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THREE NEW SPECIES OF THE SO-CALLED GLYPHIPTE- RIGIDAE AUCTORUM FROM JAPAN (LEPIDOPTERA)

by

A. DIAKONOFF

Rijksmuseum van Natuurlijke Historie, Leiden

and

Y. ARITA

Zoological Laboratory, Faculty of Agriculture, Meijo University, Nagoya, Japan

With 10 text-figures

The following pages contain descriptions of three new species of what has been formerly indicated as the "Glyphipterigidae auctorum", from Japan and Taiwan, almost simultaneously discovered by the first author in the Issiki Collection, now at the National Museum of Natural History, Washington, and collected by the second author in Japan.

The original material will be deposited in the two above named institutions.

The first author is obliged for the permission to retain some paratypes for the collection of the Leiden Museum. We are grateful to the authorities of the Washington Museum for the loan of the Issiki material.

The figures are by the second author.

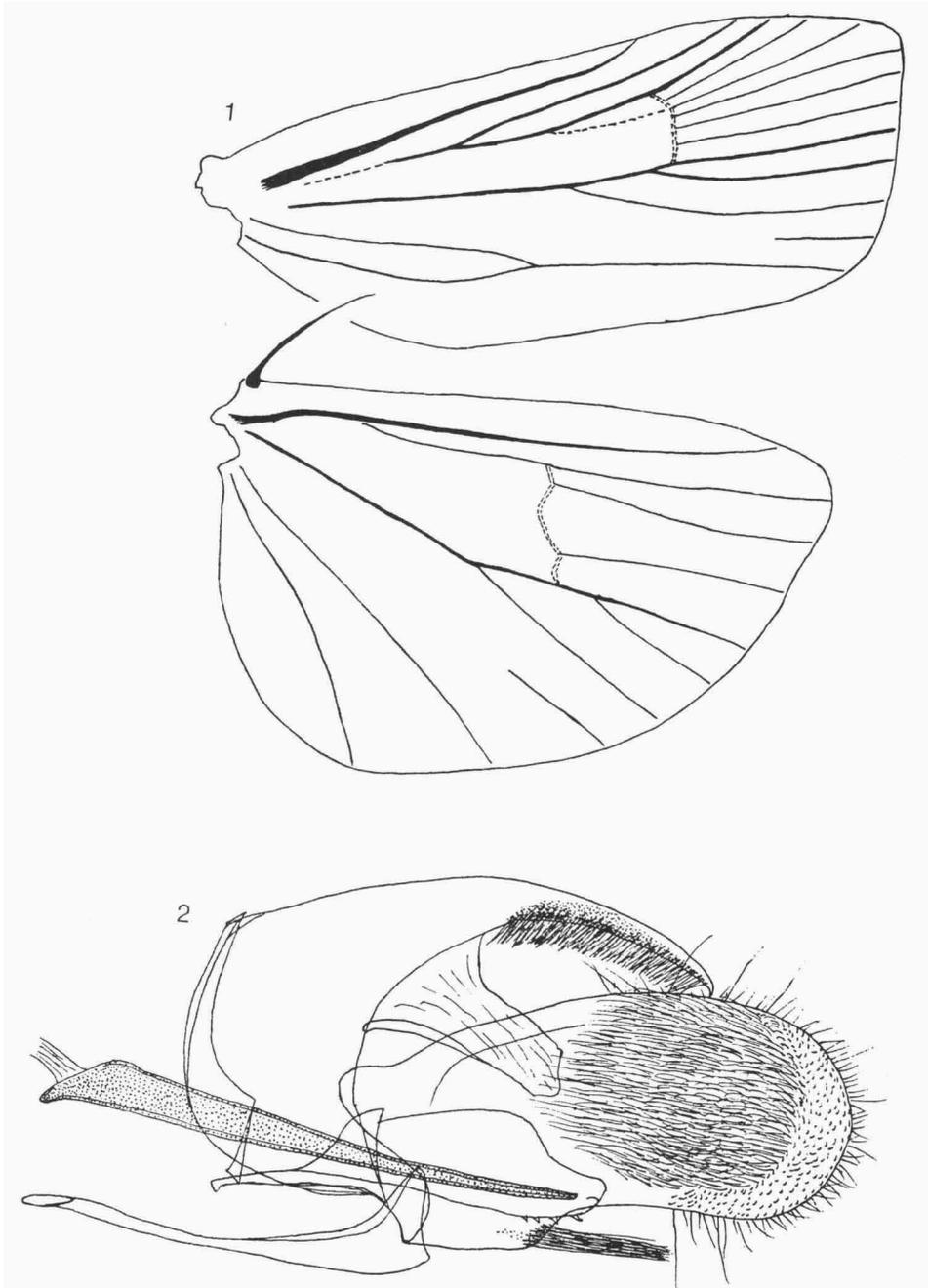
One genus, *Epicroesa* Meyrick, is transferred to the Heliodinidae.

