THE AUSTRALIAN GENERA OF FLATIDAE (HOMOPTERA, FULGOROIDEA)

M. J. Fletcher
Biological and Chemical Research Institute, Rydalmere

Summary

A key to the genera of Flatidae recorded in Australia is given. *Austrodascalia* gen. nov., *Parasiphanta* gen. nov., *Falcophantis* gen. nov. and *Barsac* gen. nov. are described, as are *Austrodascalia evansorum* sp. nov., *Parasiphanta lanceolata* sp. nov., *Falcophantis acuminata* sp. nov., *F. westcotti* sp. nov., *Barsac cinerascens* sp. nov., *B. excurva* sp. nov., *B. minima* sp. nov. and *B. cocoa* sp. nov. *Mimophantia australensis* Kirkaldy is synonymised with *Mimophantia stictica* (Melichar). *Delostenopium rubripes* Jacobi is synonymised with *Euphanta acuminata* Melichar. Notes are provided for other species.

Introduction

The genera of Australian Flatidae have been included in keys by Melichar (1901, 1923) but no work has concentrated on the Australian fauna. The genera have been described by various authors (Stål 1862, 1870, Kirkaldy 1900a, 1900b, 1903, 1906, Distant 1910a, 1910b, Jacobi 1928, Melichar 1901, 1902, Matsumura 1900, Walker 1862, Medler 1986b) but no published key has included all the described genera of this country. This work recognizes 22 Australian genera, comprising 88 described species. Fifteen of the genera, comprising 29 species, are endemic. Most of the species in the other genera are also endemic.

The terminology herein follows Fletcher (1985) which was based on Melichar (1902, 1923).

The following abbreviations are used in the text:—

AM	Australian Museum, Sydney, N.S.W.
ANIC	Australian National Insect Collection, C.S.I.R.O., Canberra, A.C.T.
BMNH	British Museum (Natural History), London, England
BPB	Bernice P. Bishop Museum, Honolulu, U.S.A.
DARI	New South Wales Department of Agriculture, Biological and Chemical Research Institute, Rydalmere, N.S.W.
MV	Museum of Victoria, Melbourne, Victoria
NRS	Naturhistoriska Riksmuseet, Stockholm, Sweden
N.S.W.	New South Wales
N.T.	Northern Territory
QDPI	Dept of Primary Industries, Indooroopilly, Qld
Qld	Queensland
QM	Queensland Museum, Brisbane, Qld
QU	Entomology Dept, Queensland University, St Lucia, Qld
S.A.	South Australia
SAM	South Australian Museum, Adelaide, S.A.
SI	Smithsonian Institute, United States National Museum, Washington, D.C., U.S.A.
W.A.	Western Australia
WADA	Western Australian Dept of Agriculture, Perth, W.A.
WAM	Western Australian Museum, Perth, W.A.

The following abbreviations are for characters measured, the measurements being included in the species descriptions:

lc	length of clavus
lt	maximum length of tegmen
wt	maximum width of tegmen
lv	length of vertex in midline
wv	width of vertex at base
lp	length of pronotum in midline
lf	length of frons in midline
wf	maximum width of frons
hts	number of spines at apex of hind tibia
htls	number of spines at apex of first hind tarsal segment

Key to Australian Genera of Flatidae

1 Tegmina subhorizontal, overlapping apically . . . . . Flatoidinae . . 2
– Tegmina vertical, apices apposed, not overlapping . . . . . Flatinae . . 3

2(1) Frons without median longitudinal carina; vertex medially impressed, lacking carinae; frons longer than broad; costal membrane at least one and a half times as wide as costal cell, crossveins linked longitudinally by numerous short veins . . . . . *Uxantis* Stål
– Frons with distinct median carina; vertex with light, though distinct median carina; frons broader than long; costal membrane no more than one and a half times as wide as costal cell . . . . . *Jamella* Kirkaldy

3(1) Hind tibia with 2 spines on external margin (not counting apical spines) . . . 4
– Hind tibia with one spine on external margin 5

4(3) Apex of head rounded, not produced forwards; no carina between vertex and frons . . . . . *Anzora* Medler
– Apex of head produced forwards in front of eyes; distinct carina separating frons and vertex . . . . . *Mimophantia* Matsumura

5(3) Frons and clypeus concave over central area 6
– Frons and clypeus convex over central area 7

6(5) Tegmen strongly convex in basal third thence narrow, parallel-sided to apex; vertex transversely convex, with transverse carina level with front of eyes at about half length . . . . . *Austrodascalia* gen. nov.
– Tegmen of even prominence throughout, more or less triangular in shape; vertex longitudinally concave, lacking carinae except at margins . . . . . *Geraldtonia* Distant

7(5) Vertex with anterior marginal carina absent or incomplete 8
– Anterior margin of vertex carinate throughout 12

8(7) Cu simple, if joined to M then by weak crossveins only; apex of head produced forwards as rounded cone 9
– Cu forked at about midlength, anterior branch joining M to form a strong angled crossvein; apex of head variable 10

9(8) Tegmina convex, wrapped about the body; venation subreticulate . . . . . *Phantiopsis* Melichar
– Tegmina sickle-shaped, sutural angle produced posteriorly to a fine point; venation not subreticulate . . . . . *Falcophantis* gen. nov.

10(8) Head conically produced 11
– Head not produced, anterior margin more or less transverse . . . *Dworena* Medler

11(10) Frons with median longitudinal carina only; large white species with sutural angle produced dorsally to a short point . . . . . *Paradaksha* Distant
– Frons with three distinct carinae, at least on apical half; medium-sized species usually green coloured with red; sutural angle rounded or right-angled, not produced . . . . . *Colgar* Kirkaldy

12(7) Cu forked at about midlength, anterior branch joining M to form a strong angled crossvein 13
– Cu simple, if joined to M then by weak crossveins only 15

13(12) Frons with five distinct carinae on apical half (in addition to carinate lateral margins) . . . . . *Colgaroides* Distant
– Frons with fewer than five carinae on apical half 14

14(13) Frons with median carina only; tegmen outwardly prominent near base of R; Australian species mottled brown . . . . . *Massila* Walker
– Frons with three distinct carinae (in addition to carinate margins); tegmen without prominence near base; species usually green, often with prominent red markings . . . . . *Neomelicharia* Kirkaldy

15(12) Frons with three distinct carinae (in addition to carinate lateral margins) extending over at least 2/3 length of frons 16
– Frons with fewer than three carinae extending beyond apical third of frons, if lateral carinae present then less distinct than median 19

16(15) Vertex medially depressed; tegmen subquadrate, costal and sutural margins more or less parallel; colour green with sinuate white longitudinal line on tegmen . . . . . *Aflata* Melichar
– Vertex medially carinate; tegmen triangular, not coloured as above 17

17(16) General coloration brown . . . . . *Euryphantia* Kirkaldy
– General coloration green, often with red markings 18

18(17) One distinct subapical line of crossveins in tegmen . . . . . *Hypsiphanta* Jacobi
– No distinct subapical line in tegmen . . . . . *Euphanta* Melichar

19(15) Tegmen with one subapical line of crossveins near apex of clavus . . . . . *Barsac* gen. nov.
– Tegmen without subapical lines of crossveins 20

20(19) Tegmina quadrate, costal and sutural margins more or less parallel; sutural angle rounded; with rounded prominence near base of R . . . . . *Dascalina* Melichar
– Tegmina triangular, costal and sutural margins not parallel; sutural angle often produced either dorsally or posteriorly; without prominence near base of R, tegmen of even prominence throughout 21

21(20) Sutural angle of tegmen strongly produced posteriorly so that apical margin is strongly oblique . . . . . *Parasiphanta* gen. nov.
– Sutural angle of tegmen rounded, right-angled or slightly produced dorsally, not produced posteriorly; apical margin not as above . . . . . *Siphanta* Stål

Genus *Uxantis* Stål
(Figs 17, 18)

Atracis (*Uxantis*) Stål 1870, p. 775

Type species: *Atracis consputa* Stål 1870.

Diagnostic features: Frons longer than broad, lateral margins not outwardly angulate; carinae absent from disc in Australian species. Vertex broader than long, extending in front of eyes; anterior margin carinate, straight or slightly convex. Pronotum flattish medially, anterior margin level with front of eyes. Mesonotum humped, flat medially. Tegmina held subhorizontally, more than twice as long as widest part which is at about 1/3 distance from base; apex rounded, without angles; costal membrane twice as wide as costal cell, with crossveins loosely joined longitudinally by weakly anastomosing veins. Hind tibia with one spine on external margin.

Notes: One species, *U. notata* Distant, has been recorded from Australia. The male genitalia are illustrated in Figs 17-18. At least one other Australian species is known. The Australian species are treated in a manuscript in preparation. The genus extends from Northern Australia to the Philippines.

Genus *Jamella* Kirkaldy
(Figs 19, 20)

Jamella Kirkaldy 1906, p. 460

Type species by monotypy: *Jamella australiae* Kirkaldy 1906.

Diagnostic features: Frons broader than long, lateral margins subfoliate near antennae; median carina present on apical third. Vertex short, flat with carinate margin to frons. Pronotum reaching nearly to front of eyes, hind margin roundly excavate. Mesonotum tricarinate. Tegmina held subhorizontally, more than twice as long as wide. Costal margin and claval margin almost parallel from near base to rounded apex. Angles absent. Costal membrane approximately 1½ times as wide as costal cell, with cross-veins not joined by secondary longitudinal veins. One subapical line weakly indicated. Hind tibia with one spine on external margin.

Notes: *Jamella* is known only from Australia. The male genitalia of *J. australiae* are shown in Figs 19-20. One undescribed species is known. The Australian species are treated in a manuscript in preparation.

Genus *Anzora* Medler

Anzora Medler 1986b, p. 206.

Type species: *Massila unicolor* Walker 1862.

Diagnostic features: Head short, vertex rounded into frons. Frons convex, unicarinate. Pronotum short. Tegmen apically subtruncate, angles rounded. R and Rs united in a short stem distad of the basal stem. Cu simple. Costal membrane and costal cell of more or less equal width. One subapical line present. Hind tibia with two spines on external margin.

Notes: This genus was erected by Medler (1986b) for *Massila unicolor* Walker, which was transferred to *Melicharia* by Distant (1910). The species differs from *Melicharia* in tegmen venation characters. Medler (1986b) also synonymized *Sephena cinerea* Kirkaldy with *A. unicolor*. Male genitalia of *A. unicolor* (Walker) were figured, as *M. unicolor*, by Fletcher (1979) and those of the holotype of *Sephena cinerea* Kirkaldy by Medler (1986b). *A. unicolor* transmits fireblight, *Erwinia amylovora*, amongst apple and pear trees in New Zealand (Myers 1923). *A. unicolor* is one of the commonest and most widespread flatids in Australia.

