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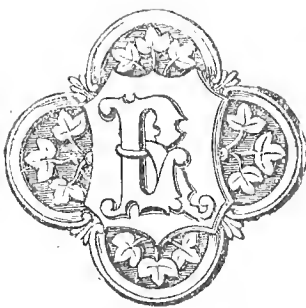
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always the case, some species rest with wings fully expanded or half open to show off the brilliant colouring of the upperside ; their flight is as a rule extremely rapid, so rapid that the eye can scarcely follow them, but the flights are usually short, the species that live in the grass have usually a weak flight.

Sexual dimorphism is rare, Leech records that *Zephyrus japonica*, Murray, has four distinct forms of females with many intergrades. We know of none from the Indian region, whereas, on the other hand, seasonal dimorphism seems to be as common as it is in the butterflies of other families.

In determining a sub-division of this very interesting family and the order in which they and the species they contain should stand, we have had much difficulty. Dr. Moore left a number of notes, but they refer only to individual species, and are under no arrangement whatever ; de Nicéville described eighty-two genera and over four hundred species, but he classified no sub-families, contenting himself with only distinguishing certain groups of genera. These agree fairly well with the groups Doherty had previously characterised from the egg alone. In 1884, in his grand work, "Rhopalocera Malayana," Distant proposed a division of the genera into three groups, founded more or less on the presence or absence of tails to the hindwings, but this system of grouping cannot hold, because there are undoubtedly some genera, such as *Arhopala*, in which some of the species have tails and some have not. Dr. T. A. Chapman has, however, been working on the genitalia of many Lycænids, his excellent paper in the Proceedings of the Zoological Society, 1909, part ii. has thrown entirely new light on the subject, and we are attempting to arrange the order of this family in accordance with his views and with those of Mr. J. W. Tutt, in his work on British Butterflies.

IMAGO.—Usually of small size, body generally slender, six perfect legs, forelegs somewhat smaller than the others, nearly alike in both sexes, the forelegs in the males furnished with an exarticulate tarsus having several hooklets at the tip, distinct from the unguis ; palpi variable in length, often longer in the female than in the male ; antennæ generally shorter than half the length of the costa of the forewing, often ringed with white, with an elongated club. Eyes often more or less hairy. *Forewing* with two or three branches to the sub-costal vein, rarely four, vein 8 absent in all but three genera in the Indian forms, and in the females but not the males of three others, discoidal cell closed, generally narrow, owing to the distance between the costal and sub-costal nervures, wing rather broad and short, the apex and hinder angle well marked, seldom rounded. *Hindwing* with the outer margin often furnished with one or more slender tails near the anal angle, precostal nervure absent, discoidal cell closed by very slender nervules.

EGGS hard, small, numerous, much wider than high, reticulate, with a whitish accretion, forming an asymmetrical network of tetragons (Doherty).

LARVA shaped like wood-lice, extremely sluggish for the most part, and look in many cases more like a *Coccus* or some other vegetable excrescence than caterpillars, some are smooth, many clothed with a soft down, some with fascicles of short bristles, or regularly disposed tubercles, and a few, hairy generally; several are regularly corrugated dorsally, and others prominently humped in one or two places; some larvæ of Lycænidæ are scutate, being furnished with a hard flattened shield on the dorsal region of the three last segments, which is used by the larvæ to plug up the holes in the fruits in the interior of which they live. The majority of the larvæ feed on the young leaves, buds, and flowers of trees, bushes and low-growing plants. *Lampides*, *Virachola* and *Deudorix*, however, feed on the interior of fruits of several kinds, some feed upon the seed pods of leguminous plants; these latter have very long necks, so that they can reach far into the interior of the pods (de Nicéville).

PUPA.—Usually very blunt, never furnished with spines or processes, though they are often densely covered with short hairs or bristles; much rounded anteriorly, the thorax rounded and often humped, generally dull coloured, of various shades of red or brown or green.

Sub-Family GERYDINÆ.

IMAGO.—Coloration dull, brown or blackish-brown, white or marked with white in most females; wings mostly elongate and delicate. *Forewing* with vein 8 absent. *Hindwing* with all the veins present; outer margin of both wings sometimes uneven, sometimes dentate; abdomen slender, usually extending beyond the wings; antennæ half the length of the costa of forewings; club gradual; palpi with the third joint long and slender; legs long, abnormal, the first joint of the tarsi elongate. The genitalia of the male, Doherty says, are peculiar, the prehensores long, thin and plate-like, resembling the valves of the *Papilionidæ*.

EGG.—Less than one-third as high as wide, delicately and somewhat obsolescently reticulate, sometimes carinate, flat above and below (Doherty).

LARVÆ and PUPÆ unknown.

Genus GERYDUS.

Gerydus, Boisduval, Sp. Gen. Lep. i. pl. 23, fig. 2 (1836). Distant, Rhop. Malayana, p. 205 (1884). de Nicéville, Butt. of India, iii. p. 21 (1890). Bingham, Fauna of Brit. India, Butt. ii. p. 288 (1907).

Symetha, Horsfield, Cat. Lep. E.I.C. p. 59, pl. 2, fig. 2 (1828).

Miletus, Westwood (part, nec Hübner), Gen. Diurn. Lep. ii. p. 502 (1852).

IMAGO.—Eyes naked, palpi slender, scaled, not fringed in front, third joint long, antennæ less than half the length of the costa of forewings, club long and slender, abdomen of the male with a sub-anal tuft of stiff hairs; legs abnormal, first joint of tarsi

elongated, widened and compressed; claws minute. *Forewing* long and narrow, costa well arched, apex acute, hinder margin bisinuate more than three-fourths the length of the costa, vein 5 arising equidistant between veins 4 and 7, vein 6 from underside of 7 beyond end of cell, upper discocellular therefore absent, vein 8 absent, 9 from the middle of 7, 10 from sub-costal a little before apex of cell, 10 ending on costal margin above upper end of the cell. *Hindwing* long, pear-shaped, costa arched near apex and base, outer margin rounded, lower angle rounded, abdominal margin nearly straight; cell short, discocellulars faintly indicated, vein 6 from 7 beyond upper end of cell, 8 long and strongly curved at base, thence bisinuate to apex.

Type, *Gerydus symethus*, Cramer.

GERYDUS SYMETHUS.

Plate 612, figs. 1, ♂, 1a, ♀, 1b, ♀.

Papilio symethus, Cramer, Pap. Exot. ii. pl. 149, figs. B, C, ♀ (1779). Stoll. Suppl. Cramer, pl. 37, figs. 3, 3c, ♀ (1790). Fabricius, Sp. Ins. ii. p. 119 (1781); id. Mant. Ins. ii. p. 69 (1787).

Hesperia symethus, Fabricius, Ent. Syst. iii. (i.) p. 280 (1793).

Polyommatus symethus, Godart, Enc. Méth. ix. p. 675 (1823).

Gerydus symethus, Boisduval, Sp. Gen. i. pl. 23, figs. 2, ♀, 2a, 2b, tarsi fore leg, ♂ ♀ (1836). Butler, Cat. Fabr. p. 160 (1869); id. Trans. Linn. Soc. Zool. 1877, p. 546. Distant, Rhop. Malayana, p. 205, pl. 20, fig. 2, ♂, pl. 22, fig. 14, ♀ (1884). de Nicéville, Butt. of India, iii. p. 22 (1890). Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 43. Elwes, Proc. Zool. Soc. 1892, p. 617. Bingham, Fauna of Brit. India, Butt. ii. p. 290 (1907).

Myletus symethus, Snellen, Tijd. voor Ent. xix. p. 152 (1876).

Symetha pandu, Horsfield, Cat. Lep. E.I.C. pl. 2, figs. 2, ♂, 2a, ♀, 2b to 2i (structure of imago) (1828).

Miletus zinckenii, Felder, Reise, Nov. Lep. ii. p. 284, pl. 35, fig. 34, ♂ (1865).

IMAGO.—Male. Upperside blackish-brown. *Forewing* with a large white patch in the centre, its upper margin having a small tooth projecting upwards in its middle, its borders irregularly sinuous, a long white streak immediately below the patch, sometimes attached to it, sometimes more or less separated; the upper, apical, and outer portions of the wing darker blackish. *Hindwing* uniform blackish-brown, a broad whitish streak beyond the cell, sometimes extending nearly to the outer margin, often obscure, sometimes absent. Underside very pale with an ochreous tinge. *Forewing* with the patch as above, often larger, a blackish patch on the lower basal half; obscure, transverse, sinuous pale lines, two at base, and two or three on the costal apical area, a sub-terminal series of slightly lunular small brown marks. *Hindwing* crossed by a number of obscure, sinuous, brown and whitish lines, a sub-terminal series of brownish slender lunules, the centre of the wing generally the palest.

Female. Upperside. *Forewing* with the basal portion irrorated with dark greyish-brown scales, the white patch very large, occupying more than two-thirds of the wing, its outer margin very irregular, the patch sometimes intersected by the veins; basal half of costal band broadly greyish-brown, the remainder black, extending round the apex and outer margin, and running in on the hinder margin, where in the middle it joins the grey irrorations, this outer band at the apex is very broad and is black throughout. *Hindwing* greyish-brown, sometimes very pale, costal margin very broadly blackish, a white patch in the middle of the wing which is sometimes more or less suffused with grey and varies much in size. Underside, much as in the male. *Forewing* with the white patch as large as it is above. *Hindwing* with the discal sinuous brown line more pronounced, a short brown shade through it from the abdominal margin, and both wings with lunular sub-terminal brown marks. Antennæ, head, thorax and abdomen brown, paler beneath, palpi and thorax beneath white.

Expanse of wings, ♂ ♀ $1\frac{8}{10}$ inches.

HABITAT.—Burma, Malacca, Java, and many of the adjacent islands.

DISTRIBUTION.—Recorded by Elwes from the Naga and Karen Hills, by Butler from Maulmein, and by Watson from Chin Lushai; it is in the B. M. from Java.

GERYDUS ANCON.

Plate 612, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

Gerydus ancon, Doherty, Journ. As. Soc. Bengal, 1889, p. 438, pl. 23, fig. 8. de Nicéville, Butt. of India, iii. p. 23 (1890). Bingham, Fauna of Brit. India, Butt. ii. p. 291 (1907).

IMAGO.—Male. *Forewing*, upperside, dark brownish-black at the base, a white transverse band, which commences with a sub-costal streak near the base, and descends outwardly before the middle of the wing, is crossed by a broad bar from the basal brown space which becomes nearly pure black; then the white band expands inwards on to the hinder margin very broadly, its inner and outward edges being very irregularly sinuous; all the broad black marginal band being pure black, being very broad at the apex and gradually narrowing to the hinder angle. *Hindwing* of a uniform very dark brownish-black colour, without markings. Underside. *Forewing* chocolate-brown, the white band much reduced, macular, and almost continuous, with blackish suffusion inside it, on the centre of the wing and some similar suffusion outside the band, above its middle; the outer portion of the wing with pale streaks. *Hindwing* of a uniform rather pale chocolate-brown, some obscure mottlings of a darker brown, and a brown, obscure band from the abdominal margin beyond the middle, which becomes more or less obsolete inwards.