Nigilia Walker

Nigilia Walker, 1863, List Lep. Ins. Brit. Mus., 28: 512.

Type species, *Nigilia adjectella* Walker, 1863, ibidem: 512, by monotypy.

Head flattened fronto-caudally, smooth, face polished. Ocellus posterior, small. Haustellum developed, naked. Antenna thickened and minutely ciliate in male, less thickened in female, under 1/2, obtusely pointed. Maxillary palpus rudimentary, 2-segmented. Labial palpus short, hardly exceeding face, porrected and appressed to head, flattened laterally and smooth-scaled, with a slight fringe below, apical segment shorter than median, moderately



Figs. 1-2. *Nigilia limata* sp. n., ♂. 1, wing neuration; 2, genitalia, slide no. 380 YA.

pointed. Orbits with a fringe of stiff distant white hair-scales. Collar broad. Thorax smooth. Abdomen normal, with tortricoid articulation.

Fore wing oblong-subrectangular, rather broad, costa almost straight, hardly concave in middle, faintly prominent at $2/3$, hardly curved thence, apex obtusely subrectangular, termen gently convex, moderately oblique; a distinct pterostigma absent, a moderate thickening of wing membrane instead, from middle to apex. Vein 2 from $2/3$ of lower edge of cell, 3 from well before angle, 4 from angle, 4-6 equidistant, 7 closer, 7-10 closer again and tolerably equidistant, 9 from upper angle of cell, 11 from before middle, 1b furcate almost to middle, chorda and median branch absent.

Hind wing sub-semioval, without cubital pecten, moderately pointed, 1. Vein 2 from beyond $2/3$, 3 and 4 connate from angle, 5 and 6 weak, strongly diverging towards base, 7 from upper angle of cell, remote, 8 from base, median branch traceable from base to origin of 5; 1c weak but traceable.

Male genitalia. Tegumen compressed laterally and curved, concave (cannot be flattened out). Uncus narrowed, subsclerotic, with stiff bristles underneath. Vinculum moderate, with a moderately long slender saccus. Valva oblong-oval, with a distinct sacculus, dilated at base, with a sheaf of strong, spiny hairs at $1/3$ and a serrate comb at base; cucullus bristly, diversely shaped. Anellus peculiar, a conical sac with a pointed base, projecting anterad and with truncate top, sometimes with a few crochets. Aedeagus slender, long and straight, base gently dilated, coecum penis short and narrow.

Female genitalia. Ovipositor extensile, long. Postapophyses very slender and extremely long, anapophyses twice as thick, less than half length of postapophyses, furcate at ends. Ostium intersegmental (inside the intersegmental membrane), broadly cup-shaped, with two concentric sclerotic rings, being a thickened support of the wall; colliculum slender, funnel-shaped, with a fine V-shaped structure in the ventral wall. Ductus bursae rather slender, moderately long, less than twice height of the seventh enlarged sternite; ductus seminalis (ductus bullae), a similarly slender tube, branching off soon below ostium; bursa copulatrix rather cylindrical. Signum, a strong, dark, transverse crescent, with a vertical parietal sclerite.

Distribution. Japan: Kyushu; Ryukyu Islands. — Taiwan. Extralimital distribution (for another species, following Meyrick) comprises Central Africa, India, Ceylon and China. We were able to verify this only for Africa and Tonkin.

The three species known, of which one is entirely and another partly Palaearctic, while the third is extralimital (it occurs in Java), have been taken by Meyrick for *Phycodes* species, which genus they resemble rather closely externally; but the antennae and the palpi are shorter, vein 7 of the fore wing

runs to termen (instead of to costa), and the males possess a saccus, invariably absent in *Phycodes*, which latter seems to be less ancient of the two genera.

***Nigilia limata* spec. nov.** (figs. 1-3)

(*limatus* = elegant)

♂ ♀ 14-15 mm. Head golden-bronze. Antenna under 1/2, thickened, dull black, short-ciliate. Palpus short, hardly exceeding face, moderately dilated, roughish below; bronze-fuscous, lower half of basal and lower third of base of median segment with a whitish oblique streak. Proboscis well-developed. Thorax smooth, collar wide; glossy metallic bronze-green with some whitish-grey opalescence in certain lights. Abdomen glossy slaty-grey, venter white.