Genus *Mimophantia* Matsumura

Mimophantia Matsumura 1900, p. 212-3.
Microflata Melichar 1902, p. 9.

Type species: Mimophantia maritima Matsumura 1899.

Diagnostic features: Head broadly produced forwards over entire width. Frons convex, unicarinate. Vertex flat, medially ridged, with front margin carinate. Tegmen apically subtruncate with sutural angle produced posteriorly as narrow pointed process (reduced in some individuals). One clearly defined subapical line marking off marginal line of cells which are continuous with costal membrane. Costal membrane wider than costal cell. Hind tibia with two spines on external margin.

Mimophantia stictica (Melichar)

Microflata stictica Melichar 1902, p. 10.
Mimophantia australensis Kirkaldy 1906, p. 458.

Material examined: 1 ♂ (syntype of *M. stictica* Melichar) Austral, boreal, type, 107, 126/81 (NRS); 1 ♂ 1 ♀ (syntypes of *M. australensis* Kirkaldy) Bundaberg, Qld, 9-12/1904, Coll. Koebele, 327 (BPB); 1 ♂ 1 ♀ (syntypes of *M. australensis* Kirkaldy) Cairns, Qld, 7/1904, 327 (BPB); 1 ♂ 1 ♀ open savannah. Jinaroo Falls Dam, N. Qld, 27.iv.1967, D. H. Colless (ANIC); 2 ♂ 1 ♀ 34 mi. NW of Dorisvale HS, 14°13'S 130°55'E, N.T., 16.viii.1968, M. Mendum (ANIC); 1 ♂ 29 mi. SW of Dorisvale HS, 14°48'S 131°02'E, N.T., 7.viii.1968, M. Mendum (ANIC); 1 ♂ 60 mi. S. Ayr, Qld, 12.ix.1950, E. F. Riek (ANIC); 1 ♀ Hawley Gap, N.T., 13.v.1932, T. G. Campbell (ANIC); 1 ♀ Speewah Rd, 5 mi. S. Kuranda, N. Qld, 12.i.1967, D. K. McAlpine & G. A. Holloway (AM); 1 ♀ swept, Archer R. Qld, 25.vi.1960, C. N. Smithers (AM); 1 ♀ O'Connel R. 12 mi. S. Proserpine, Qld, 18.xii.1961, McAlpine and Lossin (AM).

Notes: The transfer of *Microflata stictica* to *Mimophantia* was proposed by Medler (1986a). The synonymy of *M. australensis* with *M. stictica* was proposed by Medler (1987) who figured the lectotype genitalia. The species was also figured by Melichar (1902) and Fletcher (1979). The shape of the sutural angle of the tegmen was described as rounded in Melichar's description of *Microflata* but is produced posteriorly to a point in *Mimophantia*. This character is variable in the specimens examined. The male syntype of *M. australensis* labelled as holotype by Muir has the sutural angle distinctly produced but others in the type series, and in other material examined, have rounded or rightangled sutural angles. In many specimens the distal protion of the tegmen beyond the subapical line has been broken off at the nodal line leaving an apparent sutural angle which is rightangled or rounded.

Genus *Geraldtonia* Distant

Geraldtonia Distant 1910a, p. 311.

Type species: *Geraldtonia protea* Distant 1910a.

Diagnostic features: Head produced forwards over entire width, with sharp carina separating vertex and frons. Frons concave with only slight indications of carinae near apex. Vertex transversely convex, longitudinally concave so that front is raised dorsally. Pronotum and mesonotum convex. Tegmen wide with broadly curved costal margin and apical angle. Apical margin less strongly convex. Sutural margin concave from apex of clavus so that sutural angle produced dorsally to point. Tegmen without subapical lines. Hind tibia with one spine on external margin.

Notes: Fletcher (1982) has reviewed the genus which is now monotypic, the two species described by Distant (1910a), *G. protea* and *G. uniformis*, being synonyms.

Genus *Phantiopsis* Melichar

Phantiopsis Melichar 1905, p. 474.
Aphanophantia Kirkaldy 1906, p. 458.

Type species by monotypy: *Phantiopsis australiaca* Melichar 1905.

Diagnostic features: Head produced forwards as blunt cone, vertex and frons with median longitudinal ridges. Pronotum and mesonotum short. Tegmen short, convex, wrapping around body posteriorly and ventrally. Venation subreticulate, with one subapical line. Hind tibia with 1 spine on external margin.

Notes: *P. australiaca*, the sole described species, was figured by Kirkaldy (1907) and Fletcher (1979). The short elytriform tegmina wrapped around the body, the subreticulate venation and the shape of the head are quite distinctive.

Genus *Dascalina* Melichar

Dascalina Melichar 1902, p. 154.

Type species: *Dascalina aegrota* Melichar 1902.

Diagnostic features: Head produced in front of eyes. Frons convex apically, concave over basal half, ecarinate. Vertex flat, with median longitudinal furrow, separated from frons by carinate margin which is evenly convexly produced. Pronotum extending to level with front of eyes, flat to concave. Tegmen about 2½ times as long as widest part which is at apex. Apical margin concave between rounded angles. Costal cell slightly wider than

costal membrane. Tegmen with raised prominences at base of R_1 and in clavus near apex of scutellum. Subapical lines absent. Hind tibia with one spine on external margin.

Notes: *Dascalina* contains five endemic Australian species: *D. aegrota* Melichar, *D. alternans* Melichar, *D. contorta* Melichar, *D. reversa* Melichar and *D. vivida* Jacobi. Melichar (1902) provides a key to the four species known to him.

Genus *Paradaksha* Distant
(Figs 21, 22)

Paradaksha Distant 1910b, p. 327.

Type species by monotypy: *Paradaksha meeki* Distant 1910.

Diagnostic features: Head short, vertex rounded into frons which is roundly conically produced and obscurely tricarinate. Pronotum short. Tegmen triangular with apical margin straight between rounded apical angle and sutural angle which is produced dorsally to acute point. Costal cell wider than costal membrane. Vein Cu branched at about midlength, anterior branch short meeting M_{3+4} to form strong angle crossvein. Subapical lines absent. Hind tibia with one spine on external margin.

Notes: The type species, the only known species, is one of the largest Australian flatids. The male genitalia are shown in Figs 21-22. The genus is close to *Phymoides* Distant.

Genus *Dworena* Medler

Dworena Medler 1986b p. 207.

Type species: *Sephena hyacintha* Kirkaldy 1906.

Diagnostic features: Head short. Frons convex, slightly longer than wide with strong median longitudinal carina. Lateral carinae represented, particularly near apex, as curved ridges meeting median carina at apex of head. Vertex very short. Tegmen narrowly triangular, in Australian species, apically subtruncate with rounded angles. Costal cell a little wider than costal membrane. Veins R, Rs and M originating at same point from basal stem. Vein Cu branched at about midlength, anterior branch short meeting M_{3+4} to form strong angled crossvein. Subapical lines absent. Hind tibia with one spine on external margin.

Notes: This genus was erected by Medler (1986b) for the reception of the Australian species formerly placed in *Sephena* Melichar and *Paratella* Melichar. Medler also synonymized most of the Australian species under the two names *D. hyacintha* and *D. modesta* (Melichar). The only two Australian species in the group not treated by Medler are *Paratella repleta* (Walker) and *Sephena nigrifrons* Schmidt which may represent two further species of *Dworena* or may be synonyms of *D. modesta* or *D. hyacintha*.

Genus *Massila* Walker

Massila Walker 1862, p. 314.

Type species: *Massila sicca* Walker 1862.

Diagnostic features: Head short. Frons about as long as wide, convex, with obscure median longitudinal carina. Vertex very short. Pronotum short with two circular depressions near front margin. Tegmen 2½ times as long as wide. Costal margin convex to apex of costal cell, then concave to rounded apical angle. Sutural margin concave from apex of scutellum to rounded sutural angle. Apical margin slightly convex. Tegmen outwardly prominent on R_1 level with origin of Rs and on 2A. Costal cell wider than costal membrane. Subapical lines absent. Vein Cu branched at about midlength, anterior branch short meeting M_{3+4} to form strong angled crossvein. Hind tibia with one spine on external margin.

Notes: *Massila* is an endemic Australian genus showing affinity to *Dascalina* Melichar and *Barsac* gen. nov. There are five named species, although Medler (1986 pers. comm.) has indicated that some synonymy exists. A revision of the genus using the type material and based on characters of the male genitalia is needed.

Genus *Siphanta* Stål

Siphanta Stål 1862, p. 69.
Parasalurnis Distant 1910a, p. 309.
Siphantoides Distant 1910a, p. 305.
Lombokia Distant 1910b, p. 323.
Phalainesthes Kirkaldy 1899, p. 359.

Type species: *Poeciloptera acuta* Walker 1851.

Diagnostic features: Head short or produced. Frons slightly convex to flat, medially carinate. Lateral carinae very short or obsolete. Vertex flat, slightly undulate or slightly concave, separated from frons by carinate margin which may be triangularly produced, roundly convex or nearly straight. Pronotum medially flat. Tegmen triangular with apical angle rounded and sutural angle obtusely rounded, rightangled or slightly acute. Tegmen without subapical lines. Cu simple. Hind tibia with one spine on external margin.

Notes: *Siphanta* was revised by Fletcher (1985) who described and figured 40 species. *S. acuta* Walker, *S. hebes* (Walker) and *S. patruelis* (Stål) are among the commonest and best known Australian flatids.

Genus *Colgar* Kirkaldy

Colgar Kirkaldy 1900a, p. 242.
Cromna Melichar 1902, p. 58.

Type species: *Cromna peracuta* Walker 1858.

Diagnostic features: Head conically produced. Frons elongate, clearly tricarinate, the carinae meeting at apex of cone. Vertex shorter than cone, convex, medially carinate, separated from frons by carina, occasionally obsolete. Pronotum and mesonotum convex. Tegmen triangular, truncate apically. Apical angle sharply rounded, sutural angle rightangled or slightly obtuse, not produced. Vein Cu branched at about midlength, anterior branch short meeting M_{3+4} to form strong angled crossvein. Costal membrane and costal cell about equal in width. Subapical lines absent. Hind tibia with one spine on external margin.

Notes: The prolongation of the head in *Colgar* is a conical extension of the frons, the line representing the anterior margin of the vertex being situated considerably short of the apex of the cone. In *Euphanta* Melichar and *Colgaroides* Distant the carinate front margin of the vertex reaches the apex of the cone so that the vertex is a major component in the prolongation of the head.