Female, like the male. The white band slightly narrower hindwards.

Antennæ, head, thorax and abdomen pale brown above, more or less ochreous tinged beneath.

Expanse of wings, ♂ ♀ 2 inches.

HABITAT.—Tenasserim, Tavoy, Burma.

GERYDUS BOISDUVALI.

Plate 613, figs. 1, ♂, 1a, ♀, 1b, ♂ (Wet-season Brood), 1c, ♂, 1d, ♀, 1e, ♀ (Dry-season Brood).

Miletus boisduvali, Moore, Cat. Lep. E.I.C. p. 19, pl. 1a, fig. 1, ♀ (1857); id. Proc. Zool. Soc. 1865, p. 777. Snellen, Tijds. voor Ent. xix. p. 152 (1876). Elwes, Trans. Ent. Soc. 1888, p. 374.

Gerydus boisduvali, de Nicéville, Butt. of India, iii. p. 24, pl. 26, fig. 155, ♂ (1890). Manders, Trans. Ent. Soc. 1890, p. 527. Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 43. Elwes, Proc. Zool. Soc. 1892, p. 618. H. H. Druce, Proc. Zool. Soc. 1895, p. 561 (note). Swinhoe, Trans. Ent. Soc. 1893, p. 292. Watson, Journ. Bo. Nat. Hist. Soc. 1897, p. 658. Bingham, Fauna of Brit. India, Butt. ii. p. 292 (1907).

Miletus chinensis, Felder, Verh. zool.-bot. Ges. Wien, xii. p. 488 (1862); id. Reise, Nov. Lep. ii. p. 284, pl. 35, figs. 35, 36 (1865). Moore, Proc. Zool. Soc. 1878, p. 701.

Miletus irroratus, Druce, Proc. Zool. Soc. 1874, p. 106.

Gerydus boisduvali, var. *acragas*, Doherty, Journ. As. Soc. Bengal, 1891, p. 186.

Gerydus chinensis, J. J. Walker, Trans. Ent. Soc. 1895, p. 460. Kershaw, Trans. Ent. Soc. 1905, p. 1, pl. 1 (life history).

Wet-season Brood (Figs. 1 ♂, 1a ♀, 1b ♂).

IMAGO.—Male. Upperside of a nearly uniform blackish-brown colour. *Forewing* with an obscure discal band of small whitish spots, one or two obliquely, beyond the cell and two below them nearer the margin, these spots mostly suffused with scales of the ground colour, sometimes nearly obsolete. *Hindwing* without markings, cilia white. Underside, pale pinkish-grey. *Forewing* with an obscure and irregular whitish patch on the lower half of the disc, three spots in the cell, caused by six whitish lines crossing it, a similar spot below the middle of the cell, some similar but smaller sub-costal spots, four joined together from the costa near the apex, three below them, and a series of sub-terminal brown spots. *Hindwing* with basal, sub-basal and medial bands of spots, similar to those on the forewing, a discal band of similar spots joined together, and a sub-terminal angulated brown line.

Female. Above and below similar to the male, but the band on the forewing above is better pronounced, and the spots larger, but often much suffused.

Expanse of wings, ♂ ♀ 1½ inches.

Dry-season Brood (Figs. 1c ♂, 1d ♀, 1e ♀).

Male. Much paler than the Wet form, the band is broad and continuous from near the costa of forewing, outwards almost joining the two lower spots, the portion of

the wing outside this band is dark blackish-brown, nearly black, but all the inner portion and the hindwing are pale pinkish-brown, a little darker brown occasionally; on the underside there is a brown shaded streak from the base inwards on the forewing, and a similar streak on the hindwings extending inwards from the middle of the abdominal margin.

Female, similar to the male.

Antennæ, head, thorax and abdomen above and below brown.

Expanse of wings, ♂ ♀, $1\frac{5}{10}$ inches.

HABITAT.—Sikkim, Assam, Burma, Hong Kong, Ceylon, extending to Java.

DISTRIBUTION.—Watson records it from the Chin Hills and Chin Lushai, Elwes from North Assam and the Karen and Naga Hills, Manders from the Shan States; it is in the B. M. from Hong Kong, Ceylon and Java, and in our collection from the Khasia Hills.

GERYDUS LONGEANA.

Plate 613, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

Gerydus longeana, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1898, p. 141, pl. Z, figs. 15, 16.
Bingham, Fauna of Brit. India, Butt. ii. p. 293 (1907).

Wet-season Brood (Figs. 2, ♂, 2a, ♀, 2b, ♂, 2c ♀).

IMAGO.—Male. Upperside pale blackish-brown with a slight ochreous tint. *Forewing* with the space beyond the white discal band black, the band consisting of an oblique rather broad streak across the end of the cell, and two somewhat elongate spots below it, nearer the margin. *Hindwing* unmarked. Underside of a uniform very pale brownish-grey, tinged with ochreous, markings very obscure, much as in *boisduwali*; the white discal band of the forewing broader throughout and much enlarged hindwards.

Female, like the male, the discal band very much broader, consisting of four elongated white streaks of uniform size; on the underside the markings are better defined.

Expanse of wings, ♂ ♀ $1\frac{1}{2}$ inches.

Intermediate Form.

Male, with the space on *forewing* beyond the white band black, the band purer white, very broad, evenly curved, the spots closer together and narrowing hindwards, the inner portion of the wing and the entire hindwing pale whitish-grey with a pinkish-ochreous tinge, a short brown streak, immediately above the upper half of the cell, and another in the interspace above vein 2, extending from its origin to the white band; the hindwing with the costa broadly blackish-brown, unmarked. Under-

side as in the other form, the discal band much as on the upperside, the ground colour of both wings somewhat darker, a discal obscure brown transverse shade on the hindwing.

Female. *Forewing* with the base ochreous-grey, the outer band black and as in the male; the remainder of the wing white, containing the two brown streaks as in the male. Underside similar to the male.

Expanse of wings, ♂ ♀ $1\frac{1}{2}$ inches.

Dry-season Brood.

Male. Upperside nearly all white except the outer black band of the *forewing*, markings as in the female of the intermediate form; some slight ochreous-grey suffusion on the basal and abdominal portions of the *hindwing*. Underside pale.

Female, almost pure white above, the central brown bar on the *forewing* above very small and obscure, the suffusion on the *hindwing* hardly visible. Underside as in the male.

Expanse of wings, ♂ ♀ $1\frac{2}{10}$ to $1\frac{3}{10}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—The type came from Hsipaw in the Shan States; there is a fine series of all three forms in the B. M. from Thyetmyo, Chindwin, Beeling, and Tilin Yaw.

GERYDUS CROTON.

Plate 614, figs. 1, ♂, 1a, ♀, 1b, ♂, 1c, ♀.

Gerydus Croton, Doherty, Journ. As. Soc. Bengal, 1889, p. 439, pl. 23, fig. 9. de Nicéville, Butt. of India, iii. p. 25 (1890). Elwes, Proc. Zool. Soc. 1892, p. 617. Bingham, Fauna of Brit. India, Butt. ii. p. 294 (1907).

IMAGO.—Male. Upperside. *Forewing* rich dark brown, the apical portion beyond the white band black; the white band consists of one elongated, rather large spot beyond the cell, with two round white spots below it, nearer the outer margin. *Hindwing* of a uniform similar rich brown colour without markings. Underside paler brown, more or less uniform in colour throughout both wings. *Forewing* with the discal band much as on the upperside, sometimes the spots are a little larger, and often tinged with ochreous, some obscure annular markings on the costal and apical areas. *Hindwing* crossed with several very obscure annular bands, sometimes almost indistinguishable, both wings with a sub-terminal line of minute black dots.

Female paler in colour than the male, the white discal band of the forewing broader, the elongated spot beyond the cell becoming broader and forms a band which

extends up to the costa a little before the middle. Underside much paler and tinged with chocolate colour. *Forewing* with the discal band consisting of four elongated spots in the disc, increasing in size upwards, a black patch just inside them. *Hindwing* with some very obscure annular markings, both wings with minute sub-terminal black dots as in the male. Antennæ, head, thorax and abdomen dark brown above, paler beneath.

Expanse of wings, ♂ ♀ $1\frac{8}{10}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—Elwes records it from Pegu; it is in the B. M. from the Shan States; the type came from Tenasserim.

GERYDUS BIGSII.

Plate 614, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

Gerydus bigsii, Distant, Rhop. Malayana, p. 206, pl. 22, fig. 12, ♀ (1884). de Nicéville, Butt. of India, iii. p. 24 (1890). Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 43. Elwes, Proc. Zool. Soc. 1892, p. 617. H. H. Druce, Proc. Zool. Soc. 1895, p. 560. Watson, Journ. Bo. Nat. Hist. Soc. 1897, p. 657. Bingham, Fauna of Brit. India, Butt. ii. p. 295 (1907).

Gerydus gopara, de Nicéville, Butt. of India, iii. p. 25 (1890); id. Journ. Bo. Nat. Hist. Soc. 1890, p. 208, pl. E, figs. 1, ♂, 2, ♀.

IMAGO.—Male. Upperside of a uniform dark blackish-brown. *Forewing* with the apical portion darker black; the white discal streak crossing outside the end of the cell, descends hindwards, less obliquely than is usual in the genus, and therefore is more in the middle of the wing, it is more like a bar, and is very broad and extends from near the costa at its middle to near the hinder margin of the wing, there are no other markings on either wings above, but the outer margin of the hindwing is distinctly sinuous, which is very unusual in the males of this group. Underside pale brownish-grey with a faint pinkish tinge. *Forewing* with the white band forming a large white patch, a blackish suffusion on the wing in the inner portion, the usual markings on forewings better defined than in *boisduvali*, very obscure on the hindwing; a sub-terminal series of black dots.

Female, like the male. Antennæ, head, thorax and abdomen brown above and below.

Expanse of wings, ♂ ♀ $1\frac{1}{2}$ inches.

HABITAT.—Burma, Malay Peninsula.

DISTRIBUTION.—Watson records it from the Chin Hills and Chin Lushai, Elwes from the Naga and Karen Hills; it is in the B. M. from Thyetmyo, the Malay Peninsula and Java, and we have it from Celebes.

GERYDUS ASSAMENSIS.

Plate 614, figs. 3, 3a, ♂.

Gerydus irroratus, var. *assamensis*, Doherty, Journ. As. Soc. Bengal, 1891, p. 37, pl. 1, fig. 7.*Gerydus irroratus*, Bingham (part), Fauna of Brit. India, Butt. ii. p. 295 (1907).

IMAGO.—Above unmarked except by a small, pale, longitudinal area around the base of the upper median vein on the forewing. Below pale grey-brown, without the dark markings of *G. boisduvali*; a small pale area on the forewing below the middle median vein, the markings lunular, those in the cell of the forewing reduced, the transverse discal band of the forewing sub-apical, extending only to the upper median vein, a single conspicuous dark lunule near the lower angle; the transverse band of the hindwing regular, an undulated, continuous sub-marginal dark line.

