

Qh  
556  
M7X  
v7, pt 82  
Ent

v.7.  
Part LXXXII.) 42

Price 10s. plain, 15s. coloured.

# LEPIDOPTERA INDICA.

COL. C. SWINHOE, MA., F.L.S., F.Z.S., F.E.S.,

MEMBER OF THE BOMBAY NATURAL HISTORY SOCIETY AND OF THE ENTOMOLOGICAL SOCIETY OF FRANCE.

*Moore, Frederick*



LONDON  
LOVELL REEVE & CO., LTD.,  
PUBLISHERS TO THE HOME, COLONIAL AND INDIAN GOVERNMENTS,  
6, HENRIETTA STREET, COVENT GARDEN.

1910.

**WORKS PUBLISHED BY LOVELL REEVE & CO., Ltd.,**  
**6, HENRIETTA STREET, COVENT GARDEN, LONDON.**

- Corals and Atolls; their History, Description, Theories of their Origin both before and since that of Darwin, the influence of Winds, Tides, and Ocean Currents in their Formation and Transformations, their present Condition, Products, Fauna, and Flora. By F. WOOD-JONES, B.Sc., F.Z.S. Numerous Illustrations, Plates and Maps. 24s.
- The Hepaticæ of the British Isles. By W. H. PEARSON. Complete in Two Vols., with 228 Plates, £4 10s. plain, £6 6s. coloured.
- The Natural History of Plants. By H. BAILLON, President of the Linnæan Society of Paris. Super-royal 8vo. Vols. I. to VIII., with 3545 Wood Engravings, 21s. each.
- The Botanical Magazine; Figures and Descriptions of New and Rare Plants suitable for the Garden, Stove, or Greenhouse. Fourth Series. Edited by D. PRIN, C.I.E., LL.D., F.R.S., Director of the Royal Gardens, Kew. Vols. I. to V., Royal 8vo, 42s. Published Monthly, with 6 Plates, 3s. 6d. coloured. Annual Subscription, 42s.
- A New and Complete Index to the Botanical Magazine. Vols. I.—CXXX., comprising the 1st, 2nd, and 3rd Series. To which is prefixed a History of the Magazine by W. BOTTING HEMSLEY. 21s.
- Catalogue of the Plants of Kumaon and of the Adjacent Portions of Garhwal and Tibet. By Lieut.-Gen. Sir RICHARD STRACHEY and J. F. DUTHIE. 5s.
- Handbook of the British Flora; a Description of the Flowering Plants and Ferns indigenous to, or naturalized in, the British Isles. For the use of Beginners and Amateurs. By GEORGE BENTHAM, F.R.S. Revised by Sir J. D. HOOKER, C.B., K.C.S.I., F.R.S., &c. Crown 8vo, 9s.
- Illustrations of the British Flora; a Series of Wood Engravings, with Dissections of British Plants, from Drawings by W. H. FITCH, F.L.S., and W. G. SMITH, F.L.S., forming an Illustrated Companion to BENTHAM'S "Handbook," and other British Floras. 7th Edition. 1315 Wood Engravings, 9s.
- Outlines of Elementary Botany, as Introductory to Local Floras. By GEORGE BENTHAM, F.R.S., F.L.S. New Edition, 1s.
- Flora of Hampshire, including the Isle of Wight, with localities of the less common species. By F. TOWNSEND, M.A., F.L.S. 2nd Edition. With Coloured Map and two Plates, 21s.
- Materials for a Flora of the Malayan Peninsula. By H. N. RIDLEY, M.A., F.R.S., Director of Botanic Gardens, Singapore. Complete in Three Parts, 30s.
- Flora of British India. By Sir J. D. HOOKER, K.C.S.I., C.B., F.R.S., &c.; assisted by various Botanists. Complete in Seven Vols., £12. Published under the authority of the Secretary of State for India in Council.
- Flora Australiensis; a Description of the Plants of the Australian Territory. By GEORGE BENTHAM, F.R.S., assisted by FERDINAND MUELLER, F.R.S., Government Botanist, Melbourne, Victoria. Complete in Seven Vols., £7 4s. Published under the auspices of the several Governments of Australia.
- Handbook of the New Zealand Flora; a Systematic Description of the Native Plants of New Zealand, and the Chatham, Kermadec's, Lord Auckland's, Campbell's and Macquarrie's Islands. By Sir J. D. HOOKER, K.C.S.I., F.R.S. 42s. Published under the auspices of the Government of that Colony.
- Flora of Mauritius and the Seychelles; a Description of the Flowering Plants and Ferns of those Islands. By J. G. BAKER, F.L.S. 24s. Published under the authority of the Colonial Government of Mauritius.
- Flora of Tropical Africa. By DANIEL OLIVER, F.R.S., F.L.S. Vols. I. to III., 20s. each. The continuation edited by Sir W. T. THISSELTON-DYER. Vol. IV., Sect. I., 30s.; Sect. II., 27s. Vol. V., 25s. 6d. Vol. VI., Part I., 8s. Vol. VII., 27s. 6d. Vol. VIII., 25s. 6d. Published under the authority of the Secretary of State for the Colonies.
- Flora Capensis; a Systematic Description of the Plants of the Cape Colony, Caffraria, and Port Natal. By W. H. HARVEY, M.D., F.R.S., and O. W. SONDER, Ph.D. Vols. I. to III., 20s. each. The continuation edited by Sir W. T. THISSELTON-DYER, Vol. IV., Section 1, 52s. Section 2, 24s. Vol. V., Part I., 9s. Vol. VI., 24s. Vol. VII. 33s.
- Flora of the British West Indian Islands. By Dr. GRISEBACH, F.L.S. 42s. Published under the auspices of the Secretary of State for the Colonies.
- A Second Century of Orchidaceous Plants, selected from the Subjects published in Curtis's "Botanical Magazine" since the issue of the "First Century." Edited by JAMES BATEMAN, Esq., F.R.S. Royal 4to, 100 Coloured Plates, £5 5s.  
*Dedicated by Special Permission to H.R.H. the Princess of Wales.*
- Monograph of Odontoglossum, a Genus of the Vandaceous Section of Orchidaceous Plants. By JAMES BATEMAN, Esq., F.R.S. Imperial folio, with 30 Coloured Plates, £6 16s. 6d.
- The Rhododendrons of Sikkim-Himalaya; being an Account, Botanical and Geographical, of the Rhododendrons recently discovered in the Mountains of Eastern Himalaya by Sir J. D. HOOKER, F.R.S. By Sir W. J. HOOKER, F.R.S. Folio, 20 Coloured Plates, £4 14s. 6d.

LOVELL REEVE & CO., LTD., 6, HENRIETTA STREET, COVENT GARDEN.

oblique and larger than the others. *Hindwing* with three sub-costal black spots, and a fourth below the second, and a fifth (the smallest) between the third and the lowest spot; a lunular mark at the end of the cell, and a discal whorl of small spots, the middle one outwardly oblique; both wings with a sub-terminal angulated line, a marginal blackish line, and between them a complete series of blackish spots.

Female. Upperside. *Forewing*, with a very broad black band commencing narrowly at the base, widening along the costal space, broadest on the apical portion, and again broadening hindwards and occupying the outer half of the lower marginal space, leaving but a small portion of the central space brilliant blue on its basal half, and white on the outer half, where it is somewhat produced in the disc; a black spot at the end of the cell touching the upper black band. *Hindwing* nearly all black, the black bands much broader than in the male; a sub-marginal series of white spots; the inner portion of the wing suffused with blackish, except for a small whitish portion in the upper disc. Underside as in the male, but the spots larger and more pronounced; cilia of both wings white, with black marks at the end of the veins. Antennæ black, ringed with white; head and body black above, white beneath.

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

Dry-season Brood (Figs. 2c, ♂, 2d, ♀, 2e, ♂).

Male. Upperside paler blue, with a white patch in the upper disc of both wings, sometimes larger in the hind than in the forewing; the marginal black band narrower; the hindwing in some examples has the outer marginal band suffused, and contains a series of black spots. Underside with the markings similarly disposed, but paler and smaller.

Female. Upperside. *Forewing* with the black bands narrower, somewhat diffuse towards the hinder angle, consequently the white inner space is much larger, and the blue on the basal portion of it is less brilliant. *Hindwing* pale greyish-blue, a white smear on the upper disc; the costal band diffuse; no outer marginal band; a sub-marginal lunular grey line; a black marginal line, and between them a row of black spots, inwardly edged by whitish lunular marks. Underside as in the male.

Expanse of wings, ♂ ♀  $1\frac{4}{10}$  inches.

LARVA of the woodlouse form, but not flattened; the ridge being well defined. It looks smooth, but under a microscope is seen to be covered with short white hair. Its colour is green, with a pink, longitudinal band along the centre of the back, which gradually becomes narrower and disappears as it reaches the tail. The sides are also strongly suffused with pink, the colour of the young leaves of the Jamba (*Xylia dolabriformis*, Bentham), on which it generally feeds. It may be noted that it also feeds on *Cytista scariosa*.

PUPA short and stout, the thoracic and abdominal portions being about the same height. Its colour varies with its situation, but is generally a brownish-white, much mottled with darker brown, and with a darker band along the thorax, extending along the centre of the abdomen. It is smooth, and not covered with hair (Davidson, Bell and Aitken).

HABITAT.—India, Burma, Andamans, Ceylon, Malayana, Java.

DISTRIBUTION.—Hampson records it from the Nilgiris, Elwes from the Naga and Karen Hills, Betham from Pachmari, Central Provinces, Davidson from Karwar, Watson from the Chin Hills, Mackinnon from Mussuri, Aitken from Matheran; we have it also from Sikkim, Kulu, Andamans, and many examples from the Khasia and Jaintia Hills.

#### LYCÆNOPSIS LILACEA.

Plate 621, figs. 1, ♂, 1a, ♀, 1b, ♂.