Colgar is a SE Asian, New Guinean and Australian genus with five species, *C. laraticum* var. *punctatum* Lallemand, *C. peracutum* (Walker), *C. roseipennis* Distant, *C. rufostigmatum* (Distant) and *C. tricolor* Distant, recorded from tropical Australia.

Genus *Colgaroides* Distant
(Figs 23, 24)

Colgaroides Distant 1910b, p. 324.

Type species: *Poeciloptera acuminata* Walker 1851.

Diagnostic features: Head conically produced. Frons elongate with five strong carinae, the middle three meeting at the apex of the cone, the lateral pair meeting apical margin midway between lateral margins and apex of cone. Vertex convex with median longitudinal carina, Vertex and frons separated by carinate margin which extends to apex of cone.

Pronotum and mesonotum convex, medially carinate. Tegmen triangular with apical margin straight between sharply rounded apical angle and obtuse to rightangled sutural angle. Vein Cu branched at about midlength, anterior branch short meeting M_{3+4} to form strong angled crossvein. Costal cell wider than costal membrane. Hind tibia with one spine on external margin.

Notes: *Colgaroides* is closely related to *Colgar* Kirkaldy from which it is easily distinguished by the extra frontal carinae. The most widespread species is *C. acuminata* (Walker) which shows considerable variation in size and colour. The male genitalia (Figs 23-24), however, are consistent throughout. *C. circumcincta* Jacobi was synonymised with *C. acuminata* by Medler 1986a. *C. viridis* Lallemand from Australia and *C. everetti* Distant, from the Philippines, are the other described species.

Genus *Neomelicharia* Kirkaldy

Neomelicharia Kirkaldy 1903, p. 79.

Type species: *Flata cruentata* Fabricius 1803.

Diagnostic features: Head short. Vertex and frons separated by carinate margin. Frons longer than broad, clearly tricarinate. Vertex nearly flat, very short. Pronotum short. Tegmen triangular with apical margin straight or slightly convex between obtuse sutural angle and rounded apical angle. Vein Cu branched at about midlength, anterior branch short meeting M_{3+4} to form strong angled crossvein. Costal cell and costal membrane more or less of equal width. Subapical lines absent. Hind tibia with one spine on external margin.

Notes: *Neomelicharia* is a South East Asian genus with only three species described from Australia. These are *N. furtiva* (Melichar), *N. handschini* Lallemand and *N. pustulata* (Donovan).

Genus *Aflata* Melichar

Aflata Melichar 1902, p. 7.

Type species by monotypy: *Aflata stali* Melichar 1902.

Diagnostic features: Head short. Frons and vertex separated by transverse carinate margin. Frons flat to slightly convex, with three strong carinae. Vertex flat, medially impressed. Pronotum short with median longitudinal carina continuing onto mesonotum. Tegmen narrow, green with sinuate white marking down centre. Costal margin convex to apex of costal cell, then concave to apex which forms continuous curve to sutural margin. Sutural margin straight from apex of scutellum to apex. Costal cell wider than costal membrane. Cu simple. One indistinct subapical line near apex. Hind tibia with one spine on external margin.

Notes: The male genitalia of *A. stali*, the sole described species, were figured by Fletcher (1979).

Genus *Euryphantia* Kirkaldy

Euryphantia Kirkaldy 1906, p. 456.
Thanatochlamys Kirkaldy 1907, p. 101.

Type species by monotypy: *Euryphantia cinerascens* Kirkaldy 1906.

Diagnostic features: Head slightly produced anteriorly. Frons and vertex meeting at carinate margin. Frons elongate, clearly tricarinate. Vertex flat to slightly undulate. Pronotum and mesonotum convex with percurrent median longitudinal carina. Tegmen with slightly convex apical margin between rounded angles. Costal cell and costal membrane more or less of equal width. Cu simple. Subapical lines absent. Hind tibia with one spine on shaft.

Notes: *Euryphantia* was reviewed by Fletcher (1980) who recognised two species *E. cinerascens* Kirkaldy and *E. tristis* (Kirkaldy). Two additional species are known. Kirkaldy (1906) and Fletcher (1980) stated that only one longitudinal vein (this being M, not Cu as stated by both authors) was branched in the basal half of the tegmen. This character is somewhat variable and is thus of limited use. The genus is close to *Euphanta* Melichar but is quite distinctive in coloration and in genitalic characters.

Euryphantia cinerascens Kirkaldy

Euryphantia cinerascens Kirkaldy 1906, p. 456; Fletcher 1980, p. 22.

Material examined: 3 ♂ 1 ♀ Sir Graham Moore Island, W.A., 20.ii.1945, B. Malkin (SI); 1 ♂ 14°48′S 125°49′E, near Mitchell Plateau Airfield, W.A., 15.v.1983, I. D. Naumann and J. C. Cardale, at light (ANIC); 2 ♂ Drysdale River, W.A., 3.viii.1975, I. F. B. Common and M. S. Upton (ANIC); 1 ♂ 15°19′S 126°32′E, Old Doongan, W.A., 2.viii.1975, I. F. B. Common and M. S. Upton (ANIC); 1 ♂ 18°49′S 123°17′E, 163 km SE by E of Broome, W.A., 5.viii.1976, I. F. B. Common (ANIC).

Notes: The material extends the known distribution of this species to Western Australia.

Genus *Hypsiphanta* Jacobi
(Figs 25, 26)

Hypsiphanta Jacobi 1928, p. 20.

Type species by monotypy: *Hypsiphanta minax* Jacobi 1928.

Diagnostic features: Head triangularly produced, slightly ascending anteriorly. Frons separated from vertex by carinate margin; flat to slightly convex with three strong carinae Vertex flat ascending anteriorly, with median longitudinal carina. Pronotum flattish medially with median longitudinal carina which continues onto mesonotum. Tegmen with apical margin subtruncate, angles rounded. Cu simple. One subapical line running from apex of clavus to apex of costal cell. Costal cell and costal membrane of more or less equal width. Hind tibia with one spine on external margin.

Notes: *H. minax* was figured by Jacobi (1928). The head structure and features of the male genitalia (see Figs 25-26) indicate that *Hypsiphanta* is closely allied to *Euphanta* Melichar. Medler (1986a) synonymised *H. minax* with *Euphanta munda* (Walker) but examination of both holotypes indicates that the species are distinct. The presence of a clear subapical line of crossveins in the tegmen of *H. minax* but not in species of *Euphanta* and the significance of this feature as a generic character within the Flatidae indicates that the two genera are also distinct.

Genus *Euphanta* Melichar

Euphanta Melichar 1902, p. 38.
Delostenopium Jacobi 1928, p. 21.

Type species: *Poeciloptera munda* Walker 1851.

Diagnostic features: Head triangularly produced. Frons separated from vertex by carinate margin; flat to slightly convex, clearly tricarinate. Vertex flat, with median longitudinal carina. Pronotum and mesonotum convex, longitudinally carinate. Tegmen triangular, apical margin straight between rounded angles. Cu simple. Subapical lines absent. Costal cell wider than costal membrane. Hind tibia with one spine on external margin.

Notes: There are nine described species of *Euphanta*, the four Australian representatives being *E. insignis* Lallemand, *E. luridicosta* Schmidt, *E. munda* (Walker) and *E. ruficeps* Melichar. Medler (1986a) added *E. rubripes* (Jacobi) following synonymy of *Delostenopium* Jacobi with *Euphanta* but examination of the types in NRS has shown that *D. rubripes* is a synonym of *E. acuminata* as indicated below. Much undescribed material from New Guinea and Australia will increase these numbers considerably when critically studied.

Euphanta acuminata Melichar
(Figs 27, 28)

Euphanta acuminata Melichar 1902, p. 39.
Delostenopium rubripes Jacobi 1928, p. 21, syn. nov.

Holotype ♀ Ins. Ovalau, Schmeltz, 83 (NRS).
Other material examined: 1 ♀ Kimberley district, N.W. Aust, Mjoberg, (holotype of *D. rubripes* Jacobi) (NRS); 1 ♂, 1 ♀ Qld, Blunder Creek, Brisbane, Qld, 31.i.1980, H. Evans and A. Hook (DARI); 1 ♂ Wangi Pt, Lake Macquarie, N.S.W., xi.1976, K. R. Norris (ANIC).

Notes: Examination of the type material of both *E. acuminata* and *D. rubripes* has established that the species are synonyms. The male genitalia are shown in Figs 27-28.

Genus *Austrodascalia* gen. nov.

Type species: *Austrodascalia evansorum* sp. nov.

Diagnostic features: Head produced in front of eyes. Frons concave, ecarinate. Vertex dorsally slightly convex with median longitudinal furrow extending through pronotum and mesonotum, and transverse carina at about midlength. Pronotum short, front and hind margins more or less parallel. Mesonotum with lateral longitudinal carinae. Tegmen elongate, broad near base and at apex but narrow over most of length. Costal margin strongly bowed near base then concave to broadly rounded apical angle. Curve of apical margin continuous with apical angle but then abruptly concave to right-angled sutural angle. Tegmen with raised prominences at base of R_1 and in clavus near apex of scutellum Subapical lines absent. Costal cell wider than costal membrane. Hind tibia with one spine on external margin.

Notes: *Austrodascalia* approaches *Dascalina* Melichar in many characters but differs in the structure of the head, particularly the frons and vertex. The tegmina in the type species are longer and narrower than those of *Dascalina* species.

The name *Austrodascalia* reflects the affinity of the genus with *Dascalina* and is feminine.

Austrodascalia evansorum sp. nov.
(Figs 1-4, 29-30)

Holotype ♂ on *Melaleuca*, "Eikasleigh Riv" (presumably Einasleigh River), Qld, v.1966, K. Moore, ex J. W. Evans Collection, (DARI).
Paratypes: 3 ♀, same data as holotype, 1 in DARI, 1 in QM, 1 in ANIC.

Coloration: Light brown, sometimes with a white mealy covering. Vertex usually with pale median stripe. Pronotum pale. Mesonotum dark with pale carinae and white mottling. Tegmen pale brown with apical portion, prominences in clavus and near base of R, costal cell and costal membrane and some longitudinal veins dark brown. Tegminal granules dark.

Morphology: Frons longer than wide with lateral margins sharply angulate above antennae. Vertex about twice as long as pronotum. Costal margin of tegmen incurved below body to form hollow tube around abdomen. Apical portions of tegmina flat, closely adpressed. Tegminal veins prominent on distal half, less so proximally. Costal cell traversed by two oblique veins originating from near base. Apex of hind tibia with six spines.

Male genitalia: Pygofer (Fig 29) with posterior margins concave, dorso-lateral corners bluntly produced. Paramere (Fig 29) convex with apex produced antero-dorsally as truncate process. Aedeagus as in Fig 30.