It resembles *G. melanion* from the Philippines, but is without the white area near the lower angle of the forewing above.

The figure represents the transverse band of the hindwing incorrectly; it is really composed of separate annular lunules (Doherty, l.c.).

HABITAT.—Dhansiri Valley, Naga Hills.

We have not seen this species; the unique type is in the Indian Museum, Calcutta; the figure is copied from Doherty's figure.

ALLIED INDO-MALAYAN FORMS.

Gerydus leos, *Simethus leos*, Guérin, Voy. Coq. pl. 18, fig. 8 (1829). *Synonym*, *Gerydus teos*, Doherty, Journ. As. Soc. Bengal, 1891, p. 185. Habitat, Salaya Isl., Celebes, Amboina, Sumba.

Gerydus melanion, *Miletus melanion*, Felder, Reise, Nov. Lep. ii. p. 284, pl. 35, figs. 32, 33 (1865). Habitat, Philippines.

Gerydus learchus, *Miletus learchus*, Felder, l.c. p. 285, pl. 35, figs. 35, 37 (1865). *Synonym*, *Miletus philippus*, Staudinger, Lep. Palawan, p. 92, pl. 1, fig. 2 (1889). Habitat, Cochin China, Philippines.

Gerydus petronius, Distant and Pryer, Ann. Mag. Nat. Hist. 1887, p. 266. H. H. Druce, Proc. Zool. Soc. 1895, p. 559. Habitat, Borneo.

Gerydus maximus, Holland, Proc. Boston Soc. xxv. p. 68, pl. 5, fig. 9 (1891). Habitat, Celebes.

Gerydus heracleon, Doherty, Journ. As. Soc. Bengal, 1891, p. 36. Elwes, Proc. Zool. Soc. 1892, p. 617. Habitat, Perak.

Gerydus gigantes, de Nicéville, Journ. As. Soc. Bengal, 1894, p. 23, pl. 5, fig. 1, ♂, 13, ♀. Habitat, N.E. Sumatra.

Gerydus gætulus, de Nicéville, l.c. p. 24, pl. 5, fig. 12, ♀. Habitat, N.E. Sumatra.

Gerydus gallus, de Nicéville, l.c. p. 25, pl. 5, f. 11, ♀. Habitat, N.E. Sumatra.

Gerydus gæsa, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1895 (vol. x.), p. 26, pl. S, fig. 16, ♂. Habitat, N.E. Sumatra.

Gerydus gigas, H. H. Druce, Proc. Zool. Soc. 1895, p. 559, pl. 31, fig. 3, ♂. Habitat, Kina Balu, Borneo.

Gerydus innocens, H. H. Druce, l.c. p. 560, pl. 31, fig. 4. Habitat, Kina Balu.

Gerydus vincula, H. H. Druce, l.c. p. 561, pl. 31, figs. 9, ♂, 10, ♀. Habitat, Borneo.

Gerydus improbus, H. H. Druce, l.c. 1896, p. 651, pl. 29, figs. 1, ♂, 2, ♀. Habitat, Kina Balu.

Genus ALLOTINUS.

Allotinus, Felder, Reise, Nov. Lep. ii. p. 285 (1865). de Nicéville, Butt. of India, iii. p. 27 (1890).

Bingham, Fauna of Brit. India, Butt. ii. p. 296 (1907).

Paragerydus, Distant, Rhop. Malayana, p. 207 (1884).

Miletographa, Rober, Ex. Schmett. ii. p. 277 (1891).

IMAGO.—Differs from the genus *Gerydus* in having the first joint of the tarsi greatly elongated, round, not widened and compressed as in *Gerydus*; eyes naked. *Forewing*, cell about half as long as the wing; vein 6 from basal third of 7 beyond apex of cell; vein 8 absent; vein 9 from upper fifth of 7; 10 from upper end of cell; 11 from apical half of sub-costal. *Hindwing* long, oval, outer margin curved, slightly dentate. Antennæ more than half the length of the costa of forewing, club gradual, palpi erect, slender, aciculate; body long and slender.

Type, *Allotinus fallax*, Felder, from the Philippines.

ALLOTINUS DRUMILA.

Plate 615, figs. 1, ♂, 1a, ♀, 1b, ♂, 1c, ♀.

Miletus drumila, Moore, Proc. Zool. Soc. 1865, p. 777, pl. 41, fig. 12, ♀.

Allotinus drumila, de Nicéville, Butt. of India, iii. p. 28 (1890). Bingham, Fauna of Brit. India, Butt. ii. p. 297 (1907).

Miletus insignis, Staudinger, Ex. Schmett. p. 269, pl. 94 (1888).

IMAGO.—Male. With the shape of the wings like a female, short, broad. *Forewing* with the costa much arched before the apex, which is produced to a point, outer margin of forewing slightly crenulate, of the hindwing highly so = *Miletographa*.

Upperside dark brown. *Forewing* with a white streak, from the outer end of the cell, curving outwards and downwards into the interspace above vein 2, being broken by some brown suffusion on vein 3, the apex, outer margin and space below the streak darker brown, nearly black. *Hindwing* with the costal margin pale, a broad black streak below the pale portion; no other markings; underside pinkish-grey, a whitish streak along the hinder margin beyond the middle, all the rest of the wing with brown irrorations, which are thickest and darkest along the costal and marginal spaces, the latter limited by a thin very dark transverse band from the hinder margin near the angle, and stopping short of the costa; cell with three transverse bars of dark brown, the middle bar continued below the cell to the hinder margin. *Hindwing* darker in colour, with many dark brown irrorations and mottlings and some dark brown,

irregular, transverse bands, the first sub-basal, disconnected in its middle, the second and third short, from the centre of the wing to the costa, before which they meet, the third from the abdominal margin near the angle right across the wing. Antennæ brown, pale below with brown rings, a long white streak below the club, and the tips white, head and body brown.

Female. With the black outer band of the forewing and the broad costal black band of the hindwing similar in shape to those of the male, but all the rest of both wings is white above and below; on the upperside on the forewing there is some ochreous-grey suffusion at the base, and there is a sub-costal band of the same colour from the base to the apical black band; the hindwing is without markings except for a terminal somewhat suffused line of the same colour, but some examples are without it; on the underside there is some ochreous-grey suffusion, on the outer margin of the forewing and the hindwing is more or less entirely suffused with this colour, the centre portion being paler than the borders; all the markings are more or less obsolescent, but those that can be distinguished are identical with the markings of the male, except that the lower band on hindwings below, which stop in the middle of the wing, has two teeth pointing hindwards.

Expanse of wings, ♂ ♀ 2 inches.

HABITAT.—Sikkim, Assam, and Bhutan.

The females appear to be commoner than the males; we have one from the Khasia Hills, and there is one in the Hewitson Collection in the B. M. without locality. Moore described the male of *multistrigatus* as the male of this species.* We have examined his type in the B. M., and de Nicéville and those that followed him do not appear to have seen the true male.

ALLOTINUS MULTISTRIGATUS.

Plate 615, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

Allotinus multistrigatus, de Nicéville, Journ. As. Soc. Bengal, 1886, p. 253, pl. 11, figs. 11 and 2, ♂ ♀.

Doherty, Journ. As. Soc. Bengal, 1886, p. 131. Elwes, Trans. Ent. Soc. 1888, p. 373.

de Nicéville, Butt. of India, iii. p. 29, pl. 26, figs. 157, 158, ♂ ♀ (1890). Manders, Trans. Ent.

Soc. 1890, p. 527. Elwes, Proc. Zool. Soc. 1892, p. 619. Bingham, Fauna of Brit. India, Butt.

ii. p. 298 (1907).

Gerydus drumila, Moore, Proc. Zool. Soc. 1883, p. 521, ♂ (ex errore).

IMAGO.—Male. Upperside of a dark earthy brown. *Forewing* with a pale curved patch from the end of the cell, sometimes connected with the base by an obscure pale streak through the cell; the outer portion blacker than the rest of the wing. *Hindwing* unmarked. Underside with all the markings darker brown with white edges.

* P.Z.S. 1883, p. 521.

Forewing with the outer portion covered with many of these spots of various sizes, the lower discal portions with a few; cell with three elongated spots crossing it, a post-discal irregular band of detached spots, a sub-terminal lunular line. *Hindwing* with similar spots and minute dark brown specks; three basal detached spots in a transverse row, a medial macular band that crosses the cell, a large spot at apex of cell, with a similar spot above touching the costa, and another below it at base of interspace 3, a broad curved macular discal brown band, its upper spot well detached, the others confluent.

Female. Differs from the male in having a discal oblique band of three spots. Underside with the markings more clearly defined.

Expanse of wings, ♂ ♀ $2\frac{2}{10}$ inches.

HABITAT.—The Himalayas from Kumaon to Bhutan at low elevations, Assam and the Chittagong hill tracts (Bingham).

DISTRIBUTION.—Elwes records it from the Naga Hills, and Manders from the Shan States. We have received many examples of both sexes from the Khasia Hills.

ALLOTINUS SUBVIOLESCENS.

Plate 616, figs. 1, ♂, 1a, ♀, 1b, ♂.

Allotinus subviolenscens, Felder, Reise, Nov. Lep. ii. p. 280, pl. 35, figs. 27, 28 (1865). Bingham, Fauna of Brit. India, Butt. ii. p. 300 (1907).

Allotinus alkamah, Distant, Rhop. Malayana, p. 452, pl. 44, fig. 3, ♂ (1886). de Nicéville, Butt. of India, iii. p. 30 (1890).

IMAGO.—Male. *Forewing*. Upperside brownish-black, a dull violaceous patch consisting of two streaks divided by the vein, filling up the internomedian interspace from near the base, to the broad blackish outer border, a shorter streak fills up the interspace above in a similar manner. *Hindwing* blackish-brown, a broad medial dull violaceous streak from the base to the disc. Underside pale brownish-grey with a slight ochreous tint, with many transverse darker lines composed of specks, spots, and striæ, coalescing in parts.

Female. Upperside similar to the male, but the violaceous portion much larger, occupying most of the interior portion of the wing, leaving a broad costal and outer band. Underside like the male, but the markings more ochreous and prominent. Antennæ, head and body brown above, paler beneath, the palpi nearly white beneath.

Expanse of wings, ♂ ♀ $1\frac{5}{10}$ inches.

HABITAT.—Burma, Malay Archipelago.

DISTRIBUTION.—The type came from Java; Distant's type from Malayana; it is in the B. M. from Toungoo, Rangoon, Sumatra, Kina Balu, and Palawan. The male figure is from Felder's type-specimen from Tring Museum.

ALLOTINUS NIVALIS.

Plate 616, figs. 2, ♂, 2a, ♀, 2b, ♂.

Miletus nivalis, Druce, Proc. Zool. Soc. 1873, p. 348.

