Some Lepidopterous Insect Pests Attacking Economically Important Plants in Thailand

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Some Lepidopterous Insect Pests Attacking Economically Important Plants in Thailand[1,2)]

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Abstract

Five lepidopterous insect pests, belonging to Gracillariidae and Cosmopterigidae, are recorded from Thailand for the first time and redescribed with their genital characters. The pests are as follows: *Epicephala chalybacma* Meyrick (Host: *Poinciana pulcherrima* L.), *Conopomorpha hierocosma* Meyrick (Host: *Litchi chinensis* Sonn.), *Acrocercops syngramma* Meyrick (Host: *Anacardium occidentale* L.), *Phyllonorycter triarcha* Meyrick (Host: *Gossypium herbaceum* Oliver), *Anatrachyntis hemizopha* Meyrick (Host: *Gossypium herbaceum* Oliver).

An expedition was undertaken to Thailand for two months from July 7 to September 3, 1981 to collect necessary materials for the performance of "Taxonomic and biological studies of lepidopterous insects in Southeast Asia, 1981" supported by the grants-in-aid for overseas scientific research from the Ministry of Education, Science and Culture, Japan. The expedition was composed of the following members: Dr. S. Moriuti of the University of Osaka Prefecture, Mr. Y. Arita of Meijô University, Mr. Y. Yoshiyasu of Kyoto Prefectural University, Dr. A. Lewvanich of the Department of Agriculture, Thailand and Dr. H. Kuroko (the leader of the expedition).

One of the purposes of this project is to identify lepidopterous insect pests occurring in Thailand and thereby to contribute to the progress of applied entomology of the country. This paper is designed in pursuit of the above purpose.

Two species of pests for cotton plants, one species for cashew plants, one for litchi plants and one for a kind of flowering shrubs, all of which are new to Thailand, are dealt with in this paper. The specimens of the former two species belong to the Museum of the Department of Agriculture, Thailand.

The authors wish to express hearty thanks to Dr. T. Wongsiri, Deputy Director-General, Department of Agriculture, Mr. M. Rumakom, Director of Entomology and Zoology Division, Thailand and to the other staff members of the Division for the support and convenience given to the expedition during their stay in Thailand.

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2) This work was supported by the Grants-in-aid for Overseas Scientific Research (Nos. 56041051 and 57043046) from the Ministry of Education, Science and Culture, Japan.

GRACILLARIIDAE

Epicephala chalybacma Meyrick

(Figs. 3, 9, 11)

Epicephla chalybacma Meyrick, 1908, Journ. Bombay nat. Hist. Soc. 18: 811—Meyrick, 1912, Exot. Microlepid. 1:21.—Fletcher, 1921, Mem. Dept. Agr. India 6(6): 142–145, pl. 36.

♂♀. 8–9 mm. Head roughly haired on crown, greyish-fuscous; face smooth ochreous-grey. Antenna nearly 1, ochreous-grey. Labial palpus drooping, pale ochreous with a dark fuscous longitudinal line externally. Thorax greyish-fuscous, with an indistinct median longitudinal dark fuscous line. Abdomen rather stout, dark grey above, underside whitish-ochreous with 5 blackish oblique stripes laterally. Forewing narrow, apex obtuse; greyish-fuscous, with some indistinct oblique fuscous streaks from costa and dorsum, approximating to or connecting with each other on disc; an oblique transverse bluish-metallic line before apical dot; black apical dot elliptical, with a small pale ochreous spot on upper edge. Cilia greyish-fuscous, just beyond apical dot bluish reflections in apical cilia, around apex to tornus dark fuscous with two blackish lines, near costa to apex with dark fuscous tips. Hindwing fuscous, cilia greyish-fuscous.

♂-genitalia: Tegumen weak, bluntly pointed; valva moderate, disc and sacculus separated along total length, disc narrowed in middle, apical half dilated, with hairs on its costal margin, apex pointed toward ventrally, sacculus broadened basally and angulated on its ventral margin, with two long sclerotized processes, ventral one a little shorter; vinculum moderate, saccus very slender; aedeagus sinuate, base slightly thickened, apex bluntly pointed.