Measurements: Holotype male.–lc 5.05; lt 7.17; wt 2.12; lv 0.81; wv 0.73; lp 0.42; lf 1.09; wf 0.99; hts 6,6; htls 7,7. Females.–lc (N=3) 5.49 ± 0.12 (5.35-5.56); lt (N=3) 7.91 ± 0.12 (7.78-7.98); wt (N=3) 2.34 ± 0.03 (2.32-2.37); lv (N=3) 0.82 ± 0.03 (0.79-0.85); wv (N=3) 0.73 ± 0.04 (0.69-0.77); lp (N=3) 0.42 ± 0.00 (0.42); lf (N=3) 1.08 ± 0.05 (1.05-1.13); wf (N=3) 0.95 ± 0.05 (0.91-1.01); hts (N=4) 6 (100%); htls (N=4) 7-8 (75% 7).

Notes: Examples of *Austrodascalia* (females only) in ANIC from Western Australia and North Queensland display differences in the proportions of the head and in size from *A. evansorum* and may represent two further species. However, this cannot be confirmed until males are found.

The species is named in honour of John and Faith Evans of Sydney who have given me considerable encouragement in my endeavours.

Genus *Parasiphanta* gen. nov.

Type species: *Parasiphanta lanceolata*, sp. nov.

Diagnostic features: Head short, frons and vertex separated by carinate margin. Frons longer than wide, with median longitudinal carina. Lateral carinae obscure or obsolete. Vertex flat, without carinae. Pronotum and mesonotum flattish medially, without median longitudinal carina. Tegmen elongate, lanceolate, somewhat incurved ventrally beyond abdomen. Sutural margin long, straight from apex of scutellum to acute sutural angle. Apical margin oblique, straight from sutural angle to apex of costal cell, thence costal margin lightly convex to base. Subapical lines absent. Cu simple. Costal cell wider than costal membrane. Hind tibia with one spine on external margin.

Notes: *Parasiphanta* is close to *Siphanta* Stål in head and thorax structure (Figs 5-8) and in tegminal venation characters. The unusually shaped tegmen (Fig 5), however, places the single species beyond the range of variation of *Siphanta*.

The generic name, which is feminine, reflects the affinity the genus has with *Siphanta* Stål.

Parasiphanta lanceolata sp. nov.
(Figs 5-8, 31-32)

Holotype ♂ Mataranka, N.T., 1.iii.1967, M. S. Upton, reg. no. 9469 (ANIC).
Paratypes: 1 ♂ 1 ♀ at light, 4 km SSW of Cape Bertholet, West Kimberley, W.A., 18.iv.1977, D. H. Colless (DARI); 1 ♀ malaise trap, 8 km S of Cape Bertholet, West Kimberley, W.A., 18.iv.1977, D. H. Colless (ANIC); 1 ♀ at light, Tindal, N.T., 1-20.xii.1967, W. Vestjens (ANIC); 1 ♀ 36 km SW of Borroloola, 16°19′S 136°5′E N.T., 4.xi.1975, M. S. Upton (ANIC); 1 ♀ Magela Ck, 9 km SSE of Mudginbarry HS, 12°40′S 132°54′E, N.T., 6.xi.1972, Upton and Barrett (ANIC).

Coloration: Light brown to green with dark brown eyes, red stripe across apex of frons reaching laterally to eyes. Fore and mid tibiae and apical margin of tegmen finely marked with red. Tegmen veins darker than cells. Claval granules dark at tips.

Morphology: Frons about as long as wide with lateral margins evenly convex from apex to base. Median longitudinal carina percurrent. Vertex front margin obtusely angulate, extending slightly in front of eyes. Vertex and pronotum granulate. Pronotum front margin reaching to about midlength of eyes, hind margin evenly concave. Mesonotum with lateral carinae closer posteriorly than anteriorly. Tegmen, including clavus, with numerous crossveins. Costal cell with reticulate crossveins.

Male genitalia: Pygofer (Fig 31) with posterior margins straight, process absent. Paramere (Fig 31) broad in basal half then narrowed to rounded apex. Strong recurved dorsal process present. Aedeagus as in Fig 32.

Measurements: Males.–holotype first. lc 4.55, 4.04; lt 6.97, 6.36; wt 2.53, 2.27; lv 0.28, 0.24; wv 0.77, 0.73; lp 0.48, 0.36; lf 1.01, 0.93; wf 1.01, 0.87; hts 6/6, 6/6; htls 8/8, 9/9. Females.–lc (N=3) 4.58 ± 0.16 (4.44-4.75); lt (N=3) 7.20 ± 0.35 (6.81-7.52); wt (N=3)

2.56 ± 0.06 (2.53-2.63); lv (N=3) 0.30 ± 0.02 (0.28-0.32); wv (N=3) 0.78 ± 0.01 (0.77-0.79); lp (N=3) 0.43 ± 0.01 (0.42-0.44); lf (N=3) 1.03 ± 0.05 (0.99-1.09); wf (N=3) 0.96 ± 0.05 (0.91-1.01); hts (N=5) 5-6 (80%:6); htls (N=6) 8-9 (67%:9).

Notes: The specific name is derived from the lanceolate shape of the tegmen.

Genus *Falcophantis* gen. nov.

Type species: *Falcophantis acuminatus* sp. nov.

Diagnostic features: Head produced forwards as blunt cone. Frons convex, with median longitudinal carina. Vertex flattish, with short, indistinct, marginal carinae indicating that vertex extends forwards to form dorsum of cone. Pronotum and mesonotum flat medially with faint indications of a median longitudinal carina. Lateral carinae of mesonotum indicated on anterior half only. Tegmen broad and convex to end of abdomen, thence produced posteriorly to acute point. Sutural margin long, clavus reaching well beyond apex of abdomen. Costal membrane wide with evenly spaced, more or less parallel crossveins, wider than costal cell. Subapical lines absent. Cu simple. Hind tibia with one spine on external margin. Body and tegmina covered with mealy white powder.

Notes: Head structure indicates affinity with *Phantiopsis* Melichar but the short carinae representing the anterior margin of the vertex indicate that the vertex is short and transverse in *Phantiopsis* and triangularly produced in *Falcophantis*. The conical extension of the head is thus entirely frontal in origin in *Phantiopsis* whereas in *Falcophantis* the vertex forms the dorsal part of the cone. The structure of the tegmen is quite different in the two genera. In *Phantiopsis* the tegmen is short, convex with subreticulate venation and a clear subapical line. In *Falcophantis* the tegmen (Fig 9) is produced posteriorly to an acute point, the venation is normal, although rather obscure, and there is no indication of a subapical line.

The generic name, which is masculine, refers to the falcate shape of the tegmen and reflects the similarities to *Phantiopsis* Melichar.

Falcophantis acuminatus sp. nov.
(Figs 9-12, 33-34)

Holotype ♂ 21 km SW of Barrow Ck, N.T., 21°40′S 133°45′E, 12.x.1972, M. S. Upton, reg. no. 9470 (ANIC). *Paratypes*: 8 ♂ 8 ♀ same data as holotype (2 ♂ 2 ♀ in DARI, 6 ♂ 6 ♀ in ANIC); 1 ♂ 48 mi. SW of Daly River, N.T., 14°11′S 130°08′E, 3.ix.1968, M. Mendum (ANIC); 2 ♂ in *Spinifex* grass, D-Vac, 112 km S. Normanton, N. Qld, 3.xi.1975, I. D. Galloway (QDPI); 1 ♂ 1 ♀ Magnetic Island, Townsville, N. Qld, 20.v.1928, L. Franzen (AM); 1 ♀ in dry vegetation, D-Vac, 64 km SE Normanton, N. Qld, 4.xi.1975 I. D. Galloway (QDPI); 2 ♀ (mounted together) "L. Franzen, for localities see letter to A. Musgrave" (AM).

Coloration: Pale brown with darker brown stripe running from behind eye on lateral pronotum to about midlength of costal cell, thence across tegmen to apex. Margin cells beyond apex of clavus and near apex of scutellum, and fore and mid tibiae and tarsi also dark brown. In some specimens claval suture, anteclypeus and genae below eyes also dark brown. Some specimens have less extensive brown areas.

Morphology: Frons slightly wider than long, smooth except for median longitudinal carina, with evenly convex lateral margins. Front margin of pronotum transverse, nearly level with front of eyes. Mesonotum wider than long, slightly longer than pronotum. Tegmen 2½ times as long as widest part which is about 1/3 length from base. Margins straight between widest part of tegmen and apex. Venation obscure.

Male genitalia: Pygofer (Fig 33) with posterodorsal corner rounded, process absent. Paramere (Fig 33) narrow, obovate with strongly developed dorsal process. Aedeagus as in Fig 34.

Measurements: Males.–lc (N=13) 2.97 ± 0.26 (2.42-3.33); lt (N=13) 4.51 ± 0.30 (3.54-5.00); wt (N=13) 1.72 ± 0.17 (1.31-1.92); lv (N=13) 0.32 ± 0.03 (0.24-0.36); wv (N=13) 0.55 ± 0.06 (0.44-0.65); lp (N=13) 0.35 ± 0.02 (0.30-0.38); lf (N=13) 0.63 ± 0.06 (0.51-0.69); wf (N=13) 0.74 ± 0.06 (0.61-0.83); hts (N=23) 11-13 (22% 11, 39% 12, 39% 13); htls (N=24) 12-17 (54% 15, 25% 16). Females.–lc (N=12) 3.31 ± 0.25 (2.83-6.64); lt (N=12) 4.89 ± 0.32 (4.24-5.25); wt (N=12) 1.82 ± 0.16 (1.52-2.02); lv (N=12) 0.38 ± 0.03 (0.32-0.42); wv (N=12) 0.59 ± 0.04 (0.48-0.63); lp (N=12) 0.37 ± 0.02 (0.34-0.40); lf (N=12) 0.65 ± 0.06 (0.53-0.75); wf (N=12) 0.77 ± 0.05 (0.69-0.85); hts (N=18) 11-14 (61% 13); htls (N=18) 13-17 (50% 15, 22% 16).

Notes: The specific name refers to the acuminate apex of the tegmen.

Falcophantis westcotti sp. nov.
(Figs 35-36)

Types: Holotype ♂ D-Vac in *Spinifex* grass, 112 km S. Normanton, N. Qld. 3.xi.1975, I. D. Galloway reg. no. T.10966 (QM). *Paratypes*: 2 ♂ 2 ♀ same data as holotype. (1 ♂ in DARI, 1 ♂ 2 ♀ in QDPI).

