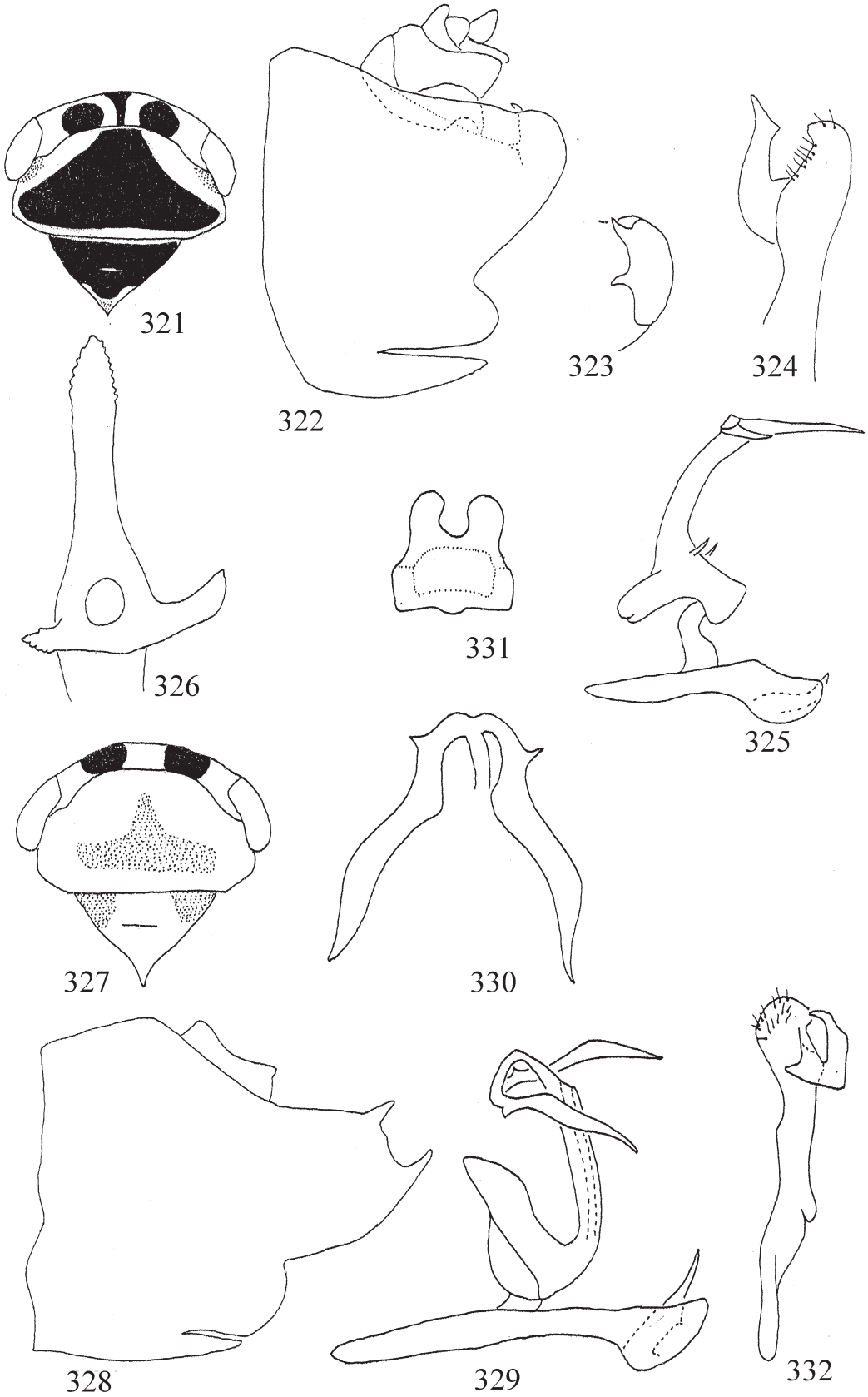
Measurements. Male and female 3.3 mm long, 1.1 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂, West Bengal: E. Himalayas: Kurseong 4700–5000 ft (1425–1517 m), 20.vi.1910, Annanadale, 2521/21, Indian Museum (BMNH). PARATYPES: INDIA: West Bengal: 1 ♀, Kurseong, 5000 ft (1517 m), E. Himalayas, 5.vii.1908, N.Annandale, from Indian Museum, Distant Coll. B.M. 1911-383(BMNH).

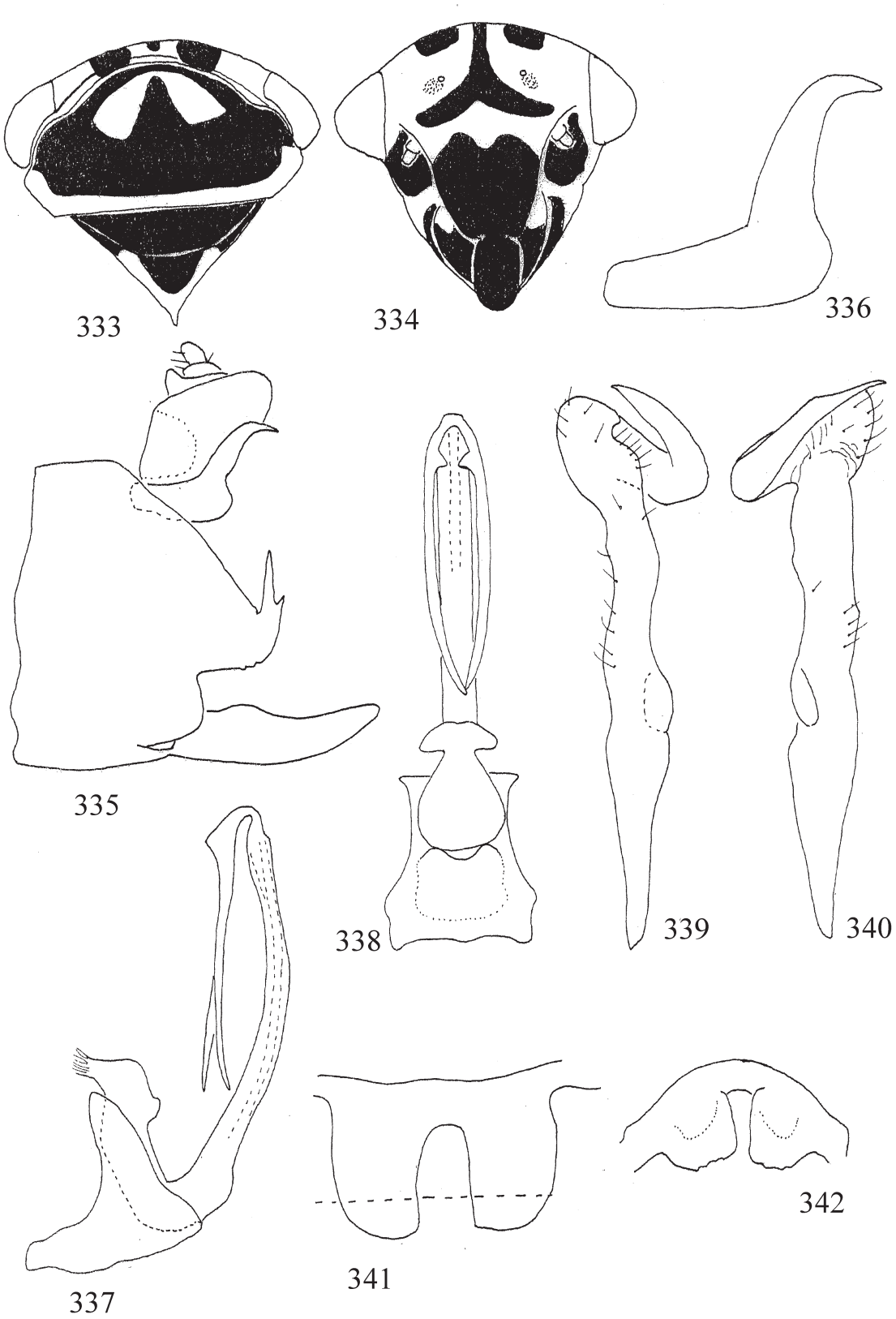
Remarks. The right fore and hind wings and most of legs are mutilated and left wings are entirely missing in the unique male. Distant's manuscript name "*himalayensis*" (on the specimen with the word "Type") is retained for the species. *I. himalayensis* and *I. darjeelingensis* resemble male *Japanagallia* in coloration but can be distinguished by the absence of claval cross veins and shape of the vertex. This species has unique male genitalia and can be distinguished from other species of *Igerna* by its pronotal coloration and peculiar aedeagus.

***Igerna keyae* sp. nov.**
Figs 333–342.

Color. Ochraceous with dark brown to black markings on head and pronotum (Figs 333, 334). Forewings chocolate brown, posterior 0.75 area of clavus, costal area except base, paler. Legs chocolate brown, meso and meta coxae, apices of femora and bases of tibiae, ochraceous.



FIGURES 321–332. Species of *Igerna*: 321–326. *Igerna himalayensis* **sp. nov.**: 321. Head and thorax; 322. Pygofer, lateral view; 323. Process of pygofer, mesal view; 324. Apical half of style, dorsal view; 325. Style, connective and aedeagus, lateral view; 326. Apex of shaft, anterodorsal view. 327–332. *Igerna quinlani* **sp. nov.**: 327. Head and thorax; 328. Male pygofer, lateral view; 329. Style, connective and aedeagus, lateral view; 330. Aedeagal shaft processes; 331. Connective; 332. Style, ventral view.



FIGURES 333–342. *Igerna keyae* **sp. nov.**: 333. Head and thorax; 334. Face; 335. Male genital capsule; 336. Anal collar process, lateral view; 337. Fused connective and aedeagus, lateral view; 338. Connective and aedeagus, anterior view; 339. Style, dorsal view; 340. Style, mesolateral veiw; 341. Sternal apodemes at base of abdomen; 342. Tergal apodemes at base of abdomen.

Morphology. Face including eyes about as wide as long. Ocelli closer to adjacent eyes than to each other.

Male genitalia. Caudal lobe of pygofer produced dorsally into spine with small denticle on caudal margin at base of spine. Connective and aedeagus apparently fused, basal part of aedeagus surrounded by connective in lateral aspect, dorsal apodeme well developed, aedeagal shaft slender directed caudally with pair of apical slender processes curved anteriorly and about 0.75 as long as shaft, each process with basal angular projection, gonopore on ventral margin between bases of apical processes. Anal collar process dorsally produced, slender and apically curved into hook.

Measurements. Male 3.95 mm long and 1.2 mm wide across eyes.

Material examined. HOLOTYPE ♂, INDIA: Sikkim, Gangtok, 2123 m, 9.vi.2005, C.A. Viraktamath (UASB).

Remarks. This species is distinctive in possessing a pair of long, recurved, apical processes on the aedeagal shaft. It resembles *Igerna violacea* (Distant) in the structure of the aedeagus but the aedeagus is much smaller and has much longer processes compared to *I. violacea*.

Igerna nigrita (Melichar) comb. nov.

Oncopsis nigritus Melichar 1914: 121, figs 9, 9a. HOLOTYPE ♂, INDONESIA: Java [Leyden Museum, not examined].

Remarks. This species was not studied. However, it has very characteristic coloration shown in the illustration provided in the original description. Hamilton (1980: 878) transferred the species to Agalliini and thought it probably belonged to the genus *Austroagallia*. The species is black with paler areas on the head and with apices of the femora and bases of the tibiae, claval veins and claval suture, red. This color combination is unique among the Oriental Agalliini. *I. nigrita* resembles male *Japanagallia*. However, the claval veins are not joined by a cross vein and hence the species is placed in the genus *Igerna*.

Igerna priyankae sp. nov.

Figs 68–71, 343–350.

Color. Yellowish brown to brown with black markings. Two spots on vertex, antennal cavities, apical half of clypellus, two large somewhat triangular spots on posterior half of pronotum not reaching hind margin, short median line between them, triangles at base of scutellum, black. Frontal sulci, median impressed line on scutellum, black. Hind margin of vertex behind eyes, black. Disc of scutellum brown, spot on either side of median impressed line paler. Forewings brownish hyaline. Female coloration similar to male but paler and black markings markedly reduced in size scutellum without black triangular spots at base.

Morphology. Face including eyes about as wide as long. Ocelli closer to adjacent eyes than to each other.

Male genitalia. Pygofer lobe produced caudo-ventrally and rounded, heavily sclerotized along dorsal margin. Inner arm of styles shorter than outer arm. Connective heavily pigmented, bilobed caudally. Aedeagus with atrium forming stage at base, shaft compressed, dorsally directed with apical gonopore and with ventrally directed short process on caudal margin near apex. Anal collar process well developed, forked near apex, dorsal fork shorter than ventral fork. Anal segment robust, anal style very small, rounded.

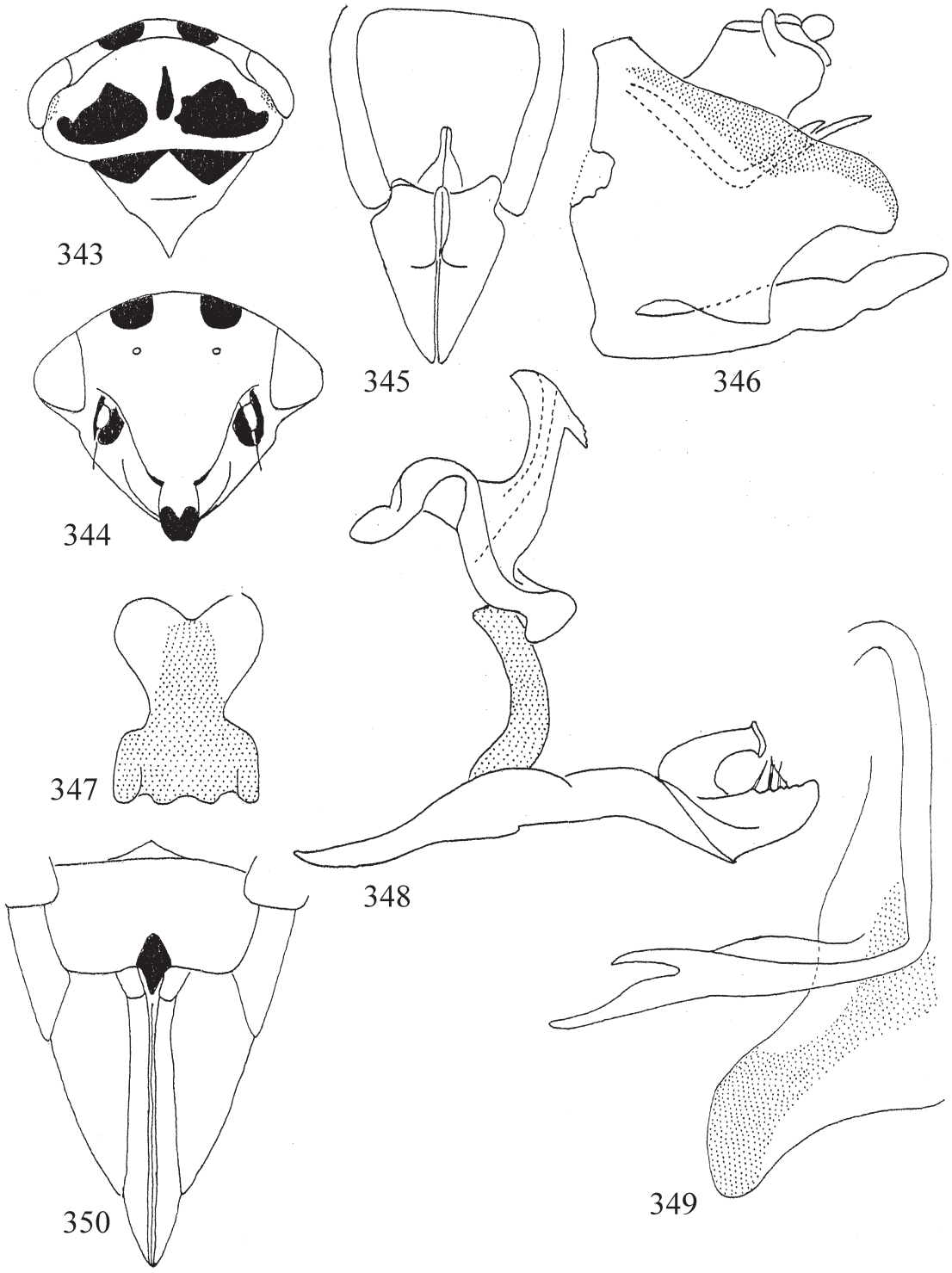
Female genitalia. Seventh sternite quadrangular, hind margin concave, with median triangular lobe with acute apex.

Measurements. Male 3.55 (3.40–3.70) mm long, 1.14 (1.08–1.20) mm wide across eyes. Female 3.94 (3.70–4.10) mm long and 1.28 (1.22–1.32) mm wide across eyes.

Material examined. NEPAL: HOLOTYPE ♂, Kathmandu: Godavari, 5000ft (1517m), Royal Botanical garden, 16.viii.1967, Canadian Nepal Expedition (CNC). PARATYPES: 1 ♀, same data as holotype except 12.viii.1967 (CNC); 1 ♂, 9 ♀, Kathmandu, Godavari, Thanka, 20.v.–5.ix.1978, V.K. Thapa; 2 ♀, Pokhara-Naudanda, 1.xi.1981, I. Dworakowska (UASB). INDIA: Himachal Pradesh: 3 ♂, 7 ♀, Kasouli, 23.vii.1962, ex grasses, S. Singh (PAU); Meghalaya: 1 ♀, Shillong, 6.xi.1981, C.A. Viraktamath; 1 ♀, Shillong, Lumparing, 16.iv.1968,

K.R. Rao; Mizoram: 1 ♀, Aizawl, 18.xi.1981, C.S. Wesley; 1 ♀, Lunglei, 23.xi.1981, C.S. Wesley; Sikkim: 1 ♀Rumtek, 1700m, Lamp dome, 1990, I. Dworakowska; 1 ♀, Gangtok, 1759m,10.vi.2005, C.A. Viraktamath (UASB).

Remarks. *I. priyankae* is distributed along the eastern part of the Sub-Himalayan region and is a common species there. It has a forked anal collar process as in *I. violacea* from Nilgiri Hills. It differs from *I. violacea* both in the structure of aedeagus and connective.

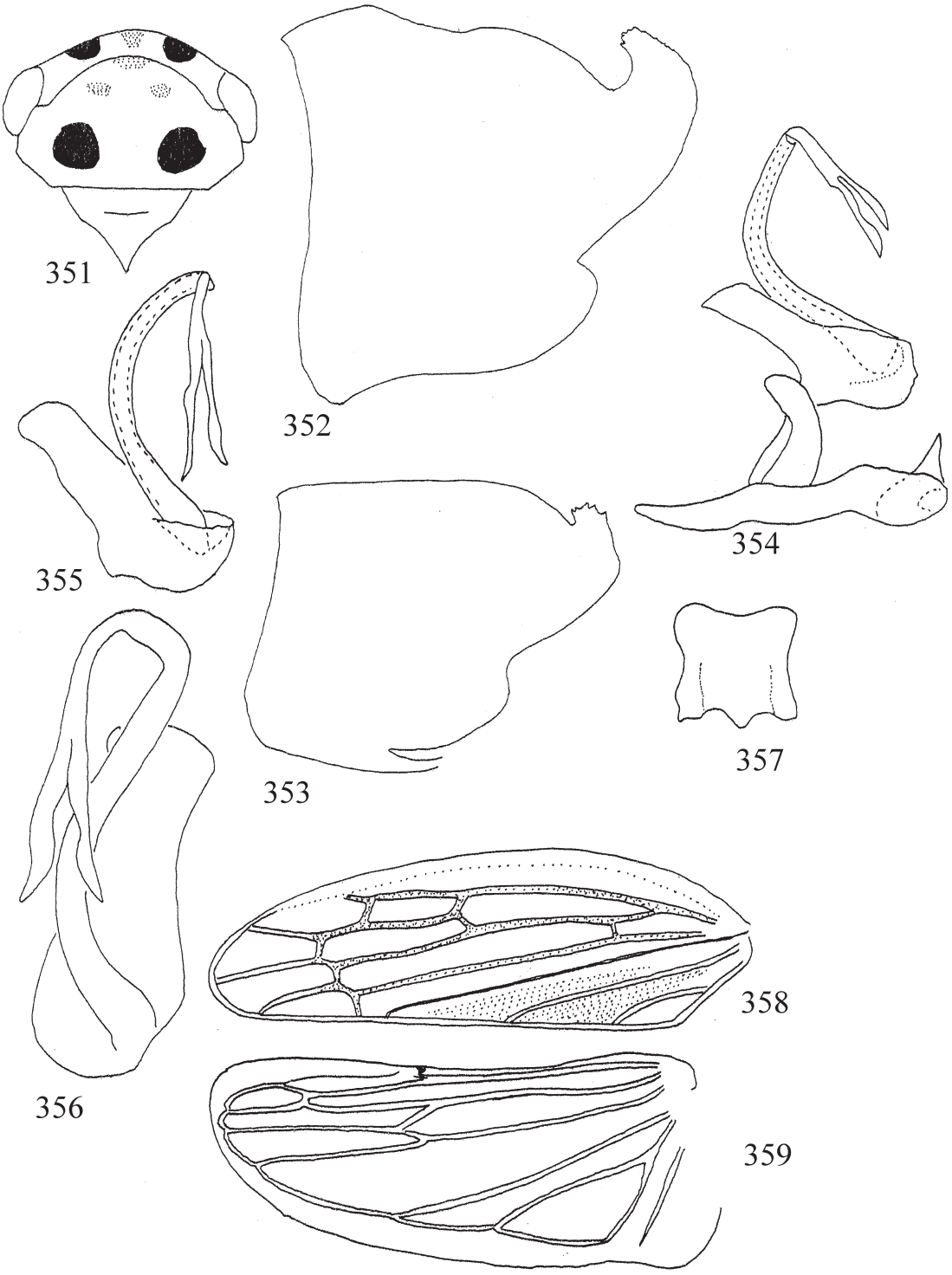


FIGURES 343–350. *Igerna priyankae* **sp. nov.**: 343. Head and thorax; 344. Face; 345. Valve and subgenital plates, ventral view; 346. Male genital capsule, lateral view; 347. Connective; 348. Style, connective and aedeagus, lateral view; 349. Anal collar process; 350. Apical portion of female abdomen, ventral view.

***Igerna quadrinotata* (Melichar) comb. nov.**
Figs 351–359.

Agallia quadrinotata Melichar 1903: 151. SYNTYPES ♂ ♀, SRI LANKA: Peradeniya [MMB, examined]; Melichar 1905: 297, equals *Igerna bimaculicollis* (Stål), **error**.

Austroagallia bisinuata Viraktamath and Viraktamath 1981: 80, figs 1–7. HOLOTYPE ♂, INDIA: Devarayadurga (BMNH, examined). **syn. nov.**



FIGURES 351–359. *Igerna quadrinotata* (Melichar): 351. Head and thorax; 352, 353. Variations in male pygofer, lateral view; 354. Style, connective and aedeagus, lateral view; 355. Aedeagus, dorsolateral view; 356. Aedeagus, posterodorsal veiw; 358. Forewing venation; 359. Hind wing venation.

Viraktamath and Viraktamath (1981) have adequately described the species. Only illustrations of the male genitalia are given to help identification.

Material examined. INDIA: HOLOTYPE ♂, Karnataka: Devarayadurga, x.1917, T.V. Campbell, Brit. Mus. 1928-508 (BMNH). PARATYPES: 1 ♀, same data as holotype (BMNH), 1 ♂, Nandi Hills, 19.xii.1974, C.A.Viraktamath (UASB). Additional material: India: Tamil Nadu: 12 ♂, 13 ♀, 1 nymph, Burliyar, 22–23. x.1975, *ex Justicia betonica*, 2 ♂, 2 ♀, Kallar, 22–23.x.1975 C.A. Viraktamath (UASB). SRI LANKA: SYNTYPE ♂, Ceylon, Peradeniya, Juni [1]902, Dr Melichar (MMB).

Remarks. The specimens from Burliyar and Kallar are larger than the types (males 3.4–3.7 mm long, females 3.43–4.0 mm long) and are much darker, especially the forewings, where the veins are dark brown to piceous and the clavus is either dark brown or black. The synonymy was based on an examination of the types of both species. The species was collected on *Justicea betonica* L. (Acanthaceae) in nature and was successfully bred on *Achyranthes aspera* L. (Amaranthaceae) in the laboratory (Viraktamath & Viraktamath 1981).

Igerna quinlani sp. nov.

Figs 327–332.

Color. Ochraceous. Two somewhat round spots on vertex, closer to each other than to eyes, antennal pits, apical spot on frontoclypeus, black. Pronotum with posterior submarginal brownish black band anteromedially conically produced, anterior margin with fuscous to brown spots behind eyes. Basal angles of scutellum with dark brown triangular spots. Forewings pale brown with brownish veins. Thoracic pleura and abdomen dark brown. Female seventh sternite and ovipositor ochraceous.

Morphology. Face including eyes about as wide as long. Ocelli closer to adjacent eyes than to each other.