*Cyaniris lilacea*, Hampson, Proc. Nilgiri, Nat. Hist. Soc. 1887, p. 14. Bingham, Fauna of Brit. India, Butt. ii. p. 324 (1907).

*Cyaniris puspa*, var. *lilacea*, Hampson, Journ. As. Soc. Bengal, 1888, p. 356.

*Cyaniris puspa*, de Nicéville (part), Butt. of India, iii. p. 100 (1890).

*Cyaniris crissa*, de Nicéville, Journ. As. Soc. Bengal, 1894, p. 31, pl. 2, fig. 12.

IMAGO.—Male. Upperside, shining purplish-blue. *Forewing* with the costal line black, and a narrow black marginal band, broadest at the apex, and gradually narrowing hindwards. *Hindwing* with a costal black band, which sometimes does not quite touch the costa; on the outer part of the wing, this band is carried round the apex, where it is somewhat thickened, and gradually narrows down to the anal angle; some sub-terminal black spots. Underside greyish-white, markings brown. *Forewing* with some dots on the costa beyond the middle; a rather thick linear mark at the end of the cell; a post-discal row of spots, curving from the costal fourth, with two spots, then in a line down the wing, the second spot of the line being outwardly oblique. *Hindwing* with a sub-basal small black spot and two larger ones near it, one sub-costal and the other below it, and another sub-costal black spot near the apex, and a smaller one immediately below it; a line at the end of the cell, and a discal row of markings much as in *C. puspa*, both wings with an angulated sub-terminal line, and a fine marginal black line; the first, third and last spot between them black on the hindwing; cilia black tipped with white. Antennæ black, ringed with white; head and body black above, white beneath.

Female. Upperside. *Forewing* with broad black outer borders, commencing narrowly at the base of the costa, widening outwards, round the apex and down the outer margin, broadest at the lower angle; the inner portions of the wing darkly suffused with pale blackish with blue scales at the base, becoming paler outwards

until it becomes white at the outer portion, a black spot at the end of the cell, touching the costal band. *Hindwing* with a broad costal blackish band; some black anticiliary spots, inwardly edged with white; the inner portion of the wing suffused with greyish-blue, darkest at the base, and whitish at its outer portion; underside as in the male.

Expanse of wings, ♂ ♀  $1\frac{4}{10}$  inches.

HABITAT.—Nilgiri Hills.

There are two examples, male and female types in the B. M., and one male in our collection. de Nicéville's type from the same locality is in the Indian Museum, Calcutta.

#### LYCÆNOPSIS CYANESCENS.

Plate 621, figs. 2 ♂, 2a, ♀.

*Cyaniris cyanescens*, de Nicéville, Butt. of India, iii. p. 103, Frontispiece, fig. 129, ♂ (1890).

Bingham, Fauna of Brit. India, Butt. ii. p. 326 (1907).

*Lycænopsis cyanescens*, Chapman, Proc. Zool. Soc. 1909, p. 438.

*Cyaniris prominens*, de Nicéville, l.c.

IMAGO.—Male. Upperside deep rich iridescent blue. *Forewing* with a black costal line and narrow outer marginal band. *Hindwing* with the costal space blackish, and a narrow marginal band, rather broader than it is on the forewing, all the veins rather prominent. Underside greyish-white markings, brown. *Forewing* with a thin lunular line at the end of the cell, and a post-discal series of short linear marks rather close to the outer margin; the third from the bottom, much outwards, being close to the sub-terminal line; the fourth much outwardly oblique, the sub-costal spot on the inside as usual. *Hindwing* with a lunular line at the end of the cell, the sub-basal spots and discal series as usual, but the spot at each end of the latter large and black, both wings with the usual terminal line and sub-terminal series of lunules and spots; on the forewing these spots are minute and indistinct; on the hindwing they are black, and the middle ones large and prominent. Cilia brown tipped with white; antennæ black ringed with white; head and body above blackish-brown covered with brilliant iridescent blue, below white.

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

The above description is from an example in coll. Bingham.

Female. Upperside, both wings blackish. *Forewing* with the disc whitish, glossed with brilliant iridescent blue in some lights; a distinct discocellular spot. *Hindwing* with the costa broadly blackish, the disc as in the forewing, a sub-marginal series of blackish oval spots, inwardly defined by a blue, then a distinct lunulated blackish line. Underside as in the male.

Expanse of wings,  $1\frac{1}{10}$  to  $1\frac{3}{10}$  inches (de Nicéville).

HABITAT.—Nicobar Islands.

We have not seen a female ; the types are in the Indian Museum, Calcutta.

Local race, *prominens*, nov. Female. Upperside. *Forewing* with the blue area more extensive. *Hindwing* with the marginal spots much larger and blacker. Underside. *Hindwing* with all the markings much larger and more prominent, especially the spot just beyond the middle of the costa, and the marginal round spots, which are inwardly defined by a distinct narrow lunulated fuscous line ; the discal spots arranged in a regular sinuous band.

Expanse,  $1\frac{3}{10}$  inches.

HABITAT.—Little Nicobars (de Nicéville).

#### LYCÆNOPSIS HUEGELII.

Plate 621, figs. 3, ♂, 3a, ♀, 3b, ♂ (Wet-season Brood), 3c, ♂, 3d, ♀ (Dry-season Brood).

*Cyaniris huegelii*, Moore, Proc. Zool. Soc. 1882, p. 244. de Nicéville, Butt. of India, iii. p. 107 (1890). Mackinnon and de Nicéville, Journ. Bo. Nat. Hist. Soc. 1898, p. 380. Bingham, Fauna of Brit. India, Butt. ii. p. 333, pl. 19, fig. 129, ♂ (1907).

*Lycænopsis huegelii*, Chapman, Proc. Zool. Soc. 1909, p. 444.

*Lycæna argiolus*, Kollar (nec Linnæus), Hügel's Kaschmir, iv. (2), p. 423 (1848).

Wet-season Brood (Figs. 3, ♂, 3a, ♀, 3b, ♂).

IMAGO.—Male. Upperside dark purplish-blue ; a black costal line on the forewing and black outer marginal line on both wings ; cilia white, with slender black marks at the ends of the veins. Underside pearly bluish-white, markings pale brown. *Forewing* with a slender line at the end of the cell ; a discal row of indistinct spots in the interspaces 2 to 6. *Hindwing* with three sub-basal black spots, the upper one sub-costal, the second in the middle, and the third close to the middle of the abdominal margin, in a straight row ; a black sub-costal dot near the apex, another a little inwardly below it, a third much nearer the margin, in the middle of the disc, and one between it and the spot near the abdominal margin ; both wings with a sub-terminal band of lunules enclosing a complete row of small spots.

Female. Upperside much paler than the male and duller in colour. *Forewing* with rather broad, dull blackish costal and outer marginal band. *Hindwing* with a very broad costal band of the same colour ; marginal line blackish, some anticiliary black triangular spots ringed with whitish and edged inwardly by a blackish thin band. Underside as in the male.

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

Dry-season Brood (Figs. 3c, ♂, 3d, ♀).

Male. Upperside greyish lilacine blue ; costal line of forewing and outer marginal line of both wings very finely black, cilia as in the Wet-season form. Underside also as in that form, the markings very minute and indistinct.

Female, like the Wet-season form female, above and below, but the ground colour of the wings above has a whitish-lilacine tint, and the marginal markings of the hindwing are much more prominent. Antennæ black, ringed with white; head and body brownish-black above, white beneath.

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

HABITAT.—Western Himalayas.

DISTRIBUTION.—Recorded from Kashmir, Murri, Simla, Mussuri, and Naini Tal; we have it from Kulu, and it is in the B. M. from Kangra, Chumba, Mandi, Dana, and Dalhousie.

#### LYCÆNOPSIS CÆLESTINA.

Plate 622, figs. 1, ♂, 1a, ♀, 1b, ♂.

*Lycæna cælestina*, Kollar, Hügel's Kaschmir, iv. (2), p. 423 (1848).

*Cyaniris cælestina*, Moore, Proc. Zool. Soc. 1882, p. 244. de Nicéville, Butt. of India, iii. p. 106 (1890). Mackinnon and de Nicéville, Journ. Bo. Nat. Hist. Soc. 1898, p. 379. Leslie and Evans, id. 1903, p. 673. Bingham, Fauna of Brit. India, Butt. ii. p. 332 (1907).

*Lycænopsis cælestina*, Chapman, Proc. Zool. Soc. 1909, p. 444.

*Lycæna kollari*, Westwood, Gen. Diurn. Lep. ii. p. 491 (1848).

*Cyaniris kollari*, Butler, Proc. Zool. Soc. 1886, p. 367; id. Ann. Mag. Nat. Hist. 1888, p. 148.

*Polyommatus kasmira*, Moore, Proc. Zool. Soc. 1865, p. 503, pl. 31, fig. 1, ♂; id. 1874, p. 272.

IMAGO.—Male. Upperside lilac-blue. *Forewing* with a black costal line, which thickens towards the apex; a narrow outer marginal black band which thins hindwards. *Hindwing* with a slender marginal black line. Underside pearly bluish-white; with blue basal irrorations, markings black. *Forewing* with a pale linear mark at the end of the cell; a discal row of linear marks in interspaces 2 to 5, the mark in interspace 3 the longest, the row completed by an inward sub-costal spot. *Hindwing* with three sub-basal spots, the first sub-costal, the second below the middle, and the third close to the abdominal margin and more inwards; a discal row of spots, the upper one close to the costa a little beyond the middle, with a spot a little inwardly below it; four spots in the disc, in a curve, one outwardly below the last, another small spot close to it, and one close to the abdominal margin a little beyond the middle; both wings with sub-terminal greyish lunules; in many examples the markings are more or less obsolescent. Cilia white, with some blackish points at the ends of the veins on the forewing. Antennæ black, ringed with white; head and body above blackish, white beneath.