Coloration: Pale brown with dark brown stripe from beyond middle of tegmen to apex of sutural angle. Pronotum and mesonotum with faint median longitudinal pale stripe with darker stripe on either side.

Morphology: Frons wider than long, concave on basal half with roundly arched fronto-clypeal suture, convex on apical half, smooth with median longitudinal carina; lateral margins more strongly convex between clypeus and antenna than between antenna and apex, so that widest part is level with antennae. Pronotum shorter than vertex, with front margin transverse, slightly medially emarginate, and hind margin evenly concave. Mesonotum wider than long. Tegmen less than twice as long as widest part, which is at about half length of tegmen. Costal margin strongly convex to apex of costal cell, thence concave to apex of sutural angle. Sutural margin straight.

Male genitalia: Pygofer (Fig 35) short with posterior margins straight, process not developed. Paramere (Fig 35) narrow with triangular process on dorsal margin near apex. Aedeagus as in Fig 36.

Measurements: Males.–lc (N=3) 2.04 ± 0.03 (2.02-2.07); lt (N=3) 2.70 ± 0.06 (2.63-2.73); wt (N=3) 1.48 ± 0.08 (1.41-1.56); lv (N=3) 0.31 ± 0.03 (0.29-0.34); wv (N=3) 0.46 ± 0.02 (0.44-0.47); lp (N=3) 0.29 ± 0.01 (0.28-0.29); lf (N=3) 0.46 ± 0.05 (0.42-0.51); wf (N=3) 0.65 ± 0.01 (0.65-0.66); hts (N=4) 14-18 (50% 14); htls (N=4) 16-19 (75% 19). Females.–lc (N=2) 2.07, 2.27; lt (N=2) 2.73, 3.23; wt (N=2) 1.49, 1.67; lv (N=2) 0.32, 0.32; wv (N=2) 0.44, 0.48; lp (N=2) 0.28, 0.28; lf (N=2) 0.46, 0.48; wf (N=2) 0.65, 0.65; hts (N=3) 13-14 (67% 13); htls (N=2) 16.

Notes: This species is named after Alan E. Westcott whose meticulously detailed illustrations grace this paper.

Genus *Barsac* gen. nov.

Type species: *Barsac cinerascens* sp. nov.

Diagnostic features: Head short, frons and vertex separated by transverse carinate margin. Frons convex, smooth, with median longitudinal carina represented by indistinct ridge. Vertex, pronotum and mesonotum flat to concave, without median longitudinal carina. Vertex with medially interrupted transverse ridge. Tegmen narrow, parallel-sided, with evenly convex apical margin. Subapical line present at about level of apex of clavus. Apical crossveins sparse. Costal cell wider than costal membrane. Cu simple. Tegmen outwardly prominent near base of Rs. Hind tibia with one spine on external margin. Anal segment, particularly of female, large.

Notes: *Barsac* shows affinity with *Massila* Walker from which it can be distinguished by the characters given in the key. The rounded apex of the tegmen and the brown coloration make members of this genus quite distinctive. The outwardly curved paramere process is also a characteristic of the genus. Three of the four species of *Barsac* are restricted to the arid areas of Australia.

This genus is named after the commune of French Sauternes which has given me the greatest inspiration. The generic name is feminine.

Barsac cinerascens sp. nov.
(Figs 13-16, 37-38)

Holotype ♂ 50 mi. S. of Coolgardie, Western Australia, 28 Oct. 1958, E. F. Riek, reg. no. 9471 (ANIC). *Paratypes*: 1 ♂ 4 mi N of Colona HS, Sth Aust., 20 Oct. 1968, Britton, Upton, Balderson, Key's field notes: Trip 156, Stop 5152.5 (DARI); 1 ♂ at light, 54 km E. Vokes Hill Junction, Sth Aust., 8 Oct. 1976, J. A. Herridge (SAM); 1 ♀ Smoky Bay, Sth Aust., 6 Oct. 1964, A. Douglas leg. (WAM); 1 ♀ (head missing) 66 km NE Maralinga, on Commonwealth Hill Road, Sth Aust., 15 Feb. 1972, G. Gross (SAM).

Coloration: Dark brown to black. Clypeus orange with testaceous median carina. Frons dark brown with scattered small testaceous spots and pale median carina. Vertex black with triangular white patch on each side behind raised front margin and small orange patch on lateral part of hind margin on each side. Pronotum dark brown with testaceous granules. Mesonotum pitchy with yellowish markings along lateral carinae and along either side of midline, and with yellowish speckling laterally. Tegmen dark brown, tending to black on apical portion, with light brown longitudinal veins and subapical line. Granules white. End of subapical line near clavus with white patch. Legs brown.

Morphology: Frons about as long as wide with lateral margins straight to widest part level with antennae, then sharply incurved to clypeus. Vertex with front margin obtusely angulate medially. Pronotum front margin evenly convex, reaching nearly to level with front of eyes, hind margin moderately concave. Tegmen with dense granules on basal half of clavus and in costal membrane. Granules absent from costal cell, evenly scattered over rest of tegmen. Crossveins sparse, absent from clavus. Spines at apex of hind tibia normally eight with two set at different level to other six. Smaller specimens have fewer spines at apex of hind tibia and first hind tarsal segment.

Male genitalia: Pygofer (Fig 37) without process on posterodorsal corner. Paramere (Fig 37) convex with strongly developed outwardly curving process on dorsal margin. Anal segment short, medially cleft to base of 10th segment. Aedeagus as in Fig 38.

Measurements: Males.–lc (N=3) 4.28 ± 0.26 (4.04-4.55); lt (N=3) 6.15 ± 0.25 (5.97-6.44); wt (N=3) 2.51 ± 0.08 (2.42-2.58); lv (N=3) 0.22 ± 0.02 (0.20-0.24); wv (N=3) 0.76 ± 0.64 (0.69-0.81); lp (N=3) 0.39 ± 0.04 (0.36-0.44); lf (N=3) 0.98 ± 0.01 (0.97-0.99); wf (N=3) 1.08 ± 0.01 (1.07-1.09); hts (N=9) 7-8 (89% 8); htls (N=9) 9-12 (33% 9, 33% 11). Females.–lc (N=2) 4.70, 5.05; lt (N=2) 6.51, 6.67; wt (N=2) 2.63, 2.78; lv (N=1) 0.20; wv (N=1) 0.85; lp (N=1) 0.40; lf (N=1) 1.07; wf (N=1) 1.09; hts (N=3) 8; htls (N=3) 9-10 (67% 9).

Notes: The specific name is derived from the generally dark appearance of the species.

Barsac minima sp. nov.
(Figs 39-40)

Holotype ♂ at light, Lake Gillies Nat. Pk, Eyre Pen. S.A., 13.xi.1975, J. A. Herridge, reg. no. 21206 (SAM). *Paratypes*: 1 ♂ Southern Cross, W.A., 10-22.i.1936, R. E. Turner, BM 1936-28 (BMNH); 1 ♂ Ouyen Vict., 16.iii.1966, J. A. Grant, BM/CSIRO Expedition, BM 1973-346 (BMNH); 1 ♀ Dedari, 40 mi. W. of Coolgardie, W.A., 11-21.i.1936, R. E. Turner, BM 1936-28 (BMNH); 1 ♀ at light, 185 km S. Radium Hill, on powerline track, S.A., 3.x.1962, P. Aitken (SAM).

Coloration: Light brown to dark brown. Clypeus as in type species. Frons pale brown. Vertex dark brown with transverse ridge testaceous. Pronotum and mesonotum dark brown with variable longitudinal pale lines. Pronotum with pale testaceous granules. Tegmen as in type species. Legs pale brown.

Morphology: Head, thorax and tegmina similar to type species. Vertex with front margin roundly angulate medially. Pronotum front margin convex to transverse medially. Apex of hind tibia with 7 spines.

Male genitalia: Pygofer (Fig 39) posterior margin undulate. Paramere (Fig 39) very broad, convex, apically truncate. Dorsal process broad basally then narrowed abruptly, apically curved laterally. Aedeagus as in Fig 40. Ventral margin strongly bowed.

Measurements: Males.–lc (N=3) 3.40 ± 0.21 (3.23-3.64); lt (N=3) 4.85 ± 0.26 (4.65-5.15); wt (N=3) 2.07 ± 0.08 (2.02-2.16); lv (N=3) 0.17 ± 0.04 (0.14-0.20); wv (N=3) 0.64 ± 0.03 (0.61-0.67); lp (N=3) 0.32 ± 0.04 (0.28-0.36); lf (N=3) 0.75 ± 0.07 (0.69-0.83); wf (N=3) 0.84 ± 0.08 (0.79-0.93); hts (N=7) 7; htls (N=7) 9-10 (71%: 9).

Notes: The genitalia of this species differ from those of *B. cinerascens* in the shape of the paramere and in the ventral margin of the aedeagus. Both species have 2 pairs of apical aedeagal processes. One pair curves around the ventral side of the aedeagal apex and the other pair is directed more or less straight towards the base of the aedeagus. *B. minima* is significantly smaller ($p < 0.05$) in all characters measured than *B. cinerascens*. *B. minima* is recorded from western Victoria to Western Australia whereas *B. cinerascens* has not been recorded East of central South Australia. Neither species is known North of 30°S latitude whereas the other two species of *Barsac* are not known from localities South of this latitude.

The specific name reflects the small size of the species compared with the type species.

Barsac excurva sp. nov.
(Figs 41-42)

Holotype ♂ Collinsville, 150 km WNW of Mackay, Qld. April 1984, A. C. Webb (DARI).

Coloration: Light brown. Clypeus light brown, paler medially. Frons uniformly brown. Vertex and pronotum pale medially. Mesonotum light brown with testaceous granules; median and lateral carinae flanked by testaceous lines. Tegmen as in type species. Legs pale brown.

Morphology: Head, thorax and tegmina similar to type species. Front margin of vertex undulate. Apex of hind tibia with 8 spines with one set at different level to other seven in sole specimen known.

Male genitalia: Pygofer (Fig 41) with minute process on posterodorsal corner. Paramere (Fig 41) narrowed from basal half to apex which curves dorsally and is continuous with outwardly curved elongate process. Aedeagus as in Fig 42.

Measurements: Holotype male.–lc 3.64; lt 5.45; wt 2.12; lv 0.10; wv 0.65; lp 0.36; lf 0.87; wf 0.97; hts 8, 8; htls 11, 11.

Notes: The aedeagus bears two pairs of apical processes originating from the apex in a similar way to those of *B. cinerascens* but the lateral pair curve outwards and are longer than the apical pair which cross over near the apex and do not extend beyond the level of the dorsal edge of the aedeagus as they do in the other three species. The structure of the male genitalia indicates an affinity with *B. cocoa* sp. nov. In general appearance, *B. excurva* resembles *B. cinerascens* whereas *B. cocoa* has longer, narrower tegmina.