Paragerydus nivalis, Distant, Rhop. Malayana, p. 207, pl. 22, fig. 11, ♀ (1884).

Allotinus nivalis, de Nicéville, Butt. of India, iii. p. 30, pl. 26, fig. 159, ♀ (1890). Elwes, Proc. Zool. Soc. 1892, p. 620. Bingham, Fauna of Brit. India, Butt. ii. p. 301 (1907).

Logania substrigosa, Moore, Journ. As. Soc. Bengal, 1884, p. 22.

IMAGO.—Male. Upperside dark brown, unmarked. Underside white, with ochreous-brown markings. *Forewing* with some thickly dispersed specks on the costa, a post-discal thin transverse band, curving outwardly above and below its middle, the entire wing covered with minute specks and transverse strigæ. *Hindwing* similarly marked with strigæ, a sub-terminal series of black dots on both wings.

Female. Like the male above and below, except that the markings below are more pronounced and there is more or less suffusion on the outer borders of both wings, and a patch on the outer margin of the forewing below the apex.

Expanse of wings, ♂ ♀ 1 inch.

HABITAT.—Southern Burma, Malacca, Borneo, Sumatra, Nias.

DISTRIBUTION.—The type came from Borneo; Moore's type from the Mergui Archipelago; Elwes records it from Eastern Pegu, de Nicéville from Tenasserim and Mergui; it is in the B. M. from Sumatra and Nias.

ALLOTINUS PANORMIS.

Plate 616, figs. 3, ♂, 3a, ♀, 3b, ♂, 3c, ♀.

Allotinus panormis, Elwes, Proc. Zool. Soc. 1892, p. 619, pl. 43, figs. 8, 9, ♂ ♀. Bingham, Fauna of Brit. India, Butt. ii. p. 301 (1907).

IMAGO.—Male. Upperside uniform dark brown with a slight pinkish-ochreous tinge. *Forewing* with a large pale, almost oval, longitudinal streak beyond the cell. *Hindwing* unmarked, cilia of both wings grey. Underside, greyish-white markings, ochreous-grey, both wings covered with innumerable minute strigæ, some forming small spots on the costa of the forewing, a spot in the cell, a bar beyond it, and another at its end; some larger transverse marks on the outer portion of the wing. On the hindwing there are a greater number of large marks on the basal half and a post-discal series of spots, on both wings there is a sub-terminal series of small spots.

Female. Like the male on the upperside, colour more ochreous-tinged, indications of the streak on the forewing; otherwise both wings are without markings. Underside

similar to the male, but the larger markings form irregular transverse dislocated bands on both wings. Antennæ brown, head and body dark brown, greyish-white beneath.

Expanse of wings, ♂ $1\frac{7}{10}$, ♀ $1\frac{5}{10}$ inches.

HABITAT.—Karen and Naga Hills.

ALLOTINUS HORSFIELDI.

Plate 617, figs. 1, ♂, 1a, ♀, 1b, ♂, 1c, ♀.

Miletus horsfieldi, Moore, Cat. Lep. E.I.C. i. p. 19, pl. 1a, fig. 2, ♂ (1857). Druce, Proc. Zool. Soc. 1873, p. 347. Staudinger, Ex. Schmett. p. 269, pl. 94, ♂ (1888).

Gerydus horsfieldi, Butler, Trans. Linn. Soc. Zool. 1877, p. 546. Elwes, Proc. Zool. Soc. 1892, p. 618.

Paragerydus horsfieldi, Distant, Rhop. Malayana, p. 207 (woodcut of posterior leg), pl. 20, fig. 7, ♀ (1884). Doherty, Journ. As. Soc. Bengal, 1886, p. 131. de Nicéville, Butt. of India, iii. p. 26, pl. 26, fig. 156, ♂ (1890). Manders, Trans. Ent. Soc. 1896, p. 527. Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 43.

Allotinus horsfieldi, Bingham, Fauna of Brit. India, Butt. ii. p. 299 (1907).

Wet-season Brood.

IMAGO.—Male. Upperside uniform dark brown with the oval pale streak on the forewing much as in *panormis*, but somewhat shorter, both wings otherwise unmarked, cilia grey. Underside white, much whiter than in *panormis*, both wings entirely covered with very minute ochreous-grey strigæ, and sub-terminal blackish lunules; the forewing has some denser strigæ along the costa, two thin transverse bars in the cell and one at the end. The hindwing has some thicker marks along the costa and marks forming irregular and dislocated transverse bands, or indications of them, at the middle and on the disc.

Female. Like the male above, the longitudinal streak of the forewing very faintly indicated, on the underside the markings are similar, in some examples rather more pronounced. Antennæ brown, head and body brown above, white beneath.

Expanse of wings, ♂ $1\frac{7}{10}$ to ♀ $1\frac{5}{10}$ inches.

Dry-season Brood.

Male and female in no way differ from the Wet-season form, except in the smallness of its size and in the oval pale streak surrounding the swollen vein being smaller, obviously a little shorter, otherwise the markings above and below are identical.

Expanse of wings, ♂ ♀ $1\frac{2}{10}$ inches.

HABITAT.—Assam, Burma, Malay Peninsula.

DISTRIBUTION.—Recorded by Watson from Chin Lushai, by Manders from the Shan States, by Elwes from E. Pegu; it is in the B. M. from Burma, Malacca, Borneo and Sumatra; in our collection from the Salween Valley, Burma and Sarawak; and there are several examples of the Dry-season brood in the B. M. from Tilin Yaw and the Karen Hills.

ALLOTINUS TARAS.

Plate 617, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

Allotinus taras, Doherty, Journ. As. Soc. Bengal, 1889, p. 437, pl. 23, fig. 10, ♂. Elwes, Proc. Zool. Soc. 1892, p. 619. Bingham, Fauna of Brit. India, Butt. ii. p. 300 (1907).
Paragerydus taras, de Nicéville, Butt. of India, iii. p. 27 (1890).

IMAGO.—Male. *Forewing* longer and more acute than in *horsfieldi*, outer margin slightly curved. Upperside, both wings dark brown, the colour slightly darker at the apex of the forewing. Underside creamy-white, sparsely covered with brown strigæ unevenly distributed, a transverse macular discal band, composed of slender crescent-shaped markings, beyond which is a sub-marginal line of blackish dots. *Forewing* tinged with brown at the apex, the sub-apical dots within the brown area edged outwardly with white. *Hindwing* with a brownish marginal line.

Female. Paler than the male, otherwise it is similarly coloured and marked.

Expanse, ♂ ♀ $1\frac{3}{10}$ inches.

HABITAT.—Tenasserim and Chittagong.

INDO-MALAYAN ALLIED SPECIES.

- Allotinus fallax*, Felder, Reise, Nov. Lep. ii. p. 284, pl. 35, figs. 24, 25, 26 (1865). Habitat, Philippines.
- Allotinus major*, Felder, l.c. p. 286, pl. 35, figs. 29, 30, 31 (1865). *Synonyms*, *Allotinus albatu*s, Felder, l.c. p. 287. Snellen, Tijd. voor Ent. 1878, p. 15. *Allotinus albatu*s, *var.* *maximus*, Staudinger, Ex. Schmett. 1888, p. 269. Habitat, Celebes.
- Allotinus unicolor*, Felder, l.c. p. 369. Distant, Rhop. Malayana, p. 209 (1884). Habitat, Malay Peninsula.
- Allotinus apus*, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1895 (vol. x.), p. 17, pl. S, fig. 17, ♀. Habitat, N.E. Sumatra.
- Allotinus audax*, H. H. Druce, Proc. Zool. Soc. 1895, p. 564, pl. 31, figs. 11, ♂, 12, ♀. Habitat, Kina Balu, Borneo.
- Allotinus aphocha*, Kheil, Rhop. Nias, p. 28, pl. 5, fig. 30 (1884). *Paragerydus aphocha*, H. H. Druce, l.c. p. 563. Habitat, Nias, Borneo.
- Allotinus fabius*, *Paragerydus fabius*, Distant, Ann. Mag. Nat. Hist. 1887, p. 266. *Synonym*, *Allotinus caudatus*, Grose-Smith, Ann. Mag. Nat. Hist. 1893, p. 34. Habitat, Borneo, Celebes.

- Allotinus felderi*, Paragerydus felderi, Semper, Reise, Philipp. v. p. 163, pl. 31, fig. 22, ♀ (1889).
Habitat, Philippines.
- Allotinus nigritus*, Paragerydus nigritus, Semper, l.c. p. 164, pl. 31, fig. 15 (1889). Habitat,
Philippines.
- Allotinus punctatus*, Paragerydus punctatus, Semper, l.c. p. 165, pl. 31, fig. 16, ♂ (1889). Habitat,
Philippines.
- Allotinus maccassarensis*, Paragerydus maccassarensis, Holland, Proc. Boston Soc. xxv. p. 70, pl. 4,
fig. 5 (1891). Habitat, Celebes.
- Allotinus pixus*, Paragerydus pixus, de Nicéville, Journ. As. Soc. Bengal, 1894, p. 27, pl. 5, fig. 2, ♂.
Habitat, Borneo.
- Allotinus portunus*, Paragerydus portunus, de Nicéville, l.c. fig. 14. Habitat, Java.
- Allotinus pætus*, Paragerydus pætus, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1895, p. 269, pl. O,
fig. 12, ♂. Habitat, N.E. Sumatra.
- Allotinus waterstradti*, Paragerydus waterstradti, H. H. Druce, Proc. Zool. Soc. 1895, p. 562, pl. 31,
fig. 1, ♂. Var. *absens*, H. H. Druce, id. Habitat, Kina Balu.
- Allotinus melos*, Paragerydus melos, H. H. Druce, l.c. 1896, p. 652. Habitat, Cagayan Isl., N.E. of
Borneo.

Genus LOGANIA.

- Logania*, Distant, Rhop. Malayana, p. 208 (1884). de Nicéville, Butt. of India, iii. p. 31 (1890).
Bingham, Fauna of Brit. India, Butt. ii. p. 302 (1907).
Malais, Doherty, Journ. As. Soc. Bengal, 1889, p. 436.

Forewing sub-triangular, costa arched, apex angulate, but not produced, outer margin sinuous and somewhat dentate, strongly curved inwards above the lower angle which is obtuse; hinder margin nearly straight, somewhat shorter than the costa; costal nervure terminating near the middle of the costal margin; first sub-costal nervule emitted a little beyond the middle of the cell, second half way between that and the end of the cell, third and fourth forked at about two-thirds from the end. *Hindwing* long, the costa nearly straight, the outer margin deeply sinuate; first sub-costal nervule from a little before the end of the cell. Palpi long hirsute, apical joint slender, clothed with adpressed hairs. Antennæ with a gradually thickened club; tibiæ incrassated; first joint of the tarsi cylindrical, and long as in *Allotinus*.

Type, *Logania malayica*, Distant, from the Malay Peninsula.

LOGANIA MARMORATA.

Plate 618, figs. 1, ♂, 1a, ♂.