♀-genitalia: Papilla analis moderate, with short hairs; apophysis anterioris short, thickened toward apex, apophysis posterioris triangular; sterigma broad triangular, rather scrlotized; antrum with a reticular patch anteriorly; ductus bursae short, rather broad; corpus bursae moderate, membraneous, with a spinous signum.

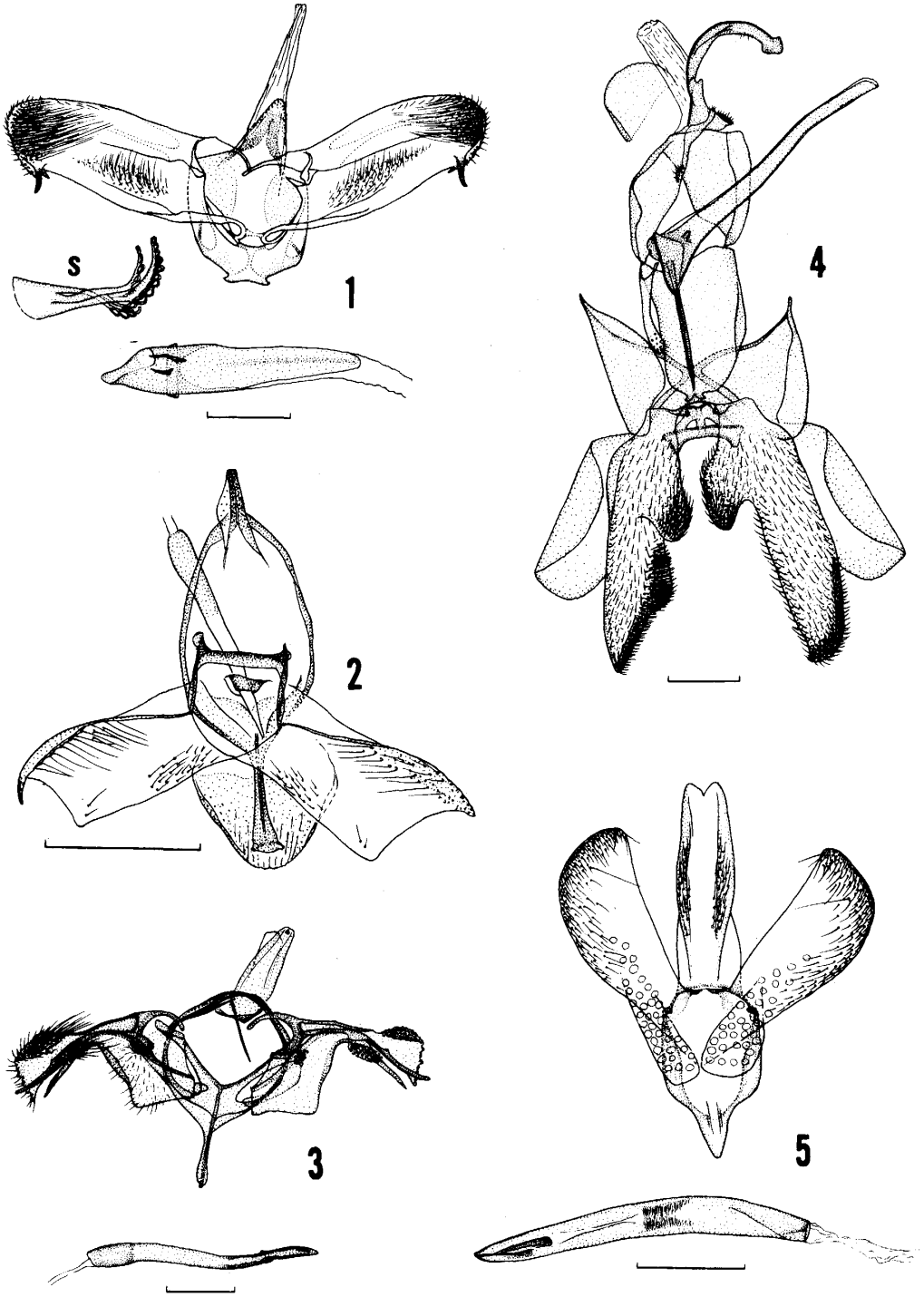
Specimens examined: 7♂, 10♀, Bangkok, 1–18 Jan. 1978 (H. Kuroko), bred from *Poinciana purcherrima* L.