Fore wing oblong-subtruncate, costa gently concave along median third, weakly convex before and beyond this, apex obtuse, termen almost straight, little curved, hardly oblique. Deep purple, densely covered with rather regular close parallel transverse lines of oval minute white specks, slightly outwards-oblique, from base to about closing vein; four transverse, thick and raised, coppery-metallic brilliant moderate fasciae, each narrowly edged on both sides with lines of ground colour; arranged in pairs: first pair from beyond 1/4, gently curved, outwards-convex and slightly diverging downward, dark ground colour between lines from costa to fold devoid of white specks; second pair incomplete, from just beyond middle of costa, similar to first pair, with anterior line parallel to posterior line of first pair, but posterior line of second pair not reaching to middle of disc and broader edged with purple ground colour; terminal 1/4 of wing forming a glossy whitish-silvery patch from apex to just above dorsum in male, to dorsum in female, gradually dilated downwards, with edge well-defined, tolerably straight and inwards-oblique in female, gently sinuate and more vertical in male, slightly projecting anterad in fold; this pale patch containing on costa before apex an inwards-oblique comma-shaped coppery-metallic mark, edged with purple; and below this, 8-9 straight purple lines along veins from edge to edge; tornus in male purple with white specks. Cilia purplish grey-green, glossy.

Hind wing deep purple with a crimson gloss in male, darker and slightly duller purple-fuscous in female, with crimson gloss only towards apex. Cilia pale grey with bronze basal half and a faint pale basal line, in male cilia around apex and along upper half of termen unicolorous purple with a crimson gloss.

Male genitalia. As described for the genus above. Uncus moderately narrowed. Vinculum rather long, saccus narrowed twice, beyond base and beyond middle, top clavate. Valva broadly oval, costa over 1/2 with a sclerotic bar,

sacculus broad and oval to $2/5$, thence narrow and marginal; bunch of spines long. Anellus, a sclerotic conical sac, with a narrow long base projecting anterad, top clavate, with a few strong crochets.

Female genitalia, as described for the genus above.

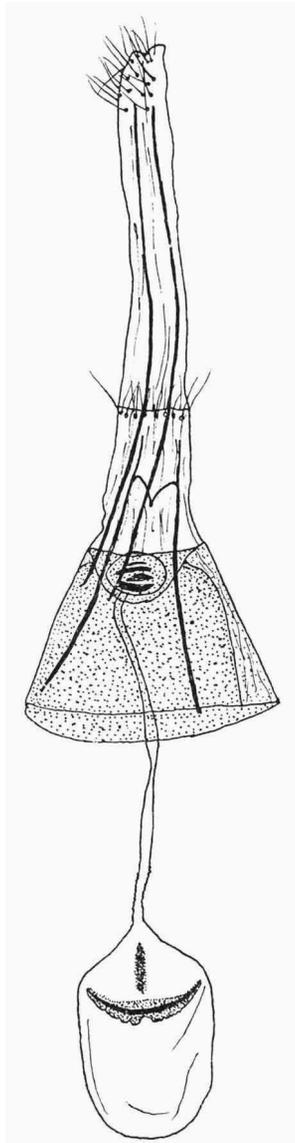


Fig. 3. *Nigilgia limata* sp. n., ♀, genitalia, slide no. 384 YA.

Japan, Ryukyu Ids., Okinawa Id., Tengan, 6-14 and 24-30.vii.1956 (S. S. Nicolay), 1 ♂, holotype, genit. slide 9768 AD; 1 ♀, allotype, genit. slide 9933 AD; paratypes, 13 ♂, 3 ♀, genit. slides 9932 ♂, 9769 ♀ (all by the same collector). — Taiwan, Takao, 20.viii.1933 (S. Issiki), 2 ♀, paratype, genit. slide 9928 AD. — Kyushu, Yakushima, Ambô, 20.x.1959 (H. Kuroko), 1 ♀, genit. slide 9927, host: sugar cane (English text); *Ficus microcarpa* Linn. fil. (Japanese text). In the National Museum of Natural History, Washington; four paratypes, in the Rijksmuseum van Natuurlijke Historie, Leiden.

Japan, Satunan Ids., Yakushima Id., 17.x.1973 (T. Kumata), 1 ♀. Tokara, Tokuno-shima, 18.vii.1964 (Y. Hori), 1 ♂, 2 ♀, genit. slide ♀ 384 YA. Ryukyu Ids., Okinawa Id., Shuri, 26.viii.1965 (Y. Arita), 1 ♀, genit. slide 54 YA. Ishiigaki Id., Takeda, 16.iv.1962 (Y. Arita), 1 ♂, genit. slide 41 YA; the same locality, 7.v.1978 (Y. Arita), 1 ♂, 1 ♀. Yonakuni Id., Sonai, 30.viii.1962 (Y. Arita), 5 ♂, genit. slides 40 YA, 281 YA, 380 YA; Urabedake, 13.v.1963 (Y. Arita), 1 ♂; Tabaru-gawa, 14.v.1963 (Y. Arita), 1 ♂. All paratypes. In the Zoological Laboratory, Faculty of Agriculture, Meijo University, Nagoya.

A brilliantly marked species of moderate size, superficially rather similar to the type species, *Nigilgia adjectella* Walker from W. Africa, and possibly confounded with it by Meyrick (1913, 1914) when recording the last mentioned species also from India, Ceylon and China. We were able to find Asiatic material of *adjectella* only from Tonkin (Paris Museum).

