Amphitheridae (Lepidoptera) : Four New Species from Asia, Telethera blepharacma MEYRICK New to Japan and Formosa, and Sphenographtis MEYRICK Transferred to the Family

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Amphitheridae (Lepidoptera): Four New Species from Asia, *Telethera blepharacma* MEYRICK New to Japan and Formosa, and *Sphenograptis* MEYRICK Transferred to the Family

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Abstract

Four new Asiatic species of the family Amphitheridae, *viz.*, *Telethera formosa* (Formosa), *Agriothera elaeocarpophaga* (Japan and Assam), *A. issikii* (Formosa), and *A. meyricki* (Assam), are described. *Telethera blepharacma* MEYRICK is redescribed, and is recorded from Japan and Formosa for the first time. A partial description of the immature stages of *Agriothera elaeocarpophaga* is presented. The Australian genus *Sphenograptis* MEYRICK is revised and transferred here from the Yponomeutidae to the Amphitheridae.

The Amphitherid moths belonging to the genera *Telethera* MEYRICK and *Agriothera* MEYRICK are known to occur in Japan and Formosa,[1] but the names of these species have not yet been definitely determined. The intent of the present paper is to provide the name for the Japanese and Formosan species. These are: a new species of *Telethera*, a previously described species *T. blepharacma* MEYRICK, and two new species of *Agriothera*, one of which also occurs in Assam. The opportunity is taken at the same time to describe a new *Agriothera* from Assam, to describe the hitherto unknown early stages of the family Amphitheridae, and to place the monotypic Australian genus *Sphenograptis* MEYRICK in the Amphitheridae.

The family Amphitheridae was proposed by MEYRICK[2] in 1913 for one Australian genus *Amphithera* MEYRICK and two Indian genera *Agriothera* MEYRICK and *Telethera* MEYRICK. In that paper he wrote: "Specially characterized by the peculiar form of hindwings; two [*Amphithera* and *Telethera*] of the three genera also possess a unique eye-structure. The group is a development of the Plutellidae [= Yponomeutidae]; it is distinct and remarkable." The exceptional eye-structure is shown in figs. 1, 2, and 17. In his systematic studies on the Microlepidoptera of New Guinea, DIAKONOFF[3] gave a concise account of the interesting family. He states his view on the family as follows: "The group must be an ancient one, of which its present distribution bears clear evidence. The family might represent a side branch of the Yponomeutid stock, and be of a Papuan origin. . . . . ."

As cited above, both MEYRICK and DIAKONOFF considered that the Amphitheridae are related to the Yponomeutidae in the superfamily Yponomeutoidea. However, I am inclined to think, though with some hesitation, that they are referable to the Gelechioidea. Vein R_5 of the forewing terminates in the costa. This is a good and an ordinary character of the Gelechioidea, and the character is very unusual in any family

of the Yponomeutoidea. I am not able to determine the systematic position of the family, from the standpoint of male and female genitalia. From a study of immature forms, I have not sufficient evidence to settle the position. In the larva, the ventral proleg bears uniordinal crochets arranged in a lateral penellipse plus a vertiacl posterior row within the penellipse. The arrangement of crochets is of a Gracillarid type, and is quite distinct from that of the Yponomeutoidea and Gelechioidea. In the pupa, the prothoracic femur is exposed, a good Yponomeutoid character; the abdomen has a transverse row of small spines on the dorsum of 3rd–7th segments, this character being not found in the Yponomeutoidea as well as in most of the Gelechioidea. The systematic position requires further study.

This puzzling family Amphitheridae comprises seven genera at present. A practical key to separate the six genera of the family was proposed by DIAKONOFF ; [3] his key is enlarged and somewhat revised as follows:

Key to genera of Amphitheridae based on external characters

1. Hindwing with a deep sinuate fold containing vein Cu_2 (Range: Colombia) ..... *Dasycarea* ZELLER, 1877
– Hindwing (figs. 3, 4) without such a fold 2
2. Hindwing (figs. 3, 4) with veins M_3 and Cu_{1a} coincident 3
– Hindwing with veins M_3 and Cu_{1a} connate or stalked 6
3. Labial palpus smooth-scaled 4
– Labial palpus slightly roughened anteriorly or beneath 5
4. Eye normal in both sexes (Range: Japan, Formosa, India, and Ceylon) ..... *Agriothera* MEYRICK, 1907
– Eye (figs. 1, 2, 17) horizontally divided by a scaled projection in male, and posteriorly indented in female (Range: Japan, Formosa, and Ceylon) ..... *Telethera* MEYRICK, 1913
5. Forewing with veins R_4 and R_5 coincident (Range: Australia) ..... *Sphenographtis* MEYRICK, 1913
– Forewing with veins R_4 and R_5 not coincident (Range: Australia) ..... *Enchoptila* TURNER, 1914
6. Eye normal in both sexes (Range: New Guinea and Tasmania) ..... *Chalcoteuches* TURNER, 1927
– Eye separated into a small upper and an enlarged lower part in male, and deeply indented posteriorly in female (Range: Java, New Guinea, Australis, and Tasmania) ..... *Amphithera* MEYRICK, 1892

The following abbreviations are used for collections:

BMNH British Museum (Natural History), London.
EU Entomological Laboratory, Ehime University, Matuyama.
HU Entomological Institute, Hokkaido University, Sapporo.
ISSK ISSIKI Collection, U. S. National Museum of Natural History, Washington.
KU Entomological Laboratory, Kyushu University, Hukuoka.
SFR Shikoku Branch of the Government Forest Experiment Station, Kôti.
UOP Entomological Laboratory, University of Osaka Prefecture, Sakai.

Telethera MEYRICK

Telethera MEYRICK, 1913, p. 155;[2] *id.*, 1914, p. 64.[4]—FLETCHER, 1929, p. 218.[5]

Type-species: *Telethera blepharacma* MEYRICK, 1913, by monotypy.

Eye abnormal in both sexes. Forewing with R_4 and R_5 stalked. Hindwing with M_3 and Cu_{1a} coincident.

Genitalia typical of the family.

Remarks: Besides the type-species, a new species of the genus is described below.

Telethera blepharama MEYRICK

(Figs. 1–3, 5, 11, 16–18)

Telethera blepharacma MEYRICK, 1913, p. 155–156;[2] *id.*, 1914, p. 64.[4]

As noted by MEYRICK in the original description, this species shows a distinct sexual dimorphism in coloration. Forewing bronzy-fuscous, in male darker. Hindwing (which is omitted in the original description) in male nearly fuscous, the cilia being paler, with a nearly fuscous subbasal shade; in female pale greyish-fuscous, the cilia being paler, with a pale greysih-fuscous subbasal shade.

Male genitalia: as in fig. 5. Apex of uncus deeply excavate, bilobed, with lobes widely separated. Gnathos long and slender, forming a distinct long ventral plate, which is apically dilated. Valva simple, nearly parallel-sided, with distal area rather heavily clothed with short hairs; sacculus short. Saccus rather short, with parallel sides. Aedeagus much shorter than valva, nearly straight; cornuti composed of numerous weak spinules.

Female genitalia: as in fig. 11. Ostium rounded, with sclerotized extreme ventral margin. Ductus bursae membranous throughout, except for a short sclerotized band just before inception of ductus seminalis. Signum well sclerotized, triangulated, situated at posterior end of corpus bursae, with a pointed apex.

Material examined: 10♂, 16♀.

Lectotype ♂, here designated, Kandy, Ceylon, VI. 1911 (MACHWOOD), BMNH (genitalia slide no. 19456).