The specific name refers to the outwardly curving apical aedeagal processes which are a diagnostic feature.

Barsac cocoa sp. nov.
(Figs 43-44)

Holotype ♂ 15 km E of Millstream, W.A., 21°35′S 117°12′E, 20.x.1970, Upton and Feehan, reg. no. 9472 (ANIC). *Paratypes*: 1 ♂ at light, nr Victory Well, Everard Pk, S.A., 3.xi.1970, G. F. Gross (SAM); 1 ♂ (genitalia missing) at light, 12.5 km SSE of Banjiwarn HS, 27°42′S 121°37′E, W.A., 22-28.ii.1980, T. F. Houston *et al.*, 316-10 (WAM); 3 ♀ same data as holotype (1 in DARI, 2 in ANIC); 1 ♀ on foliage of *Eucalyptus gamophylla*, NE foot of Mt Bruce, 22°36′S 118°08′E, W.A. 6-15.v.1980, T. F. Houston *et al.*, 318-3 (WAM); 1 ♀ 24°58′S 129°23′E, Hull R. 33 km ESE of Docker River, N.T., 17.xi.1977, T. A. Weir (ANIC).

Coloration: Light brown. Clypeus brown, medially pale. Frons brown with pale carinae. Vertex and pronotum brown with indistinct pale markings. Pronotum testaceous. Mesonotum brown with testaceous granules and orange and testaceous longitudinal markings. Tegmen as in type species but lacking white patch on subapical line. Apical margin dark. Legs pale brown.

Morphology: Head, thorax and tegmina similar to type species. Front margin of vertex rounded to subangulate medially. Pronotum front margin convex to transverse medially. Some obscure claval crossveins indicated. Apex of hind tibia with 10-12 spines mounted at two levels.

Male genitalia: Pygofer (Fig 43) with posterodorsal corner sclerotized and triangularly produced to form toothlike process with second shorter process dorsally. Paramere (Fig 43) narrow, apically curving dorsally with slightly outwardly curved, apically blunt process on dorsal margin. Aedeagus as in Fig 44.

Measurements: Males.–lc (N=3) 3.82 ± 0.17 (3.64-3.97); lt (N=3) 5.55 ± 0.20 (5.35-5.76); wt (N=3) 2.16 ± 0.05 (2.12-2.22); lv (N=3) 0.12 ± 0.02 (0.11-0.14); wv (N=3) 0.68 ± 0.02 (0.65-0.69); lp (N=3) 0.34 ± 0.02 (0.32-0.36); lf (N=3) 0.83 ± 0.02 (0.81-0.85); wf (N=3) 0.87 ± 0.02 (0.85-0.89); hts (N=4) 11-13 (75%: 11); htls (N=5) 12-19. Females.–lc (N=5) 4.15 ± 0.12 (3.94-4.24); lt (N=5) 5.94 ± 0.24 (5.56-6.16); wt (N=5) 2.28 ± 0.09 (2.19-2.42); lv (N=5) 0.14 ± 0.01 (0.12-0.14); wv (N=5) 0.74 ± 0.03 (0.69-0.77); lp (N=5) 0.34 ± 0.02 (0.32-0.36); lf (N=5) 0.89 ± 0.03 (0.85-0.93); wf (N=5) 0.92 ± 0.05 (0.85-0.97); hts (N=10) 11-14 (60%: 11); htls (N=10) 13-20.

Notes: This species is narrower than the type species and the apices of the longitudinal veins of the tegmen are dark and not differentiated from the colour of the surrounding cells. In *B. cinerascens* the apices of the long veins are paler than the surrounding cells, which are concave between the veins. In genitalia characters, *B. cocoa* shows affinity with *B. excurva*. These two species are recorded from localities considerably North of the known distributions of *B. cinerascens* and *B. minima*.

The specific name is derived from the general brown coloration.

Genus *Salurnis* Stål

Salurnis Stål 1870: 773-4.

Type species: *Salurnis granulosa* Stål.

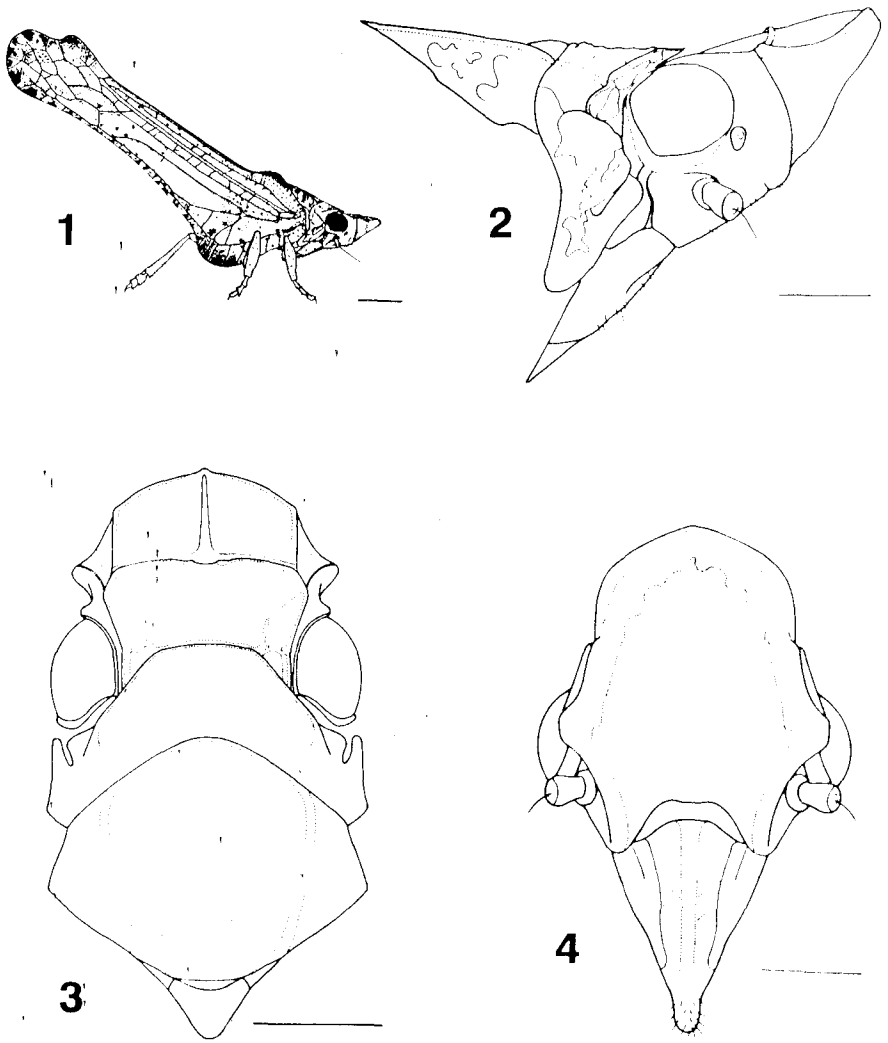
Notes: Kershaw (1912) discussed the oviposition of "*Salurnis marginellus* Guérin-Méneville and . . . *Geisha distinctissima* Walker, both from South China; also *Neomelicharia furtiva* Melichar, from North Queensland". In reporting this, Imms (1914) incorrectly stated that Kershaw recorded *S. marginellus* from Australia. This error was perpetuated by Metcalf (1957). To the present writer's knowledge no species of *Salurnis* occurs in Australia.

Genus *Poeciloflata* Melichar

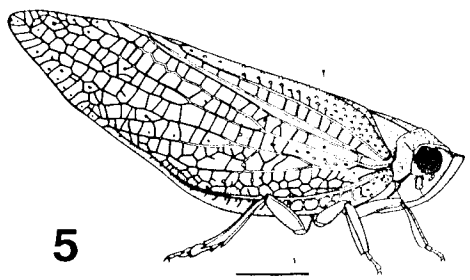
Poeciloflata Melichar 1901: 235.

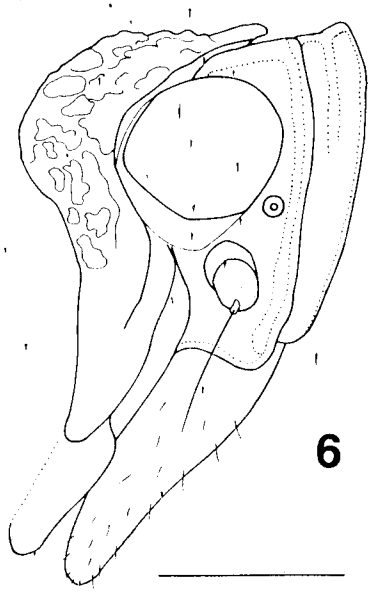
Type species: *Cicada modesta* Donovan.

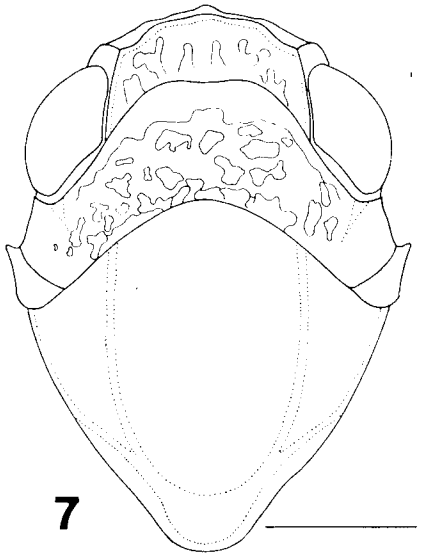
Notes: The two species recorded from "Botany Bay" by Donovan, *P. modesta* Donovan and *P. viridana* Donovan, do not appear in any extant collection of Australian Flatidae. The location of Donovan's material is unknown. It appears likely that these two species

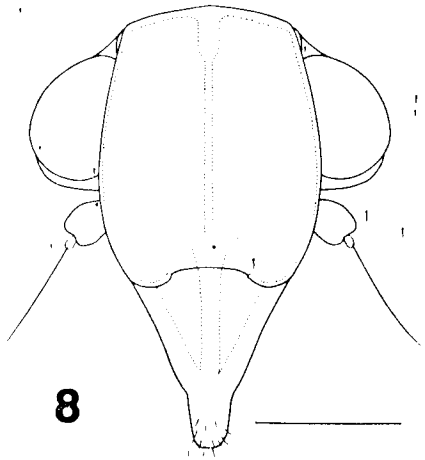


Figs 1-4. *Austrodascalia evansorum*: (1) habitus; (2) head, pronotum and mesonotum, lateral view; (3) dorsal view; (4) frontal view. Scale lines–1, 1 mm; 2-4, 0.5 mm.