Metapodistis Meyrick

Metapodistis Meyrick, 1933, Exot. Microlep., 4: 372.

Type species, *Metapodistis chrysosema* Meyrick, 1933, by monotypy.

Head smooth. Ocellus small, posterior. Haustellum developed. Antenna rather stout, 2/3, scaled along basal 2/3, finely short-ciliate in male, slender, simple in female. Maxillary palpus vestigial, 1-segmented. Pilifer very short. Labial palpus rather long, longer than diameter head, diverging, obliquely porrected, posterior half recurved; strongly flattened dorso-ventrally, terminal segment longer than median, pointed. Thorax smooth. Posterior tibia smooth, inner pair of spurs lengthened, spiny along upper edge. Abdomen normal.

Fore wing oblong-oval, dilated and broadest at 2/3, costa little curved, apex rounded, termen rounded, moderately oblique. Vein 1b short-furcate at base, 1c only on margin, vein 2 from well before angle (from beyond 4/5), 3 from angle, 3-5 tolerably equidistant, 5 and 6 gently diverging

towards base, 7 and 8 short-stalked, from angle, 7 to termen, 9 moderately approximated, bases of 4-9 and of stalk of 7 + 8 weak, 10 remote, 11 from beyond 1/3, chorda weak, but traceable.

Hind wing oblong-semioval, over 1/2, apex and termen rounded, without cubital pecten. Vein 1a ill-defined, 1b furcate at base, 1c vestigial, 2 from towards angle, 3 and 4 connate, from angle, 5-7 rather straight, separate but gradually approximated towards bases, 7 from upper angle of cell, upper edge of cell weak, vein 8 straight and strong; a trace of median vein in cell to below base of 5.

Male genitalia. Tegumen rather long, moderate, united with tuba analis. Vinculum strong, subcardiform; saccus long and slender, straight. Valva robust, rhomboidal, with a strong angulate processus basalis, disc with a longitudinal and a couple of transverse ridge-like folds, apex with a curved spine. Aedeagus long, straight and very slender, gradually dilated basad, coecum penis absent. Anellus moderate, conical, flattened, top sclerotic.

Female genitalia. Ovipositor rather short and wide. Lobi anales soldered together, top short-bifid, bases with sclerotic longitudinal fold-like appendages. Postapophyses very long, straight and thin. Eighth segment shortened, split ventrally, posterior edge with strong bristles, laterally upon elevated papillae. Anapophyses with tops widely furcate and sinuate. Ostium a sclerotic free tube, dilated upwards. Ductus bursae simple and thin, with a thin ductus bullae next to its base.

Early stages and bionomics. Unknown. Probably leaf-miners. Adults in October (in S. Japan).

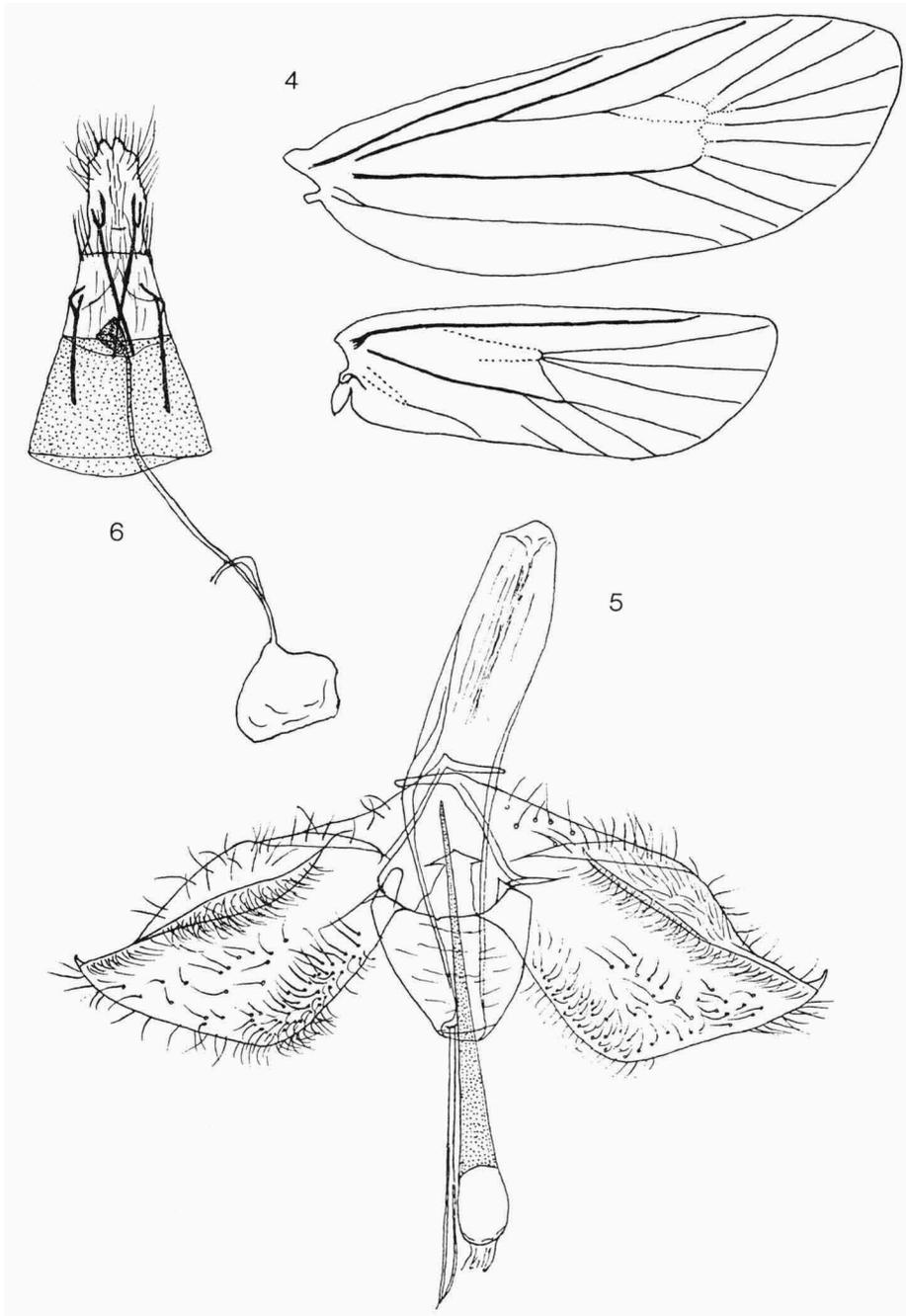
Distribution. The type species is described from Burma. The species recorded below inhabits Japan and Taiwan. An undescribed species is known to us from Java and Borneo.