Paralectotypes: 2♀, same data as lectotype, BMNH (genitalia slide no. 19457); 1♂, same locality, V. 1907 (GREEN), BMNH.

Other material: Japan: Ryukyus–Sakisima Islands–1♀, Barabido, Isigaki I., 18–19. XI. 1963 (H. INOUE), KU; 1♂, Inaba, Iriomote I., 14. XI. 1963 (H. INOUE), KU; 1♂, Ôhara, Iriomote I., 15. XI. 1963 (H. INOUE), KU; 1♀, Sirahama, Iriomote I., 4. IV. 1962 (Y. ARITA), UOP; 1♂, Urabedake, Yonakuni I., 12. V. 1963 (Y. ARITA), UOP; 1♂, Tabarugawa, Yonakuni I., 15. V. 1963 (Y. ARITA), UOP. Formosa: 1♀, Taihoku (=Taipei), 3. XI. 1932 (S. ISSIKI), ISSK; 1♂, same locality, 31. VIII. 1933 (S. ISSIKI), ISSK; 1♂, same locality, 2. X. 1933 (S. ISSIKI), ISSK; 2♂, same locality, 26, X. 1933 (S. ISSIKI), ISSK and my own; 1♀, same locality, 3. XII. 1933 (S. ISSIKI), ISSK; 1♀, same locality, 19. X. 1934 (S. ISSIKI), ISSK; 1♀, same locality, 25. XI. 1934 (S. ISSIKI), ISSK; 1♀, same locality, 11. XII. 1934 (S. ISSIKI), ISSK; 1♀, same locality, 27. XII.

1934 (S. ISSIKI), ISSK; 2♀, same locality, 8. V. 1935 (S. ISSIKI), ISSK and my own; 3♀, near Chuchi, 21. VI. 1974 (H. KUROKO & M. OWADA), UOP. Ceylon: 1♀, Paradeniya, 14–17. IV. 1914 (T. B. FLETCHER), BMNH.

Distribution: Japan (Ryukyus), Formosa, and Ceylon.

Host-plant: Unknown

Remarks: The genitalia of both sexes have hitherto been unknown.

Telethera formosa n. sp.

(Figs. 6, 19)

♂. 19 mm. Head, palpus, and thorax deep chocolate-brown; face brozy-brassy. Antenna having shinning bronzy-fuscous basal 3/4 with its median 1/3 tinged with shining yellowish-white, and having shining yellowish-white apical 1/4 with its basal 1/3 dotted with dark brown; pecten ochreous. Fore leg bronzy-grey, the tibia being white above and the tarsus being white, dotted with blackish-brown at apex of each segment; mid leg white, overlaid with blackish-brown on upper side of tibia, the tarsus being largely suffused with blackish-brown dorsally except at apex of each segment; hind leg bronzy-fuscous, with apical four tarsal segments nearly white. Abdomen fuscous dorsally and ochreous ventrally; anal tuft ochreous dorsally and white ventrally. Forewing (fig. 19) with termen very slightly arched; apex round-pointed; castaneous-brown, with bronzy reflections; a very outwardly-oblique narrow yellow streak from costa at 2/3, reaching about 1/3 across wing; apical area with margins narrowly suffused with orange-yellow except at apex; a suffused orange-yellow spot on termen at 4/5 of wing-length, with a very narrow white-tinged streak along termen; area beyond this spot diffusely irrorate with white sacles; tornal area (from 1/2 of wing-length to the orange-yellow spot) suffused with yellow scales; cilia yellowish-white, on costa castaneous-brown, on apex and along termen with apical and subapical lines, on tornus castaneous-brown in basal 1/3, and on dorsum castaneous-brown. Hindwing glossy fuscous; cilia paler than wing, with a darker subbasal shade.

Male genitalia: as in fig. 6. Apex of uncus weakly concave, with very scanty lobes; lateral side with a small hairy swelling before apex. Gnathos short, the arms being dilated apically and connected together at extremities. Valva with ventral enlarged portion about middle, densely clothed with long hairs; distal 1/3 much narrower; sacculus defined. Vinculum with long parallel-sided saccus. Aedeagus a little shorter than valva, weakly curved; cornuti invisible.

♀. Unknown.

Material examined: 1♂.

Holotype ♂, labelled "TAIWAN/ Kusu kusu/ 24. III. 1926/ S. Issiki," in my personal collection.

Distribution: Formosa.

Host-plant: Unknown.

Remarks: This is a conspicuously distinct and handsome species.

Agriothera MEYRICK

Agriothera MEYRICK, 1907, p. 750;[6] *id.*, 1914, p. 64.[4] — FLETCHER, 1929, p. 9.[5]

Type-species: *Agriothera melanacma* MEYRICK, 1907, by monotypy.

Eye normal in both sexes. Forewing with R_4 and R_5 stalked or coincident. Hindwing with M_3 and Cu_{1a} coincident.

Genitalia typical of the family.

Remarks: The species of the genus do not show the sexual dimorphism in the superficial appearance. Descriptions of three additional species are given under.

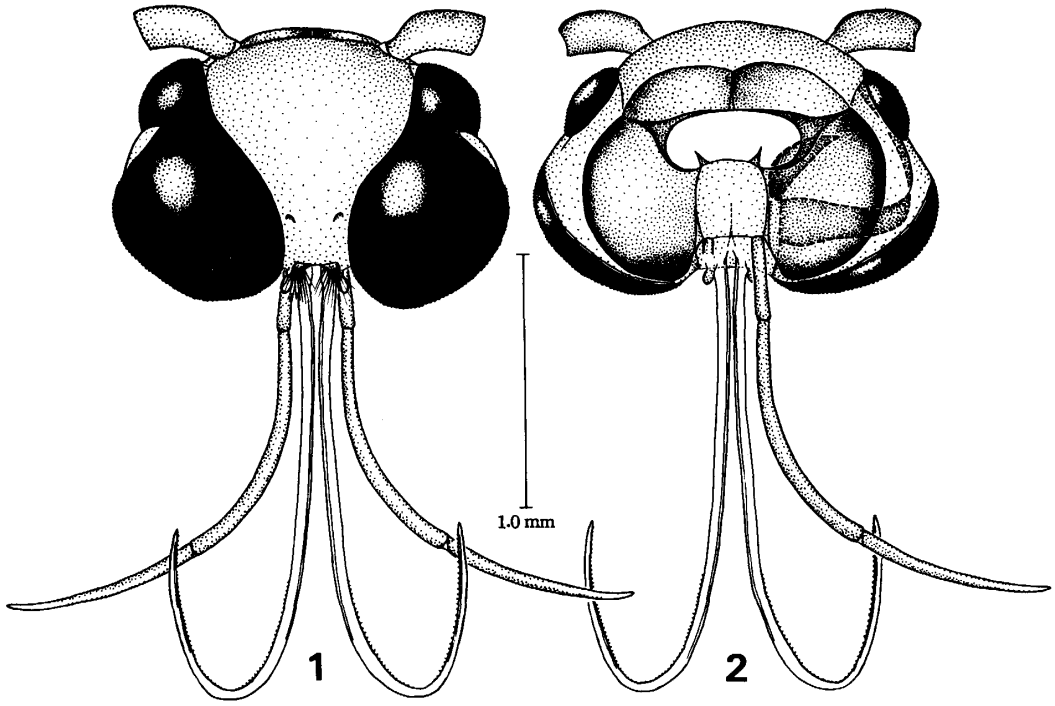
Agriothera elaeocarpophaga n. sp.