Male genitalia. Caudal lobe of pygofer with caudal and subcaudal denticles. Styles slender elongate, apical curvature short, with inner arm slender and elongated into attenuated process. Connective broad at base, longer than broad, posterior margin with median U-shaped excavation. Aedeagus fused with connective, dorsal apodeme and socle well developed; shaft compressed and hooked apically and terminating in pair of caudally directed flattened processes, each process with basal denticle on outer margin near base, gonopore subapical and on caudal margin. Anal collar simple, horseshoe shaped.

Female genitalia. Seventh sternite medially carinate with inverted V-shaped posterior margin, medially and apically dark pigmented.

Measurements. Male 3.8 mm long and 1.21 mm wide across eyes. Female 4.0 mm long and 1.29 mm wide across eyes.

Material examined. NEPAL: HOLOTYPE ♂, Ghanpokhara, 7000 ft (2123 m), 30.iv.1954, J. Quinlan, B.M. Nepal Expd., B.M. 1954-540 (BMNH). PARATYPES: 1 ♂, same data as holotype; 1 ♂, Ulleri, 6000–7000 ft (1820–2123 m), 19.v.1954, J. Quinlan; 1 ♀, 2 miles (3.2 Km), SE of Sikha, 21–22.v.1954, J. Quinlan (BMNH).

Remarks. *I. quinlani* shares the character of fused connective and aedeagus with *I. violacea*. This species is named after its collector Mr J. Quinlan. Coloration in some specimens is variable. In the paratype male the following areas are black: an inverted Y with broad lateral arms on upper part of face, a larger spot between ocellus and eye, a smaller spot laterad of ocellus, broken submarginal bands of frontoclypeus, inner margin of lora and facial sulci; the basal half of scutellum and a median stripe in the apical half are black. In the female paratype, the submarginal band on the pronotum is reduced to two lateral and one median faint fuscous spots.

Igerna sikkima sp. nov.

Figs 72, 360–368.

Color. Ochraceous with dark brown to black markings on head and pronotum (Figs 360 and 361). Forewings chocolate brown with claval suture and commissure ochraceous, apices of forewings paler. Legs ochraceous with chocolate brown markings.

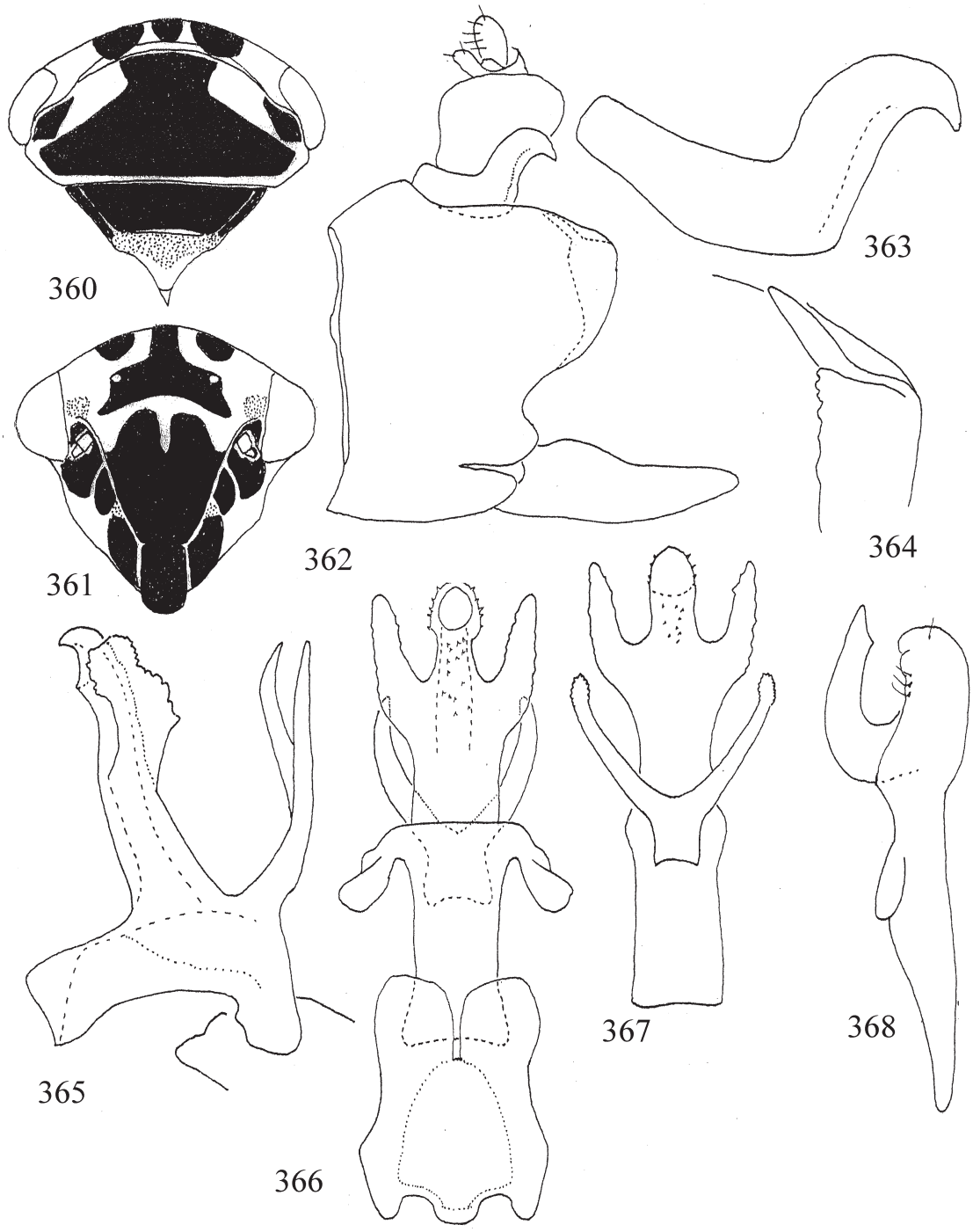
Morphology. Face including eyes wider than long. Ocelli closer to adjacent eyes than to each other.

Male genitalia. Caudal lobe of pygofer turned mesally with distal stout spines. Connective longer than broad with bifid distal margin. Aedeagus with forked process on preatrium, forks divergent about as long as shaft, shaft

more or less of uniform width with pair of lamellate processes having serrated margins at midlength; gonopore on dorsal margin near apex; shaft with spicules in apical quarter and also along gonopore; dorsal apodeme well developed. Anal collar process with simple dorsally directed process hook-like.

Measurements. Male 3.6–3.8 mm long, 1.10–1.11 mm wide across eyes.

Material examined. HOLOTYPE ♂, INDIA: Sikkim: Gangtok, 2123 m, 9.vi.2005, C.A. Viraktamath (UASB). PARATYPES: INDIA: Sikkim: 10 ♂, same data as holotype; 1 ♂, West Bengal: Kalimpong, 1780 m, 6.vi.2005, C.A. Viraktamath (BMNH, NPC, NMNH, ZSI, UASB).



FIGURES 360–368. *Igerna sikkima* **sp. nov.**: 360. Head and thorax; 361. Face; 362. Male genital capsule, lateral view; 363. Anal collar process; 364. Male pygofer process, lateral view; 365. Aedeagus, lateral view; 366. Connective and aedeagus, anterodorsal view; 367. Aedeagus, dorsal view; 368. Style, dorsal view.

Remarks. *I. sikkima* is similar to *I. darjeelingensis* but differs in the structure of the aedeagus. It lacks the apical processes present in *I. darjeelingensis* but has a lamellate process at midlength of shaft. Both species occur in the same habitat and were swept from grassland mixed with herbs in Sikkim along with specimens of *I. keyae* **sp. nov.**

***Igerna violacea* (Distant) comb. nov.**
Figs 15, 369–380.

Nehela violacea Distant 1916: 233. LECTOTYPE ♂, INDIA: Kodaikanal (BMNH, examined).
Nehela bimaculicollis (Stål): Distant 1916: 232 (misidentification).

Male (color). Face and vertex golden yellow to brown. Two round spots and median elongate spot (often coalesce to form transverse band) on vertex, inverted V across antennal pits, entire clypellus, adjoining areas of lora, frontoclypeus and antennal pits, black. Antennal bases ochraceous, flagellum fuscous. Pronotum golden yellow to ochraceous with two large round spots on posterior submargin and two anterior smaller spots situated close to each other, black. Area enclosed by these spots either brownish or coalesce to form discal broad black spot with notched lateral margins. Scutellum proximad of impressed line black to dark brown and in some specimens with median yellowish brown stripe, distal part yellowish brown. Head, pronotum and scutellum often dusted with waxy powder. Thoracic pleurites and abdominal segments dark brown, margins ochraceous. Subgenital plates ochraceous; fore tibiae and claws dark fuscous.

Female (color). Much paler than male. Head, pronotum and scutellum ochraceous to golden yellow. Two spots on vertex, antennal pits and either entire clypellus or only apex and lateral sutures, black. Fuscous inverted V across antennal ledges often present. Some females with fuscous dashes or faint markings on submargin of frontoclypeus. Pronotum with two black spots (smaller than in males) near posterior submargin, often absent making pronotum immaculate. Scutellum with two triangular spots at basal angles.

Morphology. Face as long as wide. Ocelli closer to eyes than to each other. Transclypeal suture absent.

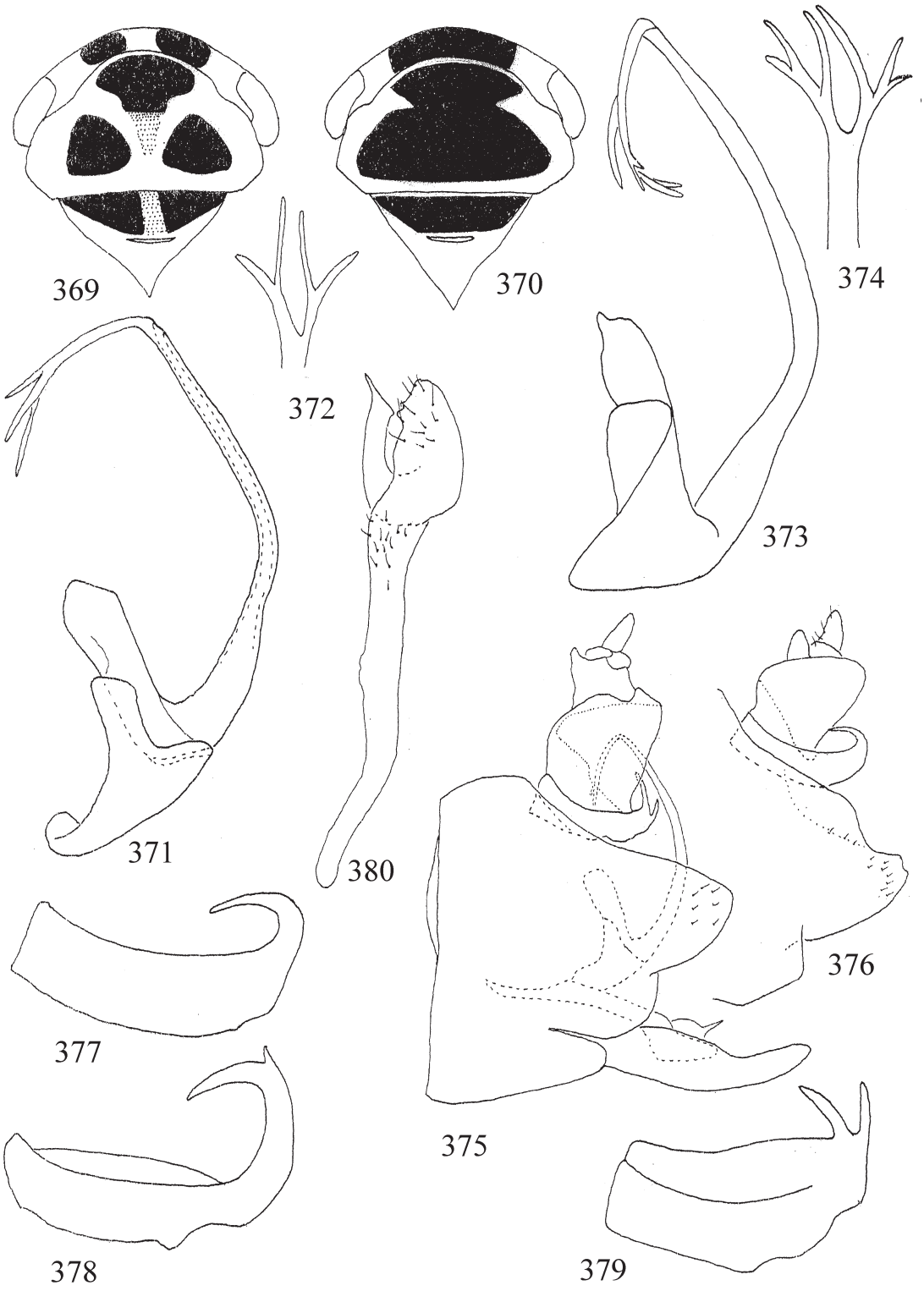
Male genitalia. Pygofer simple. Styles elongate, with inner arm produced into narrow pointed process. Connective fused with aedeagus, posterior margin deply excavated. Aedeagal shaft very long, slender, with well developed dorsal apodeme, apex of shaft strongly anteriorly recurved and ending in pair of biramose or triramose processes. Anal collar with forked or simple dorsally curved appendage.

Female genitalia. Hind margin of seventh sternite almost straight.

Measurement. Male 4.25 (4.05–4.35) mm long and 1.25 (1.20–1.30) mm wide across eyes. Female 4.65 (4.35–4.85) mm long and 1.4–1.5 mm wide acros eyes.

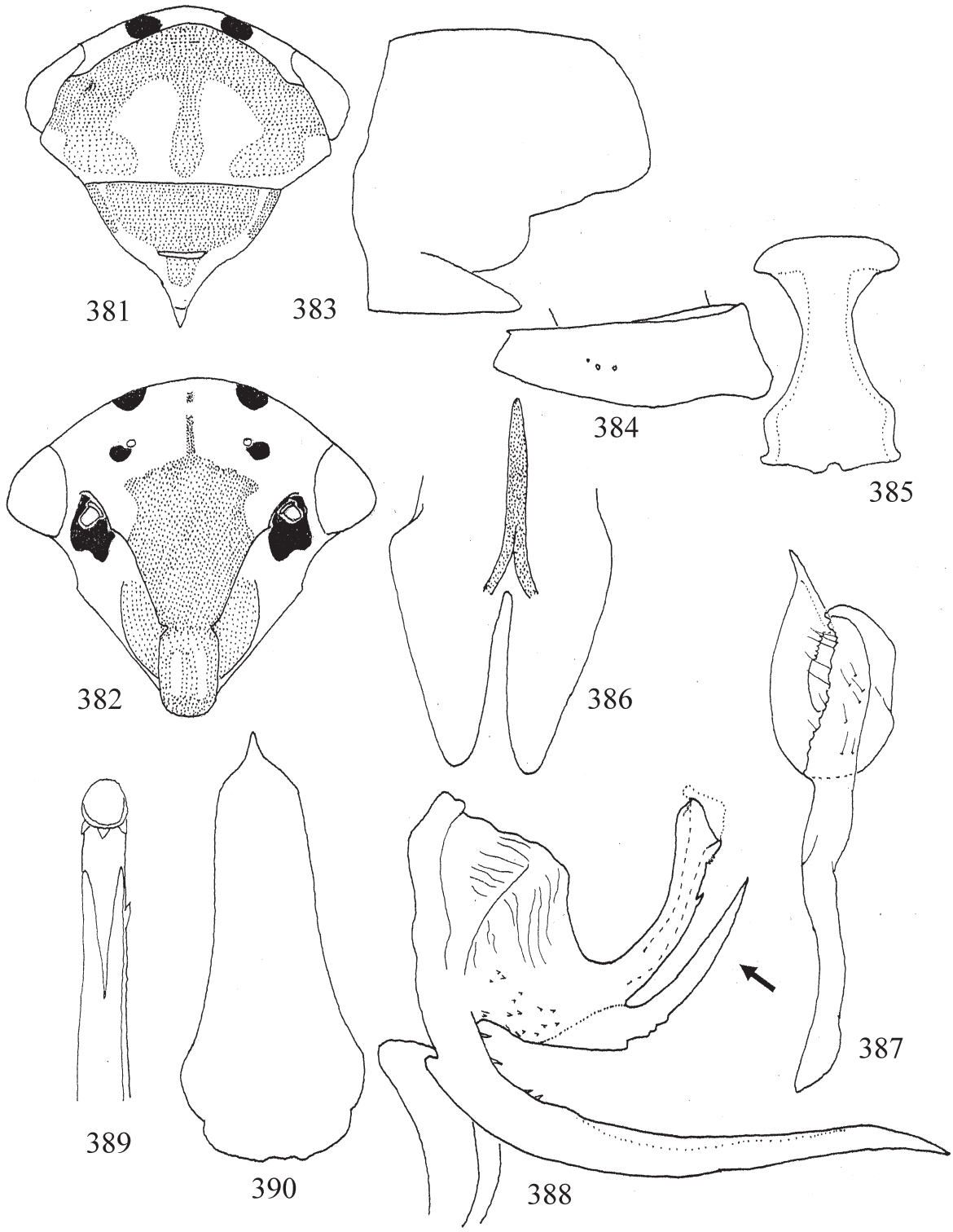
Material examined. INDIA: LECTOTYPE ♀, here designated, Kodaikanal, T.V. Campbell, Brit Mus. 1926-171 (BMNH). PARALECTOTYPES: 6 ♂, 12 ♀, same data as lectotype (BMNH). Additonal material: 6 ♂, 11 ♀, Kodaikanal 7000ft (2123 m), 23.iii.1936 (6 ♂, 5 ♀), 31.iii.1936 (6 ♀), B.M.C.M. Expd. to south India, 1936; 2 ♀, Kodaikanal, Brit. Mus., 1926-171, 66/4, *Nehela bimaculicollis* Stål (in Distant's handwriting), [misidentification] (BMNH). 1 ♂, 1 ♀, Kodaikanal (NCSU); 14 ♂, 14 ♀, Kodaikanal, 30–31.x.1975, C.A. Viraktamath; 2 ♂, 2 ♀, Kodaikanal, 17.viii.1979, I. Dworakowska, 15 ♂, 15 ♀, Kodaikanal, 18.viii.1979, S. Viraktamath on (UASB); 1 ♂, 1 ♀, Palny Hills, 3000–6000 ft (910–1820 m), 10–13.iv.1917, T.V. Campbell (TNAU); 1 ♂, Nilgiri Hills, T.V. Campbell, E.A. Butler, 1945-60 (BMNH), 1 ♂, Ootacamund, 2350m, 4.vi.1977, C.A. Viraktamath; 1 ♂, 4 ♀, Sim's Park, Coonoor,11, viii.1979, S. Viraktamath; 1 ♀, Coonoor, 12.viii.1979, I. Dworakowska; 3 ♀, Silver caskade, Shambaganur 18.viii.1979, S. Viraktamath; 6 ♀, Shambaganur, 30.x.1975, C.A.Viraktamath; 5 ♂, 5 ♀, Shambaganur, 17–18. viii.1979, I. Dworakowska; 6 ♂, 9 ♀, Naduvattam, 1829m, 6.vi.1979, S. & C.A. Viraktamath; 1 ♂, Burliar, 860m, 5.vi.1977, S. Viraktamath (UASB); 6 ♂, 2 ♀, Kerala: Pyakara and Munnar (CAS); 4 ♂, 2 ♀, Manantoddy, 16.x.1975, C.A. Viraktamath; 22 ♂, 11 ♀, Munnar, 1524m, 22.iii.1977, *ex Ageratina adenoforum*, C.A.Viraktamath & S. Viraktamath, 12 ♂, 10 ♀, 12 Km N Munnar, 2000m, 23.iii.1977, C.A. Viraktamath & S. Viraktamath (UASB). Karnataka: 10 ♂, 19 ♀, Mudigere 23.v.1976, C.A. Viraktamath, 1 ♂, Mudigere, at light, 29.v.2005, Shobharani, M.; 1 ♀, 2 nymphs, Kemmannagundi, 9.iv.1975, Viraktamath, C.A.(UASB).

Remarks. Distant (1916: 232) misidentified females of *Igerna violacea* from Kodaikanal and Nilgiri Hills as *Nehela bimaculicollis* (Stål), a species that does not occur outside Africa. *I. violacea* shares the fused connective with *I. quinlani* and *I. keyae*. Coloration and branching of the aedeagal processes and anal collar process vary as shown in figures 369, 370, 372, 374, 377–379.



FIGURES 369–380. *Igerna violacea* (Distant): 369, 370. Head and thorax, variation in color markings; 371. Fused aedeagus and connective, lateral view; 372. Aedeagal shaft process with each process bifid; 373. Aedeagus, lateral view; 374. Aedeagal shaft process with dichotomous branching; 375. Male genital capsule, lateral view; 376. Pygofer and anal collar process, lateral view showing variation in structure; 377–379. Variations in the branching of anal collar process; 380. Style, lateral view.

***Igerna wilsoni* sp. nov.**
Figs 381–390.

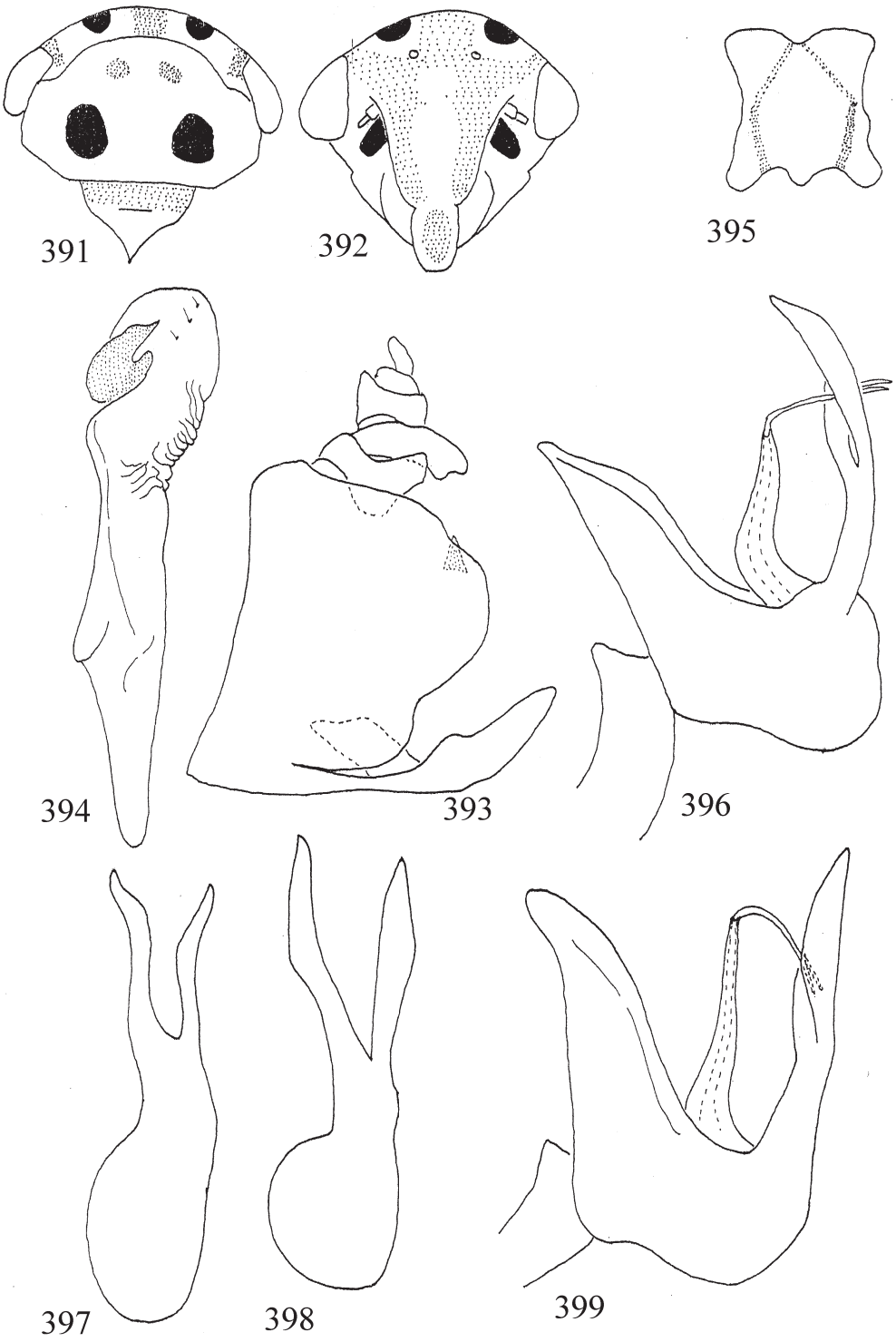


FIGURES 381–390. *Igerna wilsoni* **sp. nov.**: 381. Head and thorax; 382. Face; 383. Male pygofer, lateral view; 384. Anal collar process, lateral view; 385. Connective, anterodorsal view; 386. Subgenital plates, ventral view; 387. Style, dorsal view; 388. Aedeagus, lateral view; 389. Basal shaft process viewed in the direction of arrow in Fig. 388; 390. Ventral process of aedeagus, ventral view.

Color. Head with pair of black spots one on either side of median line, clypellus, lora, antennal bases, clypeus, chocolate brown, median stripe on frons extending to clypeus and spots enclosing lower part of ocelli, chocolate

brown. Pronotum with anterior margin, two connected lateral spots and median stripe extending from it, chocolate brown. Anterior half of scutellum black, median rounded extension of same on posterior half brown. Forewing cells brown.