Distribution: Thailand, Burma, India, Sri Lanka.

Host plants: Leguminosae—*Poinciana pulcherrima* L., *Samanea saman* Merrill (= *Pithecellobium saman* Benth.).

The senior author collected some cocoons of this species on *Poinciana pulcherrima* and some mature larvae that were each dropping by a silken thread from the flower of *Poinciana* to the upper surface of the leaflet of the host plant on the last day of December, 1977 in the city of Bangkok. The larva made a cocoon soon after on the upper surface, sometimes on the lower surface, of the leaflet. The cocoon was ornamented with a batch of raised white bubbles on its outer surface as shown in Fletcher (1921).

This species is out of the category of the genus *Epicephala* in the characters of female genitalia, e.g. the moderate and hairly papilla analis, and short and thickened apophysis anterioris.



Figs. 1–5. Male genitalia (Scale: 0.2 mm)
1. *Conopomorpha hierocosma* (Meyrick) s: Curious shaped scale of coremata 2. *Phyllonorycter triarcha* (Meyrick) 3. *Epicephala chalybacma* Meyrick 4. *Anatrachyntis hemizopha* Meyrick 5. *Acrocercops syngramma* Meyrick

Conopomorpha hierocosma (Meyrick), comb. n.

(Figs. 1, 6, 12, 16)

Acrocercops hierocosma Meyrick, 1912, in Wytsman, Genera Insectorum, fasc. 128: 18.—Fletcher, 1921, Mem. Dept. Agr. India 6(6): 153–154, pl. 38, fig. 1.

♂♀. 8–9 mm. Head and face smooth, pale ochreous-grey mixed with dark scales. Antenna $1\frac{1}{2}$, greyish becoming paler toward apex. Labial palpus dark fuscous on outer side. Thorax pale ochreous-grey mixed with darker scales anteriorly. Abdomen dark fuscous above, underside silvery-white with 5 oblique blackish stripes laterally. Forewing narrow, parallel-sided, apex obtuse; greyish-fuscous with a whitish zigzag line, though 2 lines in part, costal half blackish; an apical yellow patch with 5 white strigulae on costa and divided into two at $\frac{1}{2}$ by a transverse whitish line, margined with leaden-metallic lines. Cilia dark grey, blackish basally from apex to tornus, 2 blackish hooks in apical cilia. Hindwing fuscous, cilia grey-fuscous.

♂-genitalia: Tegumen triangular, weakly sclerotized; tuba analis long protruded; valva moderate, with round apex, costal margin weakly curved, two pointed teeth on ventral margin near apex; vinculum rather broad, saccus very short, with two short points; aedeagus moderate, thickened toward apex, apex bluntly pointed, with two horn-like cornuti before apex.

♀-genitalia: Papilla anallis rather narrow; apohysis posterioris forming T-shape by a broad base; sterigma sclerotized, posterior edge concave in middle; antrum weakly sclerotized, curled; corpus bursae long oval, dilated at juncture of ductus seminalis, with a patch of parallel lines as a signum.

Specimens examined: 1♀, Taihoku, Taiwan, 23 Dec. 1934 (S. Issiki); 13♂, 12♀, Fang, Chiang Mai, 25 July 1981 (H. Kuroko, S. Moriuti, Y. Arita & Y. Yoshiyasu), bred from *Litchi chinensis* Sonn.

Distribution: Thailand, India, Taiwan, N. Australia.

Host plant: Sapindaceae – *Litchi chinensis* Sonn.