(Figs. 4, 10, 14, 15, 22, 25–37)

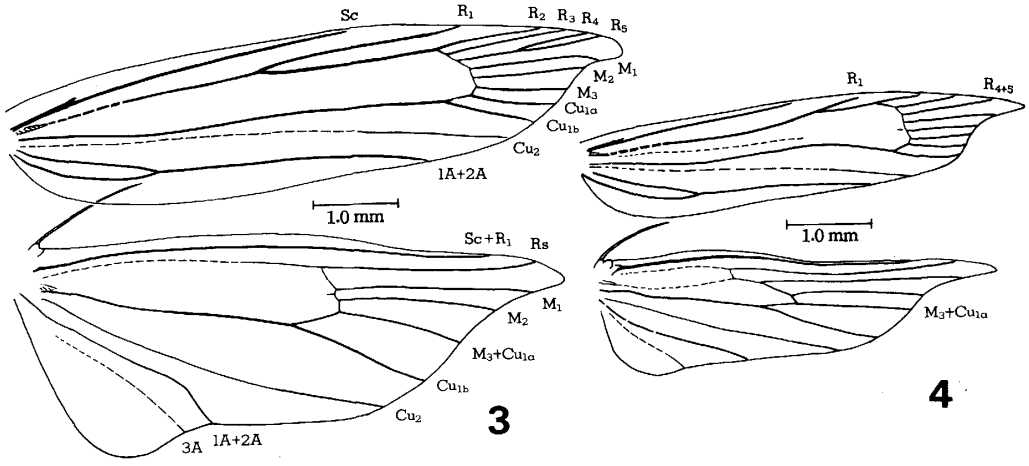
♂♀. 11–13 mm. Head white; crown whitish, the centre being dark gray; face bronzy-grey or bronzy-fuscous. Antenna with basal 2/3 dark fuscous above and pale ochreous beneath, and with apical 1/3 pale ochreous; scape whitish, mixed with pale ochreous above; pecten ochreous. Palpus white; middle segment dark fuscous exteriorly except at tip and pale fuscous interiorly on basal 2/3; terminal segment dark fuscous at base. Thorax whitish-ochreous; dorsal area dark fuscous. Lags whitish; fore and mid tibiae dark fuscous except at apices; hind tibia pale ochreous, largely mixed laterally with pale grey; all tarsi dark fuscous laterally, marked with white at apex of each segment. Abdomen dark grey above, whitish beneath; anal tuft ochreous-white. Forewing: shape as shown in figs. 4 and 22; R_4 and R_5 coincident; costal 1/3 grey or dark grey, crossed before apex by a transverse patch of white suffusion; dorsal 1/3 blackish-fuscous, posteriorly sometimes mixed with white or whitish scales, the upper edge with an oblique, irregularly wedge-shaped projection at 1/4 and middle; the remaining median 1/3 whitish, sometimes tinged with pale ochre; in some specimens disc sprinkled with dark fuscous scales; apical prominence blackish-fuscous, with bronzy reflections; cilia whitish, on costa, including apex, dark bronzy-fuscous, with a whitish median shade, along termen, excluding apex, tinged with pale ochre in basal 2/5, and on dorsum suffused with grey or dark grey. Hindwing thinly scaled, except towards termen; grey; costal cilia grey; terminal and dorsal cilia pale grey, with a darker subbasal shade and with a patch of whitsh suffusion beneath apex.

Male genitalia: as in fig. 10. Apex of uncus broadly concave, bilobed, the lobes being short. Gnathal arms forming a very broad median band instead of ventral plate. Valva narrow, lengthened, and densely clothed with long hairs on distal 2/5, the external surface with a concpicuous spine near rounded distal margin. Saccus short. Aedeagus shorter than valva, slender, bending sharply at basal 1/3, and somewhat twisted; cornuti absent.

Female genitalia: as in figs. 14 and 15. Ostium with ventral margin concave; the concavity varies in shape. Ductus bursae with a long sclerotized portion between ostium and inception of ductus seminalis. Signum a large process, with a well-developed basal plate. Seventh abdominal tergite (fig. 15a) with a narrow, posteriorly folded, rigid,



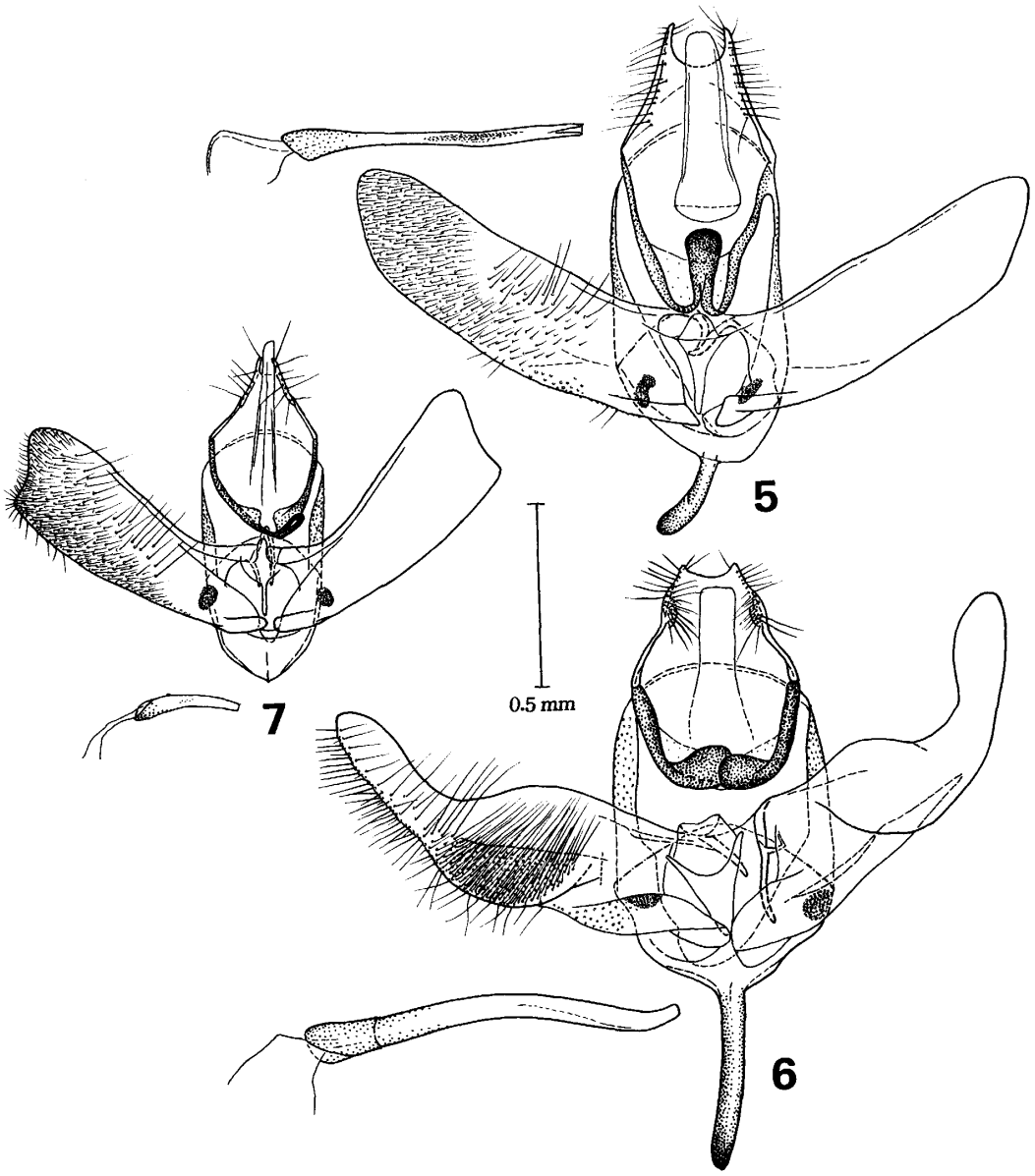
Figs. 1–2. Head, denuded: (1) *Telethera blepharacma* MEYRICK, ♂, Iriomote I., Ryukyus, anterior view; (2) *do.*, posterior view.