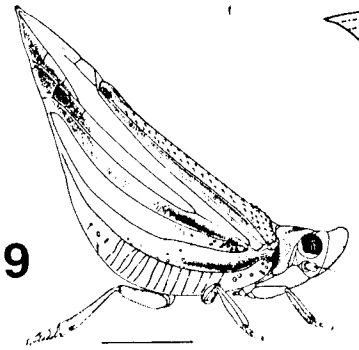


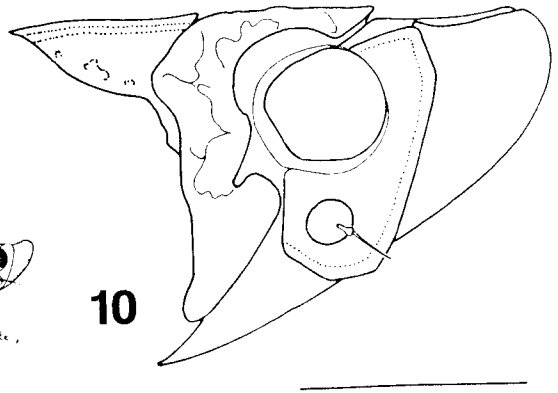


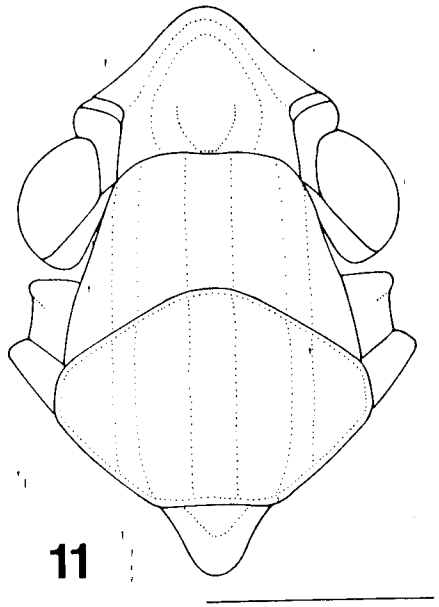


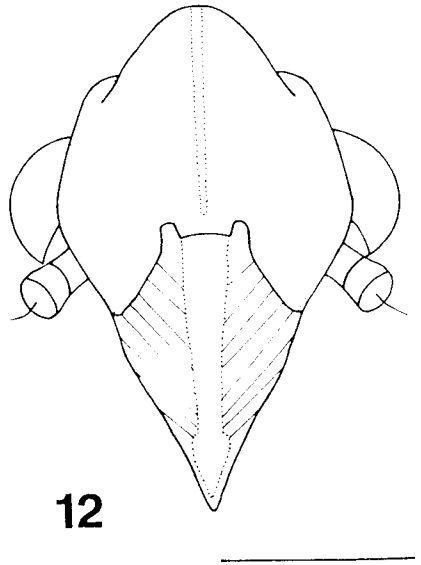


Figs 5-8. *Parasiphanta lanceolata*: (5) habitus; (6) head, lateral view; (7) head, dorsal view; (8) head frontal view. Scale lines–5, 1 mm; 6-8, 0.5 mm.

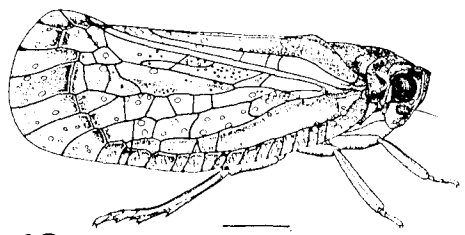


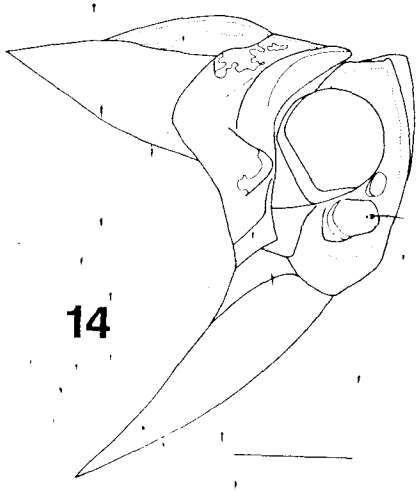


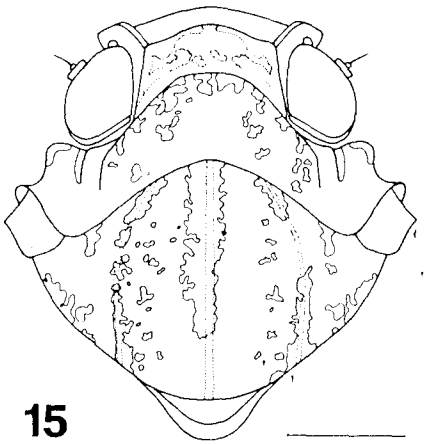


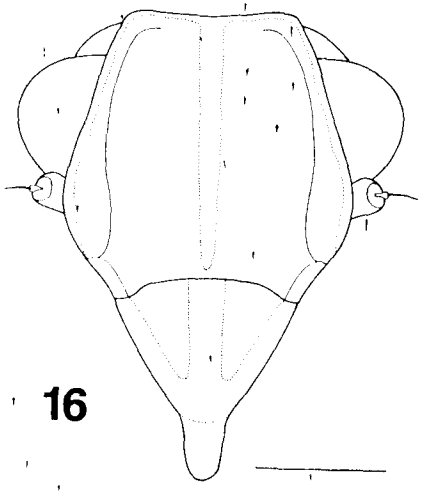


Figs 9-12. *Falcophantis acuminatus*: (9) habitus; (10), head, lateral view; (11) head, dorsal view; (12) head, frontal view. Scale lines–9, 1 mm; 10-12, 0.5 mm.

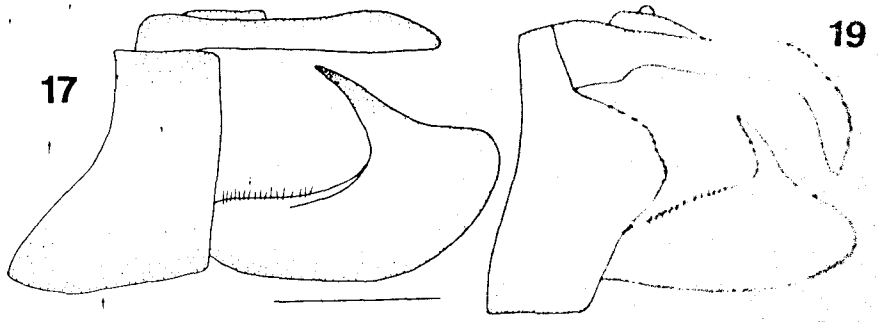


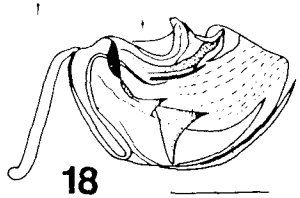


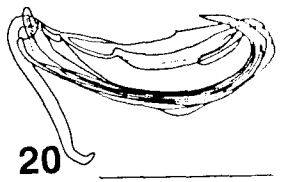


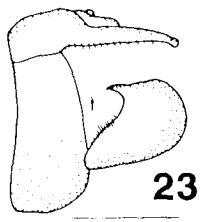


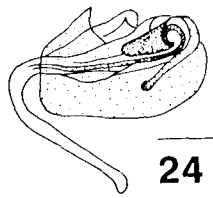
Figs 13-16. *Barsac cinerascens*: (13) habitus; (14) head, lateral view; (15) head, dorsal view; (16) head, frontal view. Scale lines–13, 1 mm; 14-16, 0.5 mm.