We saw many leaves mined by the larvae of this species at litchi orchard in Fang in the middle of July, 1981. The mine is made on a young leaf. The larva bores into the midrib of the leaf from near base and extends the boring toward the apex of the leaf through the midrib. Before long, the larva mines from the midrib into the mesophyll forming a near-trumpet shape. The mine contains few grains of frass, because the majority of the grains are ejected from the holes which are made on the lower surface of the midrib. The mined portion is pale brown at first, but it turns to reddish-brown and is dead later. If the density of the pest is high, litchi plants suffer severe damage.

Acrocercops syngramma Meyrick

(Figs. 5, 8, 13, 17)

Acrocercops syngramma Meyrick, 1914, Journ, Bombay nat. Hist. Soc. 23: 120—Fletcher, 1921, Mem. Dept. Agr. India 6(6): 156, pl. 40, fig. 1.—Fletcher, 1933, Scient. Monogr. Imp. Counc. Agr. Res. 4: 56.

♂♀. 7 mm. Head smooth, silvery white; face grey. Antenna $1\frac{1}{4}$, greyish. Labial palpus slender, white, greyish on outer side. Thorax silvery-white; tegula fuscous-grey. Abdomen greyish-fuscous above, underside silvery-white with a greyish-fuscous line on

posterior margin of each segment. Forewing narrowly elongate, apex pointed: silvery-white, from base to $\frac{5}{6}$, terminating a triangular dilation which is crossed by an oblique white line; a black apical dot rather large. Cilia pale grey, around apex white, a short transverse blakish band at apex, a dark grey bar below apical dot. Hindwing dark grey, cilia grey.

♂-genitalia: Tegumen weakly sclerotized, with hairs laterally; valva simple, broadened toward apex, whithout a comb of teeth, at base with long scent hairs on outer side; vinculum moderate, succus triangular, bluntly pointed; aedeagus long, slender, rather pointed at apex, with a pointed horn-like and many minute spinous cornuti.

♀-genitalia: Ductus bursae long, narrow, with a very small sclerotized patch in antrum, posterior $\frac{2}{3}$ of the bursae weakly sclerotized, with several transverse wrinkles on its anterior end, a pair of wing-like sclerotized structures before juncture with corpus bursae; corpus bursae elliptical, with a membaneous swelling on one side, two rows of short, straight thorn-like signa besides one patch of minute spines.

Specimens examined: 7♂, 5♀, Plew Chantaburi, Chantaburi, 22 Aug. 1981 (H. Kuroko, S. Moriuti, Y. Arita & Y. Yoshiyasu), bred from *Anacardium occidentale* L.

Distribution: Thailand, India.

Host plants: Anacardiaceae – *Mangifera indica* L., *Anacardium occidentale* L.

The senior author collected many mined leaves, containing larvae at cashew orchard in Chantaburi in the middle of August, 1981. The larva makes a blotch mine on the upper surface of a tender cashew leaf. The mine is rather large, round or elliptical, and blistered, and is greyish-white in color, including dark grains of frass. Occasionally it seems that the host plants suffer severe damage. The author could not find any mines on the other host plant, mango.

Phyllonorycter triarcha (Meyrick), comb. n.

(Figs. 2, 10, 15)