Morphology. Face including eyes as long as wide. Ocelli closer to eyes than to each other.



FIGURES 391–399. *Ianagallia bifurcata* (Sawai Singh & Gill): 391. Head and thorax; 392. Face; 393. Male genital capsule, lateral view; 394. Style, dorsal view; 395. Connective, anterodorsal view; 396, 399. Aedeagus, lateral view, variations; 397, 398. Ventral process of aedeagus, posterior view, variations in branching.

Male genitalia. Pygofer simple, caudal margin rather truncate. Styles typical of *Igerna*. Connective sclerotized and pigmented, longer than wide, lateral margins excavated. Aedeagus complex, stout basally, with ventral plate-like apodeme having distal median acuminate process; aedeagal shaft with pair of basal processes directed caudally, shaft slender, with pair of lateral subapical teeth, at base of ventral apodeme and base of aedeagus with spines; gonopore apical. Anal collar simple.

Measurement. Male 4.10 mm long and 1.30 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂, West Bengal: Gopaldhara BW, Darjeeling, 4720 ft (1431m), 24.iii.1918, H. Stevens (BMNH).

Remarks. *Igerna wilsoni* resembles species of *Japanagallia* but lacks the cross veins between the claval veins. It shares a ventral process of the aedeagus with some undescribed species of *Igerna* from the Afrotropical region and *I. quinlani*. None of the other Oriental *Igerna* possesses a spine-like structure on the aedeagus. The species is named after Dr M. R. Wilson, in recognition of his contributions to Auchenorrhyncha systematics.

Genus *Japanagallia* Ishihara

Japanagallia Ishihara, 1955: 215,217. Type-species: *Agallia pteridis* Matsumura, by original designation.

Color. Sexually dimorphic leafhoppers. Male black with yellow or ochraceous areas on face, vertex, pronotum and scutellum. Female brownish and larger.

Morphology. Medium sized leafhoppers, measuring 4.0–6.0 mm long. Head wider than pronotum. Vertex distinctly narrower in middle than next to eyes, upturned in middle, sinuately curved laterally behind eyes. Face finely granulose, transclypeal sulcus incomplete in the middle or complete, clypellus extending beyond genae, about as broad at apex as at base. Ocelli closer to eyes than to each other. Pronotum finely granulate, transversely weakly wrinkled. Scutellum broad at base, finely granulose. Forewing venation often obsolete except basally and on clavus; three anteapical and four apical cells, inner anteapical cell closed posteriorly, claval veins joined by one or more cross veins (Fig. 19). Fore femur with intercalary setae arranged in oblique row, setae on row AV not enlarged (Fig. 30). Hind tibial macrosetae PD 8±2 (7–12), AD 7±1, AV 6±1 macrosetae. Hind basitarsus with two platellae on distal transverse row.

Male genitalia. pygofer with short mesal or caudo-dorsal process, with or without denticles or often with short, stout setae. Styles with inner arm longer than outer arm. Connective variable in shape, usually long, pigmented (Figs 402, 410). Aedeagus variable, often with strongly developed preatrium and dorsal apodeme with or without processes. Aedeagal shaft symmetrical with processes. Anal collar process simple, not elaborate.

Female genitalia. First pair of valvulae alveolate, with rather elongate oval closely packed alveoli in vertical or oblique rows with space between each row, sculptured area on 0.75 length (Figs 76, 77). Second pair of valvulae with subapical triangular projection on dorsal margin, teeth becoming more prominent near apex, without denticles, ventroapical margin serrated (Figs 78, 79).

Distribution. India (Himalayan region), Nepal, Burma, Southern China, Indonesia (Java, Sumatra), Malaysia (Northern Borneo), Taiwan, Japan.

Remarks. Oman (1970) discussed the relationship of this genus with some members of *Agalliopsis* Kirkaldy and opined that it resembles some members of *Agalliopsis* (*Agallaria*) Oman in general shape and in having the posterior margin of the crown slightly sinuate laterally. *Japanagallia* has the tenth segment only weakly developed in the male, the pygofer often has a pair of posteriorly directed pointed lobes next to the anal tube, and the aedeagus is stout with a large basal atrium. *Japanagallia* closely resembles *Agalliopsis* and *Igerna*. It differs from these by the presence of a cross vein between the claval veins, the vertex being vertical in the middle and by the structure of the male genitalia in which the pygofer has caudodorsal processes and both preatrium and dorsal apodemes are not only well developed (at least one of them) but also bear processes.

Key to species of *Japanagalia* Ishihara

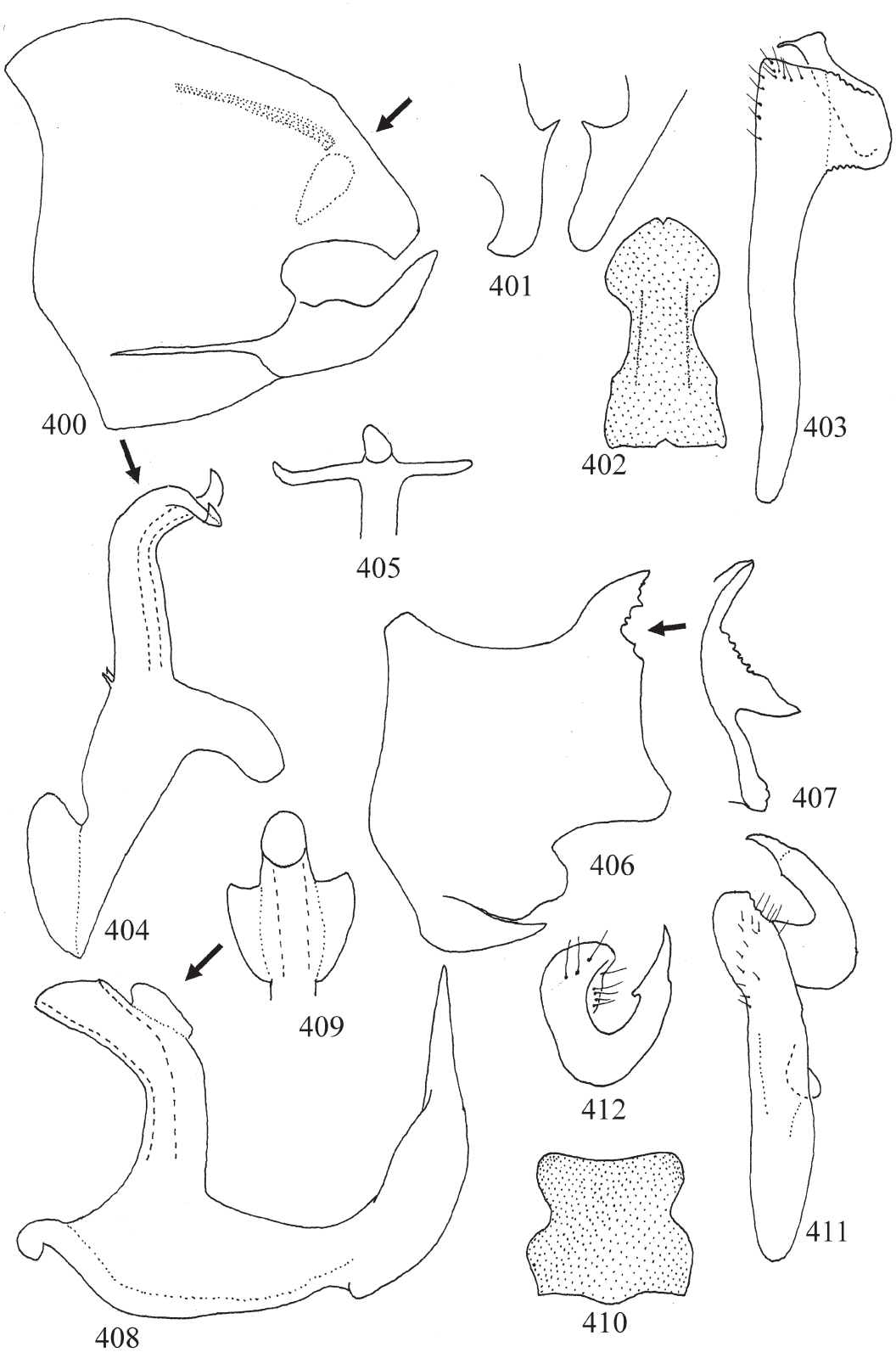
1. Aedeagal shaft stout at base and apical 0.33 erect, with two accessory processes on dorsal side at midlength (Fig. 454) (Japan) . . . . . *J. pteridis* (Matsumura)

- Aedeagal shaft not as above 2
2. Aedeagus with ventral bifid (Figs 446, 448) or three pointed process (Fig. 460), constricted at attachment with shaft 3
- Aedeagus not as above, ventral process when present broadly attached to shaft in lateral aspect (Figs 433, 469) 4
3. Aedeagus ventral process with apex three pointed, margin serrated (Fig. 460); dorsal apodeme without process; pygofer with caudal margin deeply concavely excavated (Fig. 457) (Indonesia: Sumatra) . . . . . *J. sumatrana* **sp. nov.**
- Aedeagus ventral process with apex bifid, margin smooth (Fig. 448); dorsal apodeme with trilobed process; caudal lobe of pygofer not excavated as above (Fig. 444) (Nepal) . . . . . *J. peculiaris* **sp. nov.**
4. Aedeagus with either preatrium or dorsal apodeme forming U with shaft in lateral aspect (Figs 408, 469) 5
- Neither preatrium nor dorsal apodeme of aedeagus forming U with shaft, though either or both may be well developed 9
5. Aedeagal shaft distinctly shorter than preatrial process, stout, with two lateral, one dorsal and one ventral foliate expansion, bearing pair of short ventrally directed processes before apex (Figs 469, 470) (Taiwan) . . . . . *J. yoshimotoi* **sp. nov.**
- Aedeagal shaft equal or longer than preatrial process (Figs 408, 415, 440) 6
6. Aedeagal shaft with pair of subapical wing-like processes (Figs 408, 409) (China: Fukien) . . . . . *J. curvata* **sp. nov.**
- Aedeagal shaft without subapical wing-like processes (Fig. 416) 7
7. Aedeagal shaft apex pointed, dorsal apodeme stout, forming U with shaft, preatrial process with median bilobed process in addition to lateral pointed lobes (Figs 440, 441 (Nepal) . . . . . *J. nepalensis* **sp. nov.**
- Aedeagal shaft apex broad, with pair of lateral, short processes (Fig. 416); preatrial process broad, apical 0.33 abruptly narrowed and pointed (Fig. 417) 8
8. Aedeagal shaft with lateral lamellate expansion at base, aedeagal shaft longer than preatrial process in lateral aspect (China: Hainan) . . . . . *J. lamellata* Zhang
- Aedeagal shaft lacking basal expansion (Fig. 416), aedeagal shaft as long as preatrial process in lateral aspect (Fig. 415) (Indonesia: Java) . . . . . *J. javana* **sp. nov.**
9. Aedeagus in lateral view L-shaped, preatrium with pair of lamellate processes (Fig. 436, 464); pygofer caudal lobe with dome-shaped setae (Figs 435, 463) 10
- Aedeagus not L-shaped, preatrial processes not lamellate (Fig. 433); caudal lobe of pygofer lacking dome-shaped setae . . . 12
10. Aedeagus with long slender process on ventral process; shaft with apical pair of long, lateral processes (China: Guizhou, Guangxi) . . . . . *J. hamata* Zhang & Li
- Aedeagus without long slender processes on ventral process; shaft not as above (Figs 436, 464) 11
11. Aedeagal shaft short, about as long as width at base in lateral view, with basal pair of short processes (Fig.464) (Taiwan) . . . . . *J. tappana* (Matsumura)
- Aedeagal shaft long, more than twice as long as basal width in lateral view, without basal short processes (Fig.436) (China: Fukien) . . . . . *J. neotappana* **sp. nov.**
12. Aedeagal shaft with finger-like processes at base (Fig. 425) 13
- Aedeagal shaft without finger-like processes at base (Fig. 421). 15
13. Dorsal apodeme and preatrium of same length, both with variously shaped processes on dorsal margin (Fig. 433) (northern India: Uttaranchal) . . . . . *J. mussooriensis* **sp. nov.**
- Dorsal apodeme distinctly longer than preatrium and both lacking processes (Fig. 425) 14
14. Pygofer caudal lobe dorsally produced into spine-like process (Fig. 423); aedeagal shaft apex with collar and with basal pair of processes on lateral margin (Fig. 426) (Myanmar) . . . . . *J. malaisei* **sp. nov.**
- Pygofer caudal lobe ventrally directed into spine-like process; aedeagal shaft with pair of basal processes and pair of apical processes on ventral margin (China: Yunnan). . . . . *J. spinosa* Zhang
15. Male pygofer with strongly dentate caudal margin (China: Zheijiang) . . . . . *J. dentata* Cai & He
- Male pygofer with smooth caudal margin. 16
16. Caudal lobe of pygofer more or less parallel sided, lamellate projection on shaft at level or ventrad of long slender processes (China: Zheijiang) . . . . . *J. longa* Cai & He
- Caudal lobe of pygofer gradually narrowed (Figs 400, 418); aedeagal shaft without caudal lamellate process (Figs 404, 421)) 17
17. Apex of aedeagus with unpaired ventrally directed and paired subapical elongate processes (Figs 421, 422) (China: Fukien) . . . . . *J. longipenis* **sp. nov.**
- Aedeagal shaft curved ventrally near apex, with pair of lateral asymmetrical processes and pair of basal tooth-like processes (Figs 404, 405) (China: Fukien) . . . . . *J. asymmetrica* **sp. nov.**

Japanagallia asymmetrica **sp. nov.**

Figs 400–405.

Color. Face black except lateral margins of genae, large spot at base of lorum, adjacent gena, margin of antennal ledge, pair of broad U-shaped stripes separated by median and two lateral black stripes of uniform width on face dorsad of ocelli, isolating two subglobse black spots on vertex, ochraceous. Pronotum black, lateral and caudal margins ochraceous. Scutellum black with two lateral whitish yellow spots. Forewings brown, veins pale but prominent. Posterior margin of propleura ochraceous, remaining of thoracic pleura black. Legs infuscated. Abdomen black. Subgenital plates ochraceous.



FIGURES 400–412. Species of *Japanagallia*: 400–405. *Japanagallia asymmetrica* **sp. nov.**: 400. Pygofer and subgenital plate, lateral view; 401. Pygofer process, seen in the direction of arrow in Fig. 400; 402. Connective, anterodorsal view; 403. Style, lateral view; 404. Aedeagus, lateral view; 405. Apex of shaft showing lateral process of shaft, as viewed in the direction of arrow in Fig 404; 405a. Apex of shaft as viewed in the direction of arrow in Fig. 405; 406–412. *Japanagallia curvata* **sp. nov.**: 406. Pygofer, lateral view; 407. Mesal process of pygofer viewed in the direction of arrow in Fig. 406; 408. Aedeagus, lateral view; 409. Apex of aedeagal shaft as viewed in the direction of arrow in Fig. 408. 410. Connective; 411. Style, dorsal view; 412. Apex of style, posterior view.

Male genitalia. Pygofer caudoventrally directed, broader caudally, caudoventral projection shorter, with mesally directed spine on dorsal margin. Subgenital plates longer than wide. Aedeagal shaft strongly ventrally curved near apex, bearing two laterally directed, asymmetrical, subapical short processes and pair of tooth-like processes at base on dorsal margin, gonopore apical.

Measurements. Male 4.64 mm long, 1.60 mm wide across eyes.

Material examined. CHINA: HOLOTYPE ♂, Fukien, Shaown: Tachulan, 1000m, 10.v.1943, T.C. Maa (BPBM).

Remarks. *J. asymmetrica* closely resembles *J. longipenis* but differs in having a shorter aedeagal shaft bearing a pair of shorter asymmetrical processes and with one pair of teeth-like projections basally.

Japanagallia curvata sp. nov.

Figs 406–412.

Color. Brownish with varying black areas. Two subglobose spots and two stripes adjacent to mesal margin of eyes on vertex, black. Apically broadened median stripe joining large black area on face fuscous. Antennal ledge, short transverse band across base of lorum and gena, brownish yellow; outer genal margin yellowish white. Remaining of face and anterior pronotal band as in *J. neotappana* **sp. nov.** (see below). Two lateral spots on scutellum yellowish white, apex of scutellum, thoracic pleura, legs infuscated. Forewing veins lighter in color and prominent.

Morphology. Inner claval vein apically bifid and with series of cross veins connecting it with claval suture.

Male genitalia. Pygofer with dorsal and mesal triangular lobes with serrated caudal margin. Connective about as long as broad. Aedeagus in lateral view U-shaped, atrium three times as long as broad, preatrium strongly developed, shorter than aedeagal shaft, caudally directed, triangular, apically attenuated, aedeagal shaft dorsally curved about mid length dorsally, with pair of wing-like processes of varying size subapiclly, gonopore apical.

Measurements. Male 4.56 (4.43–4.58) mm long, 1.52 (1.47–1.56) mm wide across eyes.

Material examined. CHINA: HOLOTYPE ♂, Fukien: Shaown: Tachulan, 1000m, 6–9.iv.1943, T. Maa (BPBM). PARATYPES: CHINA: Fukien: 2 ♂, same data as holotype; 3 ♂, same data as holotype except 21.iii.1942, 5.iv.1942 and 14.iv.1943 (BPBM); 2 ♂, same data as holotype except 2.iv.1942 (CAS).

Remarks. *J. curvata* resembles *J. javana* and *J. yoshimotoi* from which it can be readily distinguished by the features of aedeagus and pygofer.

Japanagallia dentata Cai & He

Japanagallia dentata Cai and He in Cai *et al*., 2001:201, figs. 71–80.

Remarks. No material of this species was examined. Judging from the illustrations provided by Cai and He (2001), this species resembles *J. javana* but differs in lacking short processes on the aedeagal shaft at about the distal third and the male pygofer has a conspicuous dentate margin.

Japanagallia hamata Zhang & Li

Japanagallia hamata Zhang and Li, 1999: 107–108, figs 1–6.

Remarks. This speceis was not studied. However, the illustrations provided by Zhang and Li (1999) are adequate to determine the species. It resembles *J. longipenis* **sp. nov.** (see below) but differs in having long basal processes on the aedeagal shaft and greatly prolonged aedeagal shaft beyond the gonopore.

Japanagallia javana sp. nov.

Figs 413–417.

Male (color). Two spots on vertex, median stripe, spot on lateral margin of ocelli, area of face limited basally by inverted V across antennal cavity, black. Margin of gena, short, transverse band on gena dorsad of lorum, upper

part of face including vertex, yellowish brown. Ocelli red. In holotype male two spots on vertex and median stripe meet basally resulting in short black band. Pronotum black excepting lateral and caudal yellowish brown margins. Scutellum black except caudolateral yellowish brown margins. Forewings, thoracic pleura, legs and abdomen fuscous, claval veins and claval suture ochraceous. In two males venation is ochraceous, in other four, veins concolorous with cells. Subgenital plates ochraceous.

Male genitalia. Pygofer lobe apparently caudally truncate, dorsally pointed, with mesal short triangular process (Fig. 414). Connective longer than broad, lacks dark pigmentation. Aedeagal shaft and preatrium together forming U; shaft erect, caudodorsally directed, with pair of anteroventrally directed short apical processes, ventral process about as long as shaft and as in Fig.417, dorsal apodeme well developed, gonopore large, apical.

Female (color). Paler than male, ochraceous. Two somewhat rounded spots on vertex, frontoclypeus, clypellus ventrad of inverted V across antennal ledges below eyes, antennal cavities black, very narrow median stripe on vertex and face between ocelli, spot on lateral margins of each ocellus, fuscous. Ocelli red. Black markings on pronotum and scutellum variable. Scutellum brown with two triangles at basal angles and median stripe (some times absent), fuscous. Forewings lighter in color, cells vary in color from brown to fuscous, venation ochraceous. Pronotal pleura and abdominal sterna infuscated.

Female genitalia. Seventh sternite about half as long as broad, caudal margin slightly sinuate.

Measurements. Male 5.04 (4.70–5.34) mm long, 1.47 (1.42–1.50) mm wide across eyes. Female 5.46 (5.05–5.80) mm long, 1.67 (1.59–1.73) mm wide across eyes.

Material examined. INDONESIA: HOLOTYPE ♂, Java: Tjibodas: Mt. Gede, 5000ft (1517 m), Bryant and Palmer (NMNH). PARATYPES: INDONESIA: Java: 1 ♂, samedata as holotype (NMNH); 1 ♂, Pongrangyo Mt., 9800ft (3173 m), Bryant and Palmer (NMNH); 3 ♂, 2 ♀, Tjibodas, 4000–7000ft (1213–2113 m), xii.1908, Terry (BPBM).

Remarks. *J. javana* resembles closely *J. curvata* **sp. nov.** from which it can be readily distinguished by the structure of aedegus and pygofer.

Japanagallia lamellata Zhang

Japanagallia lamellata Zhang, 2010: 56, figs 3–4, 14–21. HOLOTYPE ♂, CHINA [IMNU, not examined].

Remarks. No material of this speices was examined. Zhang (2010) has adequately described and illustraed the species. It has aedeagus similar to that in *J. curvata* **sp. nov.** and *J.yoshimotoi* **sp. nov.** (see below), but differs in lacking subapical lamellate processes present in *J. curvata* and apical processes on aedeagal shaft present in *J. yoshimotoi*. The connective in *J. lamellata* is much longer than broad where as it is about as long as broad in the other two sepices.

Japanagallia longa Cai & He

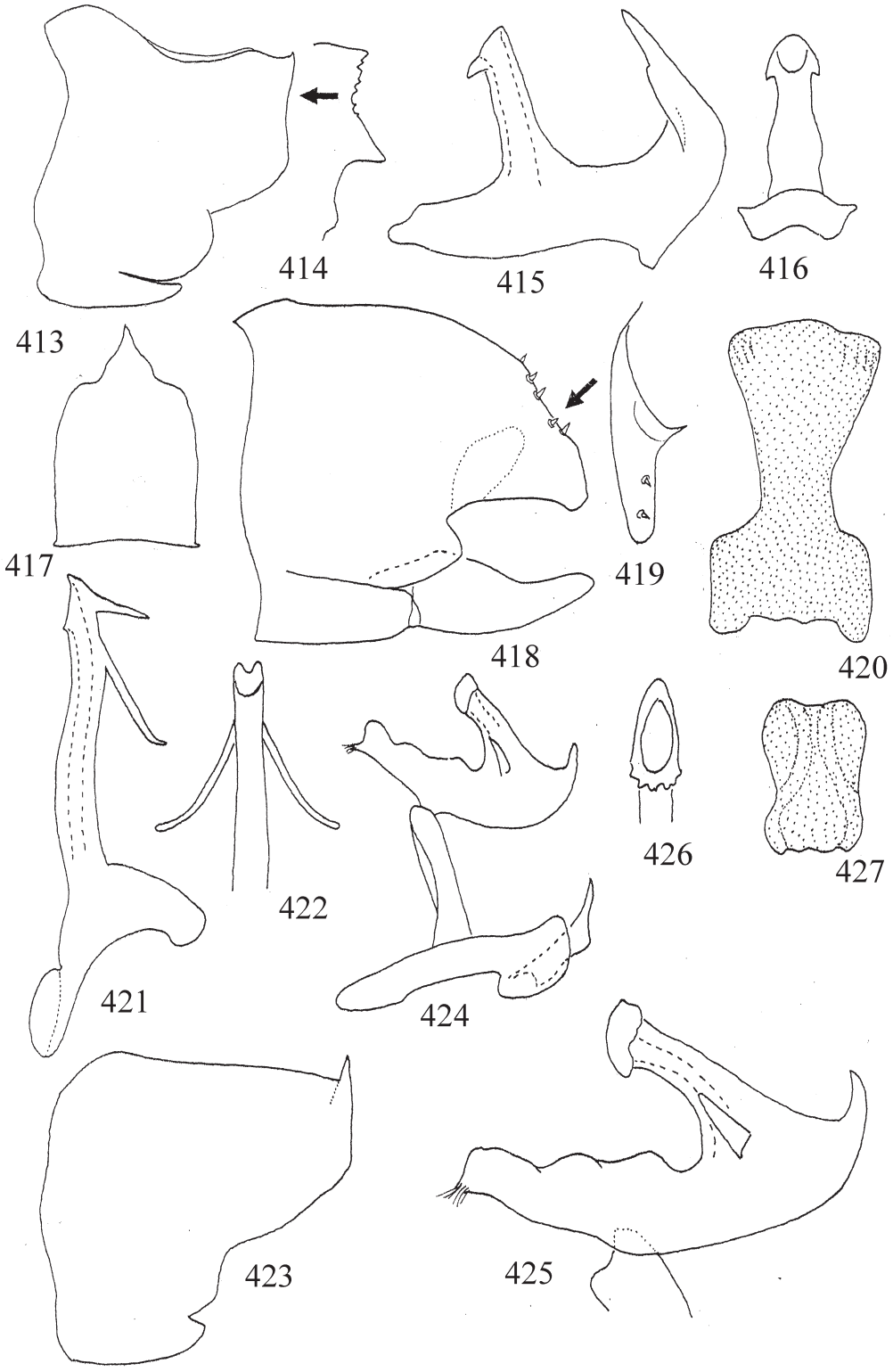
Japanagallia longa Cai and He in Cai *et al*., 2001: 200–201, figs 62–70. HOLOTYPE, CHINA [not examined].