The genus is closely related with *Glyphipterix* Hübner and *Electrographa* Meyrick, differing from both by the stalking of veins 7 and 8 in the fore wing, with vein 7 to apex or termen; in *Electrographa* veins 8 and 9 are stalked, vein 7 terminating in apex, in *Glyphipterix* these veins are separate.

Metapodistis molybdotoma spec. nov. (figs. 4-6)

(μολύβδος = lead, τόμος = a cut)

♂ ♀ 10-12 mm. Head, antenna and thorax dark fuscous-purple, face silvery. Antenna moderately thickened. Palpus smooth, acutely pointed fuscous-purple externally, creamy-golden internally. Posterior leg light golden-bronze, deep purple above, tarsus deep purple, articulations white.



Figs. 4-6. *Metapodistis molybdotoma* sp. n. 4, wing neuration; 5, male genitalia, slide no. 327 YA; 6, female genitalia, slide no. 328 YA.

Fore wing oblong-oval, dilated, broadest at $3/4$, apex and termen rounded. Deep fuscous-purple or blackish-purple, with a bright violet-purple gloss, sparsely strewn posteriorly in disc with slender long whitish or pale ochreous scales, arranged longitudinally. Markings metallic-violet, -green or -blue, depending on the direction of light. A hardly outwards-oblique, straight and slender streak at $1/3$, reaching to above dorsum; two broader and more oblique, gently excurved (outwards-convex) subparallel streaks, from costa to above middle of wing, before $2/3$ and halfway to apex, a shorter, slightly inwards-oblique dorsal streak, just beyond second costal, and a marginal streak running from costa to apex and along upper $2/3$ of termen, gradually narrowed on both ends. Cilia blackish-purple.

Hind wing oblong-subsemioval, apex obtusely pointed, termen and tornus broadly rounded. Blackish-bronze to bronze-purplish. Cilia blackish on basal half, paler on apical half, with a purple gloss all over. Hind wing in female more truncate.

Male genitalia. Tegumen rather high and narrow, with a tuba analis. Vinculum large, cardiform, saccus slender, longer than vinculum. Valva rhomboidal, with apical spine and long processus basalis. Aedeagus very long, about twice length of saccus, broad at base, gradually narrowed to thin top. Anellus with transversely dilated top.

Female genitalia. Lobus analis flattened, abruptly forming small triangular apex and a sclerotic lateral fold at base. Eighth sternite with large oblong-oval sublateral sclerites, long-bristled only along edge. Ostium bursae, a sclerotic free and short cylindre, colliculum a similar short cylindre, ductus bursae extremely thin, visible from base of ostium, through colliculum, to moderate corpus bursae. Ductus originating beside end of ductus bursae.

Early stages and bionomics. Unknown.

Distribution. Japan: Kyusyû. — Taiwan.

Remarks. A distinct species. The specimens from Yakushima are darker and smaller than those of Kyusyû Island, but are otherwise entirely similar.