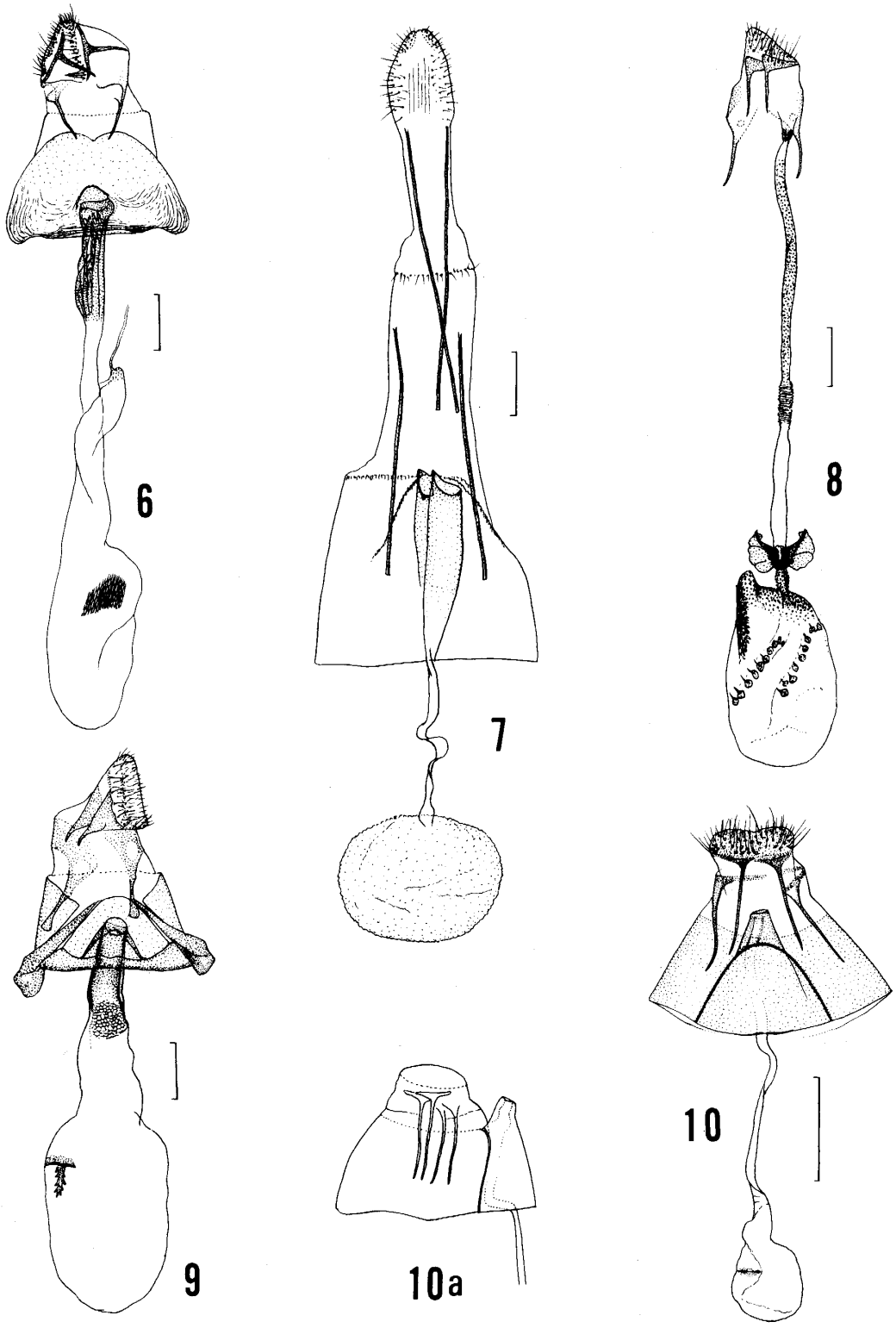
Lithocolletis triarcha Meyrick, 1908, Journ. Bombay nat. Hist. Soc. 18: 811.– Fletcher, 1921, Mem. Dept. Agr. India 6(6): 137–138, pl. 33.

♂♀. 4.5–5 mm. Head and face white, tuft on crown yellowish-brown mixed with white scales posteriorly. Antenna $\frac{5}{6}$, pale brownish-grey, whitish toward base. Labial palpus drooping, pale ochreous. Thorax and tegula glossy yellowish-brown, with a white transverse band along anterior margin of thorax. Abdomen pale brownish-grey above, underside pale ochreous. Forewing lanceolate; glossy yellowish-brown, white medio-basal streak, connecting with transverse band of thorax, very short, margined with black scales on lower edge; at $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ of costa inwardly obliqued white fasciae, margined with black scales basally and a few black scales distally, 3rd fascia extending a white branch outwardly from above middle to costa and forming "Y", lower edge of branch margined with black irroration. Cilia pale ochreous. Hindwing and cilia pale grey.