- Logania marmorata*, Moore, Journ. As. Soc. Bengal, 1884, p. 22; id. Journ. Linn. Soc. Zool. 1886,
p. 39, pl. 3, fig. 7. de Nicéville, Butt. of India, iii. p. 33, frontispiece, fig. 128 (1890).
Manders, Trans. Ent. Soc. 1890, p. 527. Elwes, Proc. Zool. Soc. 1892, p. 620. Bingham,
Fauna of Brit. India, Butt. ii. p. 303 (1907).

IMAGO.—Male. Upperside violaceous. *Forewing* with some grey irrorations at the base, costal band narrowly pale black, outer marginal band brownish-black, very broad, occupying one-third of the wing, its inner edge having some short blackish streaks running in on the veins. *Hindwing* with the costa very broadly blackish, the entire wing suffused with blackish-brown with the exception of a medial streak of the violaceous colour from the base to the disc. Underside whitish, heavily and irregularly mottled with dark brown. *Forewing* with the veins densely mottled and a dark sub-apical shade. *Hindwing* with obscure bands formed by the coalescing of the mottlings, sometimes medial, discal and sub-terminal, but they are not properly determinable, in some lights they appear to be longitudinal, sub-costal and medial.

Female, unknown.

Expanse of wings, ♂ $\frac{9}{10}$ inch.

HABITAT.—Lower Burma.

DISTRIBUTION.—The type in the Indian Museum, Calcutta, came from Elphinstone Island, Mergui Archipelago; Manders records it from the Shan States, Elwes from Perak; there is an example in the B. M. from the Haundraw Valley, Burma.

LOGANIA WATSONIANA.

Plate 618, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

Logania watsoniana, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1898, p. 143, pl. Z, figs. 17, 18, ♂ ♀.
Bingham, Fauna of Brit. India, Butt. ii. p. 303 (1907).

IMAGO.—Male. *Forewing*. Upperside white, the base irrorated with blackish atoms, a suffused blackish spot at the upper end of the cell, costal band narrowly blackish, apex broadly black, its inner margin crossing from the discoidal spot to vein 5, and then uniformly and less broadly to the hinder angle, the hinder margin also suffused with blackish. *Hindwing* entirely suffused, the costal margin broadly black. Underside. *Forewing* pale purplish-brown, an irregular white patch in the disc, continued to the hinder margin, some dark clouds in the purplish-brown portions and many striæ. *Hindwing* paler, the mottlings forming ante and post medial clouds.

Female. Upperside like the male, but the basal suffusion more extensive, leaving but a small white space in the upper disc. On the underside the ground colour of the hindwing is paler and more ochreous and sub-basal, ante-medial and post-medial macular bands are more or less observable. Antennæ, head and body blackish above and below.

Expanse of wings, ♂ $1\frac{1}{10}$, ♀ $1\frac{2}{10}$ inches.

HABITAT.—Upper Burma.

DISTRIBUTION.—The type from the Shan States is in the Indian Museum, Calcutta. There are examples in the B. M. from the Shan States and Karen Hills.

LOGANIA MASSALIA.

Plate 618, figs. 3, ♂, 3a, ♀, 3b, ♂, 3c, ♀.

Logania massalia, Doherty, Journ. As. Soc. Bengal, 1891, p. 37, pl. 1, fig. 8, ♀. Elwes, Proc. Zool. Soc. 1892, p. 620. Bingham, Fauna of Brit. India, Butt. ii. p. 304 (1907).

IMAGO.—Male. Upperside dark brown. *Forewing*. A medial dull whitish spot at base of interspace 3 extending upwards on to vein 4 and below into interspace 2. *Hindwing* uniform, immaculate. Underside very pale dull brown, with darker brown mottlings and striæ that on the forewing are absent on a broad streak from base outwards along the basal half of the dorsum, this area pale brown without markings; a dark obscure spot at apex of cell, and an incomplete similarly obscure dark transverse discal band. On the hindwing the mottlings coalesce and form three or four very ill-defined, obscure, transverse, somewhat broad bands. The antennæ in the only specimen of the male that I have seen are wanting; head, thorax and abdomen are dark brown. Sex mark, the base of vein 4 swollen and bare of scales (Bingham).

Female. Above black, a round, dull white discal area on the forewing from just above the upper median vein almost to the sub-median vein. Below, irregularly speckled and variegated; forewing with the costal and apical parts ochreous-brown, the rest blackish. Hindwing also tinged with ochreous, a sub-marginal dark area, and obscure dark transverse bands. Hindwing not angled, the margin entire (Doherty).

Expanse of wings, ♂ ♀ $1\frac{2}{10}$ inches.

HABITAT.—Margherita, Upper Assam.

We have not seen this species; the figure of the ♂ is from the type-specimen in coll. Bingham; and of the female, from Doherty's figure.

INDO-MALAYAN ALLIED SPECIES.

Logania regina, *Miletus regina*, Druce, Proc. Zool. Soc. 1873, p. 348, pl. 32, fig. 4. Habitat, Borneo.

Logania malayica, Distant, Rhop. Malayana, p. 208, pl. 22, fig. 21, ♀ (1884). Habitat, Malay Peninsula.

Logania lahomius, *Miletus lahomius*, Kheil, Rhop. Nias, p. 27, pl. 5, figs. 28, 29. Habitat, Nias.

Logania obscurus, *Allotinus obscurus*, Rober, Iris, 1885, p. 52, pl. 4, fig. 8. Habitat, Celebes.

Logania sriwa, Distant, Ann. Mag. Nat. Hist. 1886, p. 531; id. Rhop. Malayana, p. 452, pl. 44, fig. 16 (1884). Elwes, Proc. Zool. Soc. 1892, p. 620. Malais sriwa, Doherty, Journ. As. Soc. Bengal, 1889, p. 436. Habitat, Malay Peninsula.

- Logania distanti*, Staudinger, Lep. Palawan, p. 93, pl. 1, fig. 3, ♀ (1889). Semper, Reise, Philipp. p. 161, pl. 31, figs. 6, 7 and 21 (1889). *Logania obscura*, Distant and Pryer, Ann. Mag. Nat. Hist. 1887, p. 266 (nom. præoc.). Habitat, Philippines, Borneo.
- Logania luca*, de Nicéville, Journ. As. Soc. Bengal, 1895, p. 29, pl. 2, fig. 13, ♀. Habitat, Perak, Malay Peninsula, Sumatra.
- Logania staudingeri*, H. H. Druce, Proc. Zool. Soc. 1895, p. 565, pl. 31, figs. 13, ♂, 14, ♀. Habitat, Kina Balu.

Sub-Family LYCÆNOPSINÆ.

Genus LYCÆNOPSIS.

- Lycænopsis*, Felder, Reise, Nov. Lep. ii. p. 257. Chapman, Proc. Zool. Soc. 1809, p. 419.
- Cyaniris*, Scudder (nec Dalman), ii. p. 918 (1872). Moore, Lep. Ceylon, i. p. 74 (1881). Distant, Rhop. Malayana, p. 210 (1884). de Nicéville, Butt. of India, iii., p. 92 (1890). Bingham, Fauna of Brit. India, Butt. ii. p. 315 (1907).
- Celastrina*, Tutt, Entom. xviii. p. 180 (1906).
- Notarthrinus*, Chapman, Proc. Zool. Soc. 1908, p. 677.

Eyes naked. Antennæ less than half the length of forewing, club long and spatulate; palpi sub-porrect, second joint pilose beneath, projecting half beyond the head, third joint naked, slender, and about half its length; body slender; legs slender; femora slightly pilose beneath. *Forewing* broad and short, costa slightly arched, apex rounded, outer margin convex, hinder angle slightly rounded, hinder margin nearly straight; cell half as long as the wing; vein 3 from before lower end of cell, 4 from the end, 6 from upper end, 6 and 7 closely approximate at base, upper discocellular therefore very short or absent, middle and lower very slender; vein 8 absent, 9 emitted from basal half of 7, 10 and 11 free, 12 bent towards 11, ends on costa a third before the apex. *Hindwing* with the costa slightly arched, apex and outer margin continuously rounded; cell half as long as the wing, middle discocellular shorter than the lower; veins 3 and 4 from lower end of cell.

Type, *haraldus*, Fabricius, from Sumatra.

We are obliged to put Chapman's genus as a synonym, because it is erected on the genitalia only, and for all practical purposes this is useless. The genus *Cyaniris* seems to have been here misplaced by many authors; Prout has called attention to the fact that Dalman gave *semiargus*, Rottenburg, as his type for *Cyaniris*, and *semiargus* does not belong to this genus; we must take *Lycænopsis*, Felder, for the genus, his type *haraldus* being congeneric with the Indian forms.

SECTION I.—NOTARTHINUS.

Differs from *Lycænopsis* in each portion of the dorsal armature of the ancillary appendages having the separate-jointed spine (as in *Lycæna*). In *Lycænopsis* the spine, when there is one, is merely a chitinous process continuous with the base. (Chapman.)

LYCÆNOPHIS VARDHANA.

Plate 619, figs. 1, ♂, 1a, ♀, 1b, ♀.

Polyommatus vardhana, Moore, Proc. Zool. Soc. 1874, p. 572, pl. 66, fig. 5, ♂.

Cyaniris vardhana, Moore, Proc. Zool. Soc. 1882, p. 244. Butler, id. 1886, p. 367; id. Ann. Mag. Nat. Hist. 1888, p. 147. de Nicéville, Butt. of India, iii. p. 95 (1890). Mackinnon and de Nicéville, Journ. Bo. Nat. Hist. Soc. 1898, p. 379. Butler, Ann. Mag. Nat. Hist. 1900, p. 442. Bingham, Fauna of Brit. India, Butt. ii. p. 318 (1907).

Notarthurinus vardhana, Chapman, Proc. Zool. Soc. 1909, p. 424 (text fig. of ancillary appendages).

IMAGO.—Male. Upperside pale iridescent blue. *Forewing* with the costa and outer margin broadly dusky black, the apical portion the broadest; some grey irrorations on the basal and lower portions of the wing; a black bar at the end of the cell, the space outside it palest, nearly white. *Hindwing* with the costa broadly pale blackish, a black bar at the end of the cell, a dusky, suffused, narrow, outer marginal band, the basal portion of the wing thickly irrorated with grey scales, the entire blue colouring of the wing darker than it is in the forewing. Underside dull milky white, some bright blue irrorations at base of forewing, and on the basal and abdominal portions of the hindwing. *Forewing* with two black spots at the end of the cell, sometimes touching each other; two smaller, well separated spots beyond, at about half distance to the apex of the wing, a row of three large post-discal spots in the three lowest interspaces. *Hindwing* with a number of black dots; two near the base, two close together below, near the abdominal margin, one sub-costal near the apex, two in the disc below, and two below these, on their inner side, in echelon.

Female like the male, but the white space on the forewing is much more extensive, and the dusky blackish edging to the hindwing broader, and some blackish, obscure spots on the outer margin.

Expanse of wings, ♂ ♀ $1\frac{6}{10}$ inches.