Figs. 3–4. Wing venation: (3) *Telethera blepharacma* MEYRICK, ♂, Yonakuni I., Ryukyus; (4) *Agriothera elaeocarpophaga* n. sp., ♂, paratype, Asizurimisaki, Sikoku.

transverse ridge.

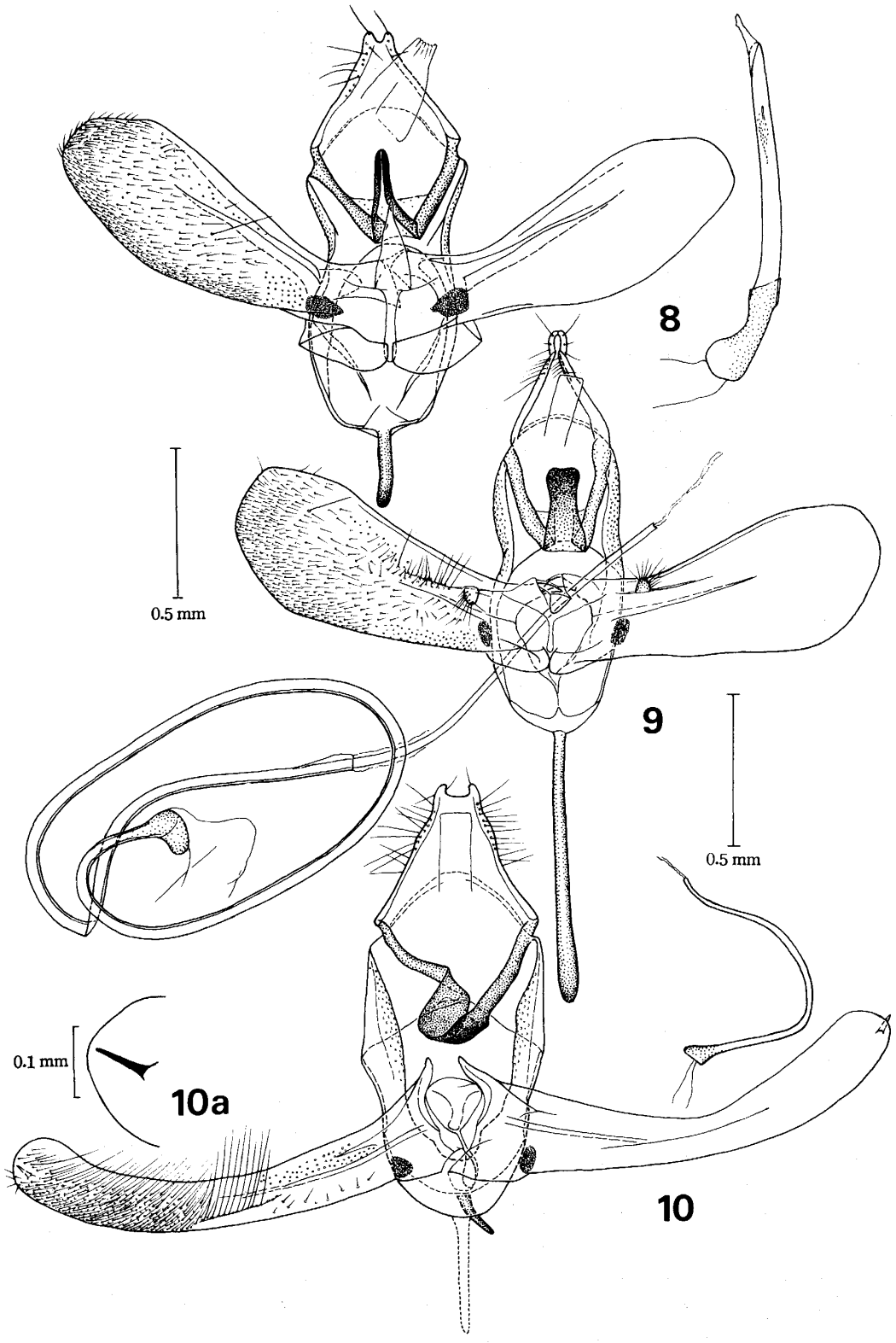
Material examined: 37♂, 21♀, 10 exs.



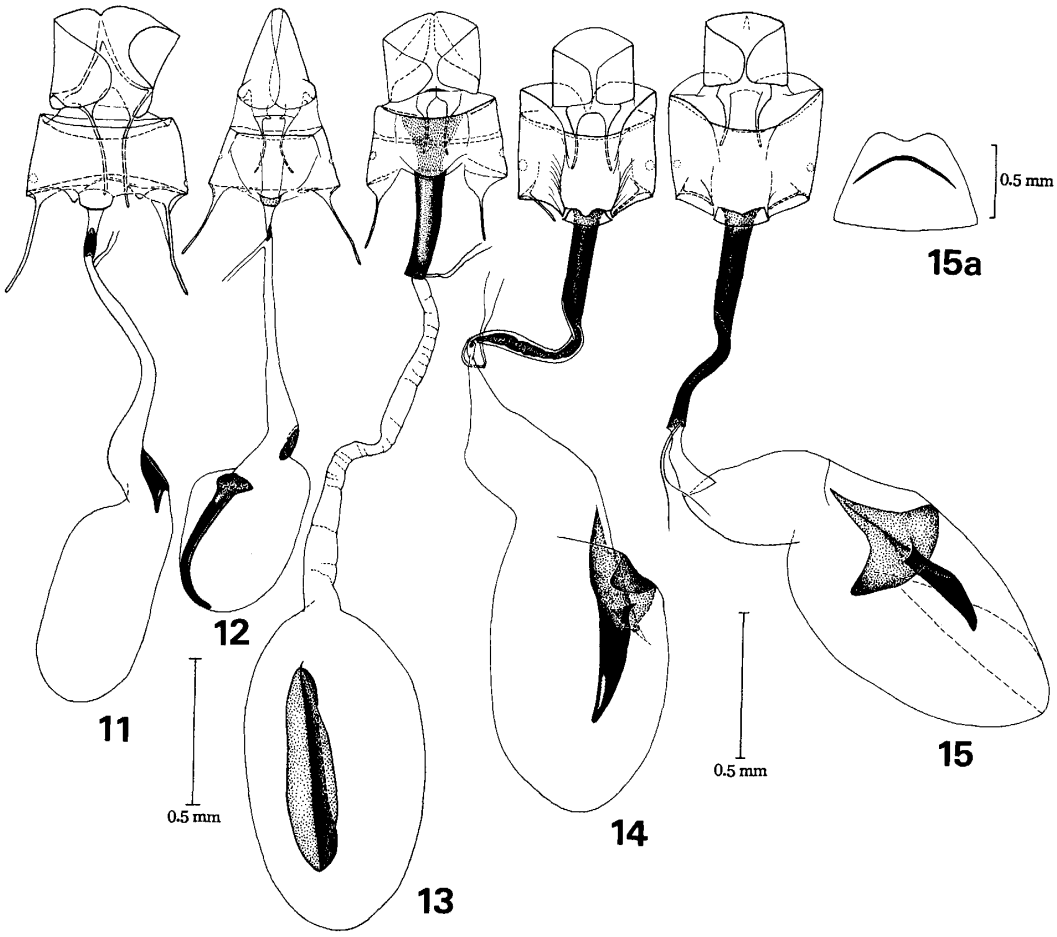
Figs. 5–7. Male genitalia, ventral view: (5) *Telethera blepharacma* MEYRICK, lectotype; (6) *T. formosa* n. sp., holotype; (7) *Sphenographtis celetica* MEYRICK Kuranda, Queensland.