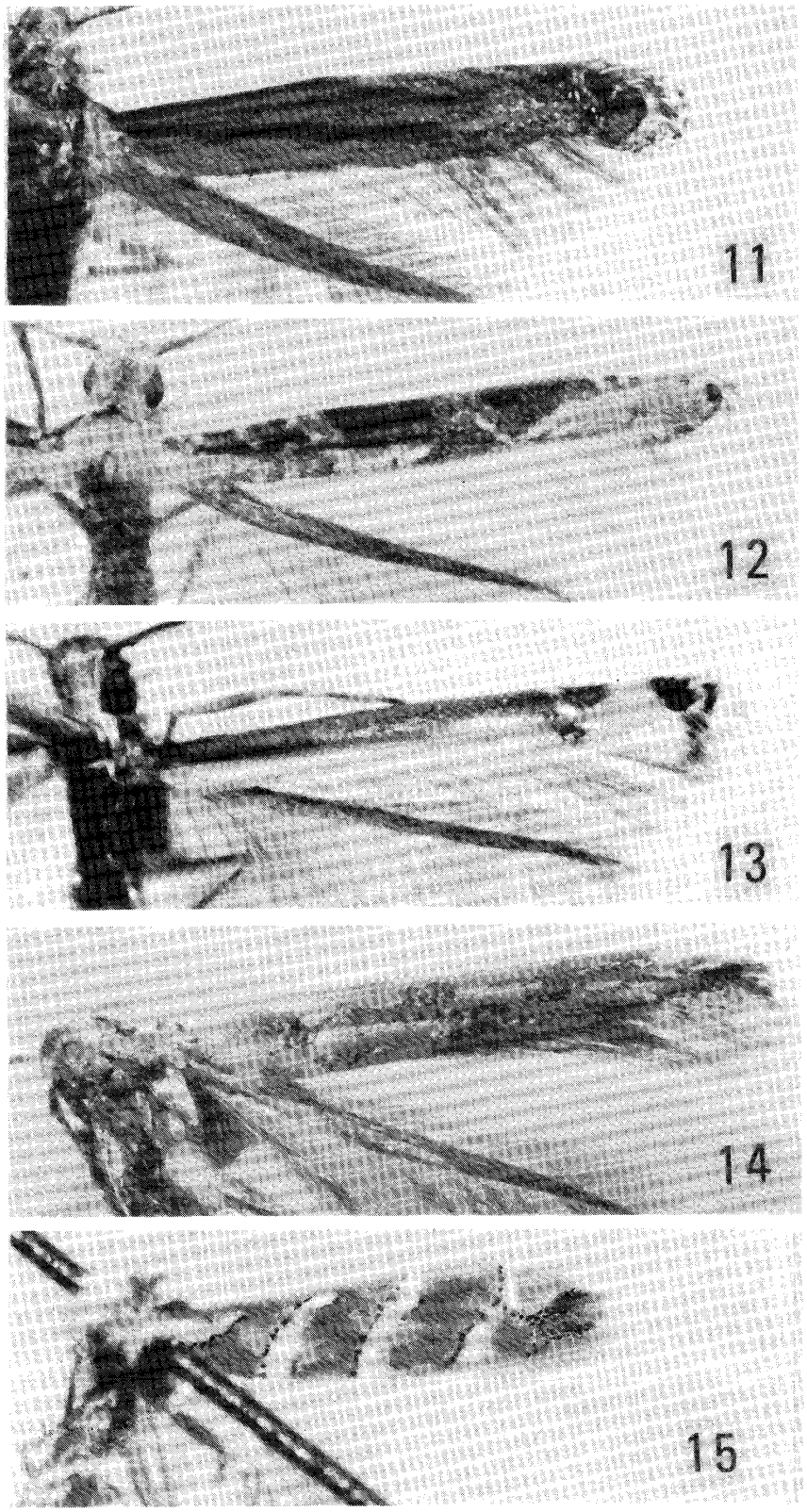
♂-genitalia: Symmetrical; subscaphium weakly sclerotized; valva concave on outer margin, upper margin slightly arched and its apex protruded; transtilla conspicuous; anellus sclerotized; saccus rather long, thickened toward apex, truncated; aedeagus slender, tapering toward apex, pointed; flap of 9th sternite subtriangular.