Female. Upperside paler and of a duller colour than the male. *Forewing* with a broad blackish costal band commencing narrowly at the base, gradually widening towards the apex and continued broadly on the outer margin. *Hindwing* with the costa broadly blackish, except on the costal edge, which is pale; a black terminal line with blackish lunules, inwardly edged with whitish. Underside as in the male.

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

LARVA, when full grown sixth of an inch in length; of the usual Lycænid shape; coloration light green of the exact shade of young leaves; the very small head, placed upon a long neck, is intensely black and shining; the segments increase slightly in width to the fifth, then gradually decrease to the thirteenth; the whole surface is finely shagreened, but entirely without markings, except two dorsal lines of a pale bluish-green colour from the second to the tenth segment, slightly converging posteriorly; the colour of the ground between these lines slightly darker than the rest of the surface; a few colourless short lateral hairs; the segments slowly constricted; no mouth-like opening on the eleventh, or erectile organs on the twelfth segment. Feeds on *Prinsepia utilis*, Royle.

PUPA, .40 to .45 of an inch in length; of the usual Lycænid shape, pale brown, irregularly and obscurely spotted and blotched with darker brown, no regular markings whatever, the surface rough, with short colourless bristly hairs (de Nicéville).

Dr. A. Forel, of Geneva, has identified the ant which attends this species in Mussuri as *Acantholepis capensis*, Mayr, var. *lunaris*, Em. (Mackinnon and de Nicéville).

HABITAT.—Western Himalayas.

DISTRIBUTION.—Leslie and Evans record it from Chitral; it is in the B. M. from Kashmir, Simla, Naini Tal, Murri and Masuri; and in our collection from Thundiani, Kulu, and Pangi.

#### LYCÆNOPSIS SIKKIMA.

Plate 622, figs. 2, ♂, 2a, ♀, 2b, ♂ (Wet-season Brood), 2c, ♂, 2d, ♀ (Dry-season Brood).

*Cyaniris sikkima*, Moore, Proc. Zool. Soc. 1883, p. 524, pl. 48, fig. 11, ♂. de Nicéville, Butt. of India, iii. p. 105 (1890).

*Celastrina argiolus*, var. *sikkima*, Tutt, Brit. Lep. ix. p. 388, pl. 28 (1908). Chapman, Proc. Ent. Soc. 1908, p. lxxxii.

*Lycænopsis argiolus*, var. *sikkima*, Chapman, Proc. Zool. Soc. 1909, p. 444.

*Cyaniris jynteana*, Swinhoe, Trans. Ent. Soc. 1893, p. 294. Bingham (part), Fauna of Brit. India, Butt. ii. p. 331 (1907).

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

IMAGO.—Male. Upperside dark dull purplish-blue. *Forewing* with a black spot at the end of the cell; a black costal line, a blackish, broad outer marginal band, broadest at the apex, but otherwise of uniform width. *Hindwing* with a black marginal line and black lunules. Underside greyish-white, markings grey. *Forewing* with a linear mark at the end of the cell, a post-discal regular row of outwardly oblique, short linear marks in interspaces 2 to 5, rather closer than usual to the margin, a spot also inwards near the costa. *Hindwing* with a linear mark at the end of the cell; three sub-basal small black spots, sub-costal, central, and one near the abdominal margin, a little inwards, a discal row of very small black dots, disposed as in *L. caelestina*, both

wings with a sub-terminal lunulated line and a very fine marginal line, and between them a complete row of markings; composed on the forewing of short grey lines, and on the hindwing of small blackish spots.

Female. Upperside like the male, but somewhat paler, in some examples with a little white suffusion in the upper disc of both wings. *Forewing* with broad costal and outer marginal black bands, commencing narrowly at the base of the costa, widening outwards, and broadest at the apex and hinder angle. *Hindwing* with a broad blackish costal band; a narrow marginal band; a sub-terminal blackish lunular line, and between them a row of whitish lunules. Underside as in the male, with the markings more prominent. Cilia white; antennæ black, ringed with white; head and body black above, white beneath.

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

Dry-season Brood (Figs. 2c, ♂, 2d, ♀).

Male. Upperside much paler than the Wet-season form, and of a lilacine blue. *Forewing* with a large whitish patch in the middle; a blackish costal line, and a black outer marginal band, nearly as broad as in the other form, often narrow hindwards, and becomes diffused at the hinder angle. *Hindwing* with a pale blackish suffused costal band, which becomes dark at the apex, where there is more or less of a patch; a black marginal line, which is sometimes very thin, and has on its inner side a row of small black lunules, but in many examples this line is broad and covers the lunules. Underside as in the Wet-season form, the markings very small and slender.

Female, similar to the female of the Wet-season form, but the ground colour of both wings is nearly all white above; the basal and lower portion of the forewing and the abdominal portion of the hindwing being suffused with blackish and covered with blue irrorations. Underside similar to the male.

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

HABITAT.—Sikkim, Assam.

Bingham put this species as a synonym to *L. jynsteana*, but Dr. Chapman has proved its distinctness by the examination of the genitalia; we have received many examples from the Khasia Hills; both the seasonal examples from which this description has been made have been examined and identified by Dr. Chapman as a form of *L. argiolus*, which *jynsteana* is not.

#### LYCÆNOPSIS VICTORIA.

Plate 622, figs. 3, ♂, 3a, ♀, 3b, ♂.

*Cyaniris victoria*, Swinhoe, Trans. Ent. Soc. 1893, p. 293. Butler, Ann. Mag. Nat. Hist. 1900, p. 442. Bingham, Fauna of Brit. India, Butt. ii. p. 329 (1907).

*Lycænopsis victoria*, Chapman, Proc. Zool. Soc. 1909, p. 444.

IMAGO.—Male. Upperside pale grey-blue, whitish in the disc of both wings, the veins more or less prominent. *Forewing* with the costal line black, outer marginal band also black, but narrow, deepest at the apex, narrowing hindwards into a fine line at the hinder angle; a linear grey mark at the end of the cell. *Hindwing* with some dark suffusion on the costa; a sub-terminal, somewhat grey line and a black marginal line. Underside uniformly dark greyish-white, almost without any markings, a few scattered black minute dots indicating the usual markings.

Female. Upperside mostly white. *Forewing* with broad black borders; the base, inner half of the costal portion, and the lower two-thirds suffused with blackish; costal line black, broadening into a band from before the middle, broadest at the apex and narrower down the outer margin to the hinder angle, a black spot at the end of the cell, touching the costal band. *Hindwing* with the costal portion blackish, marginal line black, a sub-terminal line of grey lunules, and between them a series of black spots; the base and abdominal marginal portions suffused with blackish. Underside as in the male. Cilia of forewing blackish, edged with white, of the hindwing pure white; antennæ black, ringed with white; head and body blackish above, pale beneath.

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

HABITAT.—Khasia Hills.

Ten males and four females received by us from the Khasia Hills in one batch in 1893, never received since amongst the great number of butterflies we have had from the same collector.

#### LYCÆNOPSIS LANKA.

Plate 623, figs. 1, ♂, 1a, ♀, 1b, ♀.

*Polyommatus lanka*, Moore, Ann. Mag. Nat. Hist. 1877, p. 342.

*Cyaniris lanka*, Moore, Lep. Ceylon, i. p. 76, pl. 35, figs. 2, 2a, ♂ (1881). de Nicéville, Butt. of India, iii. p. 109 (1890). Manders, Journ. Bo. Nat. Hist. Soc. 1901, p. 78. Bingham, Fauna of Brit. India, Butt. ii. p. 330 (1907).

*Lycænopsis lanka*, Chapman, Proc. Zool. Soc. 1909, p. 456 (text fig. 96).

IMAGO.—Male. Upperside uniform dark purplish-blue; a very fine black marginal line on both wings, sometimes present, often absent. Underside shining greyish-white, marking grey, very indistinct. *Forewing* with a linear mark at the end of the cell; a post-discal series of linear markings in an almost straight line, rather nearer the margin than is usual. *Hindwing* with the usual three sub-basal black spots, almost in a straight line; the discal row of the usual pattern; both wings with sub-terminal grey lunular line, black terminal line and black spots between them, but the sub-terminal line is not always apparent.

Female, somewhat paler. *Forewing* with broad costal and outer marginal blackish bands. *Hindwing* with the costa broadly blackish; black subterminal spots and black marginal line. Underside as in the male, the markings a little more distinct. Cilia blackish, tipped with white. Antennæ black, ringed with white; head and body black above, white beneath.

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

HABITAT.—Ceylon.

## LYCÆNOPSIS ALBIDISCA.

Plate 623, figs. 2, ♂, 2a, ♀, 2b, ♀.

*Cyaniris albidisca*, Moore, Proc. Zool. Soc. 1883, p. 524, pl. 48, fig. 7, ♂. Swinhoe, Proc. Zool. Soc. 1885, p. 133. Hampson, Journ. As. Soc. Bengal, 1888, p. 356. de Nicéville, Butt. of India, iii. p. 103 (1890). Watson, Journ. Bo. Nat. Hist. Soc. 1890, p. 33. Bingham, Fauna of Brit. India, Butt. ii. p. 325 (1907).

*Lycænopsis albidisca*, Chapman, Proc. Zool. Soc. 1909, p. 446 (text fig. 82).

IMAGO.—Male. Upperside dark indigo-blue. *Forewing* with two broad, short white streaks, divided by the vein, in the disc, obliquely placed; costal black line thick; outer marginal band very narrow; veins prominent. *Hindwing* with a longer white streak filling up the basal two-thirds of the interspace between veins 6 and 7, and consequently nearly triangular; a small white streak immediately below it; the veins prominent, the marginal band narrow with some black spots on it. Underside greyish-white, with a slight blue tint. *Forewing* with some small black marks on the costa towards the apex; a blackish line closing the cell; a post-discal series of black lunular marks, the first (hindwards) minute, the next three prominent, the third of these very oblique, the two upper ones small and in a curve inwards. *Hindwing* with the usual three sub-basal black spots in a line; the discal series as usual, but the middle mark linear and very oblique; both wings with an indistinct sub-terminal, grey, lunular line; a very fine marginal line, with markings between them, composed on the forewing of short grey linear marks, and on the hindwing of small black spots.