Remarks. No material of this species was examined. Judging from the illustrations provided by Cai & He (2001), it can be distinguished by the paired subapical processes and more or less laterally compressed aedeagal shaft. It closely resembles *J. longipenis* **sp. nov.** (see below) but differs in having a more slender caudal prolongation of the pygofer and aedeagal processes asymmetrical, one of them is unpaired and lamellate.

Japanagallia longipenis sp. nov.

Figs 418–422.

Color. Coloration similar to that in *J. asymmetrica* however, pronotum with two discal spots of varying size, ochraceous.



FIGURES 413–427. Species of *Japanagallia*: 413–417. *Japanagallia javana* **sp. nov.**: 413. Pygofer, lateral view; 414. Process of pygofer as seen in the direction of arrow in Fig. 413; 415. Aedeagus, lateral view; 416, Aedeagal shaft, dorsal view; 417. Ventral process of aedeagus, ventral view; 418–422. *Japanagallia longipenis* **sp. nov.**: 418. Male pygofer and subgenital plate, lateral view; 419. Pygofer process as seen in the direction of arrow in Fig. 418; 420. Connective, anterodorsal view; 421. Aedeagus, lateral view; 422. Apex of shaft, dorsal view; 423–427. *Japanagallia malaisei* **sp. nov.**: 423. Male pygofer, lateral view; 424. Style, connective and aedeagus, lateral view; 425. Aedeagus, lateral view; 426. Apex of shaft, anterior view; 427. Connective, anterodorsal view.

Male genitalia. Pygofer caudoventrally directed and narrowed, with short mesal process dorsally. Aedeagal shaft in lateral aspect slightly sinuate, with apical unpaired short process directed ventrally and pair of ventrally directed longer subapical processes, base of aedeagus bulbous, dorsal apodeme long, preatrium well developed, gonopore apical.

Measurements. Male 4.67–4.94 mm long, 1.46–1.56 mm wide across eyes.

Material examined. CHINA: HOLOTYPE ♂, Fukien: Shaown: Tachulan, 1000 m, 10.iv.1943, T.Maa (BPBM). PARATYPES: 14 ♂, same data as holotype except 5.iv.1942, 31.iii.1942, 9.ix.1942, 1.iv.1943, 22.iv.1943 (1 ♂ each), 10.iv.1943 (2 ♂), 20.iv.1943 (7 ♂) (BPBM); 1 ♂, same data as holotype except T.C. Maa Collector, L. Gressitt Collection (CAS).

Remarks. *J. longipenis* externally resembles *J. asymmetrica* **sp. nov.** but differs in the elongate aedeagal shaft with caudoventrally directed subapical processes and unpaired ventrally directed apical process.

***Japanagallia malaisei* sp. nov.**
Figs 423–427.

Color. Dark brown. Two round spots, narrow median stripe on vertex, upper part of face, frontoclypeus, clypellus, lorum, antennal cavities, most of gena, inner margin of eye and band from latter to ocellus, black. Rest of face pale yellow. Ocelli red. Pronotum and scutellum black except pale yellow posterior and lateral margins of pronotum and two marginal spots distad of median impressed line on scutellum. Forewings brown except pale yellow claval veins and claval sutures. Subgenital plates ochraceous.

Male genitalia. Pygofer broad, caudodorsally terminated into sharp spine. Styles with inner arm caudally drawn out into process. Dorsal apodeme of aedeagus well developed, without process; caudal atrial process well developed, curved and some what pointed apically, shaft with pair of lateral short processes at base, gonopore terminal and surrounded by collar with uneven width.

Measurements. Male 4.30 mm long, 1.40 mm wide across eyes.

Material examined. MYANMAR: HOLOTYPE ♂, N.E. Burma: Kambaiti, 7000ft (2113 m), 30.v.1934, R. Malaise, B.M. 1935-630 (BMNH).

Remarks. *J. malaisei* resembles *J. mussooriensis* **sp. nov.**, but differs in being longer, more slender and darker in color. The male genitalia are very distinctive.

***Japanagallia mussooriensis* sp. nov.**
Figs 30, 76–79,428–434, 571, 585, 600.

Color. Black. Vertex yellow with spot on inner angle of eye, one median spot continued on face, and two lateral somewhat oval spots, black. Face black excepting lateral areas, antennal ledges, area mesad of compound eyes and dorsad of ocellus, yellow or ochraceous. Pronotum black with hind margin yellow. Scutellum black except apical yellow area. Claval veins, area on either side of claval suture brown, apical half of forewings dark brown, basal half black; anal margin between inner claval vein, apices of outer claval veins and claval suture, whitish. Femora black with apices brownish, remaining of fore and middle legs ochraceous, hind legs dark fuscous. Subgenital plates dark brown.

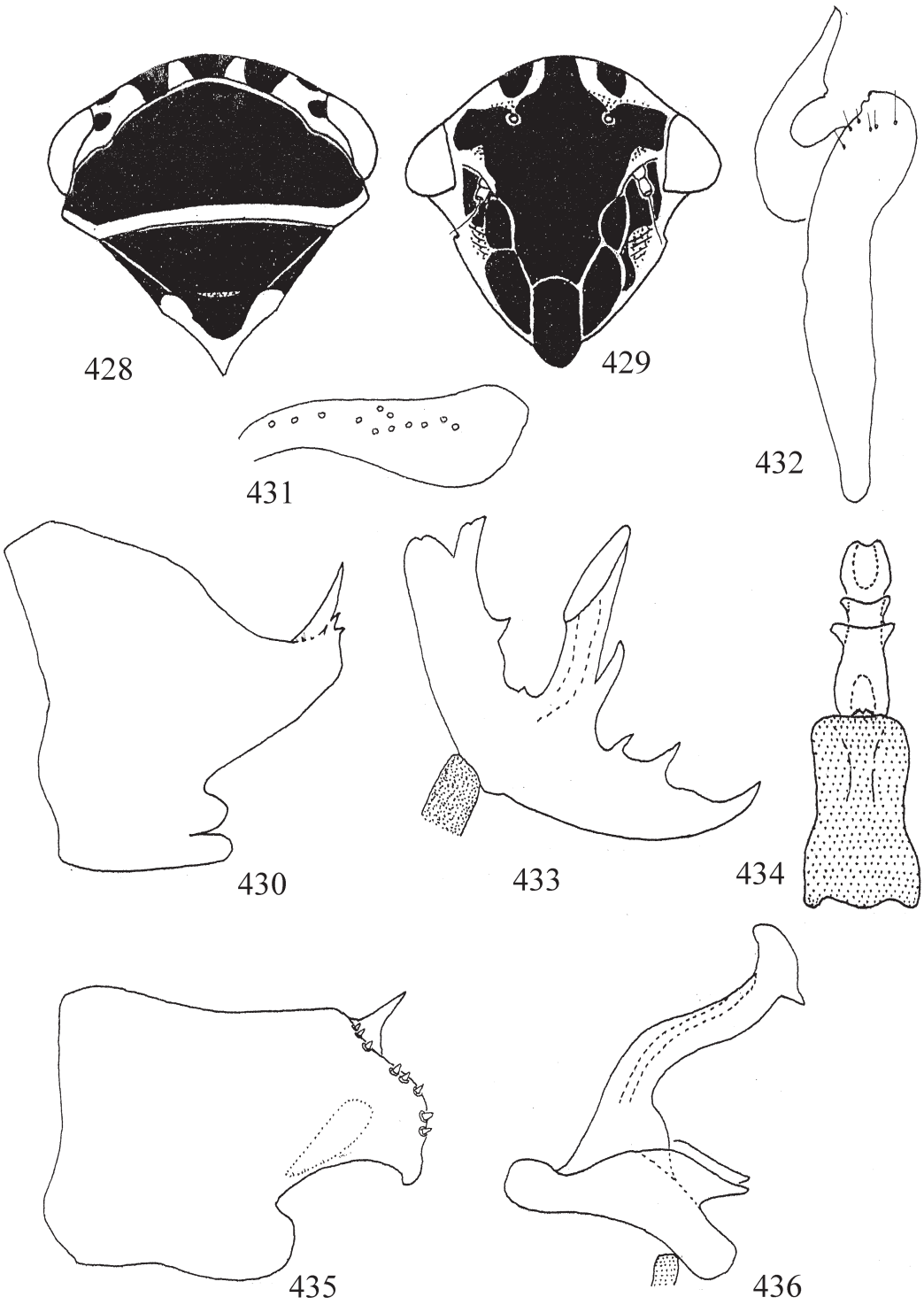
Male genitalia. Pygofer caudally narrowed, recurved into dorsal acute process with tooth-like projections on outer margin basally. Dorsal apodeme and preatrium of aedeagus well developed making aedeagus anchor-shaped in lateral aspect; shaft with pair of basal processes, series of three processes on preatrium and on dorsal apodeme (Fig. 433); process on apex of dorsal apodeme lamellate and bilobed, aedeagal shaft brown pigmented, with large oblique gonopore. Anal collar process broadened caudally with series of round perforations.

Measurements. Male and female 4.0 mm long, 1.37 mm wide across eyes.

Material examined. INDIA: HOLOTYPE ♂, Uttaranchal: Mussoorie, 27.iv.1975, C.A. Viraktamath (UASB). PARATYPES: 2 ♂, same data as holotype; 1 ♂, Mundali, Jaunsa Division, Dehra Dun dist. Alt. 9000 ft (2730 m), 12.v.1910, 2965/21, Indian Museum Coll. Distant Coll. B.M. 1911-383 (BMNH, UASB). MYANMAR: 1 ♂, Kambaiti 7000ft (2113m), 30.iv.1934, R. Malaise, B.M. 1935-630 (BMNH). Additonal material: INDIA: 1 ♂, Mundali,

Jaunsa Divison, Dehra Dun dist., 900oft, 12.v.[19]10, Ind. Mus. From Ind. Mus. Distant Coll. B.M. 1911-383 (BMNH); NEPAL: 2 ♂, 2 ♀, Kathmandu, Chandragiri, V.K. Thapa (UASB).

Remarks. *J. mussooriensis* resembles *J. malaisei* but can be readily distinguished by the structure of the pygofer and aedeagus. The specimens from Mussoorie were collected on slopes on one side of the path covered with grass and annual herbs belonging to the family Asteraceae.



FIGURES 428–436. Species of *Japanagallia*: 428–434. *Japanagallia mussooriensis* **sp. nov.**: 428. Head and thorax; 429. Face; 430. Male pygofer, lateral view; 431. Anal collar process, lateral view; 432. Style, dorsal view; 433. Aedeagus, lateral view; 434. Connective and aedeagus, anterodorsal view; 435–436. *Japanagallia neotappana* **sp. nov.**: 435. Male pygofer, lateral view; 436. Aedeagus, lateral view.

***Japanagallia neotappana* sp. nov.**
Figs 435–436.

Color. Pale brown, with variable black markings. Two more or less round spots on vertex, inverted Y, two sub-marginal stripes on clypeus, obovate spot on clypellus, inner marginal band on lorum, antennal pit, lateral margin of ocellus, mesal area adjacent to eye, black. Basal broad marginal band on pronotum, short median stripe, two lateral spots arising from it, black. Scutellum except caudolateral margin, apex and thoracic pleura, black. In some specimens submarginal bands on clypeus coalesce with each other and with inverted Y on face making frontoclypeus black. Anterior pronotal band some times broad and triangularly extended laterad joining median stripe by narrow fuscous band leaving two large brownish yellow spots. Remaining of face, pronotum, scutellum, brownish yellow. Forewing cells brown, costal area and veins paler.

Male genitalia. Dorsal process of pygofer narrow, spine-like, caudal lobe ventrally directed, with short, stout setae. Aedeagal shaft without basal processes, apex comparatively narrower, with two plate-like processes laterally at base, gonopore subapical.

Measurement. Male 4.77–4.89 mm long and 1.61–1.66 mm wide across eyes.

Material examined. CHINA: HOLOTYPE ♂, Fukien: Shaown: Shui Paikai, 1.iv.1942, T.C. Maa (BPBM). PARATYPE: 1 ♂, same data as holotype except 26.iii.1942 (BPBM).

Remarks. *J. neotappana* closely resembles *J. tappana* but differs in lacking a pair of horn-like processes at the base of the shaft on the dorsal margin and in having a pair of plate-like processes at the base of the shaft.

***Japanagallia nepalensis* sp. nov.**
Figs 437–443.

Color. Black. Two spots on vertex adjacent to inner margin of dark brown eyes, two oblique lines mesad of ocelli, antennal ledge, antennal segments, dorsal areas of lora and lateral margins of gena, pale brown. Ocelli red. Posterior and lateral margins of pronotum narrowly ochraceous. Scutellum with lateral margin beyond median impressed line whitish. Forewings testaceous with inner claval vein, apical 0.25 of outer claval vein, claval suture, basal half of cubitus and apical half of costal margin of forewings, white.

Male genitalia. Pygofer apparently truncate caudally in lateral view but with mesal spine-like process. Aedeagus in lateral view rather F-shaped, dorsal apodeme robust, longer than aedeagal shaft, ventral process hood-like, aedeagal shaft tubular apically narrowed to pointed apex in lateral view, gonopore apical.

Female genitalia. Seventh sternite longer than broad and posterior margin almost straight.

Measurements. Male and female 3.80–4.00 mm long, 1.30 mm wide across eyes.

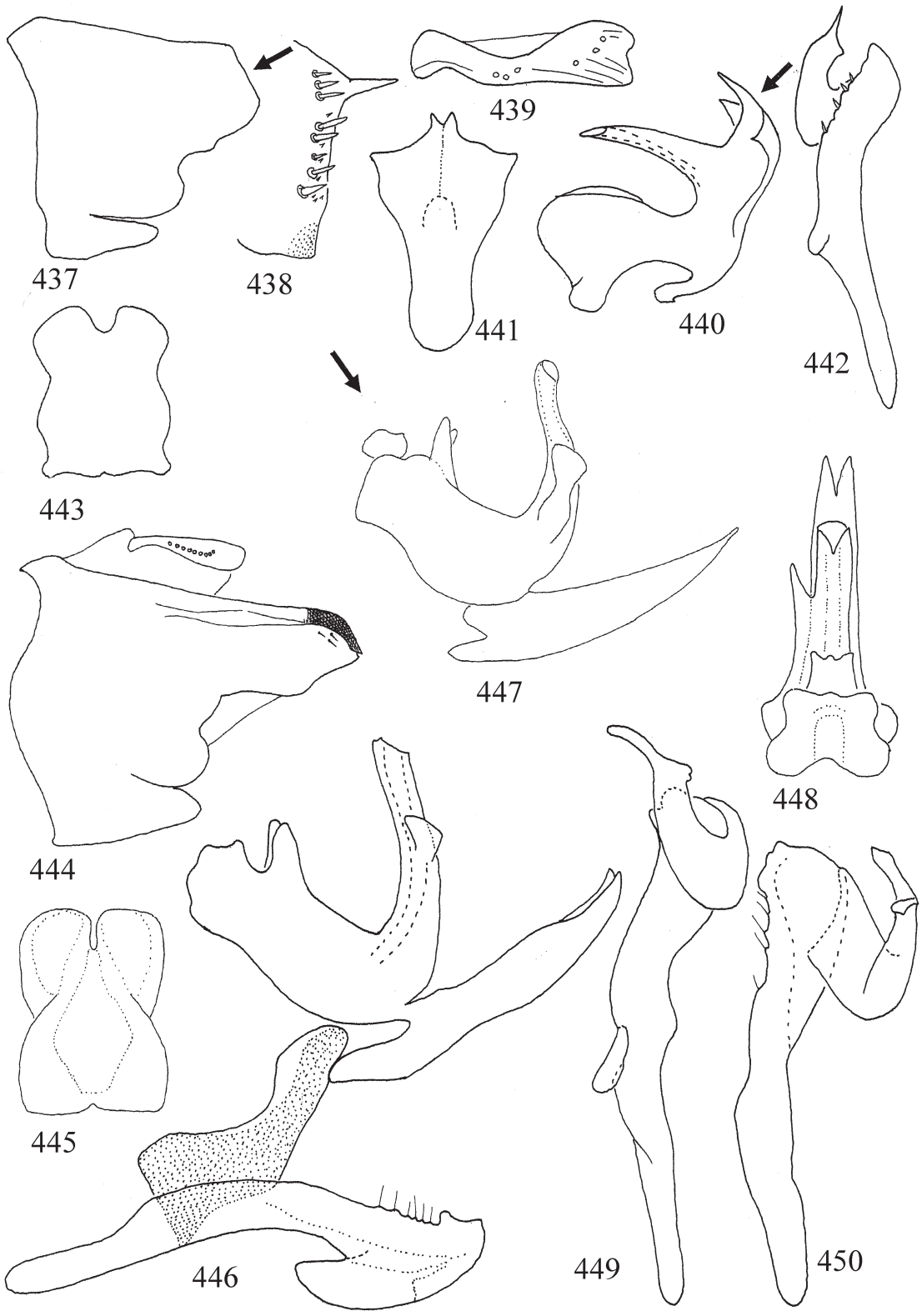
Material examined. NEPAL: HOLOTYPE ♂, E. Nepal: Ridge S of Barun River, 10.vi.1954, 10,000ft (3033m), L. Swan (CAS). PARATYPES: 1 ♀ same data as holotype (paler ♀); 1 ♂, 1 ♀, same data as holotype except 9000ft (2730m), 11.vi.1943 (CAS).

Remarks. *J. nepalensis* is very peculiar and unique within the genus. It can be readily distinguished by the peculiar adeagus and coloration.

***Japanagallia peculiaris* sp. nov.**
Figs 444–450.

Male (color). Dark brown. Median spot and spot on either side of it closer to each other than to eyes, black. Inverted Y on upper part of face, inner margins of eyes, spot on outer margin of each ocellus, antennal pits, marginal band to clypeus, clypellus, median band and apex of clypellus, black. Lateral margins of gena ochraceous. Anterior margin of pronotum, slender median disconnected longitudinal line, two irregular spots on posterior half, black; lateral margins ochraceous. Scutellum black except two median dark brown spots. Forewings with some of claval cells blackish brown, veins of corium dark brown, clavus whitish.

Morphology. Claval veins of forewings connected by two cross veins, and four cross veins between outer claval vein and claval suture.



FIGURES 437–450. Species of *Japanagallia*: 437–443. *Japanagallia nepalensis* **sp. nov.**: 437. Male pygofer, lateral view; 438. Pygofer process as seen in the direction of arrow in Fig. 437; 439. Anal collar process, lateral view; 440. Aedeagus, lateral view; 441. Ventral process of aedeagus, posterior view in the direction of arrow in Fig. 440; 442. Style, dorsal view; 443. Connective, anterodorsal view; 444–450. *Japanagaliia peculiaris* **sp. nov.**: 444. Male pygofer, lateral view; 445. Connective, anterodorsal view; 446. Style, connective and aedeagus, lateral view; 447. Aedeagus, ventrolateral view showing broad aspect of lateral process of shaft; 448. Aedeagus, anterodorsal view in the direction of arrow in Fig. 447. 449. Style, mesolateral view; 450. Style, dorsal view.

Male genitalia. Pygofer caudally produced, dorsal margin longer than height, with ventrally directed caudal tooth. Subgenital plates triangular, devoid of macroseate. Aedeagus asymmetrical, with stout, long, distally bifid ventral process; shaft tubular, curved anteriorly, with short spatulate process on left hand side of shaft, apex truncated; dorsal apodeme stout as long as shaft, with dorsoapical short, lamellate process. Anal collar poorly developed, each half with series of perforations.

Female (color). Reddish-brown, without black spots except at bases of antennae and in a few specimens very small spot on either side and apex of clypellus.

Morphology. Cross veins between claval veins and more numerous m-cu cross veins giving reticulate appearance to inner anteapical cell.

Female genitalia. Seventh sternite medially concavely excavated and with median tooth-like process.

Measurements. Male 4.00 mm long and 1.40 mm wide across eyes. Female 4.72 (4.50–4.90) mm long and 1.57 (1.50–1.60) mm wide across eyes.

Material examined. NEPAL: HOLOTYPE ♂, 27º 58' N, 85º 00'E, 3367m, 14.v.1967, Canadian Nepal Expedition (CNC). PARATYPES: 5 ♀, NEPAL: nr Kathmandu, Bhurmche, 2579–2882 m, 23.v.1967 (1 ♀), 30.v.1967 (2 ♀), 16.vi.1967 (2 ♀); 1 ♀, Kathmandu: Palchauki, 2667 m, 6.v.1967; 1 ♀, 27º 58'N, 55º 00'E, Malaise trap no.1, 3367 m, 28.v.1967, all Canadian Nepal Expedition (CNC).

Remarks. *J. peculiaris* is distinctive in having a slightly asymmetrical aedegus and peculiar pygofer. It appears to resemble *J. javana* and *J. curvata* but can be readily distinguished from them by the structure of the pygofer and aedeagus.

Japanagallia pteridis (Matsumura)

Figs 451–455.

Agallia pteridis Matsumura 1905: 68. SYNTYPE ♂,♀, JAPAN (EIHU, not examined)
Japanagallia pteridis (Matsumura): Ishihara 1955: 215, figs1, 1 and 2, fig. 2, 1.

Color. Coloration as described by Matsumura (1905).

Male genitalia. Pygofer with dorsal triangular blade-like process, caudal margin rounded ventrally directed. Subgenital plates exceeding pygofer. Aedeagus with atrium well developed, shaft broad at base, caudally directed, abruptly upturned dorsally, tubular with oblique apical gonopore on caudal margin, pair of short processes at base on dorsal margin of shaft. Anal collar process not well developed.

Remarks. This species resembles *J. tappana* in the shape of the male pygofer but differs in the structure of the aedeagus and lacking stout conical spines on the pygofer.

Japanagallia spinosa Zhang

Japanagallia spinosa Zhang, 2010: 53-6, figs 1–2, 7–13. HOLOTYPE ♂, CHINA [IMNU, not examined].

Remarks. No material of this speices was examined. Zhang (2010) has adequately described and illustrated the species. It has the aedeagus similar to that of *J. malaisei* **sp. nov.** but differs in having one pair of apical processes on aedeagal shaft and the basal processes are on posterior margin of the shaft rather than on the lateral margin as in *J. malaisei*. The pygofer process is on inner margin and hidden when seen from lateral aspect in *J. spinosa* compared to that of *J. malaisei* which is exposed.

Japanagallia sumatrana sp. nov.

Figs 19, 456–462.

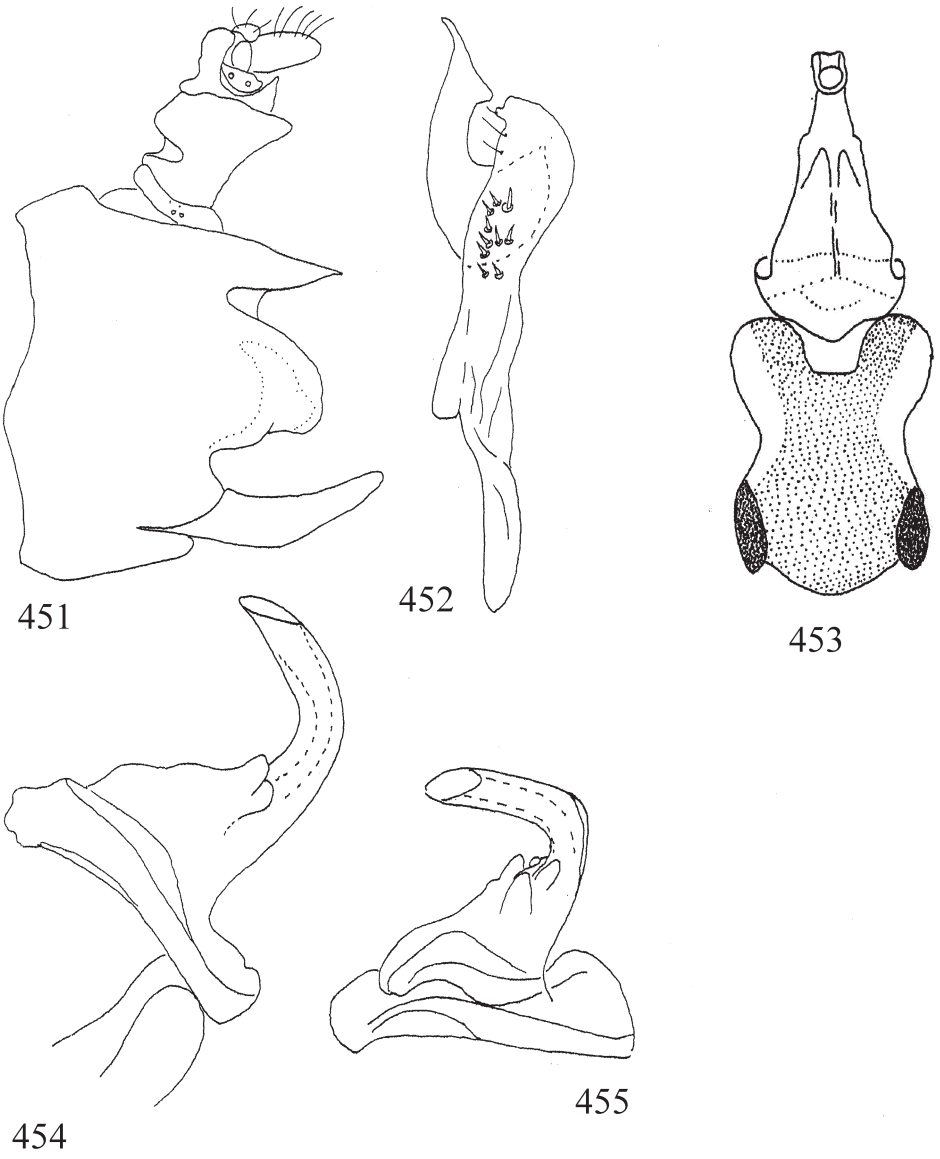
Color. Black with yellow markings. Face ochraceous with black spot on either side of median line visible dorsally, median stripe, clypeus below ocelli, clypellus, lora, antennal cavities, black. Pronoutm black with posterior margin yellow. Scutellum black, caudal and lateral margin beyond impressed line dark ochraceous. Forewings chocolate brown with claval veins, claval sutures and some veins of corium dark ochraceous. Legs pale fuscous.