HABITAT.—N.W. Himalayas.

DISTRIBUTION.—Mackinnon records it from Mussuri, de Nicéville from Simla, Thundiani, Kumaun and Naini Tal; it is in the B. M. from Murree, Kangra and Kujiar.

LYCÆNOPSIS BINGHAMI.

Plate 619, figs. 2, ♂, 2a, ♂.

Notarthrinus binghami, Chapman, Proc. Zool. Soc. 1908, p. 678, pl. 38, fig. 2 (Ancillary appendages); id. l.c. 1909, p. 424.

Agrees with de Nicéville's description of *Bothria chennellii*, except that it is without the discal line on the upperside of the forewing, and the sixth spot of the row on the underside is all but obsolete. A more important difference is that in this row of spots, the first one in *chennellii* is in line with the others, in *binghami* it is markedly moved inwards, as in *argiolus* and many other *Cyanirids*.

Type in Colonel Bingham's collection. A co-type in somewhat finer condition is in the Museum at Tring. Colonel Bingham's specimen is from Shillong. The Tring specimen is labelled "Khasia Hills, Assam" (Chapman).

Expanse of wings, ♂ $1\frac{2}{10}$ inches.

HABITAT.—Khasia Hills.

There is an example in our collection identified by Dr. Chapman, which we figure.

LYCÆNOPSIS MUSINOIDES, nov.

Plate 619, figs. 3, ♂, 3a, ♀, 3b, ♂.

Lycæna musina, Bingham (nec Snellen), Fauna of Brit. India, Butt. ii. p. 328 (1907).

IMAGO.—Male. Upperside pale greyish-blue, costal line of forewing and outer marginal narrow bands of both wings brownish-black; the latter broadest at the apex of both wings, narrowing hindwards; cilia white. Underside greyish-white, markings pale brown. *Forewing* with a linear mark at the end of the cell; a post-discal series of transverse linear marks, somewhat in echelon, except the uppermost one, which is well inside the wing. *Hindwing* with a similar linear mark at the end of the cell; a recurved discal series of lunular marks; two sub-costal black spots, and a third below the first one; both wings with a sub-terminal lunular line and an anticiliary series of small spots, all the spots and marks edged with white; antennæ black ringed with white; head and body brownish-black above, whitish beneath.

Female. Upperside a little paler than the male, with blue reflections. *Forewing* with broad costal and outer blackish borders. *Hindwing* with some blackish suffusion on the basal area; a thin outer marginal blackish band; a sub-marginal series of whitish lunules, edged inwardly by a blackish line; the outer portion of all the veins blackish. Underside similar to the male.

Expanse of wings, ♂ ♀ $1\frac{1}{10}$ inches.

HABITAT.—Upper Burma.

DISTRIBUTION.—Types. N. Chin Hills in B. M., a male from Beeling, Tenasserim, and both sexes from Tilin Yaw. It is allied to *L. musina*, Snellen, from Java and Sumatra, but is much smaller and of an entirely different colour; there are five examples of typical *musina* from Sumatra in the B. M. which are identical with Snellen's type male, kindly lent me; de Nicéville wrongly identified *musina* in Journ. Bo. Nat. Hist. Soc. 1895, p. 275, pl. O, fig. 19; he was not sure of his identification, and on the following page suggested *caudales* as the name for his insect.

SECTION II.—LYCÆNOPSINÆ.

Dorsal armature in two lateral portions, the actual dorsum being merely part of the chitinous ring of the ninth abdominal segment with no armature; the ventral, soft (that is unarmed with spicules or teeth), is nearly or quite obsolete (Chapman).

LYCÆNOPSIS OREANA, nov.

Plate 619, figs. 4, ♂, 4a, ♂.

IMAGO.—Male. Upperside lilacine grey with a very strong violet flush, resembling *L. oreas*, Leech, from Central China, and to which it is closely allied, the genitalia being similar (teste Chapman), but it differs from *oreas* on the upperside in the absence of the black costal broad area on the hindwing, having merely a thin black costal line in the forewing, and a very narrow and uniform outer marginal black band; on the hindwing there is no terminal band, merely a black terminal line; the cilia also is different, in *oreas* it is pure clear white, the forewing with black spots at the vein ends; in this form the cilia of the hindwing is intersected by a distinct basal grey line. Underside. *Forewing* with a grey line at the end of the cell; a post-discal linear row of four grey spots, a fifth spot of this series sub-costal and well inwards; a sub-terminal series of pale grey lunules; some spots close to the marginal line, which is black. *Hindwing* distinctly different from the markings in *oreas*, the same blue scales at the base, a dot near the costal fourth, another below it, the outer marginal markings as on the forewing, but the discal series of spots are quite differently placed to those in *oreas*, being nearer the margin, consisting of five in almost a line; between the first two from the base there is one nearer the margin, and the series is completed by a spot well inwards, followed by a dot on the costa a little forward.

Expanse of wings, ♂ $1\frac{9}{10}$ inches.

HABITAT.—Khasia Hills (Elwes), two examples.

LYCÆNOPSIS TRANSPECTUS.

Plate 620, figs. 1, ♂, 1a, ♀, 1b, ♂ (Wet-season Brood), 1c, ♂, 1d, ♀ 1e, ♀ (Dry-season Brood).

Polyommatus transpectus, Moore, Proc. Zool. Soc. 1879, p. 139.

Cyaniris transpectus, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 70, pl. i. figs. 6 ♂, 6a, ♀ ; id.

Butt. of India, iii. p. 99, pl. 26, fig. 170 (Wet-season form), 171 ♂ (Dry-season form) (1890).

Elwes, Proc. Zool. Soc. 1892, p. 622. Swinhoe, Trans. Ent. Soc. 1893, p. 290. Bingham,

Fauna of Brit. India, Butt. ii. p. 322 (Woodcut ♀ fig.) pl. 19, fig. 126 ♂ (1907).

Lycænopsis transpectus, Chapman, Proc. Zool. Soc. 1909, p. 432.

Cyaniris latimargo, Moore, Proc. Zool. Soc. 1883, p. 523, pl. 48, fig. 9, ♂ ♀ ; de Nicéville, Butt. of India, iii. p. 100 (1890).

Wet-season Brood (= *latimargo*), Figs. 1, ♂, 1a, ♀, 1b, ♂.

IMAGO.—Male. Upperside dark lilacine blue. *Forewing*, costa with a thin black band ; outer marginal band also black, deep at the apex, rather broad and even on the outer margin ; a small lower discal white patch. *Hindwing* with a similarly broad and even black band on the outer margin, but this band is not always entire, sometimes it consists of a dentated thin band closely attached to a narrow marginal band. Underside greyish-white with a very faint blue tinge, markings brown. *Forewing* with a line at the end of the cell ; a post-discal row of short lines more or less in echelon, the uppermost one more inwards than the others, a sub-terminal line of lunules, and an anticiliary row of black short linear marks. *Hindwing* with two black sub-basal spots ; a linear mark at the end of the cell ; a large black costal spot near the apex, being the uppermost end of an outwardly curved rather disjointed series of brown marks, the second from the margin more outwards than the others ; a sub-terminal rather acutely dentated line, and an anticiliary row of black spots. Cilia grey on forewing, with white edgings on the hindwings.

Female. Upperside dark brownish-black ; in some examples almost pure black. *Forewing* with a large white patch with suffused edges in the disc, nearly always extended hindwards to the lower margin in its middle, and often continued down the hindwing, sometimes to its centre ; the apical and outer portions darker than the rest of the wings ; cilia as in the male. Underside, like the male, but the markings more pronounced, and in some specimens the interior markings of the hindwing are all blackish.

Expanse of wings, ♂ ♀ $1\frac{2}{10}$ inches.

Dry-season Brood (Figs. 1c, ♂, 1d, ♀, 1e, ♀).

Male. Upperside of a paler colour than in the other form. *Forewing* without the costal black band, the outer marginal band similar, the white in the disc more

extensive. *Hindwing* with the outer marginal band narrower, and suffused hindwards, sometimes containing a whitish dentated line. Underside whiter, the markings similarly disposed, but faint and reduced.

Female. Upperside. *Forewing* brownish-black, the whole of the disc pure white, leaving a third of the base pale blackish; the costa and outer margins broadly black; a black streak at the end of the cell, touching the costal band. *Hindwing* with all the interior portion pure white; some blackish suffusion on the basal portion, and paler suffusion on the abdominal marginal space; a broad inwardly suffused pale blackish marginal band, containing a sub-marginal series of whitish lunules. Underside as in the male.

Expanse of wings, ♂ ♀ $1\frac{2}{10}$ inches.

HABITAT.—Sikkim, Assam, Burma.

DISTRIBUTION.—Recorded by Elwes from the Karen Hills; we have it from Sikkim, the Khasia Hills and Bhutan; and it is in the B. M. also from Tenasserim.

LYCÆNOPSIS PUSPA.

Plate 620, figs. 2, ♂, 2a, ♀, 2b, ♀ (Wet-season Brood), 2c, ♂, 2d, ♀, 2e, ♂ (Dry-season Brood).

Polyommatus puspa, Horsfield, Cat. Lep. E.I.C. p. 67 (1828).

Cyaniris puspa, Moore, Proc. Zool. Soc. 1882, p. 245. de Nicéville, Journ. As. Soc. Bengal, 1883, p. 67, pl. i. fig. 5a, ♀. Butler, Ann. Mag. Nat. Hist. 1885, p. 335. Hampson, Journ. As. Soc. Bengal, 1888, p. 356. de Nicéville, Butt. of India, iii. p. 100 (1890). Elwes, Proc. Zool. Soc. 1892, p. 622. Swinhoe, Trans. Ent. Soc. 1893, p. 294. Davidson, Bell and Aitken, Journ. Bo. Nat. Hist. Soc. 1896, p. 373 (life history). Watson, id. 1897, p. 658. Mackinnon and de Nicéville, id. 1898, p. 377. Aitken and Comber, id. 1903, p. 47. Bingham, Fauna of Brit. India, Butt. ii. p. 323, pl. 19, fig. 127, ♂ (1907).

Lycæna puspa, var. Felder, Verh. zool.-bot. Ges. Wien, xviii. p. 282 (1868).

Lycænopsis puspa, Chapman, Proc. Zool. Soc. 1909, p. 437 (text fig. 71).

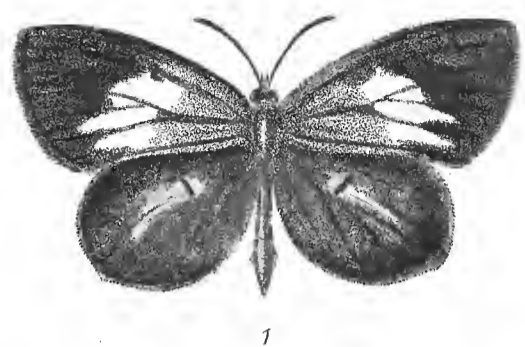
Polyommatus lavendularis, Moore, Ann. Mag. Nat. Hist. 1877, p. 341.