Female. Upperside mostly white. *Forewing* with a broad black costal and outer marginal continuous band of the usual shape; a black spot at the end of the cell, touching the costal band; the basal and lower portions of the wing suffused with blue irrorations; the rest of the wing white. *Hindwing* with a broad blackish costal space; a narrow black marginal band containing a series of black spots with pale inner edges, bordered inwardly by a pale blackish lunular line. Underside as in the male; markings more pronounced. Antennæ black, ringed with white; head and body black above, white beneath.

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

HABITAT.—Southern India.

DISTRIBUTION.—Recorded by Hampson from the Nilgiris, by Watson from Mysore ; in our collection from Trevandrum, Poona, the Annamali and Pulni Hills, and in the B. M. also from Kolar.

## LYCÆNOPSIS LIMBATA.

Plate 623, figs. 3, ♂, 3a, ♀, 3b, ♂.

*Polyommatus limbatus*, Moore, Proc. Zool. Soc. 1879, p. 139.

*Cyaniris limbatus*, Hampson, Journ. As. Soc. Bengal, 1888, p. 356. de Nicéville, Butt. of India, iii. p. 109 (1890). Davidson, Bell and Aitken, Journ. Bo. Nat. Hist. Soc. 1896, p. 373.

*Cyaniris limbata*, Watson, Journ. Bo. Nat. Hist. Soc. 1890, p. 33. Bingham, Fauna of Brit. India, Butt. ii. p. 329 (1907).

*Lycænopsis limbata*, Chapman, Proc. Zool. Soc. 1909, p. 447 (text fig. 85).

IMAGO.—Male. Upperside dark purplish-blue ; costal line of forewing and terminal line of both wings black. Underside greyish-white, with a slight blue tint ; markings pale brown, much as in *L. puspa*, but smaller and more slender ; the discal line of linear marks on the forewing more regular ; the spot nearest the costa well inwards. *Hindwing* with the three sub-basal black spots as usual, but in a line with each other, and another black spot on the abdominal margin nearer the base ; a linear mark at the end of the cell ; the discal row of markings ending with a rather large black spot near the costa ; both wings with a sub-terminal lunular line, a fine black marginal line, and between them a series of spots, the last three nearest the anal angle being black.

Female much paler, with some blue iridescence. *Forewing* with the costal band broad ; the outer marginal band narrower. *Hindwing* with the costal and marginal bands broadly brownish-black in some examples, in others it is paler and diffused, and the outer margin contains a blackish sub-terminal lunular line, a black marginal line, and black spots between them. Underside as in the male. Antennæ black, ringed with white ; head and body black above, greyish beneath ; head and thorax clothed with long bluish hairs above.

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

HABITAT.—Southern India, Behar, Bengal, Ceylon.

DISTRIBUTION.—Hampson records it from the Nilgiris, Watson from Mysore, Davidson from Karwar, de Nicéville from the Parisnath Hills and Travancore ; we have it from Ceylon, Coorg, and Trevandrum.

## LYCÆNOPSIS MARGINATA.

Plate 624, figs. 1, ♂, 1a, ♀, 1b, ♂ (Wet-season Brood), 1c, ♂, 1d, ♀, 1e, ♀ (Dry-season Brood).

*Cyaniris marginata*, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 70, pl. i. fig. 9, ♂. Moore, Proc. Zool. Soc. 1883, p. 523, pl. 48, fig. 6, ♂. Doherty, Journ. As. Soc. Bengal, 1886, p. 134.

de Niceville, Butt. of India, iii. p. 96 (1890); id. Journ. Bo. Nat. Hist. Soc. 1890, p. 297. Elwes, Proc. Zool. Soc. 1892, p. 622. Swinhoe, Trans. Ent. Soc. 1893, p. 293. Butler, Ann. Mag. Nat. Hist. 1900, p. 442. Bingham, Fauna of Brit. India, Butt. ii. p. 319 (1907).

*Lycænopsis marginata*, Chapman, Proc. Zool. Soc. 1909, p. 447 (text fig. 83).

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

IMAGO.—Male. Upperside with broad costal and outer marginal bands on both wings. *Forewing* with a black spot at the end of the cell, touching the costal band; the inner area suffused with blackish with blue iridescence, except for two white streaks which fill up the two interspaces above vein 2, with a small white streak in the interspace above them; the lower streak sometimes is more or less suffused with blue on its outer part. *Hindwing* similarly coloured, with a white patch on its upper disc which varies in size. Underside greyish-white, with a slight bluish tint, markings brown, prominent; a lunule at end of cell, a row of post-discal spots close to the sub-terminal line, the second and third the largest, the third, fourth and fifth often joined together, the sixth inwards and near the costa. *Hindwing* with the usual three sub-basal black spots in a line, a fourth black spot near the abdominal margin nearer the base; a discal whorl of spots of the usual pattern, the first, third and sub-costal spots the largest; both wings with a sub-terminal angulated line; a black marginal line and a series of black spots between them. Cilia white, with minute brown marks. Antennæ black, ringed with white; head and body black above, white beneath.

Female, like the male, the blue iridescence less.

Expanse of wings, ♂ ♀  $1\frac{6}{10}$  to  $1\frac{7}{10}$  inches.

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

Male. Upperside. *Forewing* like the Wet-season form, but the white area is much more extensive and the general coloration is paler, the blue iridescence more brilliant. *Hindwing* paler, the discal white patch larger, the marginal band replaced by a sub-terminal blackish lunular line, a black marginal line, enclosing a series of small blackish spots. Underside with the markings disposed as in the other form, but much smaller and faintly indicated.

Female, like the male above and below, but paler above, the white patch on the forewing occupying two-thirds of the inner space, the base and lower portions only being suffused with pale brownish and blue iridescence; on the hindwing above there is a black spot at the end of the cell; otherwise it is similar to the male.

Expanse of wings, ♂ ♀  $1\frac{3}{10}$  to  $1\frac{4}{10}$  inches.

HABITAT.—Himalayas, Upper Burma, Assam.

DISTRIBUTION.—Recorded by de Nicéville from Chin Lushai, Naini Tal, Kumaun, and Fort Stedman; by Elwes from the Karen Hills; in our collection from the Khasia Hills and from Sikkim; it is in the B. M. also from Nepal, Tilin Yaw and Thoungyon Valley.

## LYCÆNOPSIS PLACIDA.

Plate 624, figs. 2, ♂, 2a, ♀, 2b, ♂, 2c, ♀.

*Cyaniris placida*, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 68, pl. i. fig. 8, ♂. Moore, Proc. Zool. Soc. 1883, p. 523, pl. 48, fig. 5, ♂. Butler, Ann. Mag. Nat. Hist. 1885, p. 334. Distant, Rhop. Malayana, p. 453, pl. 44, fig. 7, ♂ (1886). de Nicéville, Butt. of India, iii. p. 103 (1890). Manders, Trans. Ent. Soc. 1890, p. 527. Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 44. Elwes, Proc. Zool. Soc. 1892, p. 623. Swinhoe, Trans. Ent. Soc. 1893, p. 294. Bingham, Fauna of Brit. India, Butt. ii. p. 326 (1907).

*Lycænopsis placida*, Chapman, Proc. Zool. Soc. 1909, p. 447.

IMAGO.—Male. Upperside dark greyish-blue. *Forewing* with a black costal line, and black outer marginal band of disconnected linear marks. *Hindwing* with a blackish narrow costal space, and a marginal band of small triangular black spots; the terminal bands in some examples are broader than in others having the spots joined together. Underside dull greyish-white, markings pale brown. *Forewing* with a line at the end of the cell; a post-discal row of linear marks, the mark in the third interspace being oblique outwards, otherwise they are nearly in a line, the uppermost mark is on the inner side and well separated from the costa. *Hindwing* with the three usual black sub-basal spots in a line, the fourth spot on the abdominal margin nearer the base, but much closer than usual to the other abdominal marginal spot; a lunular line at the end of the cell; the usual discal row of spots, and both wings with sub-terminal lunular line and marginal black line, enclosing a series of spots, those on the hindwing being black and triangular.

Female. Upperside. *Forewing* nearly all brownish-black; the costal and outer blackish bands very broad; a black spot at the end of the cell touching the costal band; a large white patch in the disc; the rest of the wing suffused with blackish, with some blue reflections. *Hindwing*. Upperside with a very broad blackish costal band, filling up one-third of the wing; a narrow marginal black band, its inner side containing black triangular spots with white lunular inner edges and enclosed by a sub-terminal lunular blackish line; the rest of the wing, with the exception of a white discal patch, is suffused with blackish with blue reflections; the outer half of the veins black. Underside as in the male, but all the markings very large and prominent. Cilia grey, tipped with white. Antennæ black, ringed with white; head and body black above, whitish beneath.

Expanse of wings, ♂ ♀  $1\frac{4}{10}$  inches.

HABITAT.—Sikkim, Assam, Burma, Malay Peninsula.

DISTRIBUTION.—Manders records it from the Shan States, Watson from Chin Lushai and the Chin Hills, Elwes from the Naga Hills, de Nicéville from Sibsagar and Penang; it is in our collection from Sikkim, Pangi, Kulu, the Khasia Hills, and from Sinabong in Sumatra.

NOTE.—Some doubts have been stated as to the identification of the proper female of this species; the female herein described and figured was captured by Mr. Paul Möwis in Sikkim, and was sent to us with a number of males taken at the same [time and place.

## LYCÆNOPSIS JYNTEANA.

Plate 625, figs. 1, ♂, 1a, ♀, 1b, ♂.