Male genitalia. Pygofer with posterior margin with two-thirds of superior portion truncate, remaining third rounded; caudodorsal margin with C-shaped mesal process; caudo-ventral margin rounded, ventral margin rounded at anterior end then excavated. Aedeagus ventral process as long as dorsal apodeme and atrium, with three prong-like apical prolongations, lateral margin serrate; shaft curved dorsally, tubular, with lateral denticle asymmetrically placed about midlength (Fig. 462), gonopore apical, with lateral short processes. Anal collar without processes.

Measurements. Male 4.7 mm long, 1.4 mm wide across eyes.

Material examined. INDONESIA: HOLOTYPE ♂, Sumatra: Volc. Sinabung, 1800–2000m, 9.vi.1990, I. Dworakowska (UASB).

Remarks. *J. sumatrana* resembles *J. javana* but differs in the structure of the pygofer process and aedeagus.

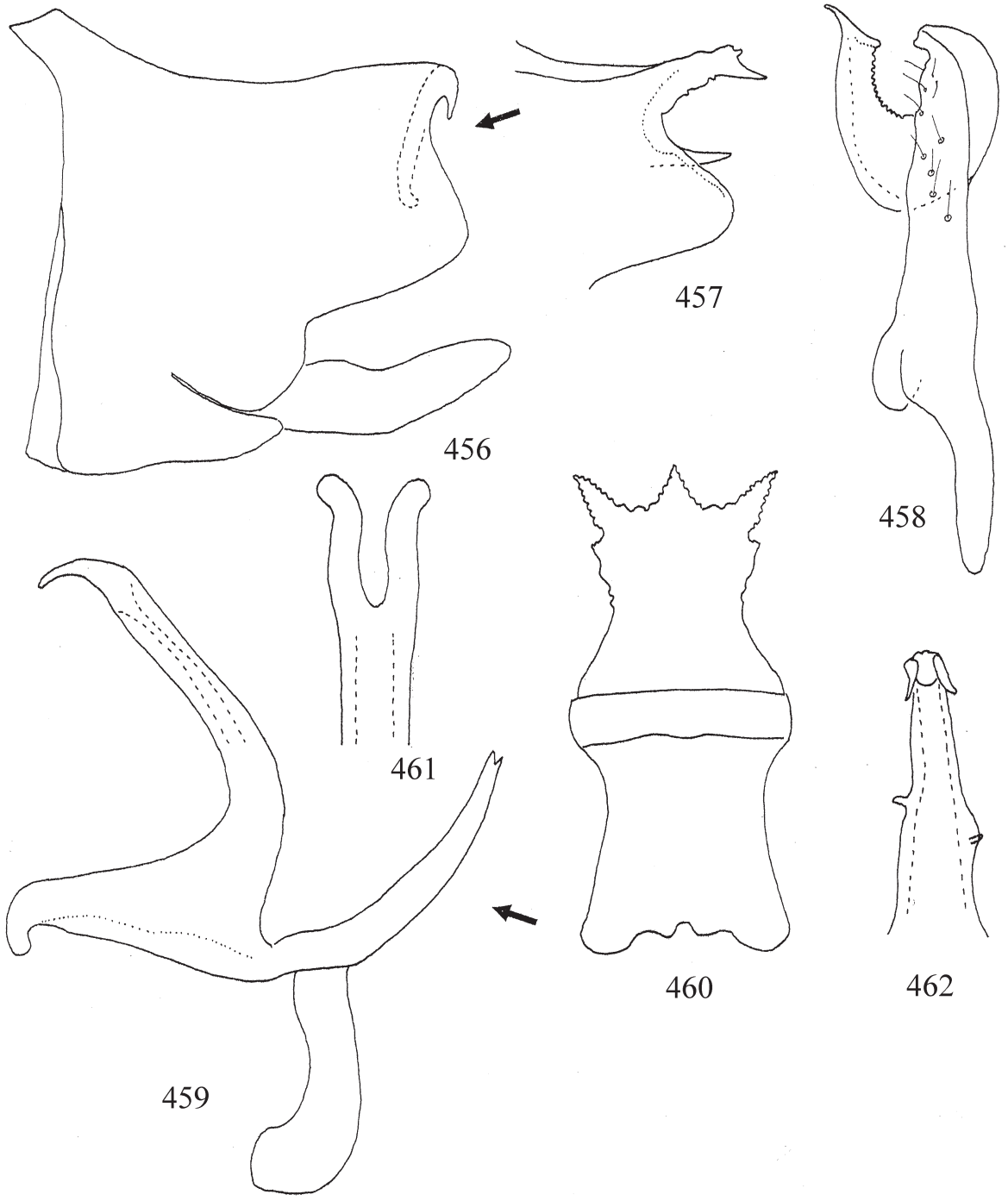


FIGURES 451–455. Male genitalia *of Japanagallia pteridis* (Matsumura): 451. Genital capsule; 452. Style, dorsal view; 453. Connective and aedeagus, anterodorsal view; 454. Aedeagus, lateral view; 455. Aedeagus, showing basal processes of shaft.

Japanagallia tappana (Matsumura)

Figs 463–465.

Agallia tappana Matsumura 1912:313. SYNTYPE ♂, TAIWAN [EIHU, examined]
Japanagallia tappana (Matsumura): Viraktamath, 1973: 310–311, figs 8–11.



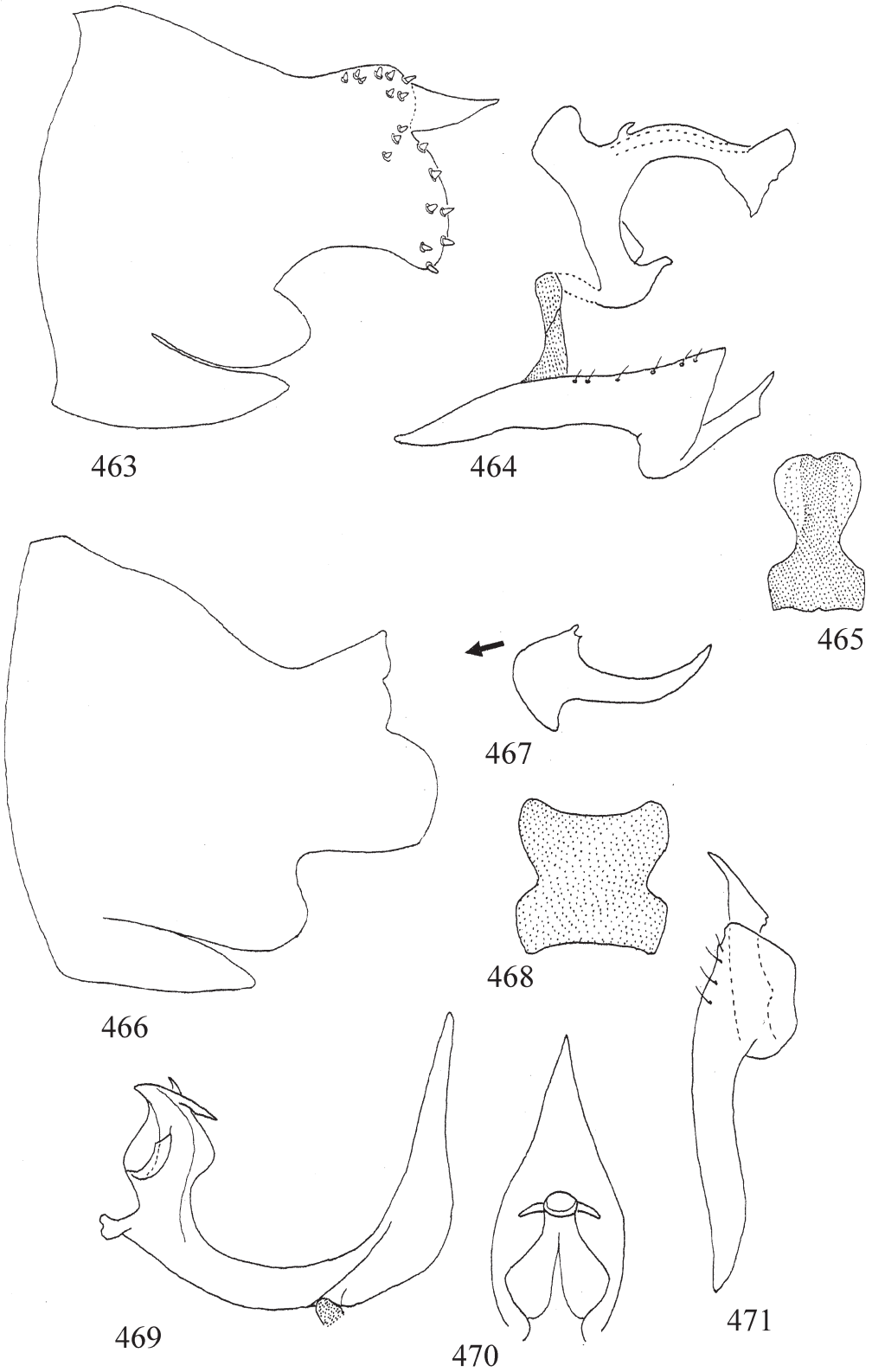
FIGURES 456–462. Male genitalia *of Japanagallia sumatrana* **sp. nov.**: 456. Pygofer and subgenital plate, lateral view; 457. Pygofer process posterior view in the direction of arrow in Fig. 456; 458. Style, dorsal view; 459. Connective and aedeagus, lateral view; 460. Connective and ventral process of aedeagus as seen in the direction of arrow in Fig. 459; 461. Apex of aedeagal shaft; 462. Aedeagal shaft, posterior view.

Color. Coloration as described by Matsumura (1912).

Male genitalia. Pygofer as in *pteridis*, with sharp caudodorsal blade-like process, caudal area with short, stout, conical setae. Aedeagus L-shaped in lateral view, preatrium well developed with pair of plate-like processes borne on caudal margin ventrocaudal region produced to short curved horn, shaft compressed, apex broad, caudoventrally curved, with pair of hooks at basal region on dorsal margin. Anal tube elongate with strap-like anterior collar.

Material examined. TAIWAN: SYNTYPES 2 ♂, "Formosa, Matsumura, Tappan, 24.iv.1907, *Agallia tappana* n. sp., Det. Matsumura" (EIHU). Additional material: TAIWAN: 2 ♂, 1 ♀, Fenchuihu, Chiayi Hsien, 1370 m, 10–12.iv.1965, C.M. Yoshimoto and B.D. Perkins Collectors (BPBM).

Remarks. *J. tappana* resembles *J. pteridis* but differs from the latter in the aedeagus by the laterally compressed shaft with broad apex, strongly developed preatrium with pair of plate-like processes and caudoventral horn of the preatrium.



FIGURES 463–471. Male genitalia of species of *Japanagallia*: 463–465. *Japanagallia tappana* (Matsumura): 463. Pygofer, lateral view; 464. Style, connective and aedeagus, lateral view; 465. Connective; 466–471. *Japanagallia yoshimotoi* **sp. nov.**: 466. Pygofer, lateral view; 467. Pygofer process as seen in the direction arrow in Fig. 466; 468. Connective, anterodorsal view; 469. Aedeagus, lateral view; 470. Aedeagus anterodorsal view; 471. Style, lateral view.

***Japanagallia yoshimotoi* sp. nov.**
Figs 466–471.

Color. Dark brown with black areas. Facial coloration as in *J. curvata*. Pronotum black except for ochraceous lateral and caudal margins. Scutellum black, two lateral spots yellowish white. Forewing cells, thoracic pleura and legs fuscous to black, venation paler.

Male genitalia. Pygofer caudally sinuate, dorsocaudal margin mesally curved and produced into horn-like process. Connective about as long as broad, black pigmented. Aedeagus very broadly U-shaped, preatrial process triangular, longer than aedeagal shaft, caudally directed, apically pointed, aedeagal shaft short, stout, with two lateral, one dorsal and one ventral lamellate expansions and with prepical pair of short ventrally directed processes, gonopore apical.

Measurements. Male 5.06 –5.16 mm long, 1.57 mm wide across eyes.

Material examined. TAIWAN: HOLOTYPE ♂, Kwatzeling: Tainan: Hsien, 250 m, 6–7.iv.1965, C.M. Yoshimoto (BPBM). PARATYPE: 1 ♂, Alishan: Chiyai: Hsien, 2270 m, 8–9.iv.1965, Malaise trap, C.M. Yoshimoto (BPBM).

Remarks. *J. yoshimotoi* resembles *J. curvata* and *J. javana* from which it differs in having lamellate expansions on the aedeagal shaft in the form of ridges, and in the shape of the pygofer.

Genus *Nandigallia* nov.

Type-species: *Nandigallia nandiensis* **sp. nov.**

Morphology. Macropterous or brachypterous. Head slightly longer in middle than next to eyes, wider than pronoutm. Ocelli closer to each other than to adjacent eyes, on upper part of face, often visible from above. Face wider than long, transclypeal sulcus incomplete, gena sinuate below eyes, clypellus exceeding genal curve. Pronotum, flat, either smooth or with transverse rugae, hind margin straight. Scutellum shorter than pronotum. Forewings with three anteapical and four apical cells, inner anteapical cell closed behind and often subdivided (Figs 473, 487), claval veins separate. Fore femur intercalary setae arranged in arcuate row, two seate of row AV stout and elongate (Fig. 31). Hind tibial macrosetae PD 8±1, AD 7±1, AV 6±1; PV with capitate setae but with a few stout setae alternated with 2–4 slender, smaller setae as in *Hemagallia*. Hind basitarsus with two platellae on distal transverse row.

Male genitalia. Pygofer rounded caudally without processes. Subgenital plates as in *Hemagallia*. Styles short, broad, with broad inner arm, longer than outer arm. Aedeagus with well developed dorsal apodeme and preatrium, shaft with apical or subapical, short processes, gonopore apical. Anal collar process well developed.

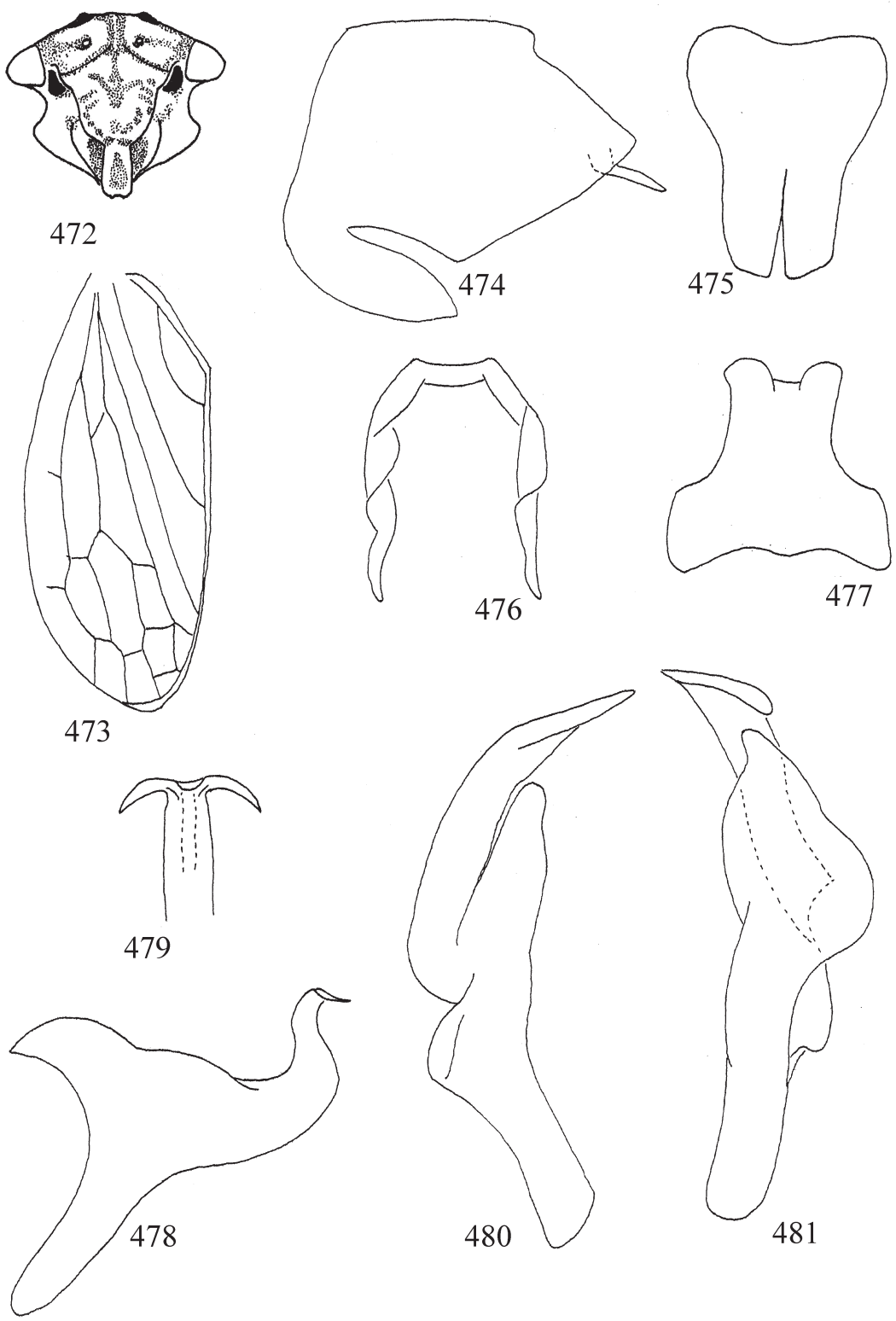
Female genitalia. First pair of valvulae arcuate, sculptured area occupying more than half length, sculpture constisting of irregularly arranged oval alveolii, subapical in midsection (Figs 80, 81). Second pair of valvulae arcuate, with denticular area confined to distal 0.25 length, teeth simple, ventroapical area crenulate (Fig. 83).

Remarks. This genus closely resembles *Hemagallia* but differs in the structure of the aedeagus and styles. Both genera have a rather long inner arm of the style which is slightly broadened in *Hemagallia*, whereas it is much broader and lamellate in *Nandigallia.* In the two species of *Hemagallia*, the aedeagus is more or less uniform without a preatrium, whereas in *Nandigallia*, it is swollen basally with its narrowed apex having a short apical processes and the preatrium is well developed though short. In some respects *Nandigallia* also resembles the New World *Bergallia* Oman but differs in not having a spine like projection on the caudal lobe of the pygofer.

Key to species of *Nandigallia* gen. nov.

1. Anal collar twisted, finger-like (Fig. 476); inner arm of male style more or less uniform in length with broad apex (Figs 480, 481); aedeagus with pair of apical finger-like processes (Figs 478, 479) (India: West Bengal; China: Fukien) . . . . . *Nandigallia matai* **sp. nov.**
- Anal collar not twisted, with apical 0.33 bent at right angles (Fig. 488); inner arm of styles lamellate, broad with two lateral and one mesal denticles (Figs 492, 493); apical 0.33 of aedeagal shaft laterally flattened with one pair of preapical denticles (Figs 490, 491) (India: Karnataka) . . . . . *Nandigallia nandiensis* **sp. nov.**

***Nandigallia matai* sp. nov.**
Figs 472–481.



FIGURES 472–481. *Nandigallia matai* **sp. nov.**: 472. Face; 473. Forewing venation; 474. Male pygofer, lateral view; 475. Valve and subgenital plate, ventral view; 476. Anal collar process, dorsal view; 477. Connective, anterodorsal view; 478. Aedeagus, lateral view; 479. Apex of shaft, posterior view; 480. Style, dorsal view 481. Style, lateral view.

Color. Ochraceous. Two spots on vertex, antennal cavities, anterior portions of pronotum, most of scutellum, facial sulci, claval cells and veins of corium, fuscous. Median stripe on vertex continuing on face, brownish. Legs ochra-

ceous but annulated with brown. Abdomen ochraceous. Claval veins, anterior portions of claval suture and parts of vein M stamineous; cells of corium hyaline.

Morphology. Small robust species. Vertex longer medially than next to eyes with two tubercles closer to eyes than to each other. Clypellus more or less parallel sided, apically slightly emarginated. Lateral arms of epicranial sulcus evident below ocelli. Face, vertex, pronotum, scutellum and forewings coarsely granulated. Pronotal disc nearly flat, anterior margin convex, posterior almost straight, with transverse shallow depression, lateral areas of depression transformed into shallow cavities. Scutellum transversely impressed in middle and with two shallow rounded depressions anterior to impressed line. Forewings with prominent venation and sparsely clothed with fine seta. Hind wings shorter than forewings. Sternal apodemes at base of abdomen well developed and sclerotized.

Male genitalia. Subgenital plates quadrate fused basally, inner margins straight, outer margins curved caudally. Styles twisted caudally, outer arm stout, shorter than inner arm. Connective flat, broader proximally, abruptly narrowed about 0.33 caudally, distal margin strongly sinuate, anterior margin concave. Aedeagus with preatrium strongly developed, longer than dorsal apodeme, shaft bulbous at base, curved dorsad narrowed distally, terminated by one pair of short curved processes on either side of apical gonopore. Anal collar process twisted, with finger-like process, surface uneven.

Measurements. Male 3.3 mm long, 1.4 mm wide across eyes.

Material examined. S. CHINA: HOLOTYPE ♂, Fukien: Kienyang city, 9.vii.1940, T.C. Ma (BPBM). Paratype: 1 ♂, INDIA: West Bengal: Siliguri, 31.x.1981, S. Viraktamath (UASB).

Remarks. *N. matai* closely resembles *N. nandiensis* **sp. nov.** (see below) but differs in the structure of the male genitalia as given in the key. The twisted anal collar process is a unique character of this species.

***Nandigallia nandiensis* sp. nov.**

Figs 31, 80–83, 482–495, 572, 573, 586, 587, 601, 602 .

Macropterous form (Figs 573, 587, 602) (*color*). Ochraceous. Two oval spots on vertex, central stripe extending on to face and laterally divergent below ocelli, dark brown to black. Inner marginal band to eye, median stripe on frontoclypeus, clypellus, dark brown; frontal sulci antennal cavities, submarginal spots on frontoclypeus, black. Ocelli surrounded by red. Pronotum with two irregular spots anteriorly, two transverse lines caudolateral to them black; median stripe, two large lateral spots coalescing on posterior half of pronotum leaving two discal pale triangular areas, dark brown. A triangle in each basal angle of scutellum, pair of rounded central spots, black; posterior half of scutellum either with median brownish stripe with pale lateral margins or entirely paler. Forewings except clavus hyaline with brown veins; two inner apical cells often brownish; basal half of claval suture including outer claval vein white, margined irregularly with brown or black. Thoracic pleura black. In some males tip of male subgenital plates balck. Hind marign of female seventh sternite brownish in middle.