Holotype ♂, Asizurimisaki, Kôti Prefecture, Sikoku, Japan, 14. VI. 1964 (S. MORIUTI), UOP.

Paratypes: Japan: Honsyu– 1♂, Nati, Wakayama Pref., 19. X. 1966 (T. KUMATA), HU; Sikoku– 6♂, 1♀, same data as type, UOP; 1♀, same locality as type, 4. VII. 1961 (M. OKADA), UOP; 20♂, 14♀, same locality as type, 6. VII. 1961 (M. OKADA), EU, ISSK & UOP; 1♂, Masakityô nr. Matuyama, Ehime Pref., emerged 6. X. 1969 (S. MORIUTI), reared from larva feeding on leaves of *Elaeocarpus sylvestris* POIR. var. *ellipticus* HARA, UOP; 2♀, Hutagami I., Ehime Pref., 28. VIII. 1957 (F. TAKECHI), EU & UOP; Kyusyu– 1♂, Satamisaki, Kagosima Pref., 19. V. 1952 (T. KODAMA), ISSK; 1♂, same locality, 4. XI. 1957 (T. YASUDA), ISSK; 1♂, same locality, 24. VIII. 1965



Figs. 8–10. Male genitalia, ventral view: (8) *Agriothera issikii* n. sp., holotype; (9) *A. meyricki* n. sp., holotype; (10) *A. elaeocarpophaga* n. sp., holotype, (a) distal part of valva.



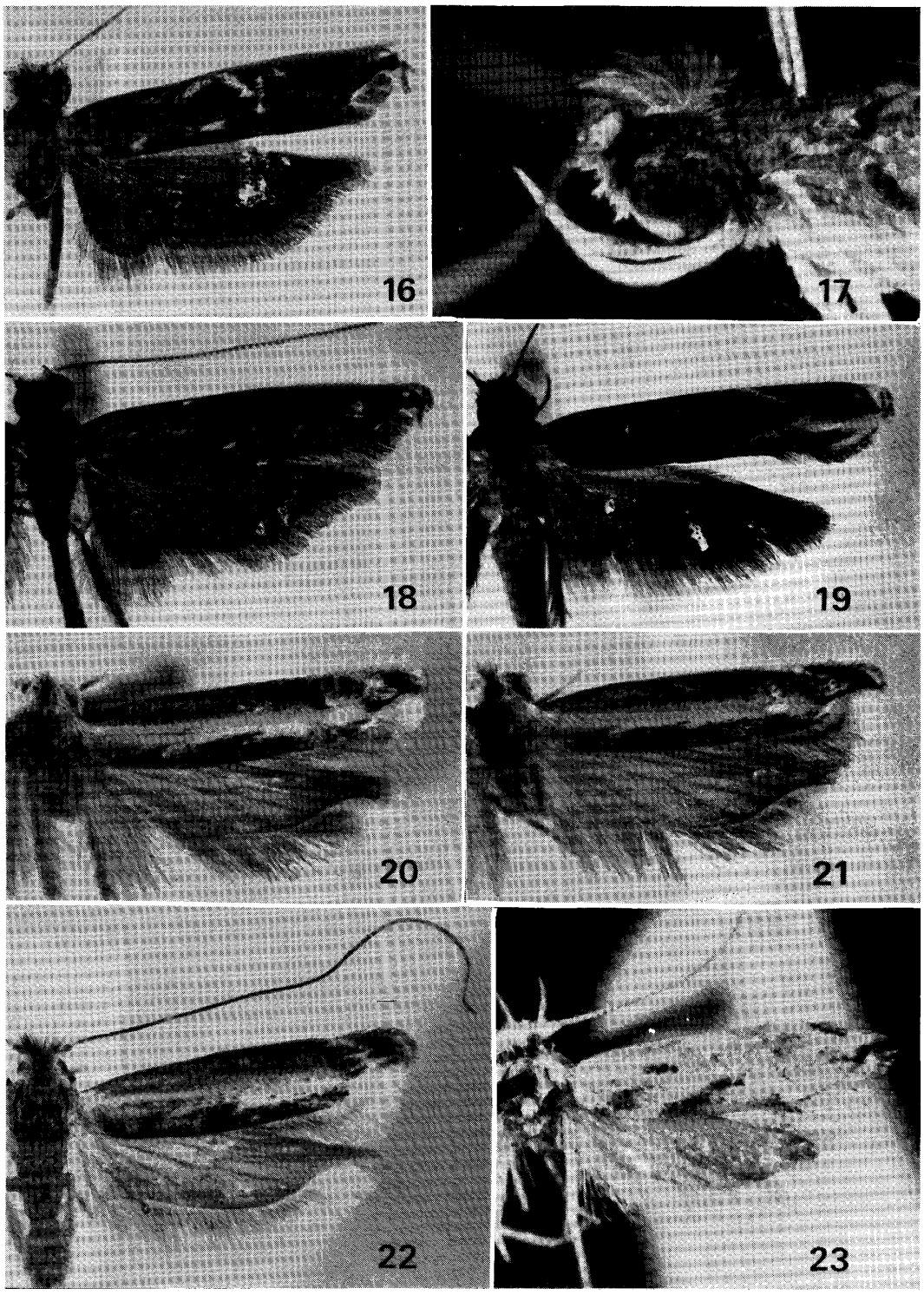
Figs. 11–15. Female genitalia, ventral view: (11) *Telethera blepharacma* MEYRICK, paralectotype; (12) *Sphenographtis celetica* MEYRICK, Kuranda, Queensland; (13) *Agrio-othera issikii* n. sp., paratype; (14) *A. elaeocarpophaga* n. sp., paratype, Khasi Hills, Assam; (15) *do.*, paratype, Asizurimisaki, Sikoku, (a) 7th abdominal tergite.

(Y. ARITA), UOP; 1♂, Aikodake, Yakusima I., 8. VI. 1972 (T. WATANABE), UOP; Ryukyus–Amami Islands– 2♂, Honmura, Kutinoerabu I., 27–31. VII. 1973 (A. KAWABE), UOP. India: Assam– 1♀, Khasi Hills, VI. 1906, BMNH (genitalia slide no. 19459).

Other material: Japan: Honsyu– 1♂, Itô, Sizuoka Pref., 7. VI. 1976 (S. ISSIKI), ISSK; 1♀, same locality, 21. VI. 1976 (S. ISSIKI), ISSK; Sikoku– 10 exs., Masakityô nr. Matuyama, Ehime Pref., emerged early in May, 1967 (K. KADOYA), reared from larvae on *E. sylvestris* var. *ellipticus*, UOP; 1♂, 1♀, Usa, Kôti Pref., emerged 2. VII. 1959 (K. OCHI), reared from larvae on *E. sylvestris* var. *ellipticus*, SFR; 1♂, 1♀, Asizurimisaki, Kôti Pref., 19. XI. 1977 (A. TATARA), UOP.

Distribution: Japan (Honsyû, Sikoku, Kyûsyû, and Ryukyus) and India (Assam).

Host-plant: Elaeocarpus sylvestris (LOUREIRO) POIRET var. *ellipticus* (THUNBERG) HARA (Elaeocarpaceae).