*Cyaniris jynteana*, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 69, pl. 1, figs. 7, ♂, 7a, ♀. Moore, Proc. Zool. Soc. 1883, p. 524, pl. 48, fig. 10, ♂. de Nicéville, Butt. of India, iii. p. 104 (1890). Manders, Trans. Ent. Soc. 1890, p. 528. Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 44. Elwes, Proc. Zool. Soc. 1892, p. 623. Watson, Journ. Bo. Nat. Hist. Soc. 1897, p. 659. Bingham (part), Fauna of Brit. India, Butt. ii. p. 331 (1907). Chapman, Proc. Ent. Soc. 1908, p. lxxxiii.

*Lycænopsis jynteana*, Chapman, Proc. Zool. Soc. 1909, p. 447.

IMAGO.—Male. Upperside, both wings deep lavender-blue. *Forewing* with the outer margin widest at the apex, sometimes reduced to a point at the hinder angle, dusky black; an indistinct discocellular streak sometimes absent; and the disc between the median nervules, just beyond the cell irrorated with white scales in some specimens. *Hindwing* with the outer margin dusky black, its inner edge lunulated. In some specimens the apical area is obscurely irrorated with white. Underside, both wings pale grey. *Forewing* with a pale brown discocellular streak, a discal series of five similar spots, of which the upper one is much out of line, being placed nearer the base of the wing; a sub-marginal lunulated line and marginal spots very pale brown; the usual fine anticiliary black line. *Hindwing* with three sub-basal black spots; a slender brown discocellular streak; a very sinuous discal series of nine spots; marginal markings as on the forewing.

Female. Upperside. *Forewing* with all but the middle of the disc (which is white, glossed with iridescent blue) black; a discocellular black spot. *Hindwing* blackish, white in the middle, glossed, with blue, and along the veins irrorated with black scales; a sub-marginal series of pale lunules. Underside, both wings marked exactly as in the male (de Nicéville).

Expanse of wings, ♂  $1\frac{4}{10}$  to  $1\frac{5}{10}$ , ♀  $\frac{9}{10}$  to  $1\frac{2}{10}$  inches.

HABITAT.—Assam, Sikkim.

A rare species much resembling the Wet-season form of *S. sikkima*, but Dr. Chapman has shown that the genitalia is quite different, and that there is some slight constant difference in the fascies; the types came from the Jaintia Hills in Assam; we have received many thousands of Lycænids from that locality during the last twenty years, but do not appear to have ever received this species, as all our examples have been identified as *sikkima* by Dr. Chapman; we put the references above for what they are worth, most of them probably refer to *sikkima*.

## LYCÆNOPSIS DILECTA.

Plate 625, figs. 2, ♂, 2a, ♀, 2b, ♂ (Wet-season Brood), 2c, ♂, 2d, ♀ (Dry-season Brood).

*Polyommatus dilectus*, Moore, Proc. Zool. Soc. 1879, p. 139.

*Cyaniris dilectus*, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 68, pl. i. fig. 5, ♂; id. Butt. of India, iii. p. 107 (1890). Elwes, Proc. Zool. Soc. 1892, p. 622. Swinhoe, Trans. Ent. Soc. 1893, p. 295. Watson, Journ. Bo. Nat. Hist. Soc. 1897, p. 659.

*Cyaniris dilecta*, Bingham, Fauna of Brit. India, Butt. ii. p. 331, pl. 19, fig. 128, ♂ (1907).

*Lycænopsis dilecta*, Chapman, Proc. Zool. Soc. 1909, p. 453 (text fig. 92).

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

IMAGO.—Male. Upperside pale lilac-blue. *Forewing* with the middle of the wing somewhat pale; a very slender black, costal line; a slender black outer marginal line. *Hindwing* with the costal space narrowly suffused with grey, ending in a small blackish space at the apex; outer marginal black line also slender; in some examples there is a pale space in the upper disc of the wing. Underside whitish with a very faint bluish tint; markings pale brown, very slender, and hardly to be traced; on the forewing the sub-terminal series is uniformly in line; on the hindwing the discal series is in minute dots, and both wings have the cell markings and usual terminal markings faintly indicated.

Female. Upperside suffused with blackish with blue reflections. *Forewing* with broad costal and marginal blackish bands. *Hindwing* with some blue reflections at the base; a sub-terminal lunular blackish line and a black marginal line with black spots between them; the veins on both wings more or less prominent. Underside as in the male; the markings more distinct. Cilia white, marked with black. Antennæ black, ringed with white; head and body blackish-brown above, white beneath.

Expanse of wings, ♂ ♀  $1\frac{3}{10}$  to  $1\frac{4}{10}$  inches.

## Dry-season Brood (Figs. 2c, ♂, 2d, ♀).

Male. Upperside of a brighter blue; a large white patch in the middle of the forewing, and a large discal patch on the hindwing, which is sometimes confined to the upper disc; the patch varies much in size, and sometimes extends across the wing; a slender black costal line on the forewing, and slender black marginal lines on both wings. Underside as in the Wet-season form.

Female. Upperside mostly white. *Forewing* with blue reflections, markedly so in the upper disc; costal and marginal black bands a little narrower than in the other form; a black spot at the end of the cell, touching the costal band; basal portion irrorated with pale blackish scales and some similar scales sparsely placed on the lower portion of the wing. *Hindwing*. Upperside nearly all white; some blackish suffusion

on the costal portion; a sub-terminal indistinct, grey lunular line; a black marginal line, with black spots between them; veins blackish and prominent. Underside as in the male.

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

HABITAT.—Himalayas, Sikkim, Assam, Upper Burma, Arracan.

DISTRIBUTION.—Recorded by Elwes from the Naga Hills, by Watson from the Chin Hills, by de Nicéville from Nepal, Kumaon, North Cachar, and Sibsaghar; in our collection from Sikkim, Cashmir, and many examples of both sexes of both forms from the Khasia Hills.

#### LYCÆNOPSIS MELÆNA.

Plate 625, figs. 3, ♂, 3a, ♂.

*Cyaniris melæna*, Doherty, Journ. As. Soc. Bengal, 1889, p. 434, pl. 23, fig. 13, ♂. de Nicéville, Butt. of India, iii. p. 97 (1890). Elwes, Proc. Zool. Soc. 1892, p. 622. Butler, Ann. Mag. Nat. Hist. 1900, p. 443. Bingham, Fauna of Brit. India, Butt. ii. p. 320 (1907).

*Lycænopsis melæna*, Chapman, Proc. Zool. Soc. 1909, p. 464 (text fig. 108).

IMAGO.—Male. Upperside dull dark purple blue, iridescent in certain lights; the darkest species of the genus we have yet seen. *Forewing* with broad costal and outer marginal black borders, broadest at the apex. *Hindwing* with a broad blackish costal space; marginal band black; in the type-specimen apparently complete, but in other examples the band contains a series of lunular marks of the ground colour of the wing. Underside greyish-white with a blue tint; markings black. *Forewing* with a line at the end of the cell; a post-discal series of short lines, the second, fourth and fifth outwardly oblique, the fifth and sixth recurved inwards; a sub-terminal line of short blackish-brown lines; a terminal slightly sinuous black line; and between them some pale blackish spots. *Hindwing* with the spots more prominent; a line at the end of the cell; the usual three sub-basal spots; a row of discal spots disposed as usual, the centre one the largest and obliquely placed; a black terminal line; a sub-terminal angulated pale line; and between them a series of prominent black spots. Cilia black, tipped with white. Antennæ black, ringed with white; head and body black above with dark blue lines, greyish-white beneath.

Expanse of wings,  $1\frac{4}{10}$  inches.

Female, unknown.

HABITAT.—Tenasserim, Malay Peninsula.

There are three examples in our collection; it is not in the B. M.

#### LYCÆNOPSIS AKASA.

Plate 626, figs. 1, ♂, 1a, ♀, 1b, ♀.

*Polyommatus akasa*, Horsfield, Cat. Lep. E.I.C. p. 67, pl. 1, figs. 1, 1a, ♂ (1828).

*Cyaniris akasa*, Moore, Lep. Ceylon, i. p. 75, pl. 34, fig. 5, ♂ (1881). Hampson, Journ. As. Soc.

Bengal, 1888, p. 356. de Nicéville, Butt. of India, iii. p. 95 (1890). Watson, Journ. Bo. Nat. Hist. Soc. 1890, p. 34. Bingham, Fauna of Brit. India, Butt. ii. p. 318 (1907).

*Lycænopsis akasa*, Chapman, Proc. Zool. Soc. 1909, p. 458 (text fig. 100).

IMAGO.—Male. Upperside white. *Forewing* with the costal and outer marginal bands broadly black, broadest at the apex; the marginal band stopping abruptly before the hinder angle; the base of the wing suffused with blackish with blue iridescence which extends up the wing and covers the lower half of the costal band. *Hindwing* with base and two-thirds of the costal space suffused with blackish and blue iridescence; marginal line black, slender; a series of black dots on its inner side. Underside white, markings black. *Forewing* with a fine line at the end of the cell, a post-discal row of short linear marks in regular order, rather close to the margin, ending with an inner spot below the costa. *Hindwing* with the three sub-basal spots in a line, a discal, curved row of spots, commencing with a sub-costal spot a little beyond the middle, a dot below it; four spots in a curve in the middle of the wing, and two detached spots below the lowest spot; a sub-terminal row of spots and a slender terminal line.

Female, like the male, but without any blue reflections on the upperside. Cilia white. Antennæ black, ringed with white; head and body black above, white beneath.

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

HABITAT.—Southern India, Ceylon, extending to Java.

DISTRIBUTION.—Recorded by Hampson from the Nilgiris, by Watson from Mysore, by de Nicéville from Shevaroy, Anamally and Pulni Hills; in our collection from North Canara, Trevandrum, Travancore, Madras, Kandy and Trincomali; in the B. M. Horsefield's type from Java, and others from the same locality.

#### LYCÆNOPSIS SINGALENSIS.

Plate 626, figs. 2, ♂, 2a, ♀, 2b, ♂.

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

*Polyommatus singalensis*, Moore, Ann. Mag. Nat. Hist. 1877, p. 342.