Japan, Kyushu, Kagosima, Satamisaki, 10.x.1955 (T. Kodama), 1 ♂, holotype, genit. slide 10101. — Kyusyû, Satamisaki, 21.v.1952 (S. Issiki), 1 ♀, paratype (allotype), genit. slide 10084. — Paratypes: the same locality and date, 1 ♂, 2 ♀ and 19.v.1952, 1 ♂, genit. slide 10088 (all by S. Issiki). — Kyushu, Oosumi, 19.iv.1958 (S. Issiki & T. Yasuda), 1 ♂; Sata, same date (T. Yasuda), 1 ♀. — Taiwan, Sinten, 11.ix.1925, 1 ♂; Kanusirei, 18.x.1934, 2 ♂; Sozan, 25.iv.1935, 1 ♀ (all by S. Issiki). Issiki Collection, in the National Museum of Natural History, Washington, U.S.A. and three paratypes in the Rijksmuseum van Natuurlijke Historie, Leiden.

Japan, Kyushu, Kagoshima Pref., Satamisaki, 9.x.1955 (T. Kodama), 2 ♀; 5.x.1959 (T. Kodama), 1 ♂; 14.x.1955 (T. Yasuda), 1 ♂, genit. slide 153 YA; 18.vii.1975 (Y. Arita), 1 ♂, genit. slide 327 YA. Yakushima Id., Miyanoura, 22.ix.1975 (Y. Arita), 2 ♂, 2 ♀, genit. slides ♂ 154 YA, ♀ 328 YA; Kurio, 6.xi.1976 (Y. Arita), 1 ♂. Ryukyu Ids., Ishigaki Id., Omotodake, 2-9.v.1978 (Y. Arita), 4 ♂, 2 ♀. In the Zoological Laboratory, Meijo University, Nagoya.

HELIODINIDAE

Epicroesa Meyrick

Epicroesa Meyrick, 1907, Proc. Linn. Soc. N.S. Wales, 32: 94.

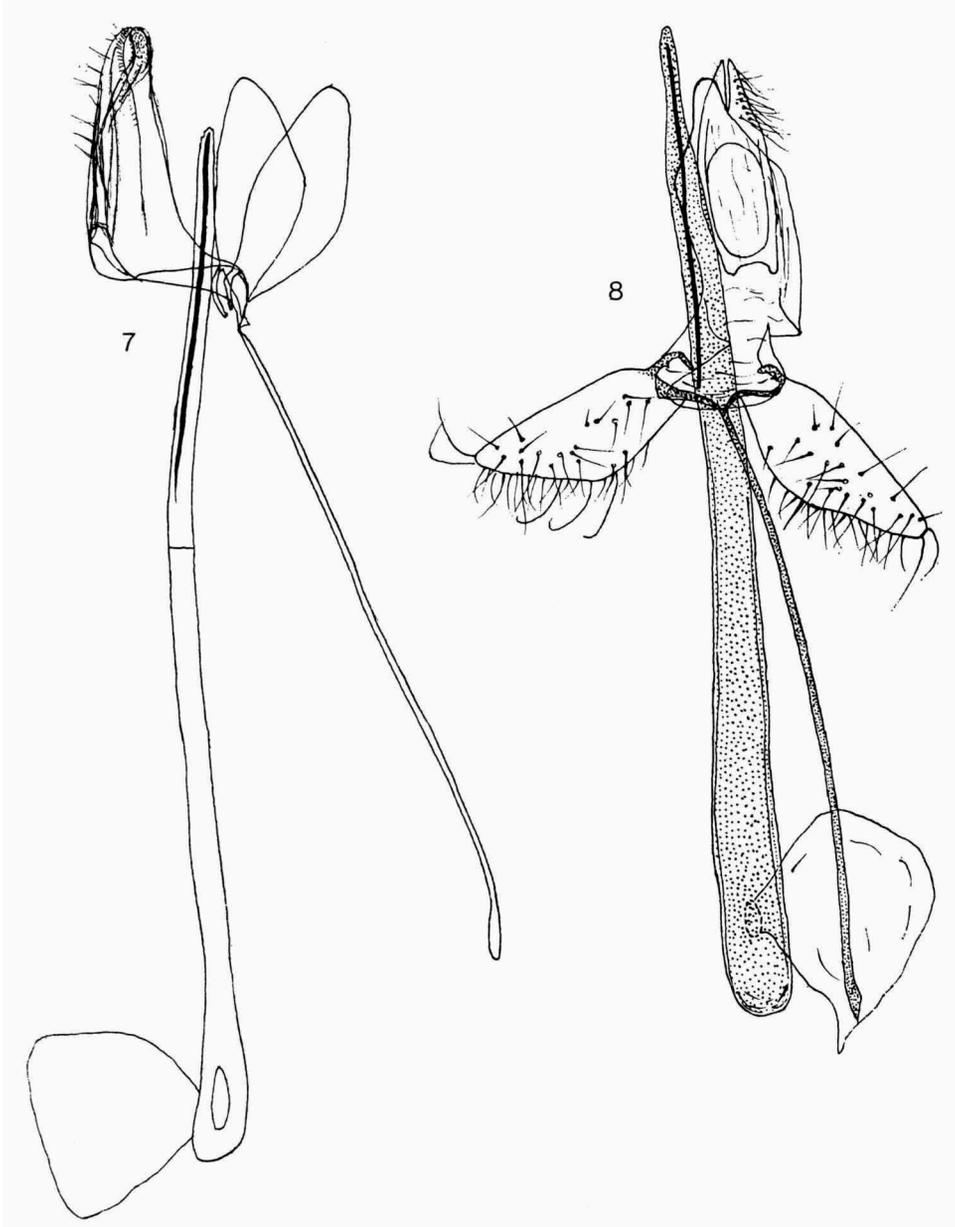
The genus of small, brilliantly coloured species from Australia and New Guinea has been described by Meyrick in the Plutellidae, but was later transferred to the "Glyphipterygidae" sensu Meyrick. The species described below differs slightly from the type species of *Epicroesa* by a pointed fore wing and (very slight) discrepancies in the neuration, but in fact this neuration is of the same aberrant type, so that judging from the external characters it fits very well in *Epicroesa*. The genitalia of the four other already known species have never been described; those of the present species are so peculiar as to be decidedly distinct from Glyphipterigidae sensu stricto. Therefore, after removing *Epicroesa* from the last mentioned family, we transfer it, to the Heliodinidae.