Cyaniris lavendularis, Moore, Lep. Ceylon, i. p. 75, pl. 34, figs. 6, 6a, ♂, 7, ♀ (1881).

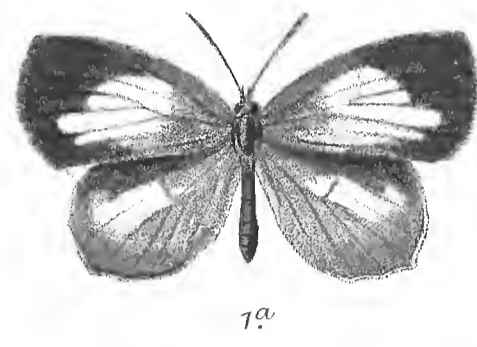
Cyaniris lambi, Distant and Pryer, Ann. Mag. Nat. Hist. 1882, p. 266. Distant, Rhop. Malayana, p. 211, pl. 21, fig. 22, ♂ (1884).

Wet-season Brood (Figs. 2, ♂, 2a, ♀, 2b, ♀).

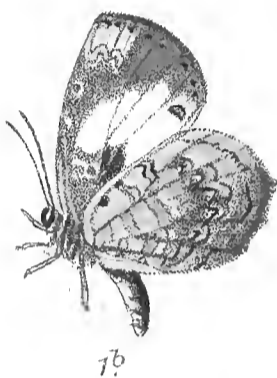
IMAGO.—Male. Upperside dark violaceous-blue, with brilliant reflections in certain lights. *Forewing* with the costal line black; a broad outer marginal black band, broadest at the apex. *Hindwing* with a very broad black costal band, continued in a somewhat narrower form on the outer margin, narrowing hindwards. Underside greyish-white, very slightly tinged with blue; markings pale brown. *Forewing* with a lunular mark at the end of the cell; a discal whorl of spots, the upper one nearly round and inwards, the others in a row, the third outwardly oblique, the fifth also



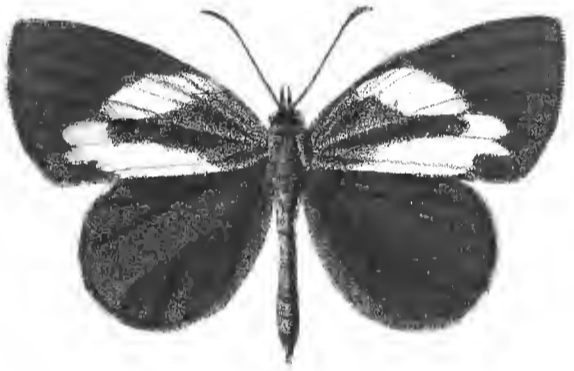
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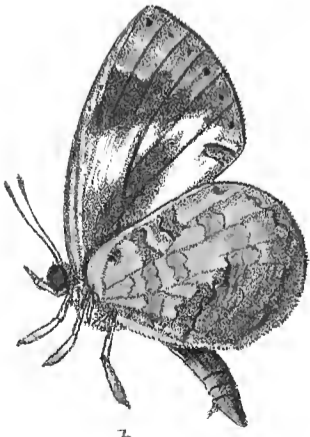
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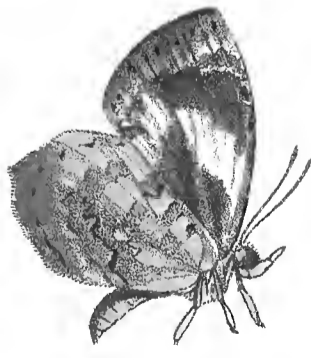
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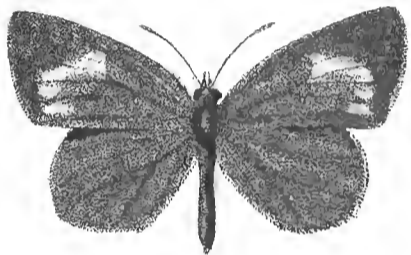
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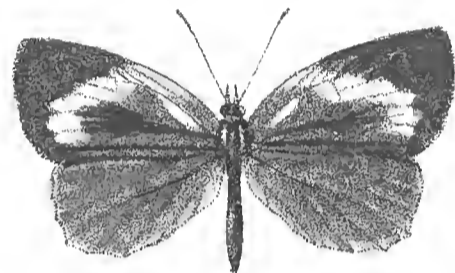
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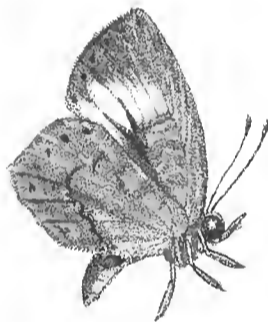
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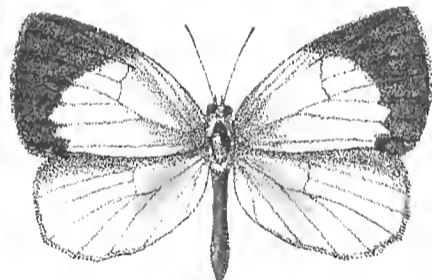
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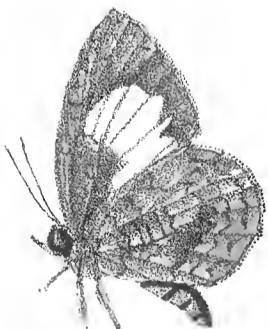
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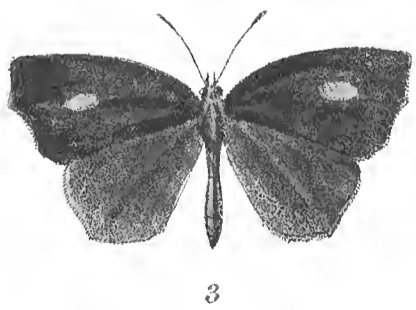
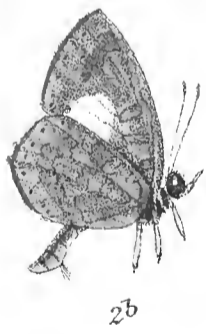
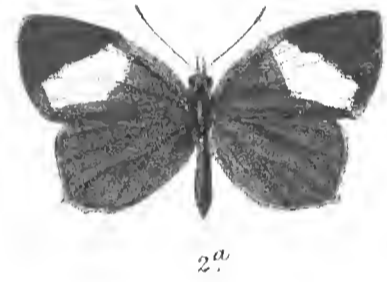
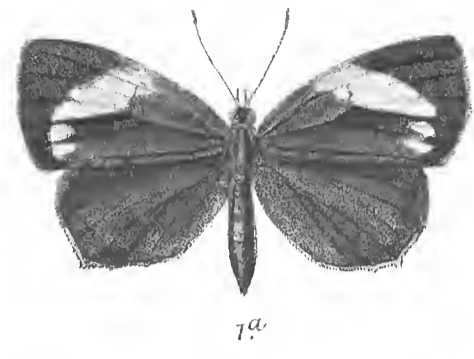