*Cyaniris singalensis*, Moore, Lep. Ceylon, i. p. 76, pl. 35, figs. 1, 1a, ♂ (1881). de Nicéville, Butt. of India, iii. p. 108 (1890). Bingham, Fauna of Brit. India, ii. p. 333 (1907).

*Lycænopsis singalensis*, Chapman, Proc. Zool. Soc. 1909, p. 468 (text fig. 113).

IMAGO.—Male. Upperside purplish-blue; outer marginal line of both wings black. Underside greyish silvery-white with a very slight blue tint, markings brown. *Forewing* with a linear mark at the end of the cell; a post-discal row of short linear outwardly oblique marks, the lowest not oblique, all of them in an even row, ending in two small spots curving inwards below the costa. *Hindwing* with the three sub-costal black spots in a line, the fourth inner spot near the abdominal margin a mere dot, sometimes absent, a discal whorl of spots, the upper one and the two lower ones

blackier than the others, the detached spot before the last lower spot in the shape of a short curve; both wings with a sub-terminal row of detached lunules; a slender black marginal line and black dots between them.

Female. Upperside much paler than the male, with a lilac tinge in some examples, and brilliant blue reflections in some lights. *Forewing* with rather broad blackish costal and marginal bands; a black spot at the end of the cell, touching the costal band. *Hindwing* with the costal portion suffused with pale blackish-brown, the base suffused with the same colour; the upper disc pale, in some examples whitish; a sub-terminal line of blackish lunules; a marginal blackish line and blackish spots between them. Underside as in the male. Cilia white, black at its base. Antennæ black, ringed with white; head and body black above, white beneath.

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

HABITAT.—Ceylon.

DISTRIBUTION.—Occurs more or less throughout Ceylon; Bingham records it from South India, but we have never seen an Indian example, nor can we find any record of one.

#### LYCÆNOPSIS ALBOCÆRULEA.

Plate 626, figs. 3, ♂ (one form), 3a, ♂ (another form), 3b, ♀, 3c, ♂, 3d, ♀.

*Polyommatus albocærulea*, Moore, Proc. Zool. Soc. 1879, p. 139.

*Cyaniris albocærulea*, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 71, pl. i. figs. 4, ♂, 4a, ♀; id. Butt. of India, iii. p. 98 (1890). Elwes, Proc. Zool. Soc. 1892, p. 622. Swinhoe, Trans. Ent. Soc. 1893, p. 293. Mackinnon and de Nicéville, Journ. Bo. Nat. Hist. Soc. 1898, p. 379. Butler, Ann. Mag. Nat. Hist. 1900, p. 443. Bingham, Fauna of Brit. India, Butt. ii. p. 321, pl. 19, fig. 125, ♀ (1907).

*Lycænopsis albocærulea*, Chapman, Proc. Zool. Soc. 1909, p. 470 (text fig. 116).

IMAGO.—Male. Upperside white. *Forewing* with the costa, outer margin and hinder border broadly pale lilacine-blue; apex broadly black, narrowing hindwards on the outer margin, the base more or less suffused with blue, leaving the inner portion pure white. *Hindwing*, in some examples, pure white without markings, except a little grey and blue basal suffusion; in others the blue suffusion extends a little along the costal and abdominal marginal portions of the wing and sometimes a little on the outer margin; marginal line black. Underside pure white. *Forewing* with a very faint line at the end of the cell, and a post-discal row of black linear marks. *Hindwing* with many minute black spots in irregular order on the interior two-thirds of the wing, and sometimes, but not always, a series of sub-terminal black dots.

Female. Upperside like the male, but all the marginal bands are black without any blue, the blue reflections being confined to the basal portions of both wings.

*Hindwing* with the costa broadly blackish, some blackish suffusion at the base and along the abdominal margin, a black marginal line, a sub-terminal series of blackish spots, enclosed by an indistinct line of lunular marks. Underside as in the male, the markings more pronounced; the post-discal series of linear marks on the forewing slightly outwardly curved. Cilia of both sexes white. Antennæ black, ringed with white; head and body black above, white beneath.

Expanse of wings, ♂ ♀  $1\frac{4}{10}$  inches.

HABITAT.—Himalayas, Assam, Bhutan.

DISTRIBUTION.—Recorded by Elwes from the Naga Hills, by Butler from Sikkim and Bhutan, by Mackinnon from Mussuri, by de Nicéville from Dhera Dhun, Naini Tal, Khati, Kumaon and Nepal; it is in our collection from the Khasia Hills.

NOTE.—Bingham has figured the female, not the male.

#### INDO-MALAYAN AND CHINESE ALLIED GENERA AND SPECIES.

*Lycænopsis haraldus*, *Papilio haraldus*, Fabricius, Mant. Ins. ii. p. 82 (1787). *Synonyms*, *Lycænopsis ananga*, Felder, Reise, Nov. Lep. ii. p. 257, pl. 32, figs. 10, 11 (1865). *Cupido cornuta*, Druce, Proc. Zool. Soc. 1873, p. 349, pl. 32, fig. 5, ♀. Habitat, Malacca, Java, Sumatra, Borneo.

*Lycænopsis cagaya*, *Lycæna cagaya*, Felder, Reise, Nov. Lep. ii. p. 278, pl. 34, figs. 11 to 13 (1865). Habitat, Philippines.

*Lycænopsis ladonides*, *Lycæna ladonides*, de l'Orza, Lep. Japan, p. 20 (1869). Habitat, Japan.

*Lycænopsis duponchellii*, *Polyommatus duponchellii*, Godart, Enc. Méth. ix. p. 677 (1823). Habitat, Sumatra.

*Lycænopsis levetti*, *Cyaniris levetti*, Butler, Ann. Mag. Nat. Hist. 1883, p. 111. Habitat, Corea, Japan.

*Lycænopsis puspina*, *Plebeius puspina*, Kheil, Rhop. Nias, p. 30, pl. 5, figs. 37 to 39 (1884). Habitat, Nias.

*Lycænopsis kuhni*, *Cyaniris kuhni*, Rober, Iris, 1886, p. 60, pl. 4, fig. 29. Habitat, E. Celebes.

*Lycænopsis lambi*, *Cyaniris lambi*, Distant, Ann. Mag. Nat. Hist. 1887, p. 266. Habitat, Malay Peninsula.

*Lycænopsis philippina*, *Cyaniris philippina*, Semper, Reise, Philipp. v. p. 168, pl. 32, figs. 14, 16, ♂, 17, ♀, 15, 18, ♂, underside (1889). Habitat, Philippines.

*Lycænopsis nebulosa*, *Cyaniris nebulosa*, Leech, Entomologist, xxiii. p. 43 (1890). Habitat, Central China.

*Lycænopsis coalita*, *Cyaniris coalita*, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1891, p. 363, pl. F, figs. 12, ♂, 13, ♀. Habitat, Java.

*Lycænopsis musina*, *Cyaniris musina*, Snellen, Tijd. voor Ent. xxxv. p. 145 (1892). *Notarthrinus musina*, Chapman, Proc. Zool. Soc. 1909, p. 424 (text fig. 53). Habitat, Java, Sumatra.

*Lycænopsis hersilia*, *Cyaniris hersilia*, Leech, Butt. of China, &c. ii. p. 319, pl. 31, fig. 16, ♀ (1892). Habitat, Central China.

*Lycænopsis oreas*, *Cyaniris oreas*, Leech, l.c. p. 321, pl. 31, figs. 12, ♂, 13, ♀. Habitat, Central China.

*Lycænopsis ceyx*, *Cyaniris ceyx*, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1893, p. 326, pl. H, figs. 6, ♂, 7, ♀. Habitat, Java.