Epicroesa chromatorhoea spec. nov. (figs. 7-10)

(χρῶματα = colours, ῥέω = to flow)

♂ ♀ 11 mm. Head polished golden, with faint prismatic reflexions, face becoming silvery downwards, vertex becoming golden with a violet hue. Antenna flattened fronto-caudally along basal half in the two sexes; black, becoming bronze anteriorly, posterior half irregularly ringed and spotted with white. Palpus slender, moderate, porrected, apical segment longer than median; silvery with prismatic reflections, appearing grey in certain lights. Thorax brilliant golden bronze, with violet reflections, breast and pleurae glossy greenish-white. Abdomen bronze, venter with anterior halves of segments bronze. Posterior tibia purple, silvery white marks at apex, middle and base, outer spurs white.

Fore wing lanceolate, costa little curved, apex pointed, termen very oblique, tornus indefinite, dorsum more curved than costa. A median gently inwards-



Figs. 7-8. *Epicroesa chromatorhoea* sp. n., ♂. 7, holotype, genitalia, slide no. 387 YA; 8, paratype, genitalia no. 386 YA.

oblique, dull black-purple transverse band, hardly dilated on costa, below costa becoming strewn with golden-bronze points; wing before fascia glossy bronze-golden, gradually becoming pale greenish, then bright green posteriorly, costal edge suffused with purple-black and with a pale pink spot against dark band; posterior half of wing bright glossy pinkish-violet, apex suffused with golden, somewhat irregularly marbled with dull blackish-purple as follows: a wedge-shaped outwards-oblique spot at $2/3$ of costa to about vein 8, top connected with a slender semicircular line, open below; another wedge-shaped spot at $1/3$ of termen, point downwards, base connected by irregular curved line with costa beyond $2/3$, a slender oblique line before apex. Cilia fuscous-black, a white subbasal streak along median third of cilia from apex to beyond $1/3$ of termen, attenuated downwards.