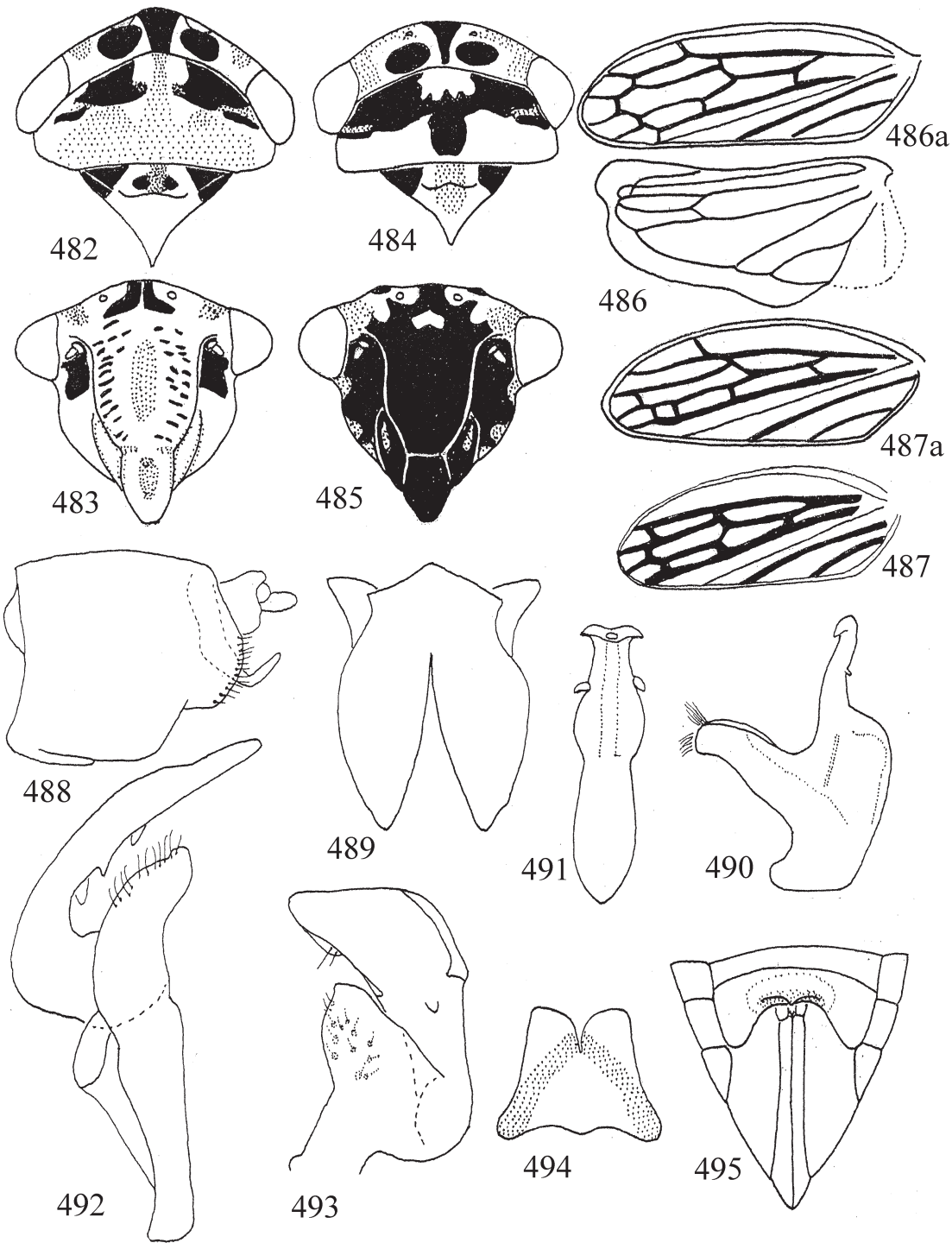
Morphology. Vertex distinctly longer in middle than next to eyes, more than 3.75 times wider than long. Frontoclypeus evenly rounded in profile, clypellus slightly broader at base. Forewings and hind wings well developed (Fig. 486). Sternal apodemes at base of abdomen well developed.

Brachypterous form (Figs 572, 586, 601) (*color*). Ochraceous, with more pronounced variable black markings but basic pattern as in Figs 484, 485. Face either entirely black or ochraceous with median inverted Y-shaped stripe (stem of Y lacking in a few specimens), submarginal dashes on frontoclypeus, antennal sockets, black. Forewings hyaline with claval and inner longitudinal veins brownish, in some specimens entire clavus, radius and cubitus blackish with claval suture and outer margin of wing broadly hyaline. Abdominal segments darker than in macropterous form. Apex of male subgenital plates black. Lateral margin of terga of female black.

Morphology. Vertex longer than in macropterous form, almost as long as inter-ocular distance; about 3 times as wide as long. Pronotum flat slightly more than twice as long as wide, anterior margin not as convex as in macropterous form. Forewing venation variable (Fig. 487). Hind wings reduced to short lobes.

Male genitalia. Caudal lobe of pygofer rounded. Subgenital plates partly fused basally. Styles with laminate inner arm having two outer (on either side), one median tooth. Connective broad at base, bilobed apically. Aedeagus with basal 0.66 compressed, apical 0.33 laterally flattened with apical lateral projections and one denticle on each lateral margin about midlength placed asymmetrically, preatrium and dorsal apodeme well developed, gonopore apical. Apical 0.33 of anal collar bent at right angles.

Female genitalia. Hind margin of seventh sternite deeply concave with median pointed carina; eighth sternite visible.



FIGURES 482–495. *Nandigallia nandiensis* **sp. nov.**: 482, 483 Head and thorax, and face, respectively, macropterous form; 484, 485. Head and thorax, and face, respectively, brachypterous form; 486. Hind wing venation, macropterous form; 486a. Forewing venation, macropterous form; 487–487a. variation in forewing venation, brachypterous forms; 488. Male pygofer, lateral view; 489. Subgenital plates, ventral view; 490. Aedeagus, lateral view; 491. Aedeagus, posterior view; 492. Style, dorsal view; 493. Inner arm of style, broad aspect. 494. Connective, anterodorsal view; 495. Apical portion of female abdomen, ventral view.

Nymph. Ochraceous, one pair of black spots on vertex, face with submarginal freckles to frontoclypeus, area above antennal base and sutures of face brown. One pair of median longitudinal stripes running all along body on either side of pale median line, two lateral stripes on thorax and abdomen, chocolate brown. Wing pads with chocolate brown lines. Legs ochraceous with black claws. Vertex produced in front of eyes, ocellar cavities visible in

dorsal aspect. Eyes projecting out, pronotum short, broad, with transverse median impressed line. Abdominal terga with median longitudinal ridge. Head, pronotum, wing pads and abdomen covered with long setae.

Measurements. Brachypterous form: male 2.5–2.8 mm long, 1.15–1.20 mm wide across eyes. Female 2.7 mm long, 1.25–1.30 mm wide across hind margin of eyes. Macropterous form: male 3.0 mm long, 1.20–1.25 mm wide across eyes. Female 3.2 mm long, 1.25–1.30 mm wide across eyes.

Material examined. INDIA: Karnataka: HOLOTYPE ♂, Nandi Hills, 1425 m, 19.xii.1974, ex *Achyranthes aspera* Linn. C.A. Viraktamath (UASB). PRATYPES: 14 ♂, 6 ♀, same data as holotype except 30.xi.1974 (2 ♂, 2 ♀), 18.xii. 1974 (5 ♂, 2 ♀), 27.vii.1975 (7 ♂, 2 ♀) (BMNH, NMNH, ZSI, UASB, NPC). Additional material: numerous male and females collected during 1974 (UASB), nymphs same data as holotype except collected by S. Viraktamath (UASB).

Remarks. This species occurs in two forms. The macropterous form (November–December) is more robust, larger and darker and has fully developed hind wings. The brachypterous form (July collections) has lobe-like short hind wings, incapable of flight. The species breeds on *Achyranthes aspera* L. (Amaranthaceae) on Nandi Hills.

N. nandiensis resembles *N. matai* from which it differs in the structure of the male genitalia especially in the structure of the anal collar process and aedeagus. The illustration of *Agallia campbelli* Distant by Distant (1916: 230, Fig. 168) refers to the macropterous female of this species.

Genus *Onukigallia* Ishihara

Onukigallia Ishihara 1955: 215, 217. Type-species: *Agallia onukii* Matsumura, by original designation.

Morphology. Vertex distinctly narrower in middle than next to eyes, not sinuately produced behind eyes. Ocelli closer to eyes than to each other. Pronotum with distinct punctures. Veins especially those on clavus conspicuously elevated, distinct, inner claval vein strongly curved, three anteapical and four apical cells, inner anteapical cell either closed or open behind. Forefemora with intercalary setae forming an arcuate row, row AV with one stout long seta in proximal half. Hind femoral macrosetae 2+1; hind tibial macrosetae PD 10±2, AD 8±1, AV8±1; hind basitarsus with two platellae on distal transverse row.

Male genitalia. Pygofer simple, often with filamentous setae on lateral surface. Subgenital plates covered with long filamentous setae on both upper and lower surface in addition to ventral uniseriate stout setae. Styles with inner arm longer than outer arm, with subapical tooth. Connective broadest in middle, strongly narrowed caudally, longer than broad. Aedeagus long, recurved, without processes; preatrium and dorsal apodeme often well developed. Anal collar process well developed.

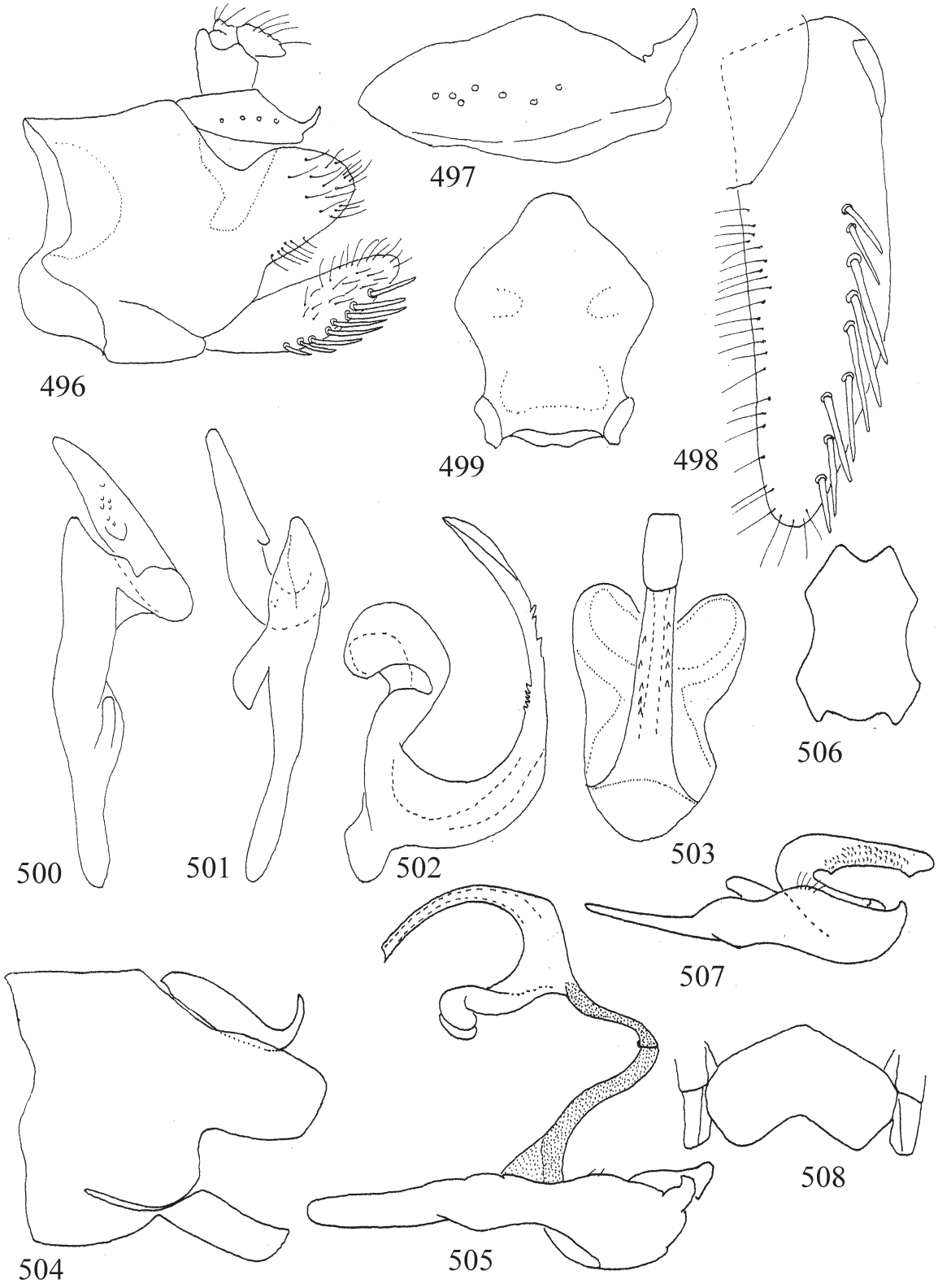
Remarks. *Onukigallia* closely resembles *Agallia* as both share stout setae on the male subgenital plates. However, the former differs from the latter in having hair-like setae on the male pygofer and subgenital plates and in the structure of the aedegus and subgenital plates. It also closely resembles *Formallia* from which it differs in possessing setae both dorsally and ventrally on the subgenital plates and also in the shape of the caudal lobe of the male pygofer.

Distribution. China, Japan and Taiwan

Key to species of *Onukigallia* Ishihara

(*Onukigallia tenuis* is not included in the key as the males are not known)

1. Preatrium of aedeagus elongate, anal collar gradually attenuated and hook-like; pronotum darkly pigmented (Taiwan) ..... *O. arisana* (Matsumura)
- Preatrium of aedeagus short and poorly developed; pronotum paler 2
2. Aedeagal shaft narrow, of uniform width at base in lateral aspect, shaft serrated, without lateral keel (Figs 502, 503) (China, Japan) ..... *O. onukii* (Matsumura)
- Aedeagal shaft thicker at base, shaft smooth, with lateral keel (China) ..... *O. fanjingensis* Zhang & Li



FIGURES 496–508. Species of *Onukigallia*: 496–503. *Onukigallia onukii* (Matsumura): 496. Male genital capsule, lateral view; 497. Anal collar process, lateral view; 498. Subgenital plate, ventral view; 499. Connective, anterodorsal view; 500. Style, lateral view 501. Style, dorsal view; 502. Aedeagus, lateral view; 503. Aedeagus, posterior view; 504–508. *Onukigallia arisana* (Matsumura): 504. Male genital capsule, lateral view; 505. Style, connective and aedeagus, lateral view; 506. Connective; 507. Style, dorsal view; 508. Female seventh sternite.

***Onukigallia arisana* (Matsumura)**
Figs 504–508

Agallia arisana Matsumura 1912: 134. SYNTYPES ♂,♀, TAIWAN [EIHU, examined]
Onukigallia arisana Matsumura: Viraktamath 1973: 311, figs 12–16.

Male genitalia. Pygofer lobe rather rectangular, with caudal margin truncate. Subgenital plates triangular covered with filamentous and stout setae. Connective with concave lateral and caudal margins. Aedeagus with well developed preatrium and dorsal apodeme, shaft curved, tubular, without teeth or spicules; gonopore apical. Anal collar with dorsally directed hook.

Female genitalia. Hind margin of seventh sternite deeply excavated in the form of V.

Material examined. TAIWAN: SYNTYPES: 1 ♂, 3 ♀, "Formosa, Matsumura, 13.x.1906, *Agallia arisana* n. sp. det. Matsumura, type Matsumura" (EIHU). Additional material: TAIWAN: 4 ♂, 1 ♀, Arisan, 2130m, 23.viii.1947, L. and M. Gressitt, Coll. (BMNH).

Remarks. *O. arisana* can easily be distinguished from other species of *Onukigallia* by the more slender anal collar process, elongate preatrial process and aedeagus lacking any tooth on the shaft.

***Onukigallia fanjingensis* Zhang & Li**

Onukigallia fanjingensis Zhang and Li, 1999: 108, figs.7–15. HOLOTYPE ♂, CHINA [not examined].

Remarks. This species was not studied. However, the illustrations provided by Zhang and Li (1999) are good enough to determine this species. It closely resembles *O. onukii* from which it differs in having much stouter base of aedeagal shaft with lateral keel near basal half.

***Onukigallia onukii* (Matsumura)**
Figs 496–503

Agallia onukii Matsumura 1912: 315. SYNTYPE ♂, ♀, JAPAN [EIHU, not examined)
Onukigallia onukii (Matsumura): Ishihara 1955: 216, 218, fig. 1, 3, fig. 2, 2.

Male genitalia. Pygofer caudally rounded, with hair-like setae. Subgenital plates elongate, caudally rounded, with marginal row of stout setae and scattered hair-like setae. Aedeagus with well developed dorsal apodeme and short preatrium, shaft broad at base, strongly curved dorsally, with series of denticles in middle of shaft, in caudal view appearing spatulate near apex, gonopore subapical. Anal collar process well developed, with punctures and caudal finger-like process.

Material examined. JAPAN: 1 ♀, Hokkaido, Jozanke (near Sapporo), 7.viii.1952, P.W. Oman (NMNH); 2 ♂, Kamikochi, 3.viii.1931, J.L. Buys (NMNH); 1 ♀, Okistu, vii. 1913, F. Muir (BPBM); 2 ♂, 1 ♀, Hokkaido Is. Y. Andolu; 1 ♀, Hongda, Jeonnam Prov. Kora, 11.vii.1981, V.J. Kown (BMNH).

Remarks. In addition to its similarity to *O. fanjingensis* (see remarks under that species) this species also resembles *O. arisiana* but can be differentiated by the coloration of the thorax and structure of the aedeagus.

***Onukigallia tenuis* (Matsumura)**

Agallia tenuis Matsumura 1912: 315. TYPE ♀, TAIWAN [EIHU, examined].
Onukigallia tenuis (Matsumura): Viraktamath 1973: 311.

Female genitalia. Hind margin of seventh sternite slightly concave in the middle.

Material examined. TAIWAN: TYPE ♀, "Formosa, Matsumura, 13.x.1906, Arisan, *Agallia tenuis* n. sp. det. Matsumura" (EIHU).

Remarks. *O. tenuis* differs from *O. arisana* in having paler colored pronotum and shallowly concave seventh sternite of the female. It is known only from the type.

Genus *Paulagallia* nov.

Type-species: *Paulagallia punctata* **sp. nov.**

Morphology. Robust, rather cylindrical leafhoppers. Pronotum scutellum and anterior half of forewings with coarse circular pits (Figs 10, 20). Vertex very short, evenly curved, hind margin carinate, upturned, either narrower than or as wide as pronotum; Face dorsad of an ill defined inverted V-shaped ridge, striated. Face including eyes longer than wide. Ocelli closer to eyes than to each other. Lora very narrow, elongate, tumid, mesal margin of gena tumid. Clypeus narrow and almost parallel sided (Fig. 11). Pronotum, arcuate, usually longer than median length of scutellum. Forewings with cross veins between inner and outer claval veins and claval suture; cell M of forewings with varying number of m-cu cross veins dividing inner anteapical cell (Fig. 20). Forefemur with intercalary row of setae form arcuate row, setae on row AV not thickened (Fig. 32). Hind femoral macrosetae 2+1; hind tibial macrosetae PD 8±1, AD 8±1, AV 8±1; hind basitarsus with two platellae on distal transverse row.

Male genitalia. Pygofer deeply excavated on dorsal marginal, without processes, with stout and fine setae on caudal submargin. Subgenital plates elongate with macrosetae. Styles robust, short, inner arm caudally rounded, slightly longer than outer arm. Connective about as long as wide, broad basally with anterior rounded, slightly bilobed caudal margin. Aedeagus V-shaped, without elongate processes, symmetrical, dorsal apodeme well developed about as long as shaft. Anal collar process well developed.

Female genitalia. First pair of valvulae with sculptured area on distal 0.66 length, sculpture submarginal in mid section, alveolate, alveoli closely packed forming oblique rows, dorsal and ventral one or two rows horizontal (Figs 84, 85). Second pair of valvulae with basal prominent tubercle, toothed area occupying distal 0.40, with median triangular projection, teeth smooth prominent, ventroapical area crenulated (Figs 86–87).

Remarks. *Paulagallia* resembles *Sangeeta* **gen. nov.** (see below), but differs in the following respects: coarse circular pits on the pronotum, scutellum and basal half of forewings; head either as wide as or slightly narrower than the pronotum, lora long, linear and tumid, and forewings with accessory cross veins in anteapical cells and one cross vein between claval veins. The genus is named in honour of late Dr. Paul Wilson Oman, Oregon State University, Corvallis, Oregon.

Key to species of *Paulagallia* gen. nov.

1. Forewings with claval cross vein placed about middle of inner claval vein (Fig. 524); aedeagal shaft short, stout and with ridges and two lateral subapical tooth-like processes (Fig. 522) . . . . . *P. maai* **sp. nov.**
- Forwings with claval cross vein placed near apex of inner claval vein (Fig. 519); aedeagal shaft lacking ridges and tooth-like processes (Figs 516, 517) . . . . . *P. punctata* **sp. nov.**

Paulagallia maai sp. nov.

Figs 520–524.

Color. Yellowish brown. Frontoclypeus, clypellus, genae, lora, median and two ill defined lateral stripes on pronotum, median stripe on scutellum and forewing cells, brown. Antennal pits, marginal bands on clypellus, mesal margin of ocelli, inverted V across antennal ledges, eyes, two triangles at basal angels of scutellum pro and mesothoracic pleura, fuscous. One spot behind mesal angles of each eye on vertex and two specks on hind margin of pronotum black. Forewing veins yellow.

Morphology. Head slightly wider than pronotum. Pronotum medially shorter than median length of scutellum, pits on pronotum, scutellum, basal half of forewings smaller compared to those on *P. punctata*. Claval cross veins joining outer and inner claval veins at about midlength.

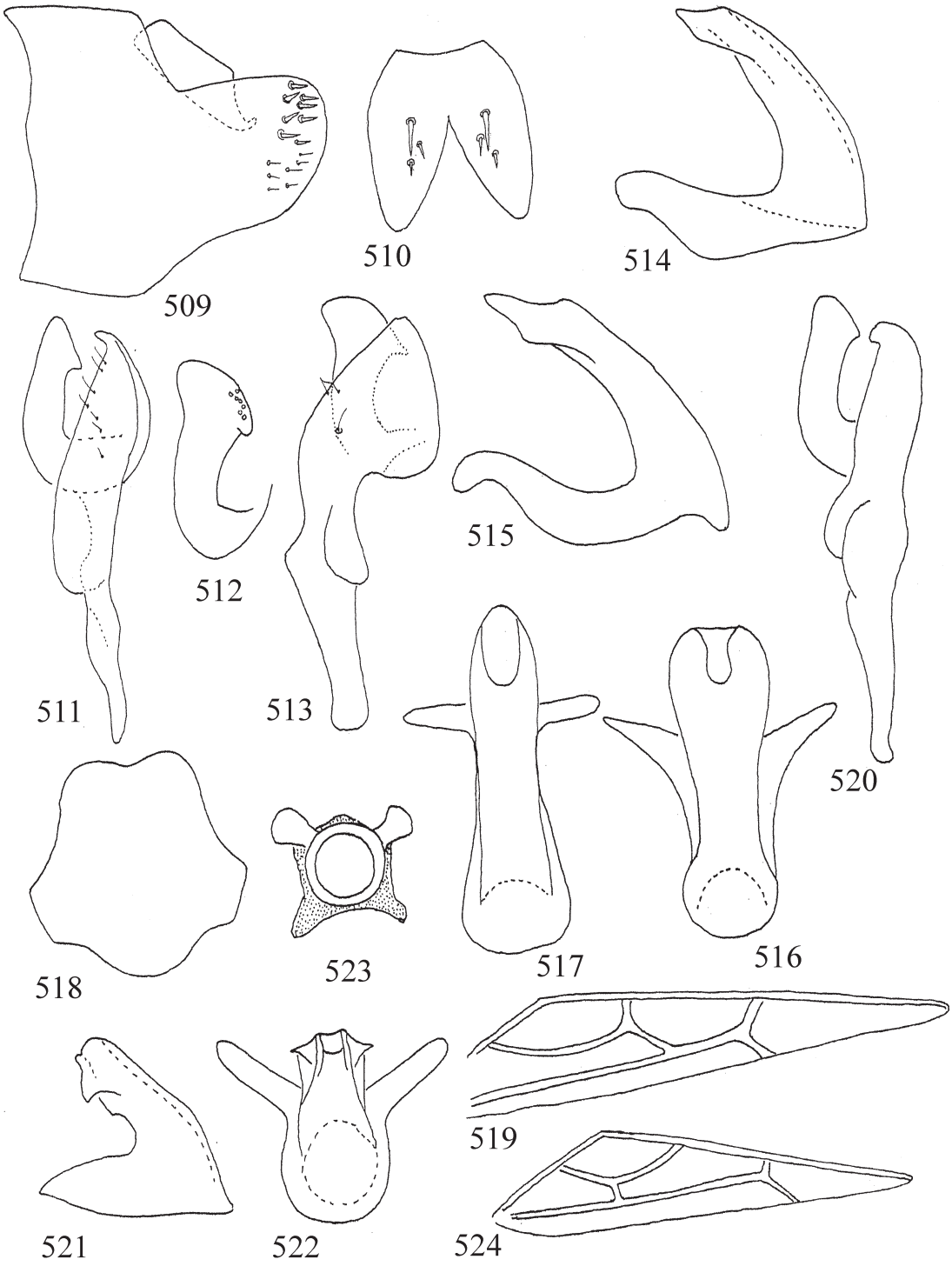
Male genitalia. Pygofer caudally rounded. Aedeagus with dorsal apodeme V-shaped in lateral view, aedeagal shaft robust, short, with two ridges on dorsal margin and with two lateral teeth near apex, gonopore round, apical. Tenth segment membranous.

Female. Unknown.

Measurement. Male 4.8 mm long, 1.4 mm wide across eyes.

Material examined. EAST MALAYSIA (N. Borneo): Sabah: HOLOTYPE ♂, Tenompok, 10–14.ii.1959, T.C. Maa (BPBM).

Remarks. *P. maai* closely resembles *P. punctata* but differs in having comparatively smaller pits on the pronotum, scutellum and basal half of forewings, two fuscous triangles at the basal angels of the scutellum, position of claval cross veins and robust and short aedeagus. It is named after its collector Dr. T.C. Maa.