- Lycænopsis nedda*, *Cyaniris nedda*, Grose-Smith, Nov. Zool. i. p. 572 (1894). Habitat, Celebes.
- Lycænopsis cossæa*, *Cyaniris cossæa*, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1895, p. 271, pl. O. figs. 14, ♂, 15, ♀. Habitat, N.E. Sumatra, W. Java.
- Lycænopsis corythus*, *Cyaniris corythus*, de Nicéville, l.c. p. 273, figs. 16, ♂, 17, ♀. Habitat, N.E. Sumatra.
- Lycænopsis carna*, *Cyaniris carna*, de Nicéville, l.c. p. 274, fig. 18, ♂. Habitat, N.E. Sumatra.
- Lycænopsis catreus*, *Cyaniris catreus*, de Nicéville, l.c. p. 276, figs. 20, ♂, 21, ♀. Habitat, Java.
- Lycænopsis camenæ*, *Cyaniris camenæ*, de Nicéville, l.c. p. 278, fig. 22, ♂. *Lycænopsis camenæ*, Chapman, Proc. Zool. Soc. 1909, p. 458 (text fig. 101). *Synonym*, *Cyaniris selma*, H. H. Druce, Proc. Zool. Soc. 1895, p. 573, pl. 32, fig. 10, ♂. Habitat, N.E. Sumatra, Kina Balu, Borneo.
- Lycænopsis candaules*, *Cyaniris candaules*, de Nicéville (nec *musina*, Snellen), l.c. p. 276, P.S. pl. O, fig. 19, ♂. Habitat, N.E. Sumatra.
- Lycænopsis lyce*, *Cyaniris lyce*, Grose-Smith, Nov. Zool. ii. p. 506 (1895). Habitat, S. Celebes.
- Lycænopsis dilectissima*, *Cyaniris dilectissima*, H. H. Druce, Proc. Zool. Soc. 1895, p. 571, pl. 32, figs. 2, ♂, 3, ♀. Habitat, Borneo.
- Lycænopsis placidula*, *Cyaniris placidula*, H. H. Druce, l.c. p. 572, figs. 6, ♂, 7, ♀. Habitat, Kina Balu, Borneo.
- Lycænopsis lugra*, *Cyaniris lugra*, H. H. Druce, l.c. p. 573, fig. 5, ♂. *Notarthrinus lugra*, Chapman, l.c. 1909, p. 427 (text fig. 55). Habitat, Kina Balu.
- Lycænopsis strophus*, *Cyaniris strophus*, H. H. Druce, l.c. fig. 4, ♂. Habitat, Kina Balu.
- Lycænopsis phuste*, *Cyaniris phuste*, H. H. Druce, l.c. pl. 34, fig. 17, ♂. Habitat, Dili, Sumatra.
- Lycænopsis planta*, *Cyaniris planta*, H. H. Druce, l.c. p. 574, pl. 32, fig. 8, ♂, 9, ♀. Habitat, Borneo.
- Lycænopsis ripte*, *Cyaniris ripte*, H. H. Druce, l.c. fig. 11, ♂. Habitat, Labuan, Borneo.
- Lycænopsis cara*, *Cyaniris cara*, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1896, vol. xii. p. 143, pl. Z, figs. 19, ♂, 20, ♀. Habitat, South Celebes.
- Lycænopsis deliciosa*, *Cupido deliciosa*, Pagenstrecker, Ent. Nachr. xxii. p. 50 (1896); id. Abh. Senck. Ges. xxiii. p. 416, pl. 20, fig. 8 (1897). Habitat, Celebes.
- Lycænopsis sonchus*, *Cyaniris sonchus*, H. H. Druce, Proc. Zool. Soc. 1896, p. 655, pl. 29, fig. 4, ♂. Habitat, S.E. Borneo.
- Lycænopsis splendens*, *Cyaniris splendens*, Butler, Ann. Mag. Nat. Hist. 1900, p. 444. Habitat, Larut Hills, Perak.
- Lycænopsis imperatrix*, *Cyaniris imperatrix*, Butler, l.c. p. 444. Habitat, Siam.
- Lycænopsis shelfordi*, *Cyaniris shelfordi*, de Nicéville, Journ. Bo. Nat. Hist. Soc. 1902, p. 245, pl. FF, fig. 7, ♂. Habitat, Borneo.
- Lycænopsis owgarra*, *Cyaniris owgarra*, Bethune-Baker, Proc. Zool. Soc. 1908, p. 116, pl. 8, fig. 17. Habitat, Malay Peninsula.
- Artopöetes pryeri*, *Lycæna pryeri*, Murray, Ent. Mo. Mag. x. p. 126 (1873). Pryer, Rhop. Nippon. p. 18, pl. 5, fig. 16 (1886). *Artopöetes pryeri*, Chapman, Proc. Zool. Soc. 1909, p. 473 (text fig. 119). Habitat, Japan.

## Genus MEGISBA.

- Megisba* (with tails), Moore, Lep. Ceylon, i. p. 71 (1881). Distant, Rhop. Malayana, p. 457 (1886). de Nicéville, Butt. of India, iii. p. 60 (1890). Bingham, Fauna of Brit. India, Butt. ii. p. 313 (1907).
- Pathalia* (without tails), Moore, Journ. As. Soc. Bengal, 1884, p. 21.

Eyes naked, antennæ long, more than half the length of the forewing, stout, club spatulate and abrupt, palpi sub-porrect, third joint a little longer than the second, longer in the female. *Forewing* somewhat triangular; costa more arched in the female than in the male, apex somewhat angulate in the male, rounded in the female; outer margin convex, lower angle a little rounded, hinder margin slightly sinuous; cell half the length of the wing; vein 7 terminates on costa before the apex, 8 absent, 9 from the middle of 7; 10 and 11 free, 12 short, ending on costa before end of cell. *Hindwing* with vein 1a very short, 3 and 4 approximate from lower end of cell; sometimes with a slender tail, sometimes without, this difference occurring often in otherwise identical forms captured at the same time and place.

Type, *M. thwaitesi*, Moore.

#### MEGISBA MALAYA.

Plate 627, figs. 1, ♂, 1a, ♀, 1b, ♂ (Wet-season Brood), 1c, ♂, 1d, ♀ (Dry-season Brood), 1e (larva and pupa).

*Lycæna malaya*, Horsfield, Cat. Lep. E.I.C. p. 70 (1828).

*Lampides malaya*, de Nicéville, Journ. As. Soc. Bengal, 1881, p. 58. Wood-Mason and de Nicéville, id. p. 249.

*Pathalia malaya*, Moore, Journ. As. Soc. Bengal, 1884, p. 22. Doherty, id. 1886, p. 134. Wood-Mason and de Nicéville, id. p. 108.

*Megisba malaya*, Elwes, Trans. Ent. Soc. 1888, p. 375, pl. 11, fig. 1, ♂. de Nicéville, Butt. of India, iii. p. 61, pl. 26, fig. 165, ♂ (1890). Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 44. Elwes, Proc. Zool. Soc. 1892, p. 621. Swinhoe, Trans. Ent. Soc. 1893, p. 292. Davidson, Bell and Aitken, Journ. Bo. Nat. Hist. Soc. 1896, p. 373. Mackinnon and de Nicéville, id. 1898, p. 379. Bingham, Fauna of Brit. India, Butt. ii. p. 313 (1907).

*Megisba thwaitesi*, Moore, Lep. Ceylon, i. p. 71, pl. 34, fig. 3, 3a (imago), 3b (larva and pupa) (1881). de Nicéville, Journ. As. Soc. Bengal, 1885, p. 46. Distant, Rhop. Malayana, p. 457, pl. 44, fig. 4 (1886). Hampson, Journ. As. Soc. Bengal, 1888, p. 356.

*Megisba sikkima*, Moore, Journ. As. Soc. Bengal, 1884, p. 21.

*Pathalia albidisca*, Moore, l.c.

*Megisba gunga*, Swinhoe, Proc. Zool. Soc. 1885, p. 133, pl. 19, fig. 7.

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

IMAGO. — Male. Upperside dark brownish-black; some specimens without markings, but generally there is a medial small pale patch on the forewing; on the hindwing there is a very slender short tail at the end of vein 1, sometimes absent. Underside dull white. *Forewing* with basal, costal and outer marginal spaces suffused slightly with brown, some brown spots on the costa, a brown line closing the cell, a post-discal series of brown lunules, a sub-marginal sinuous brown line and a marginal line, including a series of brown spots. *Hindwing* with two rather large black spots near the base and a small one below them, another near the apex of the wing, a line

closing the cell, a discal band of brown spots very irregular and disjointed, the terminal markings as on the forewing.

Female like the male, but the forewing has generally a large white patch in the disc, which often extends hindwards to near the hinder margin. Cilia white, brownish towards apex of forewing in both sexes.

Expanse of wings, ♂ ♀ 1 inch.

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

Male and female like the Wet-season brood, but the medial patch is white, generally runs down from vein 4 to the hinder margin, broadening hindwards, and sometimes is continued a little on the hindwing; in the female this patch is much broader than in the male, and is nearly always continued on the hindwing till it meets the cell; the underside is also similar, but all the markings are larger and coarser. Antennæ, head, thorax and abdomen dark brown, beneath the antennæ are ringed with white, the palpi, thorax and abdomen pure white, the third joint of the palpi brown.

Expanse of wings, ♂ ♀ 1 inch.

LARVA.—Light green, vermiform, middle segments swollen.

PUPA.—Thick, blunt at the ends. Feeds on Sapindacæ (Moore).

HABITAT.—India, Andamans, Ceylon and the Malay Peninsula.

DISTRIBUTION.—Recorded by Hampson from the Nilgiris, by Watson from the Chin Hills, by Elwes from the Naga and Karen Hills, by Mackinnon from Mussoorie, by Davidson from Karwar; in our collection from the Nicobars, Sikkim, the Khasia Hills and Ceylon, some of the Ceylon examples of the Wet-season brood are very small, one of them measures only six-tenths of an inch; it is in the B. M. also from Ganjam, Belgaum, Poona, Andamans, Java, Sumatra and Borneo.

Genus NEOPITHECOPS.

*Neopithecops*, Distant, Rhop. Malayana, p. 209 (1884). de Nicéville, Butt. of India, iii. p. 51 (1890).

Bingham, Fauna of Brit. India, Butt. ii. p. 309 (1907).

*Pithecops*, Moore (nec Horsfield), Lep. Ceylon, i. p. 72 (1881).

*Parapithecops*, Moore, Journ. As. Soc. Bengal, 1884, p. 20.

Eyes naked; antennæ more than half the length of the costa of forewing; club well formed, long and excavated on the inner side; palpi porrect, third joint stout and blunt at apex in the male, cylindrical in the female. *Forewing* with the costa arched, the wing broader proportionately than it is in *Pithecops*, less rounded at the apex, outer margin convex, lower angle well marked, hinder margin straight; the costal nervure terminates before the end of the cell; the first sub-costal nervule just

beyond its end; the base of the second sub-costal is rather nearer to the base of the first than to that of the upper discoidal; the third sub-costal is emitted about midway between the base of the upper discoidal and the apex of the wing; cell more than half the length of the wing. *Hindwing* not so narrow proportionately as it is in *Pithecopis*, cell considerably longer.

Type, *N. horsfieldi*, Distant.

#### NEOPITHECOPS ZALMORA.

Plate 627, figs 2, ♂, 2a, ♀, 2b, ♂ (Wet-season Brood), 2c, ♂, 2d, ♀ (Dry-season Brood), 2e, ♂ (Extreme Dry-season Brood).

*Pithecopis zalmora*, Butler, Cat. Fabr. Lep. p. 161 (1869). Moore, Proc. Zool. Soc. 1882, p. 244. Doherty, Journ. As. Soc. Bengal, 1886, p. 134.

*Neopithecopis zalmora*, de Nicéville, Journ. As. Soc. Bengal, 1883, p. 46. Hampson, id. 1888, p. 356. de Nicéville, Butt. of India, iii. p. 53, pl. 26, fig. 162, ♀ (1890). Watson, Journ. Bo. Nat. Hist. Soc. 1891, p. 43. Elwes, Proc. Zool. Soc. 1892, p. 621. Swinhoe, Trans. Ent. Soc. 1893, p. 292. Davidson, Bell and Aitken, Journ. Bo. Nat. Hist. Soc. 1896, p. 372 (life history). Watson, id. 1897, p. 658. Bingham, Fauna of Brit. India, Butt. ii. p. 309 (1907).