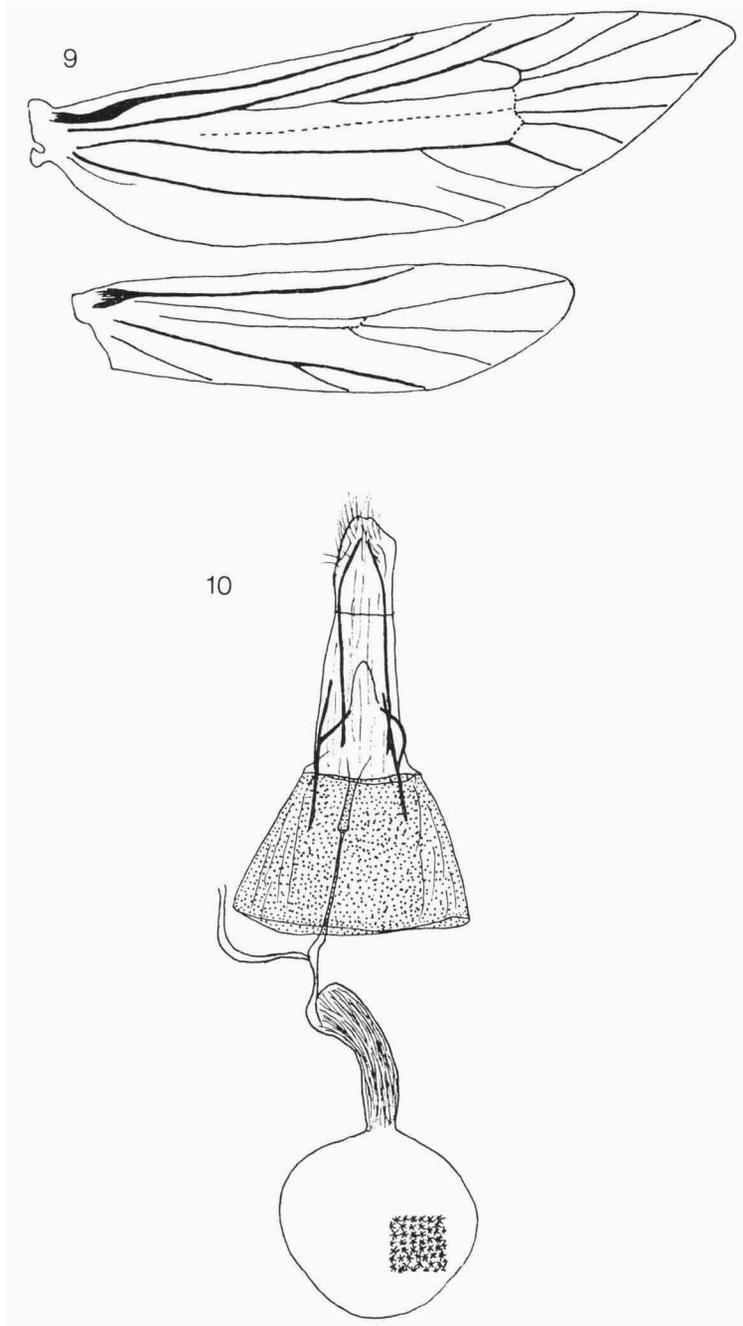
Hind wing deep bronze-brown, little glossy. Cilia paler, with a golden gloss in certain lights.

Variability. Two females with central fascia reduced to a costal patch, all dark markings deep purple, the entire wing bright crimson-violet with golden reflections. Hind wings as above.

Male genitalia. Tegumen short, broad at base with truncate top and sides strongly extended forwards and completely united with a strong, porrected gnathos, denticulate on dorsal side; uncus articulating with top of tegumen, oblong-oval, with sclerotic edge throughout, top pointed and split, finely haired. Vinculum reduced to a slender ring with a thin, rod-like very long saccus. Valva rather small, shorter than tegumen + uncus, simple, suboval, pointed, costa straight. Anellus reduced, a simple, light band around aedeagus. Aedeagus extremely long, a simple straight tube, gradually narrowed towards top, base clavate. Cornutus a thin central rod along anterior part of aedeagus. Eighth sternite modified, sclerotic. Seventh segment with lateral fleshy prominences, bearing coremata.

Female genitalia. Ovipositor extensile, moderate. Postapophyses longer than anapophyses which are furcate at base. Ostium funnel-shaped, continued by a slender tubular colliculum to above middle of seventh sternite. Ductus bursae very thin, longer than that of sternite, ductus bullae originating well before end of ductus; corpus bursae spherical with strongly sculptured wall by small and dense asteroid bodies and with a long, sausage-shaped "collum", as long as the spherical part.

Japan, Honshu, Tokyo, Asakawa, bred from *Kalopanax septemlobus* (Thunberg) Koidzumi, 1 ♂, holotype, genit. slide 387 YA; the same 1 ♀, paratype (allotype), genit. slide 375 YA; paratypes, 3 ♂, 10 ♀, the same data as holotype, genit. slide ♂ 386 YA. Omata, bred from *K. septemlobus*



Figs. 9-10. *Epicroesa chromatorhoea* sp. n., ♀. 9, wing neuration; 10, genitalia, no. 375 YA.

(Japanese), emerg. 17-19.vi.1957 (T. Kodama), 2 ♂, 1 ♀. — Hokkaido, Tomakomai, bred from *K. septemlobus* (Japanese), emerg. 6-11.vii.1978 (F. Komai), 1 ♂, 2 ♀; Utonai, 29.vi.1978, bred from *K. septemlobus*, emerg. 10-11.vii.1978 (T. Saito), 1 ♂, 5 ♀. In the Zoological Laboratory, Meijo University, Nagoya.

Host plant: *Kalopanax septemlobus* (Thunberg) Koidzumi [= *Kalopanax pictus* (Thunberg) Nakai] (Araliaceae).

Japan, Honsyû, Kii, Oomata, 3.vi.1957, bred from [as above] (Japanese), emerg. 18.vi.1957 (T. Yasuda), 3 ♂. — Hokkaido, Sapporo, Ishikari, 18.vii.1959 (K. Yano), 1 ♂. — Sapporo, 30.vii.1952, 2 ♀ (A. Mutuura). All paratypes. In the National Museum, Washington and two, in the Rijksmuseum van Natuurlijke Historie at Leiden.

A brilliantly coloured small species, slightly different from the type species by pointed fore wing and minor discrepancies in the neuration, but in our opinion, undoubtedly congeneric.