FIGURES 509–524. Species of *Paulagallia* **gen. nov.**: 509–519. *Paulagallia punctata* **sp. nov.**: 509. Male pygofer, lateral view; 510. Subgenital plates, ventral view; 511. Style, dorsal view, 512. Inner arm of style; 513. Style, lateral view; 514, 515. Aedeagus, lateral view, variations; 516, 517. Aedeagus, posterior view, variations; 518. Connective; 519. Forewing clavus; 520–524. *Paulagallia maai* **sp. nov.**: 520. Style, dorsal view; 521. Aedeagus, lateral view; 522. Aedeagus, posterior view; 533. Apex of aedeagal shaft showing ridges; 524. Forewing clavus.

***Paulagallia punctata* sp. nov.**
Figs 10, 11, 20, 32, 88–91, 509–519, 574, 588, 603.

Male (color). Dark brown. Lower half of face excluding outer margin of gena, band across ocelli extending laterad, two spots closer to each other than to eyes and median stripe on upper part of face, dark brown. Face ventrad of ocelli, outer margin of gena, reddish brown. Ocelli red. Pronotum, scutellum and forewings fuscous. Scattered areas on pronotum, two spots at base, two lateral and apical spots on scutellum, forewing veins, apical cells, brownish yellow. Pronotal and scutellar margins tinged with red. Legs marked with fuscous areas, hind tibial spines brownish yellow.

Female (color). Face reddish-brown with varying degrees of dark shade; median and two anterior spots below ocelli, upper part of face, yellow. Four small spots on hind margin of vertex fuscous. Pronotum light brown, with two basal, two lateral apical yellow spots. Forewings brownish with veins whitish yellow.

Morphology. Head slightly narrower than pronotum. Pronotum longer than scutellum. Pits on pronotum, scutellum and basal half of forewings, circular and prominent. Claval cross vein arising at apex of inner claval vein joining outer claval vein at 0.75 of length.

Male genitalia. Pygofer dorsally excavated, caudally rounded. Connective shield shaped, about as long as broad. Aedeagus with well developed dorsal apodeme, shaft in cephalic view laterally rounded, gonopore large. Tenth segment membranous.

Female genitalia. Caudal margin of seventh sternite truncate. Mesal margin of pygofer with row of spines.

Measurements. Male 5.4–5.8 mm long, 1.5 mm wide across eyes. Female 5.7–5.8 mm long, 1.6 mm wide across eyes.

Material examined. EAST MALAYSIA (N. Borneo): Sabah: HOLOTYPE ♂, Mt Kinabalu, 2.xi.1958, Faunula bamboo hut, lot No. 4. T.C. Mss (BPBM). PARATYPES 4 ♀, Tenompok, 3.xi.1958, T.C. Maa (BPBM); 1 ♂, same locality but collected on 10–14.ii. 1959, T.C.Maa (BPBM). 1 ♀, Sabah: North Borneo: Mt Kinabalu, c 5000 ft, 20–21.vi.1976, stream side forest trail, nr Park H.Q., C.S. NG Collection (UASB).

Remarks. One male from Tenompok is paler and has the aedeagal shaft gradually broadened apically and styles slender with inner arm comparatively longer than the outer arm (Figs 511, 515, 517). These differences appear to be within the range of variation for the species.

Genus *Sangeeta* nov.

Type-species: *Sangeeta sadongensis* **sp. nov.**

Color. Pale brown with dark brown to black markings or black with ochraceous areas.

Morphology. Vertex medially short, hind margin carinate. Face longer than broad, lora tumid, frontoclypeus narrow. Face dorsad of inverted V-shaped ridge across antennal ledges above ocelli, striate; striae running parallel to each other and those below ocelli inverted V-shaped, those above ocelli arched (Figs 526, 545). Ocelli closer to each other than to adjacent eyes or as close to each other as to adjacent eye. Pronotum arcuate, anterior half deeply foveately depressed on either side of median ridge, hind margin straight. Forewing venation prominent, veins lighter in color, conspicuously margined by brown, with three anteapical and four apical cells, inner anteapical cell open (Fig. 552) or closed basally (Fig. 21). Forefemur with intercalary setae arranged in arcuate row, setae on row AV not enlarged (Fig. 33). Hind femoral macrosetae 2+1; hind tibial macrosetae PD 13±2, AD 6±1, AV 9±1; hind basitarsus with two platellae on distal transverse row.

Male genitalia. Pygofer with dorsal margin deeply excavated at middle, caudally rounded with number of short, stout, and slender setae. Subgenital plates elongate, with four to six stout setae on ventral surface in one row. Styles with inner arm longer than outer arm. Connective about as long as broad or longer. Aedeagus usually with poorly developed preatrium, dorsal apodeme well developed, bilobed; shaft apically flattened, hood-like, with or without short processes; gonopore subapical. Anal collar well developed, without elaborate processes.

Female genitalia. First pair of valvulae with sculptured area on distal 0.66 length, sculpture submarginal in middle section, alveolate, alveoli closely packed forming long oblique rows (Figs 88, 89). Second pair of valvulae with basal prominent tubercle, toothed area occupying distal 0.33, with median triangular projection, teeth smooth, prominent, ventroapical area crenulate (Figs 90–91).

Remarks. *Sangeeta* resembles *Onukigallia* Ishihara, but differs in having a longer narrower face, inverted V-shaped ridge across the antennal ledges, vertex striate, anterior depressions on the pronotum laterad of the median ridge, dorsally excavated male pygofer and both pygofer and subgenital plates lacking long hair-like setae. It also resembles closely *Paulagallia* in the shape of the face and male genitalia but differs in the lack of circular pits and claval cross veins.

Key to species of *Sangeeta* gen. nov.

1. Uniformly dark brown, with claval areas, large areas on face and costal margin creamy white; preatrium of aedeagus well developed and elongate (Fig. 540) (Indonesia: Java) . . . . . *S. nigra* **sp. nov.**
- Ochraceous with small black spots on head, pronotum and scutellum (Figs 525, 526, 544), forewings uniformly ochraceous, veins margined with brown; aedeagus without elongated preatrium (Fig. 532) 2
2. Aedeagal shaft with pair of subapical horn-like processes on ventral margin close to gonopore (Figs 535, 538) 3
- Aedeagal shaft without such processes (Figs 528, 548) 4
3 Pronotum with median obclavate spot; clypellus black; aedeagal shaft robust with distinct hump bearing pair of horn-like processes (Fig. 535) (Vietnam) . . . . . *S. fyanensis* **sp. nov.**
- Pronotum without median obclavate spot; clypellus pale brown; aedeagal shaft slender with pair of longer horn-like processes on plain area (Fig. 538) (Vietnam) . . . . . *S. linnavuorii* **sp. nov.**
4. Aedeagus with shaft either lobed near apex (Fig 551) or with acute angular projection medially (Figs 528, 529) 5
- Aedeagus neither lobed nor with acute angular projection medially (Figs 533, 555, 561) 6
5. Face with brown submarginal band on frontoclypeus, apex of clypellus black (Fig. 545), pronotum with posterior submarginal band (Fig. 544); aedeagal shaft with four lobes apically (Figs 548, 551) (Indonesia: Sumatra) . . . . . *S. quadriloba* **sp. nov.**
- Face and pronotum without such markings (Figs 525, 526); aedeagal shaft with lateral angular projections medially (Figs 528, 529) (Indonesia: Pahang) . . . . . *S. dentata* **sp. nov.**
6. Aedeagal shaft tubular, of uniform width throughout in cephalic view (Fig.555) (Malaysia: Borneo) . . *S. sadongensis* **sp. nov.**
- Aedeagal shaft apically widened in cephalic view (Figs 533, 561) 7
7. Aedeagal shaft robust, in lateral view wider apically than in middle, in cephalic view lateral expansion broad (Figs 560, 561) (Malaysia: Borneo) . . . . . *S. sarawakensis* **sp. nov.**
- Aedeagal shaft slender in lateral aspect, narrowed in cephalic view, lateral expansion narrow (Figs 532, 533) (Laos) . . . . . *S. dlabolai* **sp. nov.**

***Sangeeta dentata* sp. nov.**
Figs 525–531.

Color. Dark brown, anterior depressions on pronotum black, one spot on either side of median line on vertex (visible in facial view), spot surrounding ocellus, submarginal band to clypeus, entire clypellus, large spot on antennal pit extending along lorum, chocolate brown. Basal triangles of scutellum black, spot on either side of median line anterior to transverse sulcus, lateral marginal spot and pits on clavus chocolate brown.

Morphology. Ocelli closer to each other than to adjacent eye. Clavus with fine punctations in proximal half.

Male genitalia. Pygofer with caudal rounded lobe, ventral margin slightly concavely excavated in middle. Subgenital plates with 3 macrosetae. Styles rather robust. Aedeagal shaft with lateral expansion angularly projected at mid length, median ridge on anterior margin, gonopore apical. Anal collar process ventrocaudally curved.

Female genitalia. Seventh sternite as long as broad, truncate behind.

Measurements. Male 5.0 mm long, 1.5 mm wide across eyes. Female 5.1 mm long, 1.6 mm wide across eyes.

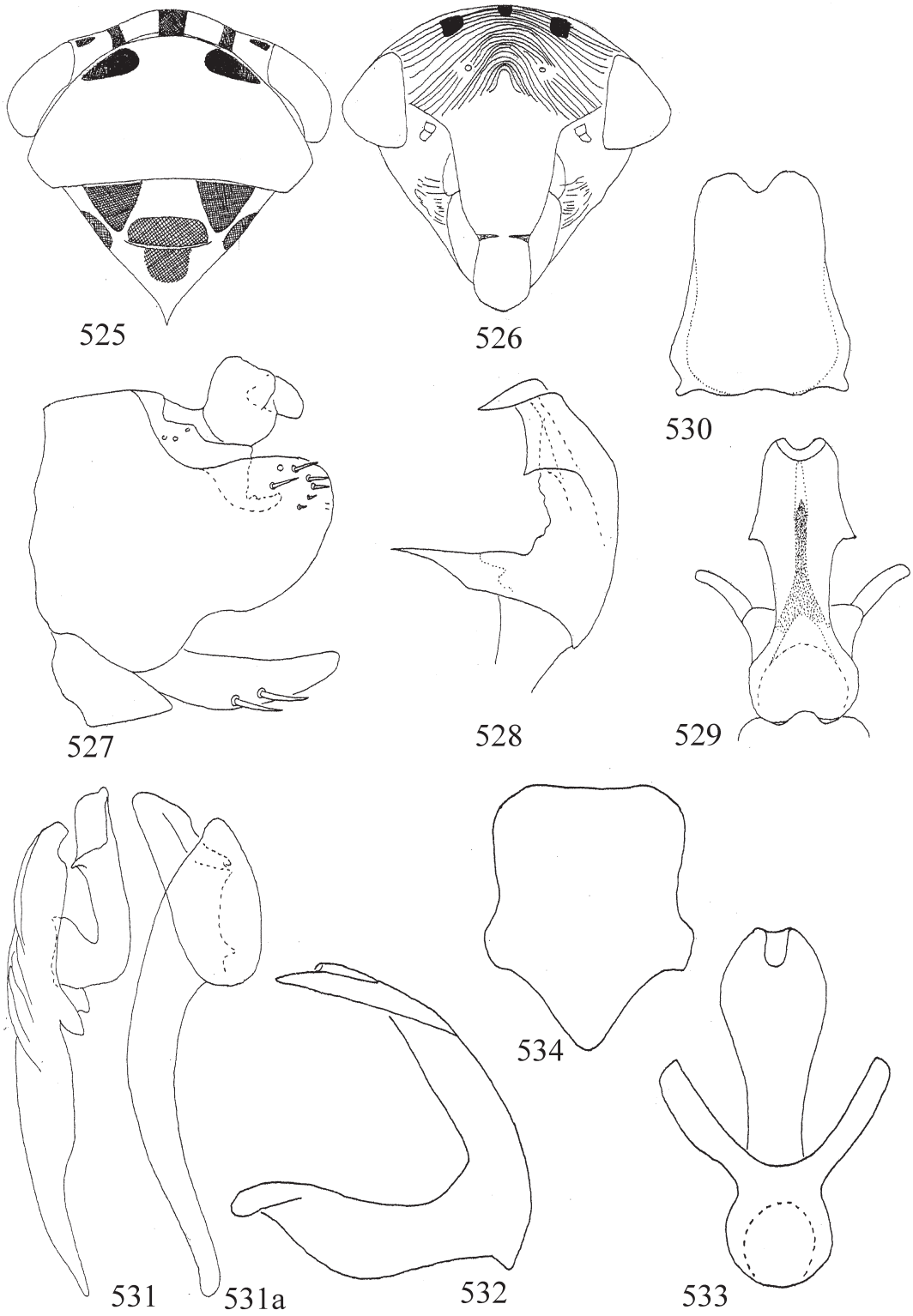
Material examined. INDONESIA: HOLOTYPE ♂, Pahang: F.M.S. Cameron Highlands, Ginting Kial 5200 ft (1578 m), 18.vii.1938, H.M. Pendlebury Coll., F.M.S. Museum, Ex F.M.S. Museum, B.M. 1955-353 (BMNH). Paratype: 1 ♀, same data as holotype (BMNH)

Remarks. This species can be easily recognized by the angular projection on the lateral margins of the aedeagal shaft at midlength.

***Sangeeta dlabolai* sp. nov.**
Figs 532–534

Color. Pale brown. Two spots on vertex closer to eyes than to each other, median stripe extending to tip of inverted V-shaped ridge on face and two larger spots on anterior pronotal depressions, black. Apical half of clypellus, two

submargnal stripes on frontoclypeus, ventral margin of ridge on face, inner margins of ocelli, median narrow stripe on pronotum, large spots with irregular margin on posterior half of pronotum, two triangular spots at basal angels and median stripe on scutellum, fuscous. Abdominal sterna, legs and scutellum, ochraceous.



FIGURES 525–534. Species of *Sangeeta* **gen. nov.**: 525–531. *Sangeeta dentata* **sp. nov.**: 525. Head and thorax; 526. Face showing dorsal striations; 527. Male genital capsule, lateral view; 528. Aedeagus, lateral view; 529. Aedeagus, posteroventral view; 530. Connective, anterodorsal view; 531. Style, dorsal view; 531a. Style, lateral view; 532–534. *Sangeeta dlabolai* **sp. nov.**: 532. Aedeagus, lateral view; 533. Aedeagus, anterior view; 534. Connective, anterodorsal view.

Morphology. Pronotum shorter than scutellum, anterior pronotal depressions shallow.

Male genitalia. Resemble those of *S. sarawakensis* (see below). Subgenital plates elongate, with two stout macrosetae and 6–8 slender but conspicuous setae. Aedeagal shaft in lateral view more slender compared to that in *S. sarawakensis* measuring 0.49 mm in thickness compared to 0.70 mm in the latter; in cephalic view hood-like expansion with smoothly rounded lateral margins.

Measurements. Male 5.4–5.6 mm long, 1.6–1.7 mm wide across eyes.

Material examined. LAOS: HOLOTYPE ♂, Samaboury Prov.: Samaboury, 15.i.1966, Native collector, Randon-Bishop Collection, Malaise Trap (BPBM). PARATYPE: 1 ♂, same data as holotype except 17.ii.1965 (BPBM).

Remarks. *S. dlabolai* closely resembles *S. sarawakensis* (see below) but can be distinguished by the shallow pronotal depressions, color markings on the pronotum and scutellum and by the slender aedeagus. The species is named in honour of Dr Jiri Dlabola, a well-known hemipterist.

***Sangeeta fyanensis* sp. nov.**
Figs 535, 536.

Color. Pale brown. Following areas black: two globose spots on vertex, inner margins of ocelli, antennal pits, frontal sulci, clypellus, anterior marginal band, median obclavate spot, pair of large lateral and two pairs of outer small spots on pronotum, two lateral and small median triangle at base of scutellum. Coloration of other parts as in *S. linnavuoiri* (see below) but much darker.

Morphology. Anterior pronotal depressions shallow, pronotum shorter than scutellum. Inner anteapical cell open basally, third apical cell not stalked posteriorly.

Male genitalia. Resembling that of *S. linnavuorii* (see below). Styles not arcuate, inner arm not as long as in *S. linnavuoirii*. Aedeagal shaft robust with distinct hump bearing pair of short horn-like processes. Width of shaft in lateral view at point of origin of process 0.8 mm, processes appear submarginal and finger-like in dorsal view, apically pointed in lateral view; arms of dorsal apodeme wider than in *S. linnavuoirii*.

Measurements. Male 5.4 mm long, 1.5 mm wide across eyes.

Material examined. VIETNAM: HOLOTYPE ♂, Fyan, 1200 m, 11.vii–9.viii.1961, N.R. Spencer (BPBM).

Remarks. *S. fyanensis* resembles closely *S. linnavuorii*. Coloration and structure of the aedeagus distinguish them.

***Sangeeta linnavuorii* sp. nov.**
Figs 537–538.

Male (color). Pale brown. Antennal pits, two spots on hind margin of vertex closer to eyes than to each other, two spots on anterior shallow depressions of pronotum joined by marginal band, two spots behind eyes, two triangular spots on posterior half of pronotum, median stripe on scutellum anterior to median impressed line, and two small spots laterad of median impressed line, black. Submarginal band on frontoclypeus, inverted Y, circle surrounding each ocellus, median stripe on pronotum, two triangular spots on basal angles scutellum, forewing cells , first M, R and claval cells, fuscous.

Morphology. Anterior pronotal depressions shallow, pronotum shorter than median length of scutellum. Inner anteapical cell closed posteriorly, third apical cell stalked posteriorly.

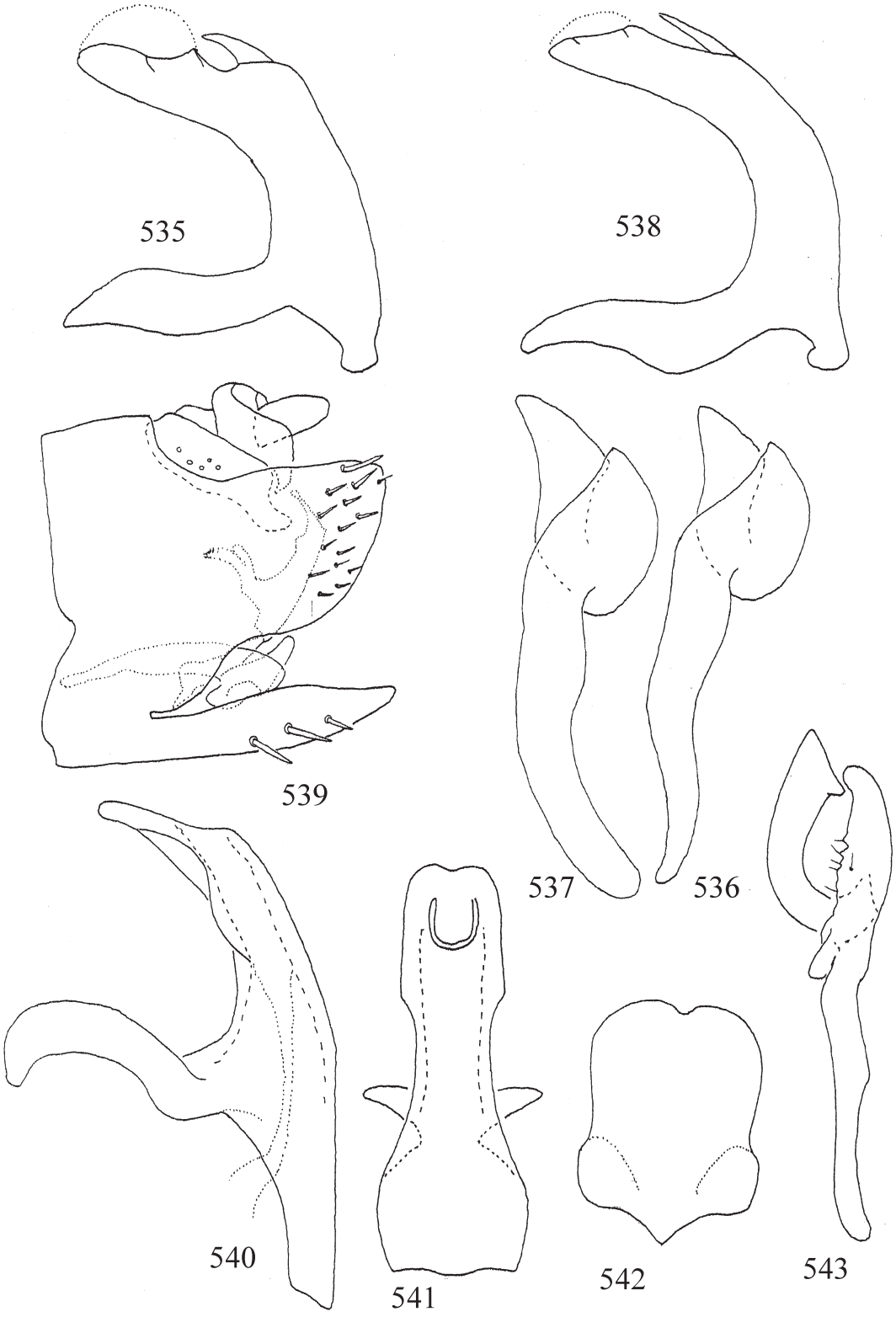
Male genitalia. Pygofer caudodorsally broadly pointed, ventrally rounded, notched in middle. Styles as in Fig.537. Aedeagus with arms of dorsal apodeme narrower than in *S. fyanensis*, measuring 0.17 mm in width in cephalic view. Shaft curved anteriorly about middle, with pair of short horn-like processes directed anteriorly, almost reaching caudal margin of gonopore; processes appear finger-like in lateral view; width of aedeagal shaft at point of origin of process in lateral view 0.7 mm.

Female (color). Paler than male, lacking smaller black spots and fuscous markings. Scutellum longer than median length of pronotum. Inner anteapical cell of forewings open basally, third apical cell not stalked.

Measurements. 5.3 mm long 1.6 mm wide across eyes. Female 5.7 mm long, 1.8 mm wide across eyes.

Material examined. VIETNAM: HOLOTYPE ♂, Khontum, N. of Pleiku, 550m, 13.v.1960, L.W.Quate (BPBM). PARATYPE: 1 ♀, same data as holotype (BPBM).

Remarks. *S. linnavuorii* closely resembles *S. fyanensis* but can be distinguished from it by the dorsal horn-like projection of aedeagal shaft. This species is named after Dr R. Linnavuori, a well-known hemipterist.



FIGURES 535–543. Species of *Sangeeta* **gen. nov.**: 535–536. *Sangeeta fyanensis* **sp. nov.**: 535. Aedeagus, lateral view; 536. Style, lateral view; 537–538. *Sangeeta linnavuorii* **sp. nov.**: 537. Style, lateral view; 538. Aedeagus, lateral view; 539–543. *Sangeeta nigra* **sp. nov.**: 539. Male genital capsule, lateral view; 540. Aedeagus, lateral view; 541. Aedeagus, posteroventral view; 542. Connective, anterodorsal view; 543. Style, dorsal view.

***Sangeeta nigra* sp. nov.**
Figs 543–552, 575, 589, 604.

Color. Black with yellow areas. Vertex with one spot on either side of median line visible on face and median stripe black, area between them fuscous, lateral area yellow. Face yellow with a transverse band across ocelli and enclosing them, clypeus, clypellus, lora and antennal cavities, black; scape, most of pedicel yellow, apical area of pedicel fuscous, flagellum and arista dark fuscous. Pronotum black with hind margin yellow. Scutellum black with spot on lateral margin caudad of impressed line, yellowish white. Forewings black with longitudinal band on clavus, apex of clavus and area beyond it on corium and band on costal margin in apical half, white. Mesothoracic sternites and pleurites fuscous, fore tibiae light fuscous, rest of ventral area of thorax greenish yellow.

Morphology. Pronoutm with anterior depressions rather shallow, disk without punctations. Ocelli closer to each other than to adjacent eye.

Male genitalia. Similar to *S. sadongensis* (see below). Pygofer with rather obliquely truncate caudal margin, with short setae concentrated more in cauadal area, ventrally with concave excavation. Subgenital plates triangular with three stout setae arranged in row. Aedeagus with well developed dorsal apodeme and preatrium. Shaft more or less of uniform width, with lateral flange, gonopore subapcial, in cephalic view flange with angular projection at midlength of shaft. Anal collar well developed, with caudal process produced.

Measurements. Male 4.7 mm long, 1.3 mm wide across eyes.

Material examined. INDONESIA: HOLOTYPE ♂, Java: Gunung, Gede, 6.vii.1990, 1800–2000m, I. Dworakowska (UASB).

Remarks. *S. nigra* differs from other species of *Sangeeta* in being black. It resembles *S. sadongensis* in the male genitalia but differs in having the aedeagus with a lateral flange and having an angular lateral projection at midlength of the shaft and elongate preatrium.

***Sangeeta quadriloba* sp. nov.**
Figs 544–552, 576, 590, 605.

Color. Ochraceous with brown and dark brown markings on head and thorax as shown in figs 544–546.

Morphology. Inner anteapical cell open posteriorly.

Male genitalia. Pygofer lobe with straight caudodorsal margin and convex caudal margin, caudodorsal angle conically rounded with short, stout setae. Subgenital plates with two stout large setae followed by number of short setae. Aedeagus as in *S. sarawakensis* but with two lobe-like projections laterally, preatrium well developed, dorsal apodeme well developed. Anal collar simple with caudal sclerotized projection short, rather lobe-like.

Measurements. Male 5.4 mm long and 1.7 mm wide across eyes.

Material examined. INDONESIA: HOLOTYPE ♂, Sumatra: Port de Kock, 920 m, Jan. 1921, E. Jacobson (NMNL).