♀-genitalia: Papilla analis rather broad; sterigma triangular, weakly sclerotized, surrounded by a narrow sclerotized ridge; corpus bursae with a small transverse signum.

Specimens examined: 13♂, 34♀, Bangkok, 8 May 1959 (Montri Rumakom), bred



Figs. 6–10a. Female genitalia (Scale: 0.2 mm)
6. *Conopomorpha hierocosma* (Meyrick) 7. *Anatrachyntis hemizopha* Meyrick 8. *Acrocercops syngramma* Meyrick 9. *Epicephala chalybacma* Meyrick 10. *Phyllonorycter triarcha* (Meyrick) 10a. Ditto, lateral view



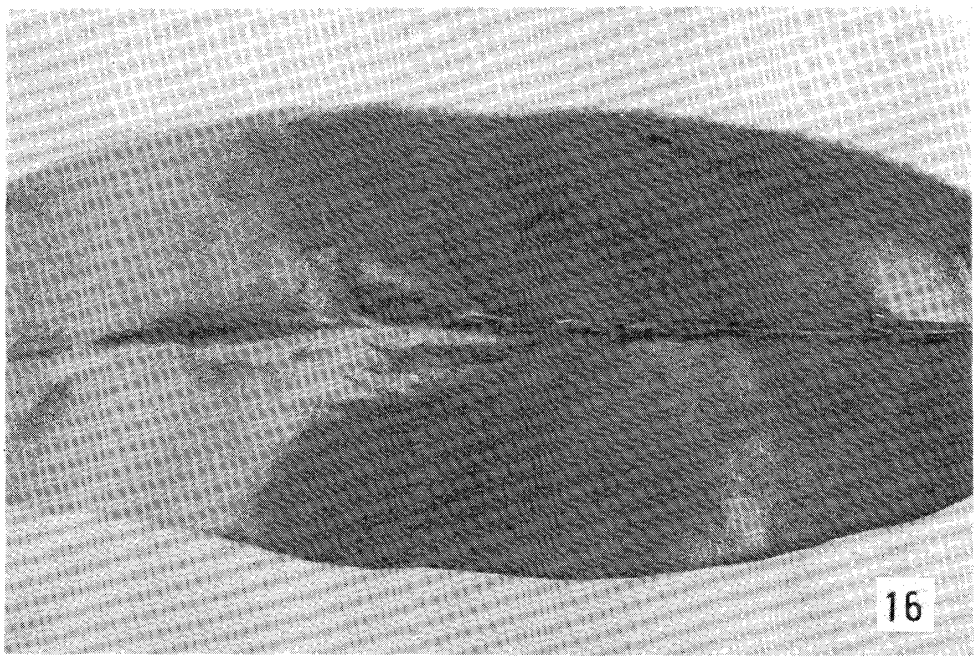
Figs. 11–15. Right wing
11. *Epicephala chalybacma* Meyrick 12. *Conopomorpha hierocosma* (Meyrick)
13. *Acrocercops syngramma* Meyrick 14. *Anatrachyntis hemizopha* Meyrick
15. *Phyllonorycter triarcha* (Meyrick)