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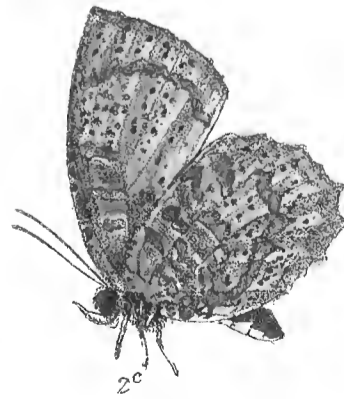
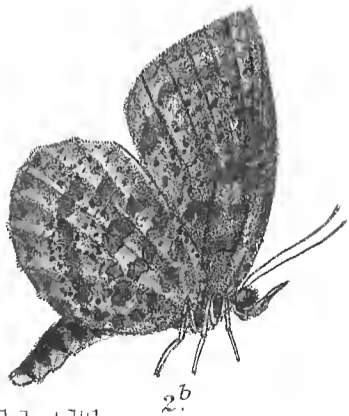
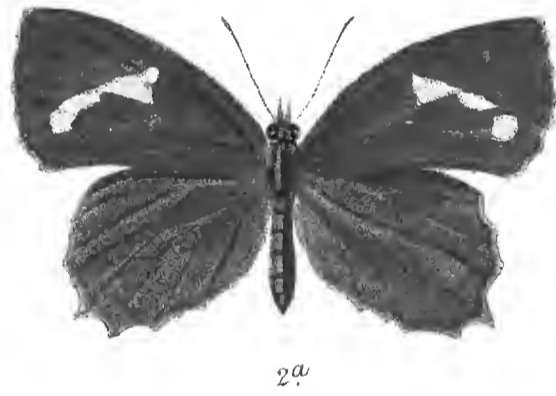
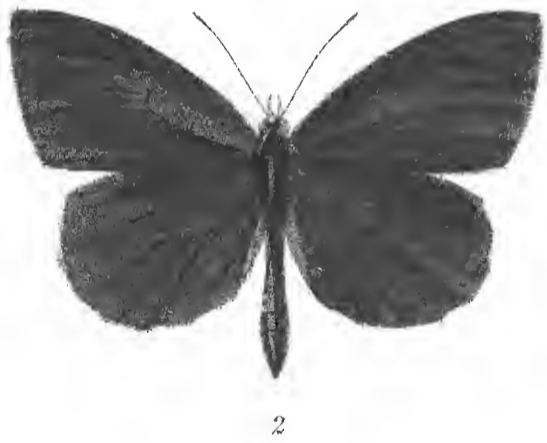
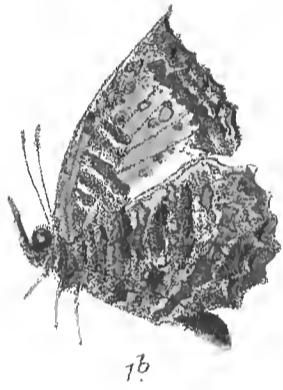
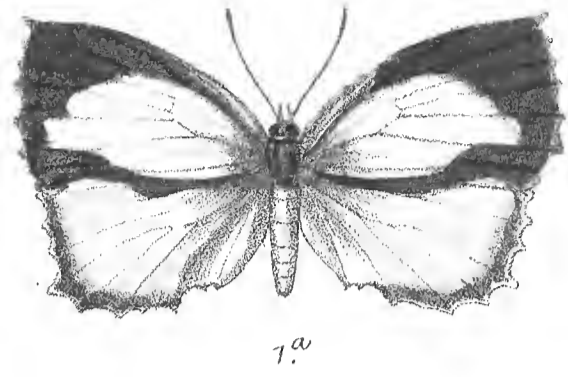
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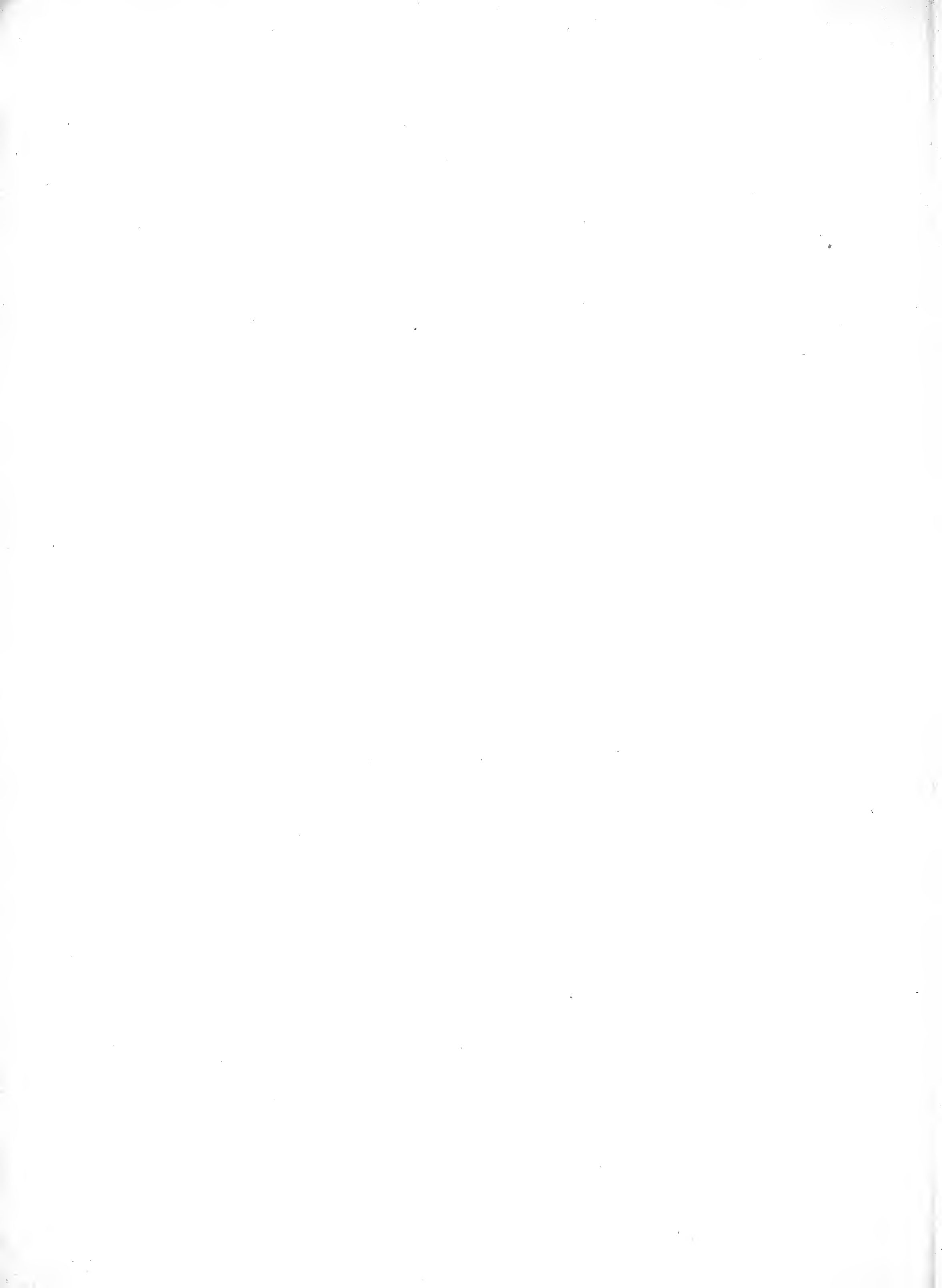
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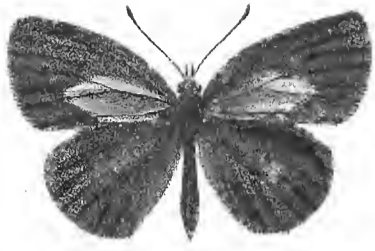
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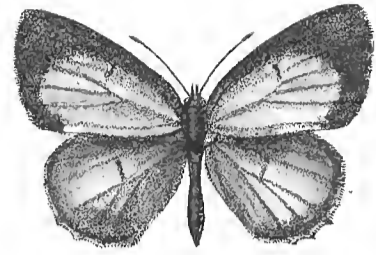
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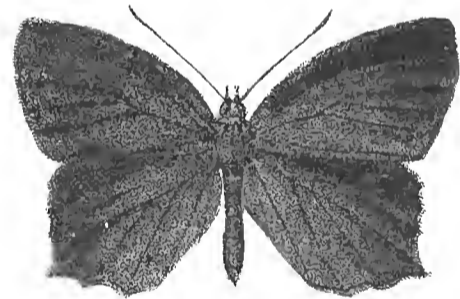
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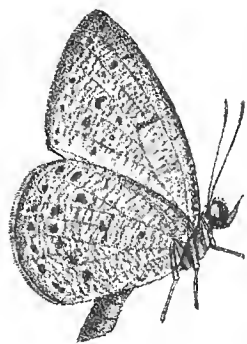




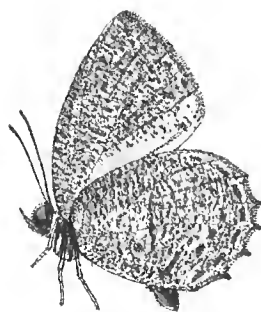
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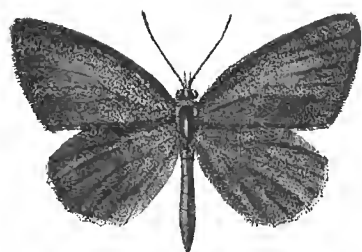
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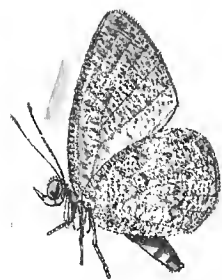
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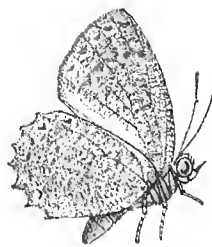
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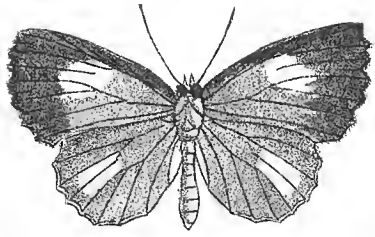
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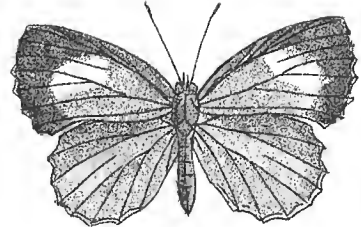
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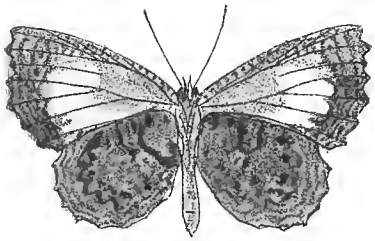
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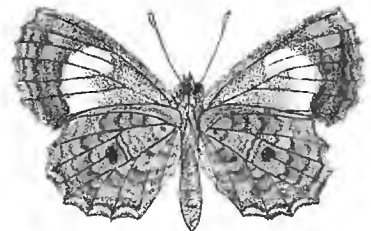
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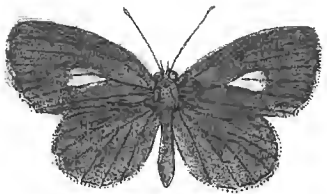
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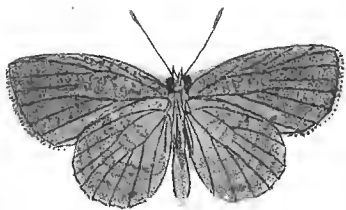
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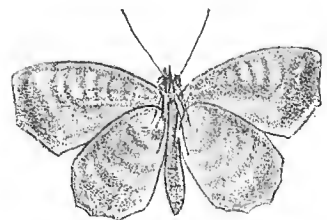
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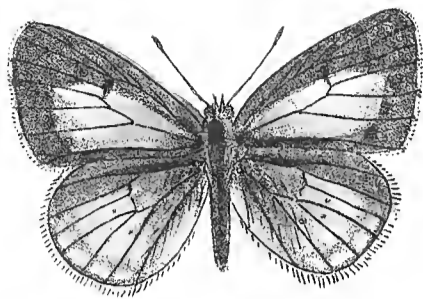


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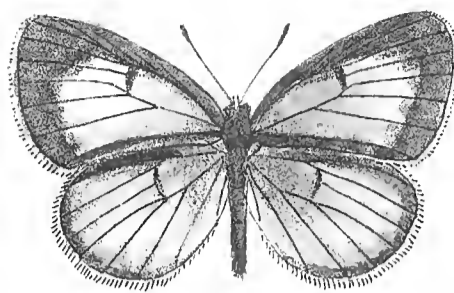
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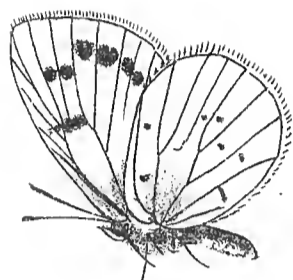




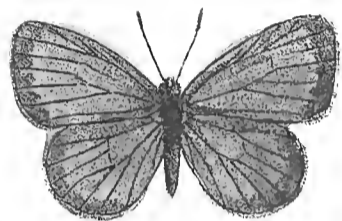
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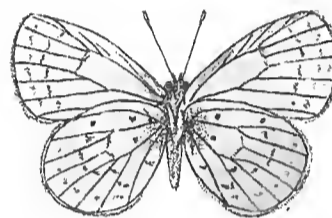
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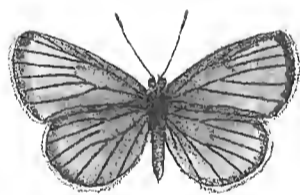
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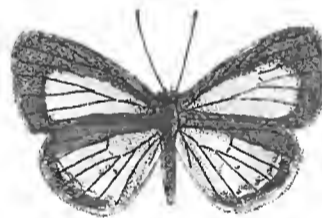
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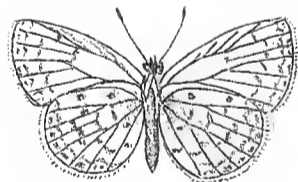
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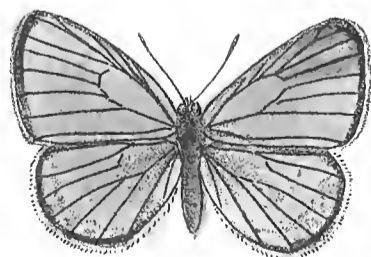
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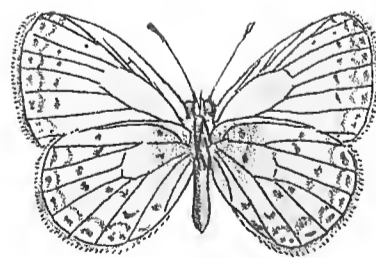
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