Figs. 16–23. Amphitheridae: (16) *Telethera blepharacma* MEYRICK, ♂, lectotype; (17) *do.*, ♂, Yonakuni I., Ryukyus; (18) *do.*, ♂, Taihoku, Formosa; (19) *T. formosa* n. sp., ♂, holotype; (20) *Agriothera meyricki* n. sp., ♂, holotype; (21) *A. issikii* n. sp., ♂, holotype (left wings, image reversed); (22) *A. elaeocarpophaga* n. sp., ♂, paratype, Asizurimisaki, Sikoku; (23) *Sphenographtis celetica* MEYRICK, ♂, Kuranda, Queensland (left wings, image reversed).

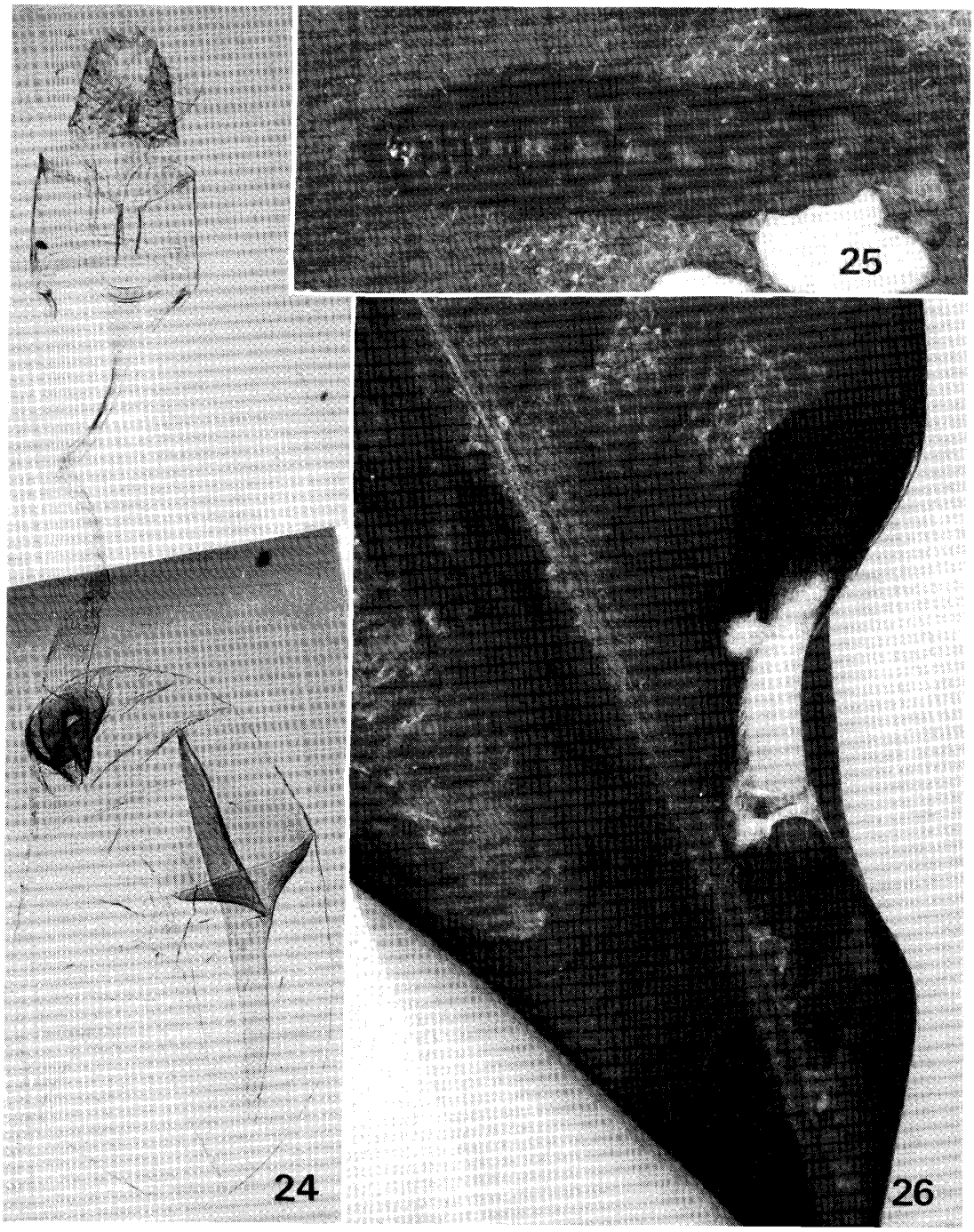
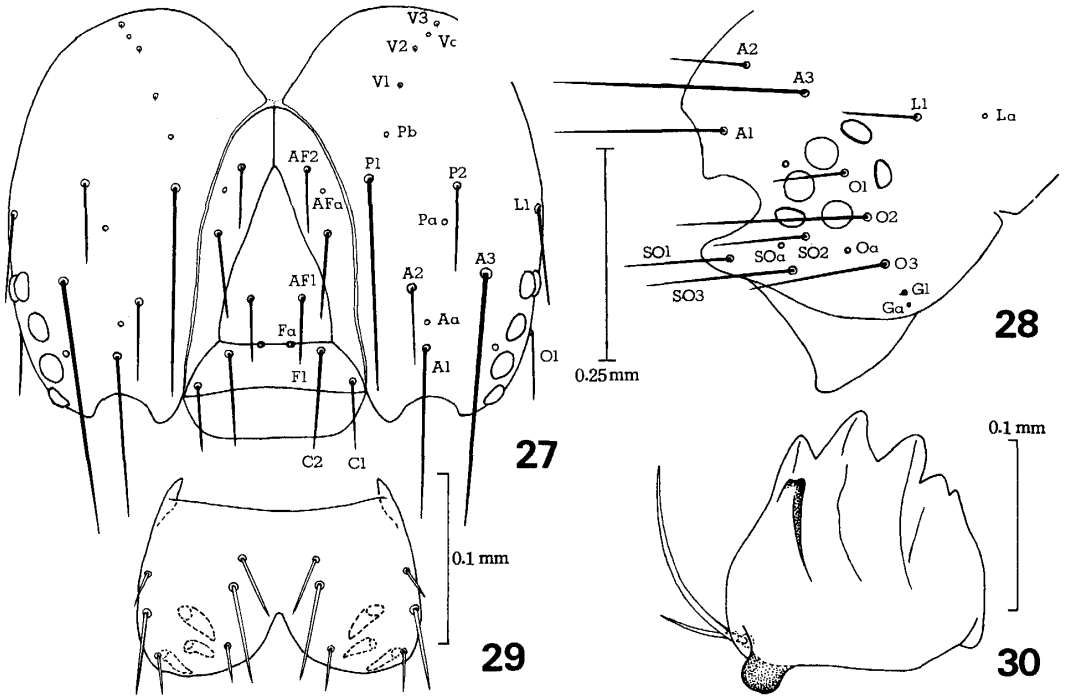


Fig. 24. *Agriothera melanacma* MEYRICK, ♀ genitalia, ventral view; holotype.
Figs. 25–26. *Agriothera elaeocarpophaga* n. sp. : (25) fully grown larva, dorsal view; (26) cocoon on leaf.