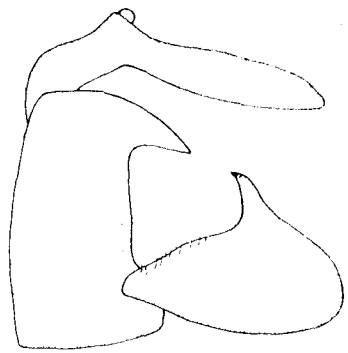


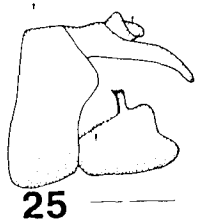


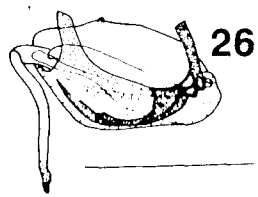




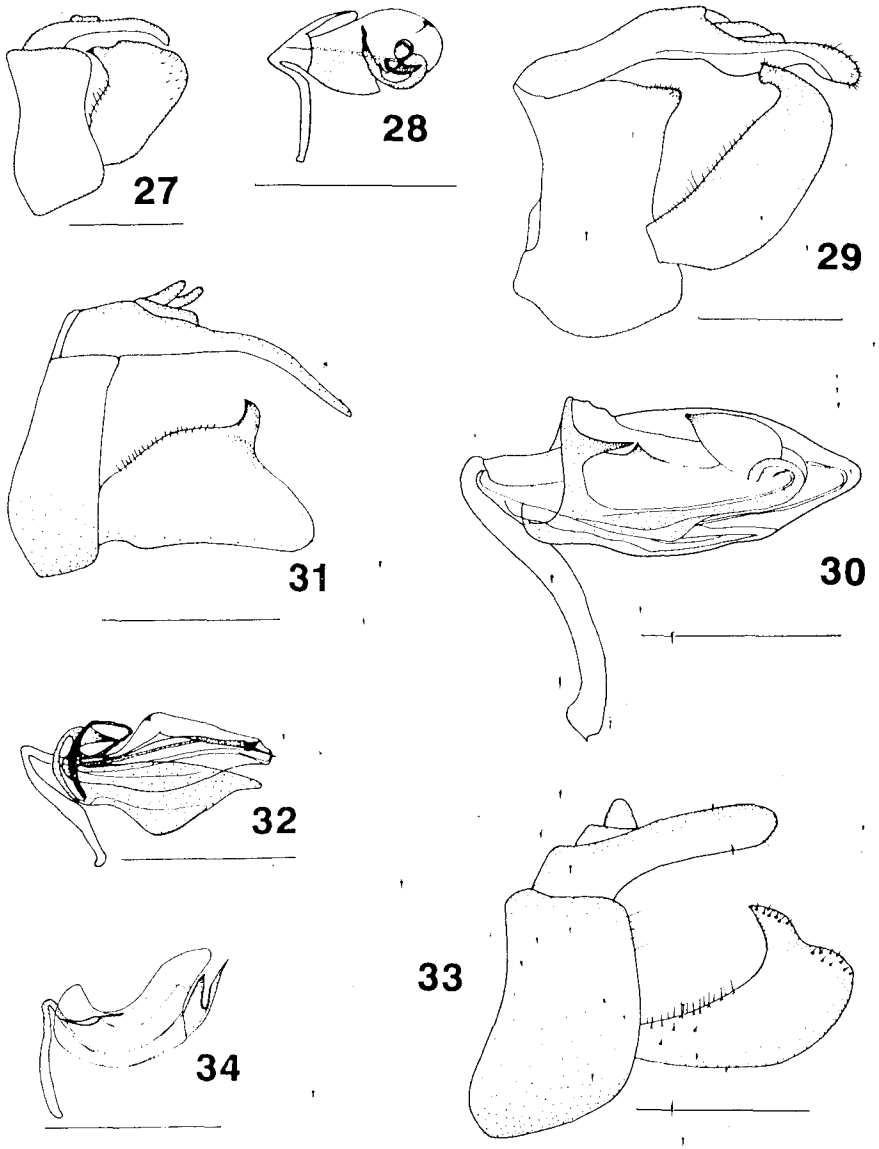




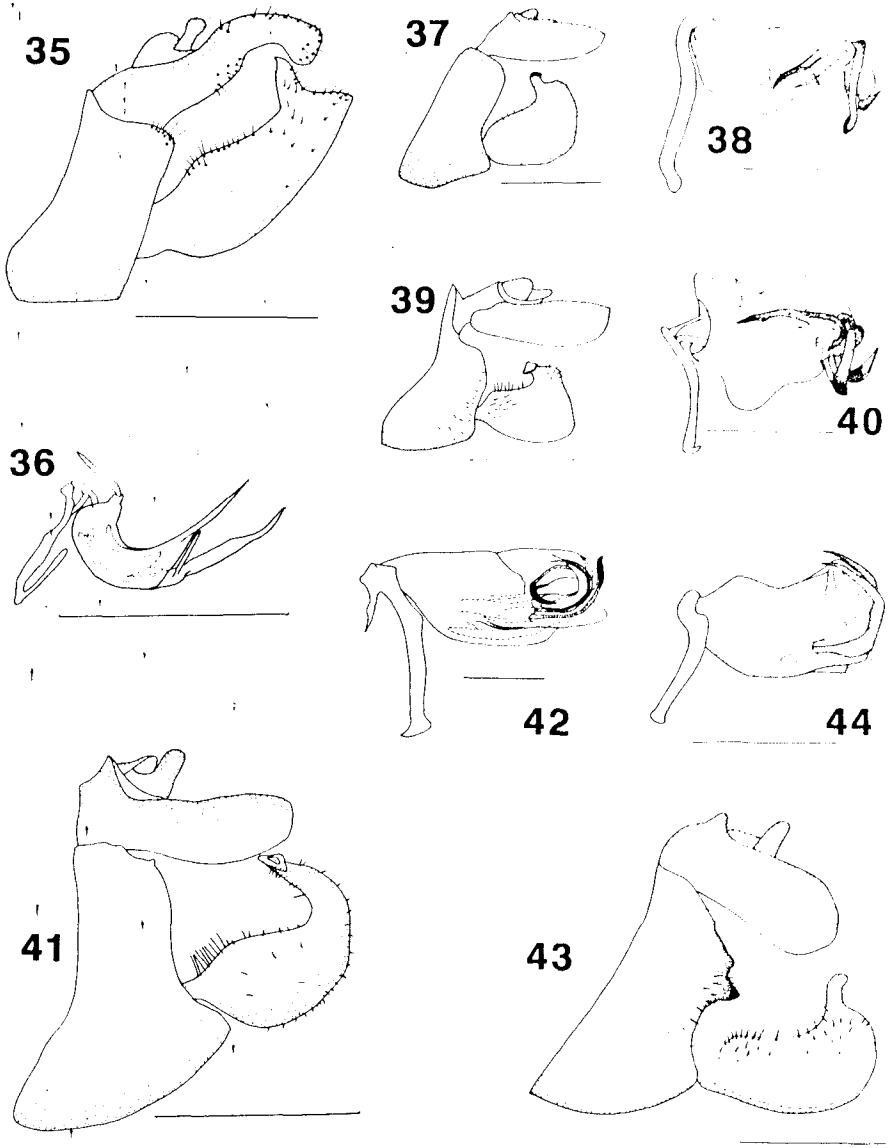




Figs 17-26. Male terminalia and aedeagus: (17, 18) *Uxantis notata*; (19, 20) *Jamella australiae*; (21, 22) *Paradaksha meeki*; (23, 24) *Colgaroides acuminata*; (25, 26) *Hypsiphanta minax*. Scale lines 0.5 mm.



Figs 27-34. Male terminalia and aedeagus: (27-28) *Euphanta acuminata*; (29, 30) *Austrodascalia evansorum*; (31, 32) *Parasiphanta lanceolata*; (33, 34) *Falcophantis acuminatus*. Scale lines: 27, 28, 31, 0.5 mm; others 0.25 mm.



Figs 35-44. Male terminalia and aedeagus: (35, 36) *Falcophantis westcotti*; (37, 38) *Barsac emerascens*; (39, 40) *Barsac minima*; (41, 42) *Barsac excurva*; (43, 44) *Barsac cocoa*. Scale lines: 42, 0.1 mm; others 0.25 mm.

are not Australian. Specimens in the Naturhistoriska Riksmuseet in Stockholm, determined by Melichar, are from Celebes.

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References

Distant, W. L. (1910a). Rhynchotal Notes 1. *Ann. Mag. nat.-Hist.* (8)5: 297-322.

Distant, W. L. (1910b). Rhynchota Malayana. Part III. *Rec. Indian Museum* 5: 313-338.

Donovan, E. (1805). *An epitome of the natural history of the insects of New Holland, New Zealand, New Guinea, Otaheite, and other islands in the Indian, Southern and Pacific Oceans.* (Pages not numbered). Donovan: London

Fletcher, M. J. (1979). Notes on Australian Flatidae (Homoptera, Fulgoroidea) including a new synonymy. *Gen. appl. Ent.* 11: 67-71.

Fletcher, M. J. (1980). Review of the Australian genera *Euryphantia* Kirkaldy and *Thanatochlamys* Kirkaldy (Homoptera, Fulgoroidea, Flatidae). *Aust. ent. Mag.* 7(2): 21-26.

Fletcher, M. J. (1982). The Australian genus *Geraldtonia* Distant (Homoptera: Fulgoroidea: Flatidae). *J. Aust. ent. Soc.* 21: 269-270.

Fletcher, M. J. (1985). A revision of the genus *Siphanta* Stål (Homoptera, Fulgoroidea, Flatidae). *Aust. J. Zool. Suppl.* 110: 1-94.

Imms, A. D. (1914). Observations on the homopterous insect *Phromnia* (*Flata*) *marginellus* Oliv. in the Himalayas. *Mem. Manchester Lit. Phil. Soc.* 58(4): 1-12.

Jacobi, A. (1928). Rhynchota Homoptera. 1. Fulgoridae und Cercopidae. *In* Results of Dr E. Mjöberg's Swedish scientific expeditions to Australia 1910-1913. *Arkiv.-Zool.* 19(28): 1-50.

Kershaw, J. C. (1912). Notes on *Flata*. *J. Bombay nat. Hist. Soc.* 21: 607-609.

Kirkaldy, G. W. (1899). Eine neue Hawaii'sche Fulgoriden-Gattung und Art. *Ent. Nachr.* 25: 359.

Kirkaldy, G. W. (1900a). Bibliographical and nomenclatorial notes on the Rhynchota. No. 1. *Entomologist* 33: 238-243.

Kirkaldy, G. W. (1900b). Notes on some Sinhalese Rhynchota. *Entomologist* 33: 293-295.

Kirkaldy, G. W. (1903). Recent literature. *Entomologist* 36: 77-79.

Kirkaldy, G. W. (1906). Leafhoppers and their natural enemies. Pt IX. Leafhoppers, Hemiptera. *Bull. Hawaiian Sugar Planters Assoc. Div. Ent.* 1(9): 271-479.

Kirkaldy, G. W. (1907). Leafhoppers, Supplement. Hemiptera. *Bull. Hawaiian Sugar Planters Assoc. Div. Ent.* 3: 1-186.

Matsumura, S. (1900). Ubersicht der Fulgoriden Japans. *Ent. Nachr.* 26(14): 205-213.

Medler, J. T. (1986a). The types of Flatidae (Homoptera) in the Stockholm Museum, Sweden, described by Stål, Melichar, Jacobi and Walker. *Entomol. Scand.* 17(3): 323-338.

Medler, J. T. (1986b). *Anzora* and *Dworena*, two new genera erected for Australian species formerly placed in *Paratella* and *Sephena*. (Homoptera: Fulgoridae). *Insecta Mundi* 1(4): 206-208.

Medler, J. T. (1987). Types of Flatidae (Homoptera). XI. Taxonomic notes on Kirkaldy types in the Bishop Museum, with illustrations of the genitalia of male lectotypes. *Occ. Pap. Bishop Mus.* 27: 115-125.

Melichar, L. (1901). Monographie der Acanaloniiden und Flatiden (Homoptera). *Ann. Nat. Hofmus. Wien.* 16: 178-258.

Melichar, L. (1902). Monographie der Acanaloniiden und Flatiden (Homoptera) (Fortsetzung). *Ann. Nat. Hofmus. Wien.* 17: 1-253.

Melichar, L. (1905). Genera tria Fulgoridarum mundi antique. *Ann. Mus. Nat. Hungarici* 3: 473-477.

Melichar, L. (1923). Homoptera, fam. Acanaloniidae, Flatidae et Ricaniidae. *Gen. Insect.* 182: 1-185.

Metcalf, Z. P. (1957). *General catalogue of the Homoptera.* Fasc. IV Fulgoroidea. Pt 13. Flatidae and Hypochthonellidae. North Carolina State College, Raleigh, NC.

Stål, C. (1862). Bidrag till Rio Janeiro-traktens Hemipterfauna II. *Handl. Svenska Vet. Akad.* 3(6): 1-75.

Stål, C. (1870). Hemiptera insularum Philippinarum. Bidrag till Philippinska öarnes Hemipterfauna. *Öfv. Svenska Vet. Akad. Förh.* 27: 607-776.

Walker, F. (1862). Characters of undescribed species of Homoptera in the collection of F. P. Pascoe, F.L.S. *Jl. Ent.* 1: 303-319.