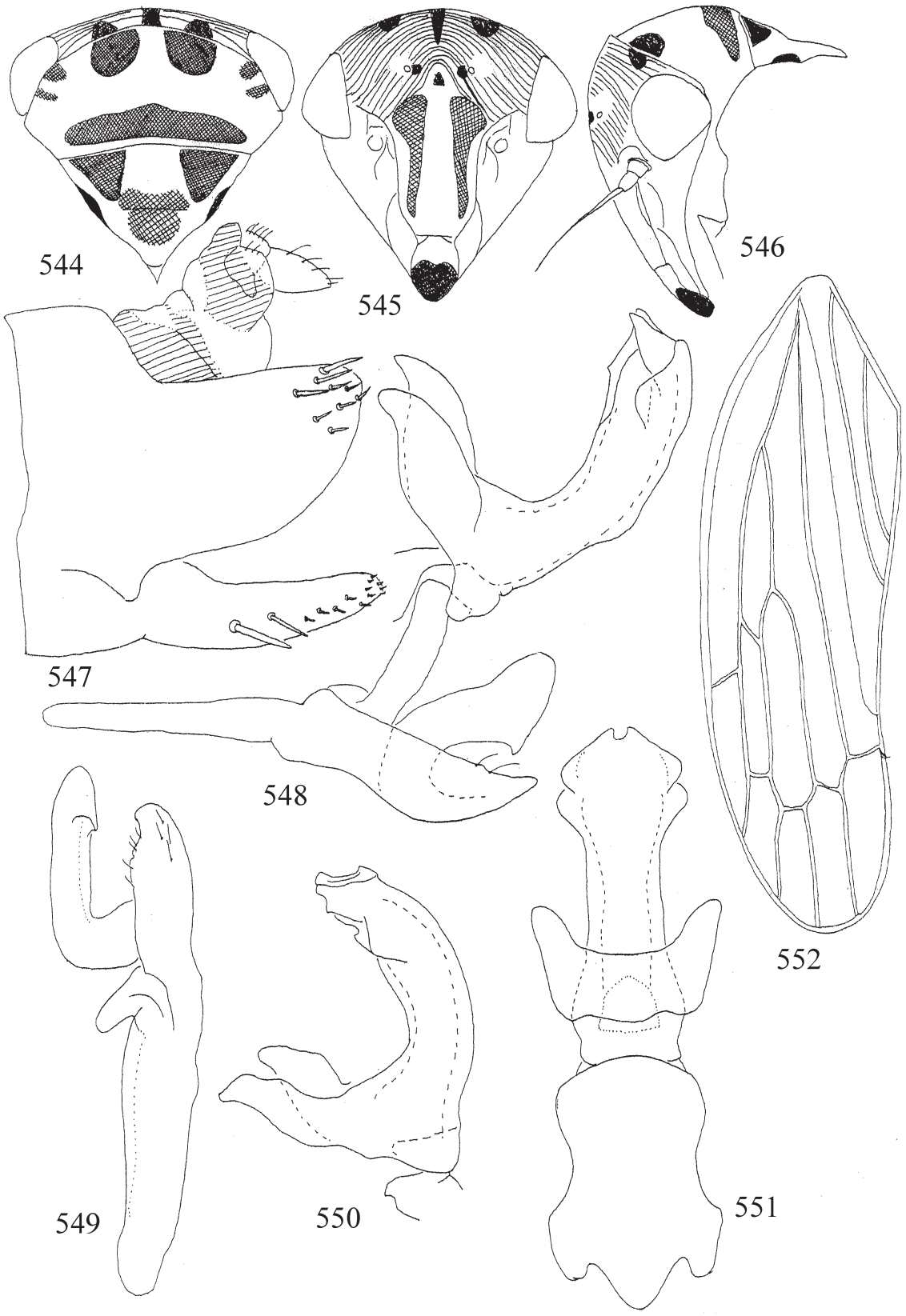
Remarks. *S. quadriloba* resembles *S. sarawakensis* but differs in having a four lobed aedeagal shaft compared to a simple aedeagal shaft in *S. sarawakensis*.

***Sangeeta sadongensis* sp. nov.**
Figs 553–557.

Color. Ochraceous. Median small and two lateral subglobose spots on vertex, two larger spots on inner margin of pronotal depressions on either side of median line, often joined anteriorly, black. Ocelli marked with dark brown. Face dorsad of ridge, central stripe on frontoclypeus and scutellum, bright lemon yellow. Scutellum with basal angles black, two spots in middle and median impressed line pale brown.

Morphology. Ocelli closer to each other than to adjacent eye. Pronotal disc with fine punctuations.

Male genitalia. Male genital capsule partially retracted into eighth abdominal segment. Pygofer caudally rounded. Subgenital plates fused basally, each with three stout and two slender setae. Aedeagus with shaft of uniform width in cephalic view, tubular, in lateral aspect appears apically depressed; gonopore apical. Anal collar process simple, caudally obliquely truncate.

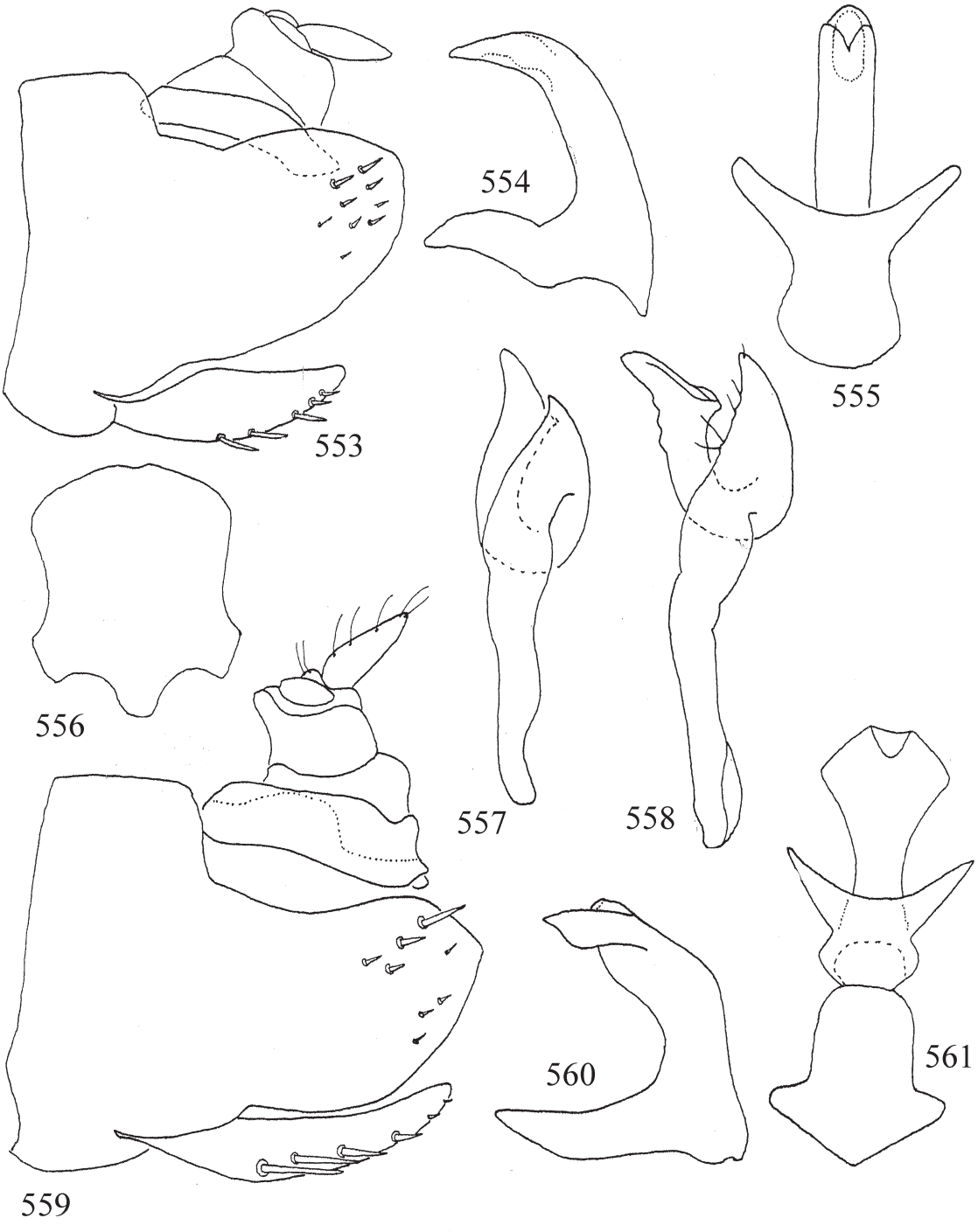


FIGURES 544–552. *Sangeeta quadriloba* **sp. nov.**: 544. Head and thorax; 545. Face, showing dorsal striations; 546. Head and thorax, profile; 547. Male genital capsule, lateral view; 548. Style, connective and aedeagus, lateral view; 549. Style, dorsal view; 550, Aedeagus, lateral view; 551. Connective and aedeagus, anterodorsal view; 552. Forewing venation.

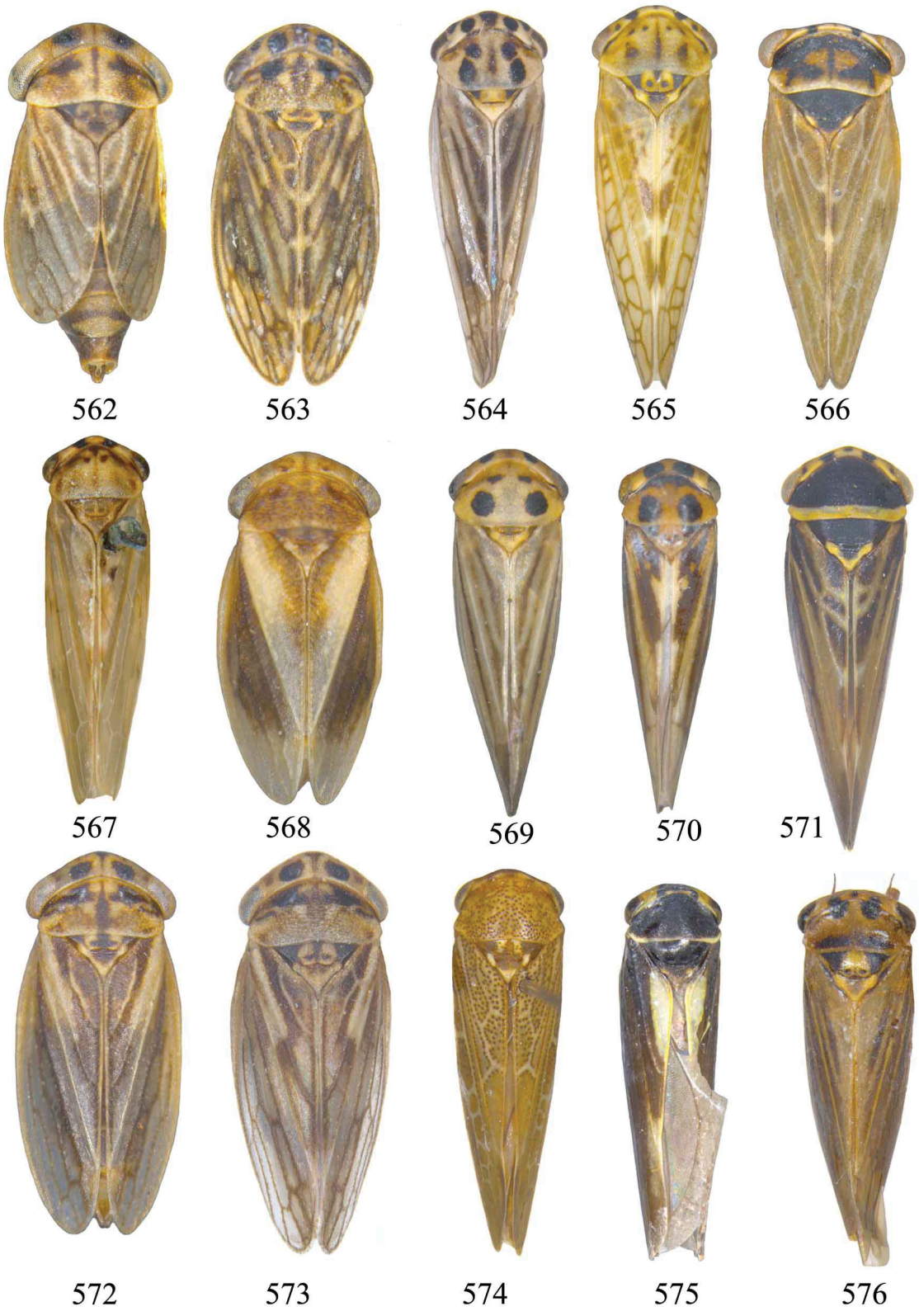
Measurements. Male 4.4–4.5 mm long, 1.3 mm wide across eyes.

Material examined. EAST MALAYSIA (N.Borneo): Sarawak: HOLOTYPE ♂, Sadong, Kampong Taputh, 300–450 m, 4–9.vii.1958, T.C. Maa (BPBM). PARATYPE: 1 ♂, same data as holotype (BPBM).

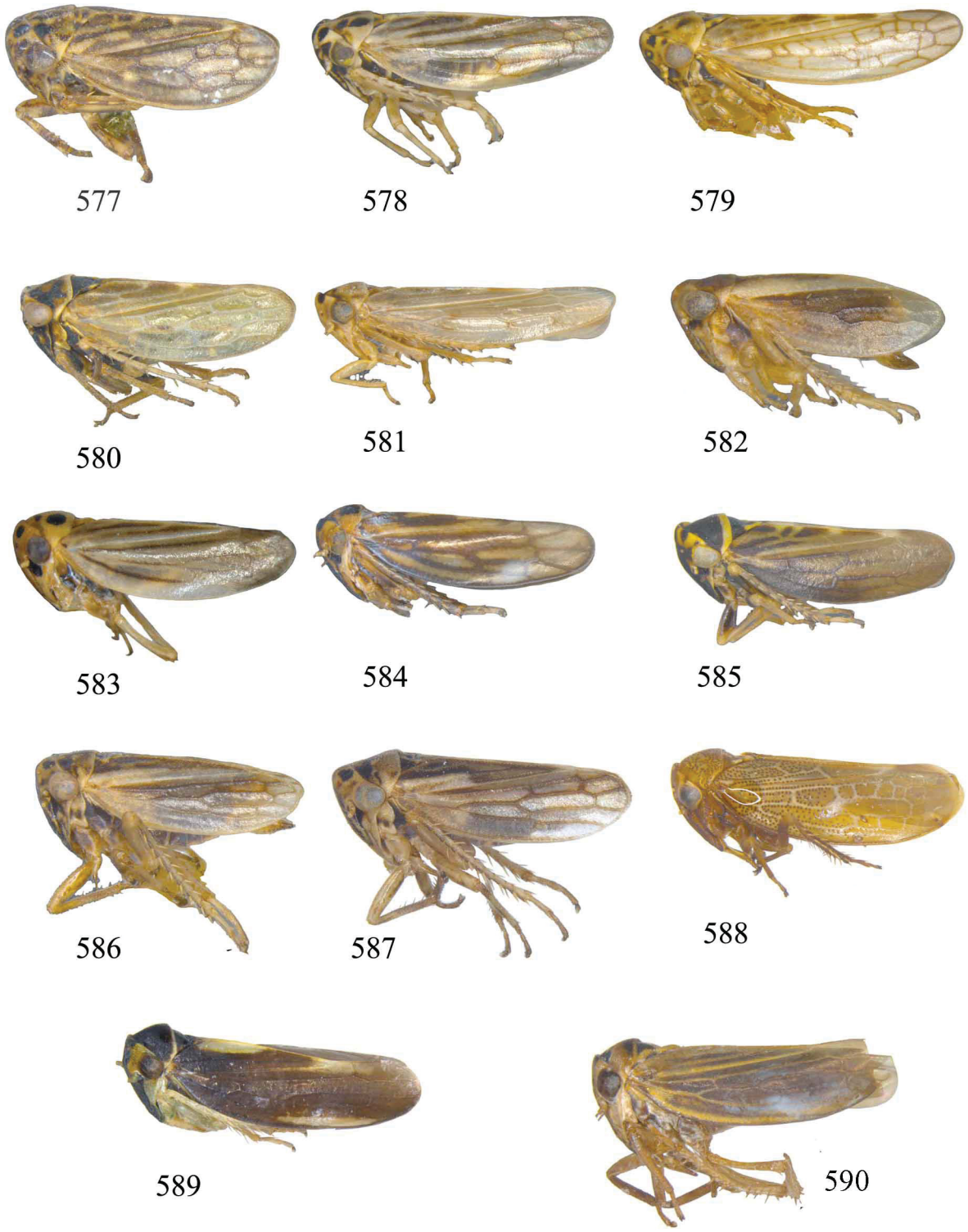
Remarks. *S. sadongensis* closely resembles *S. sarawakensis* **sp. nov.** as discussed under the latter species.



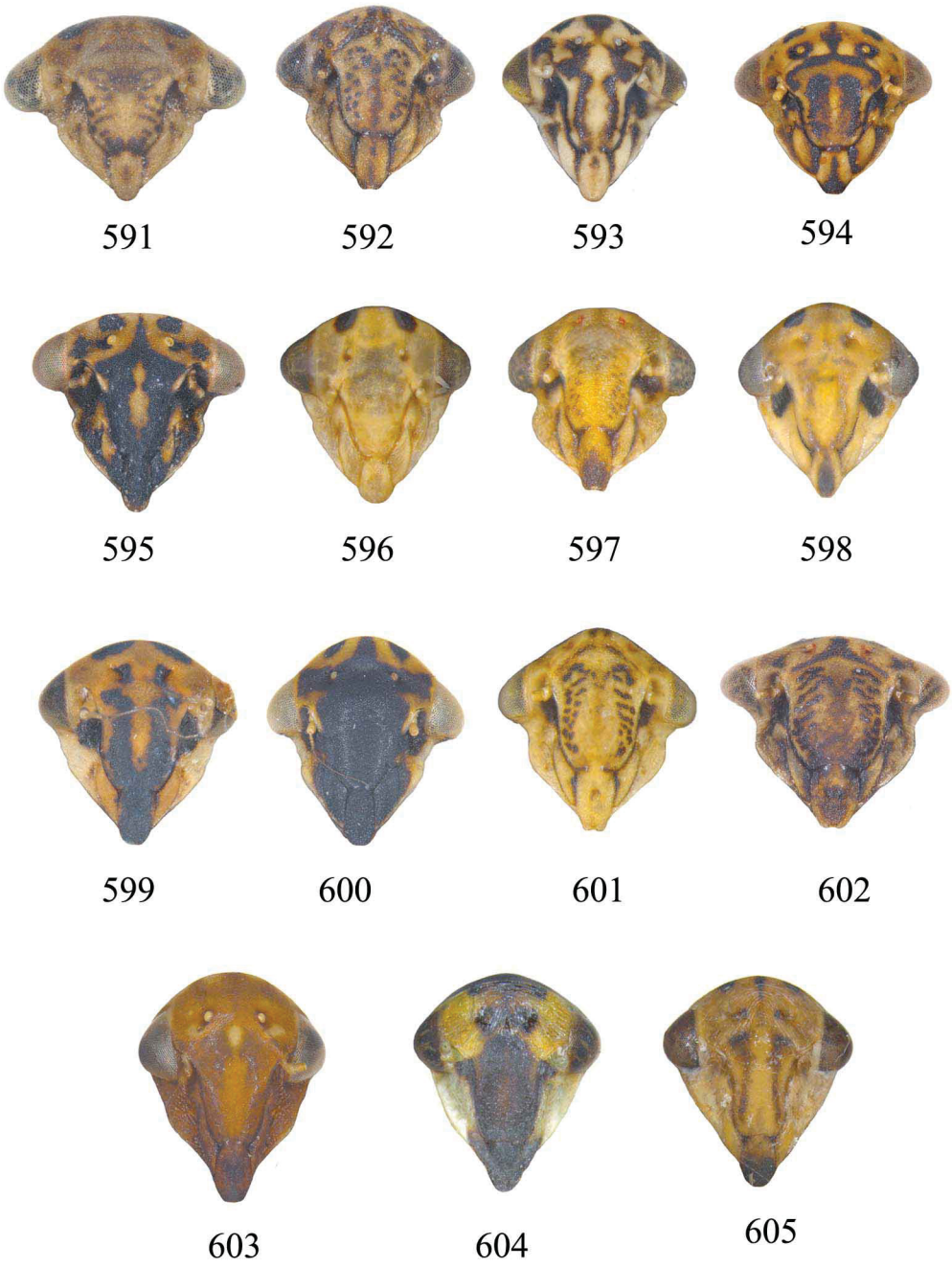
FIGURES 553–561. Species of *Sangeeta* **gen. nov.** 553–557. *Sangeeta sadongensis* **sp. nov.**: 553. Male genital capsule, lateral view; 554. Aedeagus, lateral view; 555. Aedeagus, anterior view; 556. Connective, anterodorsal view; 557. Style, lateral view; 558–561. *Sangeeta sarawakensis* **sp. nov.**: 558. Style, lateral view; 559. Male genital capsule, lateral view; 560. Aedeagus, lateral view; 561. Connective and aedeagus, anterodorsal view.



FIGURES 562–576. Habitus of Agalliini genera. 562. *Agallia* sp.; 563. *Anaceratagallia robusta* (Pruthi); 564. *Austroagallia torrida* Evans; 565. *Dryodurgades reticulata* (Herrich-Schäffer); 566. *Durgades nigropicta* Distant; 567. *Formallia rugosa* **sp. nov.**; 568. *Hemagallia plotina* (Distant); 569. *Ianagallia bifurcata* (Sawai Singh & Gill); 570. *Igerna atrovenosa* (Melichar); 571. *Japanagallia mussooriensis* **sp. nov.**; 572. *Nandigallia nandiensis* **sp. nov.**, brachypterous male; 573. *Nandigallia nandiensis* **sp. nov.** macropterous male; 574. *Paulagallia punctata* **sp. nov.**, female; 575. *Sangeeta nigra* **sp. nov.** 576. *Sangeeta quadriloba* **sp. nov.**



FIGURES 577–590. Agalliini genera, lateral view. 577. *Anaceratagallia robusta* (Pruthi); 578. *Austroagallia torrida* Evans; 579. *Dryodurgades reticulata* (Herrich-Schäffer); 580. *Durgades nigropicta* Distant; 581. *Formallia rugosa* **sp. nov.**; 582. *Hemagallia plotina* (Distant); 583. *Ianagallia bifurcata* (Sawai Singh & Gill); 584. *Igerna atrovenosa* (Melichar); 585. *Japanagallia mussooriensis* **sp. nov.**; 586. *Nandigallia nandiensis* **sp. nov.**, brachypterous male; 587. *Nandigallia nandiensis* **sp. nov.** macropterous male; 588. *Paulagallia punctata* **sp. nov.**, female; 589. *Sangeeta nigra* **sp. nov.** 590. *Sangeeta quadriloba* **sp. nov.**



FIGURES 591–605. Face of Agalliini genera. 591. *Agallia* sp.; 592. *Anaceratagallia robusta* (Pruthi); 593. *Austroagallia torrida* Evans; 594. *Dryodurgades reticulata* (Herrich-Schäffer); 595. *Durgades nigropicta* Distant; 596. *Formallia rugosa* **sp. nov.**; 597. *Hemagallia plotina* (Distant); 598. *Ianagallia bifurcata* (Sawai Singh & Gill); 599. *Igerna atrovenosa* (Melichar); 600. *Japanagallia mussooriensis* **sp. nov.**; 601. *Nandigallia nandiensis* **sp. nov.**, brachypterous male; 602. *Nandigallia nandiensis* **sp. nov.**, macropterous male; 603. *Paulagallia punctata* **sp. nov.**, female; 604. *Sangeeta nigra* **sp. nov.** 605. *Sangeeta quadriloba* **sp. nov.**

***Sangeeta sarawakensis* sp. nov.**
Figs 558–561.

Color. Brown. Median stripe and two lateral subglobse spots on vertex, apical half of clypellus, two spots on anterior depressions of pronotum, two triangular spots at basal angles of scutellum, black. Submarginal stripe on clypellus, submarginal band on posterior half of pronotum, median semicircular spot and area around median line, fuscous. Forewing veins yellowish brown.

Morphology. Clypellus obovate; frontoclypeus overhanging clypellus, one pit on either side of transclypeal suture. Ocelli closer to each other than to adjacent eye.

Male genitalia. Pygofer rounded caudally. Subgenital plates elongate, fused basally with three elongate, three short, stout setae. Aedeagal shaft tubular near base, laterally expanded near apex with sloping angular shoulders, gonopore subapical. Anal collar process simple, with caudal margin concave.

Measurements. Male 4.9 mm long, 1.5 mm wide across eyes.

Material examined. EAST MALAYSIA: (Borneo): Sarawak: HOLOTYPE ♂, Merirai Valley, 1–6.viii.1958, T.C. Maa (BPBM).

Remarks. *S. sarawakensis* is similar to *S. sadongenesis* but is longer and darker in color. The submarginal fuscous band on the posterior half of the pronotum, black triangular spots at the basal angles of the scutellum and the structure of aedeagus distinguish this species.

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