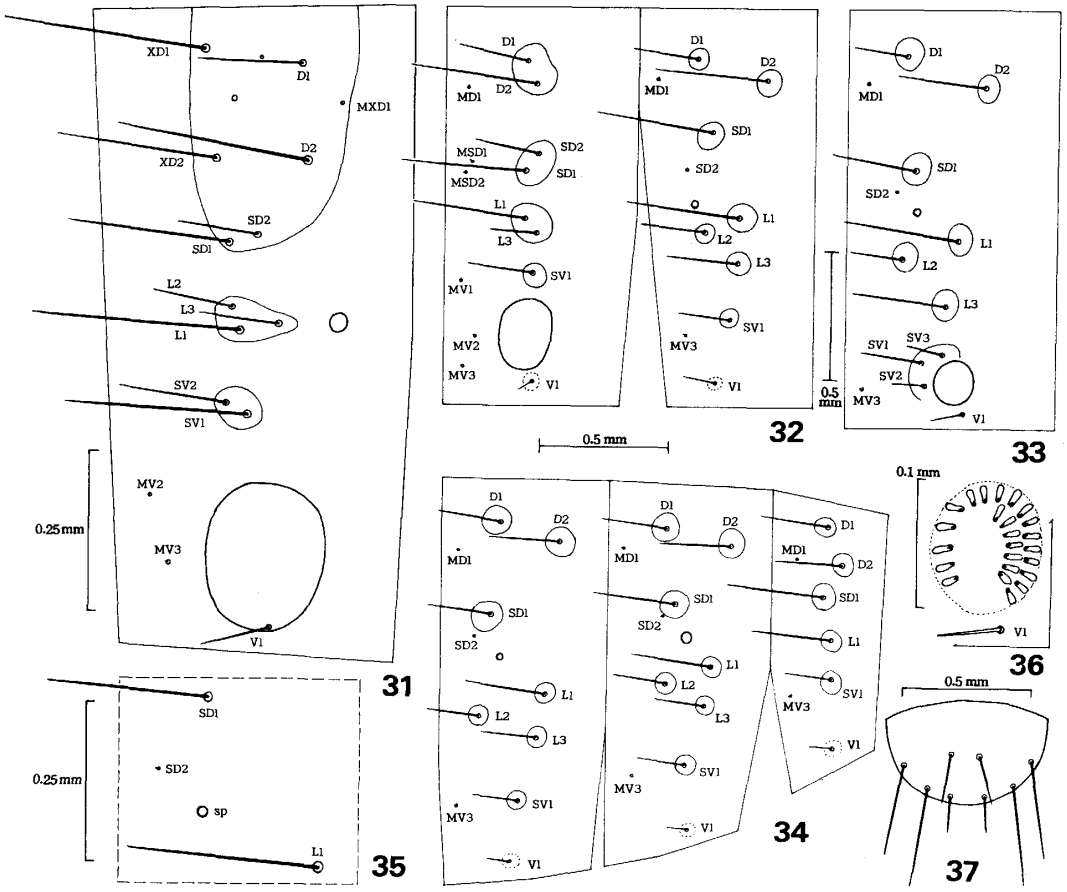


Figs. 27–30. *Agriothera elaeocarpophaga* n. sp., mature larva, Masakityô, Sikoku: (27) head, dorsal view; (28) ocellar region; (29) labrum, dorsal view; (30) right mandible.

Remarks: In the superificial appearance *Agriothera elaeocarpopahga* is difficult to separate, with certainty, from *A. melanacma* MEYRICK, 1907, to which it is very closely allied, but the two species can be clearly distinguished from each other in the genital characters. *A. melanacma* was described from a Ceylonese female specimen, which was recorded as "♂" by mistake in the original. Dr Klaus SATTLER was good enough to compare the genitalia of the type of *melanacma* with those of *elaeocarpophaga* and gave the following information: "The examination of the *Agriothera* females proved very satisfactory. *Agriothera melanacma* Meyrick, holotype female from Ceylon, is definitely distinct from your illustrations as well as from the abdomen you sent in your letter. *A. melanacma* has a sclerotized funnel at the entrance of the bursa which is not present in your species." The photograph of the genitalia kindly submitted by him is shown in fig. 24. Judging from it, the signum of *melanacma* is proportionally larger than that of *elaeocarpophaga.*

Mature larva.

Length 7–8 mm. Head ochreous, with mouth parts brown; eye-spot black. Body pale green, the venter being somewhat paler; prothoracic shield, thoracic legs, and anal shield tinged with pale ochre; claws of thoracic legs brown; peritreme of spiracles tinged with ochre. In the prepupal stage, the body changes coolur as follows: Body dirty green, with broad purplish-red dorsal and subspiracular lines extending from mesothorax to 10th abdominal segment; ventral side of thorax spotted with pale purplish-red, that of 1st–7th abdominal segments partially tinged with pale purplish-red, and that of 8th–10th ones tinged throughout; prothoracic shield purplish-red on anterior and ventral margins; anal shield purplish-red on posterior margin; pinacula paler, distinctly contrasted



Figs. 31–37. *Agriothera elaeocarpophaga* n. sp., mature larva, Masakityô, Sikoku: (31) prothorax; (32) matathorax and 1st abdominal segment; (33) 6th abdominal segment; (34) 7th–9th abdominal segment; (35) SD group setae and L1 seta of left side of 5th abdominal segment; (36) crochets on 6th abdominal, left, ventral proleg; (37) anal shield.

with ground-colour. Head broader than long (approximately 5:4), with fronto-clypeal apotome extending to vertical triangle, and with part of fronto-clypeal apotome enclosed by adfrontal sutures extending about 4/5 of distance to vertical triangle; six ocelli present. Mandible (fig. 30) with a distinct retinaculum on inner surface beneath outermost tooth. Labrum as shown in fig. 29. Pinacula rather small, a little raised. Prothorax with pinaculum of V1 seta incorporated in coxa; meso- and metathorax with pinacula of V1 seate separated from coxae. Ventral prolegs (fig. 33) with uniordinal crochets arranged in a lateral penellipse, being about 17 in number, plus in a vertical row, being about seven in number. Anal prolegs with about 15 uniordinal crochets arranged in a semi-circle. Spiracles nearly circular; that of 8th abdominal segment about $1\frac{1}{3}$ times as large as that of prothorax, and almost twice as large as that of 7th abdominal segment. Chaetotaxy: cranial setae as shown in figs. 27 and 28. Prothorax as in fig. 31. Mesothorax setose as in metathorax (fig. 32); L group bisetose. Abdomen as illustrated (figs. 32–35 and 37); 2nd segment as in 1st one; SD2 extremely minute, variable in position, and nearer to spiracle than to SD1 (fig. 35), or to SD1

than to spiracle; SV group unisetose on 1st, 2nd, and 7th–9th, and trisetose on 3rd–6th segments.

Material examined: 1 ex. feeding on *Elaeocarpus sylvestris* var. *ellipticus*, Masakityô nr. Matuyama, Ehime Pref., Sikoku, Japan, 25. IX. 1969 (S. MORIUTI), fixed on 27. IX. 1969, UOP.

Pupa.

I have before me two specimens, but unfortunately both of them are not in sufficiently good condition to warrant description and illustration. The colour faded throughout. A brief description is as follows:

Length 5 mm. Antenna extraordinally long, about $1\frac{4}{5}$ times the length of body, the apical half being coiled around the last five segments of abdomen. Maxillary palpus small, not reaching proximo-lateral angle of maxilla. Labial palpus slender, half the length of maxilla. Prothoracic leg reaching tip of maxilla, the femur being narrowly exposed; mesothoracic leg extending to 5/8 of distance between tips of pro- and metathoracic legs; metathoracic leg very long, and extending to posterior margin of 6th abdominal segment. Both wings extending over 5th abdominal segment. Abdominal spiracles very small. Dorsum of abdomen with a single cephalic row of small spines on 3rd–7th sements; no distinct setae. Cremaster absent.