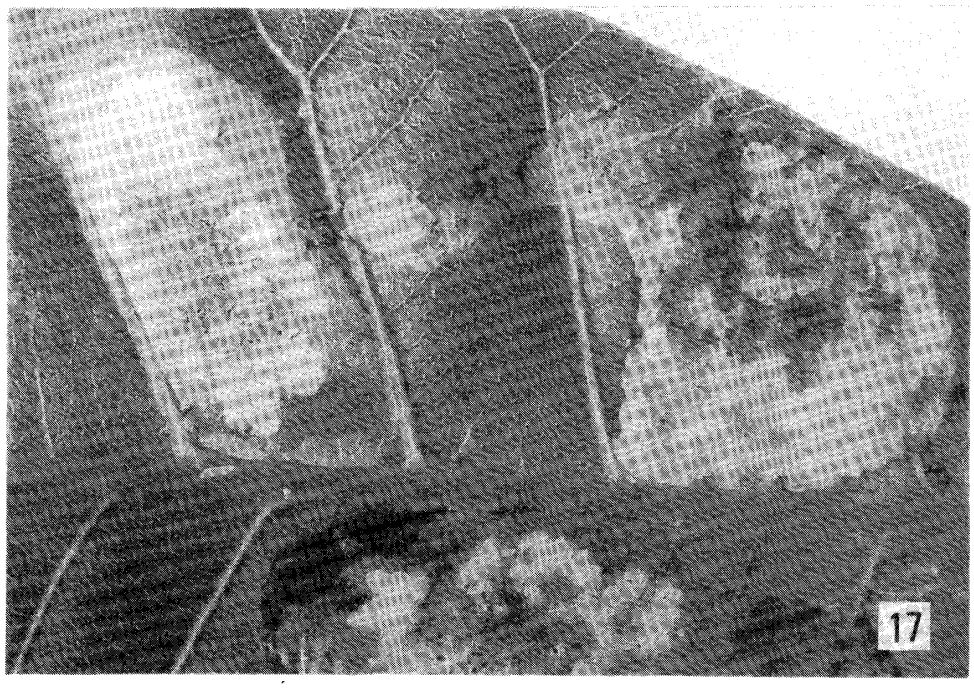
from cotton leaves.

Distribution: Thailand, India.

Host plants: Malvaceae – *Gossypium herbaceum* Oliver, *Gossypium* spp.

According to Fletcher (1921), the larva of this species mines the lower surface of the cotton leaf which turns yellowish-white with brown spots.





Figs. 16–17. Mine

16. *Conopomorpha hierocosma* (Meyrick): larval mine in *Litchi chinensis* Sonn.
17. *Acrocercops syngramma* Meyrick: larval mines in *Anacardium occidentale* L.

COSMOPTERIGIDAE

Anatrachyntis hemizopha Meyrick

(Figs. 4, 7, 14)

Anatrachyntis hemizopha Meyrick, 1916, Exot. Microlepid. 1: 565.

♂♀. 10–11 mm. Head smooth, pale reddish-ochreous; face paler. Antenna $\frac{2}{3}$, basal joint elongate, with thin pecten, pale ochreous, ringed with dark brown. Labial palpus pale ochreous, terminal joint with blackish subapical, medial and basal rings. Thorax light reddish-brown. Abdomen greyish-fuscous above, underside pale ochreous. Forewing elongate-lanceolate, long pointed; brownish-ochreous tinged with red in part; a rather broad oblique arched whitish fascia at $\frac{1}{4}$, preceded by a few dark scales on disc, without any blackish dot beneath costa; a dark patch by irroration of dark fuscous scales at $\frac{1}{2}$ on dorsal half, and a few patches and lines by dark fuscous scales mixed with pale ochreous scales as shown in fig. 14. Cilia pale ochreous, around apex dark brown. Hindwing greyish-fuscous; cilia grey.

♂-genitalia: Right brachium very long, curved, with a swollen tip; valva long oval, with an incision on lower margin; left anellar lobe small; aedeagus extraordinarily long.

♀-genitalia: Lamella anteveginalis long, tubular; corpus bursae round, no signum.

Specimens examined: 1♂, Bangkhen, Bangkok, 13 Dec. 1956 (Phol Pholboon), bred from cotton bolls; 3♂, 3♀, Bangkhen, Bangkok, 15 Sept. 1960 (Preecha Areekul), bred from cotton seeds.

Distribution: Thailand, S. Africa.

Host plants: Gramineae – *Zea mays* L.; Malvaceae – *Gossypium herbaceum* Oliver.

This species was described from Southern Africa (Nyassaland) by the specimens bred from larvae feeding in the ripening head of maize.

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