Material examined: 2 exs. reared from larvae on *Elaeocarpus sylvestris* var. *ellipticus*, Masakityô nr. Matuyama, Ehime Pref., Sikoku, Japan, 21. IX. 1969 (S. MORIUTI), fixed on 1. X. 1969, UOP.

Ecological notes.

Perhaps four or more generations a year. The larva binds together several leaves of the food-plant, living hidden and feeding on the leaves from within the shelter. Pupation takes place within a dense silken cocoon formed within a weakly folded edge of a leaf; pupal period about 10 days in the middle of autumn. The overwintering stage is unknown. Although diurnal in habit, the adults are often attracted to light in night.

Agriothera issikii n. sp.

(Figs. 8, 13, 21)

♂♀. 13–14 mm. Head white; centre of crown dark fuscous; face shining fulvous, mixed with white. Antenna (of which the greater part is missing) with upper side dark fuscous and with under side pale ochreous, dotted with dark brown; scape white, infuscated above; pecten pale bronzy-fuscous. Palpus white; middle segment dark fuscous exteriorly except at tip, the inner side being suffused with brown on basal 3/4. Thorax pale fulvous-grey, with dark fuscous posterior portion. Fore and mid legs dark bronzy-fuscous, the coxae being pale ochreous and the tarsi being dotted with white; hind leg pale ochreous, the tarsus being dark fuscous, ringed with white at apex of each segment. Abdomen pale ochreous-grey dorsally and whitish ventrally.

Forewing: shape as shown in fig. 21; R_4 and R_5 stalked; costal 1/3 dark grey, with strong bronzy reflections, the distal 1/4 being mixed with white scales; in holotype ♂ the extreme costal edge suffused with white on distal 2/5 except apical prominence; dorsal 1/3 blackish-fuscous, with bronzy reflections, posteriorly mixed with white scales, the upper edge with an oblique, irregularly wedge-shaped projection at 1/4 and middle;

the remaining median 1/3 whitish, nearly wholly overlaid with yellowish-ochre, and interrupted by a white spot at 4/5 of wing-length; apical prominence with both margins shining black-fuscous; cilia grey, tinged with ochre, on apex with a whitish median shade, and on apical 3/5 of termen whitish beneath apex. Hindwing thinly scaled, except towards termen; rather grey; costal cilia a little darker than wing; terminal and dorsal cilia grey, with some whitish suffusion beneath apex.

Male genitalia: as in fig. 8. Caudal margin of uncus emerginate, weakly bilobed. Gnathal arms fused with each other at extremities, not forming an ordinary ventral plate. Valva elongate-ovate, set with many short hairs along ventral margin; sacculus produced into a distinct sclerotized plate at base of ventral margin. Saccus rather short. Aedeagus nearly as long as valva; cornuti indistinct.

Female genitalia: as in fig. 13. Ostium with ventral margin concave. Ductus bursae long, membranous except for a scelrotized portion between posterior end and inception of ductus seminalis, Signum a large, strongly sclerotized, longitudinal ridge, with sclerotized basal plate.

Material examined: 2♂, 1♀.

Holotype ♂, Kyuhabon, Formosa, 20. VII. 1925 (S. ISSIKI), BMNH (genitalia slide no. 19460).

Paratype: 1♀, Musya (= Jenai), Formosa, 19. VII. 1925 (S. ISSIKI), my own collection.

Other material: 1♂, Tattaka (= Sungkang), Formosa, 19. VII. 1925 (S. ISSIKI), ISSK.

Distribution: Formosa.

Host-plant: Unknown

Remarks: This species is similar to *A. elaeocarpophaga* n. sp. in superficial appearance, but differs from it in the forewing with the stalked veins R_4 and R_5 and with the yellowish-ochreous disc. The genitalia serve the best characters for the separation of the two species, and the figures will show these differences adequately. This species is closest to *A. meyricki* n. sp. in coloration, but can readily be separated by the genital characters, as noted under the latter species. This species has been placed both in collections of Professor ISSIKI and in those of the British Museum (Natural History) under the name *A. melanacma* MEYRICK.

The specific name, *issikii*, is dedicated to my respected teacher, Professor Syûti ISSIKI.

Agriothera meyricki n. sp.

(Figs. 9, 20)

♂. 12 mm. Superficially quite similar to the preceding species.

Male genitalia: as in fig. 9. Uncus with inwardly curved apical lobes, which are united together at tips. Gnathos with long ventral plate. Valva dilated distally, with a distinct hairy papillary process before near dorsal margin. Saccus extremely elongated. Aedeagus extraordinarily long, the basal 2/3 being coiled; cornuti invisible.

♀. Unknown.

Material examined: 1♂.

Holotype ♂, labelled "Khasi Hills/ Assam/ .9.1906," BMNH (genitalia slide no. 19459).

Distribution: India (Assam).

Host-plant: Unknown.

Remarks: Although superficially similar to the preceding species, this species is distinct from it, in genitalia, by the quite differently shaped uncus and gnathal ventral plate, the presence of the papillary process on the valva, the much longer saccus, the extraordinarily long aedeagus, *etc.*

The specific name is dedicated to the prominent lepidopterist, the late Edward MEYRICK.

Sphenograptis MEYRICK

Sphenograptis MEYRICK, 1913, p. 145;[2] *id.*, 1914, p. 36.[4]—FLETCHER, 1929, p.207.[5]

Type-species: *Sphenograptis celetica* MEYRICK, 1913, by monotypy.

Some characters supplemented to the original description are given below.

Eye in both sexes normal. Ocellus absent (in MEYRICK's description it is erroneously given as present). Forewing with R_4 and R_5 coincident, to costa, and with M_3 present and separated from Cu_{1a} (described by MEYRICK as "4 [M_3] absent, 7 [R_5] to termen").

Genitalia typical of the family. Male genitalia with vinculum not produced into saccus; aedeagus very short. Female with a distinct signum.

Remarks: MEYRICK erected the genus for a new Australian species *celetica* and placed it in the family Yponomeutidae. Examination of the genitalia, however, reveals that the genus obviously belongs to the Amphitheridae.

Sphenograptis celetica MEYRICK is the sole species of this genus.

Sphenograptis celetica MEYRICK

(Figs. 7, 12, 23)

Sphenograptis celetica MEYRICK, 1913, p. 145;[2] *id.*, 1914, p. 36.[4]

Male genitalia: as in fig. 7. Lobes of uncus short, slender, and close to each other. Gnathal arm narrow, with a dilation before ventral plate; ventral plate long, narrow, with a rounded apex. Valva gradually dilated distally, with a gently cancave distal margin. Anellus produced posteriorly into a small median process. Vinculum large, without saccus. Aedeagus extremely small, a little curved; no cornuti.

Female genitalia: as in fig. 12. Ostium round, with weakly sclerotized ventral margin. Ductus bursae membranous, except for a small sclerotized part, from which the ductus seminalis rises, before ostium, and except for a distinct sclerotized plate at anterior end. Signum elongate, with apex rounded.

Material examined: 1♂, 1♀.

Queensland: 1♂, 1♀, Kuranda, 15. IV. 1905 (DODD), BMNH (genitalia slide no. 19454♂, 19455♀).

Distribution: Australia (Queensland).

Host-plant: Unknown.

Remarks: The genitalia of both sexes have not previously been illustrated.

This species was originally described from a single female specimen (holotype) from Cairns, Queensland, which I have been unable to see; probably the type is no longer extant. The specimens I have examined are not in good condition, but, as far as I can see, it seems probable that the species does not show a marked sexual dimorphism.

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