*Lycæna hylax*, Doubleday and Hewitson (nec Fabricius), Gen. Diurn. Lep. ii. p. 496, pl. 76, fig. 8 (1852).

*Pithecopis hylax*, Moore (nec Fabricius), Proc. Zool. Soc. 1877, p. 587.

*Pithecopis dharmā*, Moore, Lep. Ceylon, i. p. 72, pl. 34, fig. 4, ♂ (1881).

*Pithecopis gawra*, Moore, Journ. As. Soc. Bengal, 1884, p. 20.

*Neopithecopis horsfieldi*, Distant, Rhop. Malayana, p. 210, pl. 22, fig. 15, ♂ (1884).

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

IMAGO.—Male. Upperside black, sometimes without any white on the wings; in some specimens, however, there is a pale spot in the disc of the forewing, and in some this is white; the hindwings are usually without markings. Female, similar to the males, but in many examples there is a small whitish patch in the disc of both wings. Underside of both sexes white. *Forewing* with the apex dusky brown, the ends of veins 10, 11 and 12 with minute black dots, a slender brown line closing the cell, a post-discal, transverse series of brown lunules, sub-terminal and terminal very slender brown lines including a row of black lunules. *Hindwing* with a brown line on the discocellulars as in the male, a sub-costal black spot beyond the middle, another smaller one near the abdominal margin, also beyond the middle which form the ends of a post-discal, curved and sinuous brown line, the sub-terminal and terminal markings as in the forewing; in the female there are two and sometimes three sub-basal black spots in a line. Cilia of forewing dusky, of hindwing pure white.

Expanse of wings, ♂ ♀ 1 inch.

## Dry-season Brood (Figs. 2c, ♂, 2d, ♀).

Male. *Forewing*. Upperside with the interior portion white, leaving a broad costal and marginal black band, a black spot at the upper end of cell, and some brown suffusion at the base. *Hindwing* paler and more brownish; a large white discal patch, which narrows somewhat upwards to vein 6, and often runs in towards the base above vein 4; a complete and well defined blackish-brown, rather narrow marginal band. Underside as in the Wet-season brood, but the lines and markings much paler and fainter.

Female, like the male, but the white on both wings more extensive.

Expanse of wings, ♂ ♀ 1 inch.

## Extreme Dry-season Brood (Fig. 2e, ♂).

Male and female like minute forms of the Dry-season brood, the markings underneath almost invisible.

Expanse of wings, ♂ ♀  $\frac{6}{10}$  to  $\frac{7}{10}$  inch.

LARVA of the usual woodlouse form, it is of a rough texture, with the segments well defined, pubose under the lens, the head concealed and the sides flattened; colour a bright apple-green, with a faint darker line along the middle of the back; it feeds on *Glycomis pentaphylla*, Correa, and the pupa is attached to the leaf, parallel to it; the thoracic part is narrow and contracted, and the abdominal rounded and considerably higher than the thorax; it is of a bright green with a darker dorsal line and a similar line forming the boundary of the abdominal segments; it has a row of minute dark spots along these lines (Davidson, Bell and Aitken).

HABITAT.—India, Burma, Ceylon, Andamans, Malay Peninsula; a common species.

## SECTION III.

## Genus PITHECOPS.

*Pithecopis*, Horsfield, Cat. Lep. E.I.C. p. 66 (1828). de Nicéville, Butt. of India, iii. p. 48 (1890).

Bingham, Fauna of Brit. India, Butt. ii. p. 307 (1907).

Eyes naked; antennæ a little longer than half the length of costa of forewing with a well formed spatulate club; palpi sub-porrect; second joint thickly clothed with adpressed scales; third joint aciculate. *Forewing* long, narrow; costa arched, apex rounded, hinder margin straight or very slightly sinuous; cell about half the length of the wing; the costal nervure short, terminating before the end of the cell, first sub-costal nervule emitted at about the middle of the cell, very short, directed obliquely upwards to the costal nervure, with which it is completely anastomosed in its

entire length, except for a short portion of the base; second sub-costal, long, emitted nearer the base of the first than to the base of the upper discoidal nervule; third sub-costal very short, emitted from the costal nervule at about opposite the apex of the second sub-costal; upper discocellular nervule absent; middle and lower discocellulars of about equal length, concave; lower discoidal nervule from the point of junction of the discocellulars; second median nervule emitted some little distance before the lower end of the cell; sub-median nervule sinuous, following the shape of the inner margin. *Hindwing* long, oval; costa very straight, outer and abdominal margin with an even curve; costal nervule slightly arched at base, then straight to the apex of the wing; first sub-costal nervule emitted much before the end of the cell; upper discocellular nervule short, outwardly oblique, straight; lower discocellular longer, upright, concave; second median nervule emitted a little before lower end of cell.

Type, *P. hylax*, Fabricius.

#### PITHECOPS HYLAX.

Plate 628, figs. 1, ♂, 1a, ♀, 1b, ♀.

*Papilio hylax*, Fabricius, Syst. Ent. p. 526 (1775); id. Sp. Ins. ii. p. 124 (1781); id. Mant. Ins. ii. p. 77 (1787).

*Hesperia Rurales hylax*, Fabricius, Ent. Syst. iii. (i.) p. 304 (1793).

*Polyommatus hylax*, Godart, Enc. Méth. ix. p. 701 (1823).

*Pithecopis hylax*, Horsfield, Cat. Lep. E.I.C. p. 66, pl. 1, fig. 2, 2a (imago), 2b, pupa (1828). Moore, Proc. Zool. Soc. 1865, p. 771. Butler, Cat. Fabr. Lep. p. 161 (1869). de Nicéville, Journ. As. Soc. Bengal, 1882, p. 62; id. Butt. of India, iii. p. 49, pl. 26, fig. 161 (1890). Manders, Trans. Ent. Soc. 1890, p. 527. de Nicéville, Journ. Bo. Nat. Hist. Soc. 1890, p. 297. Watson, id. 1891, p. 43. Elwes, Proc. Zool. Soc. 1892, p. 621. Bingham, Fauna of Brit. India, Butt. ii. p. 308 (1907).

*Lycæna hylax*, Hopffer, Stett. Ent. Zeit. xxxv. p. 27 (1874). Staudinger, Ex. Schmett. p. 271, pl. 94, ♂ (1888).

IMAGO.—Male. Upperside of a uniform brownish-black colour, without markings. Underside, milk-white, markings chocolate-brown. *Forewing* with a post-discal series of transverse short lines, the upper one the darkest, and two black sub-costal spots in continuation; a well marked band on the outer margin containing a series of similar lines all white. *Hindwing* with a post-discal paler line, a sub-terminal continuous line and a series of black dots close to the margin; a very large black spot at the apex of the wing. Cilia of forewing brown, of hindwing white.

Female, like the male, but there is a large white patch on the forewing above, a little below the centre of the wing, which varies in size in many examples.

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

HABITAT.—Sikkim, Assam, Burma and the Malayan sub-region.



1



1b



1a



1c



1e



1d



2



2b



2a



2c



2e



2d

E. C. Knight del. et lith.

Vincent Brooks, Day & Son Lith. imp.

L. Reeve & Co. London.





1



1a



1c



1b



2



2a



3b



3



3a



3c



3d

E.C.Knight del et lith.

Vincent Brooks, Day & Son Lithrs





1



1<sup>a</sup>



1<sup>b</sup>



2



2<sup>a</sup>



2<sup>b</sup>



2<sup>c</sup>



2<sup>d</sup>



3<sup>b</sup>



3



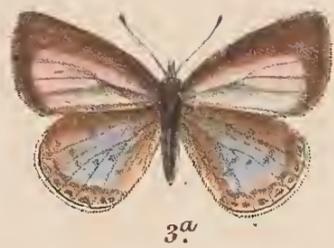
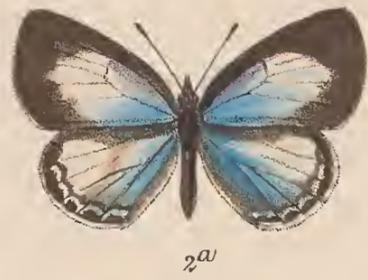
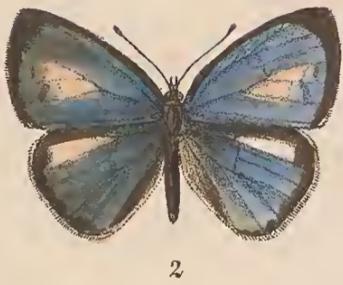
3<sup>a</sup>

E.C.Knight del et lith.

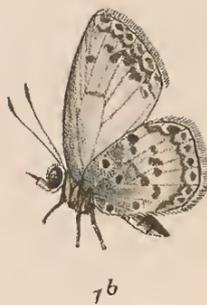
Vincent Brooks, Day & Son, Ltd. imp

L. Reeve & Co. London









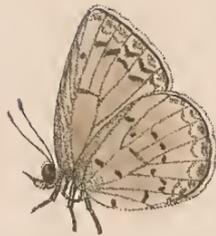




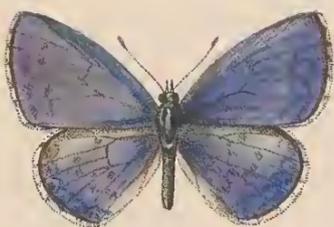
1



1a



1b



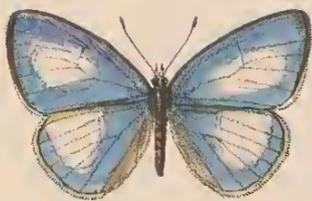
2



2a



2b



2c



2d



3



3a

E.C.Knight del et lith.

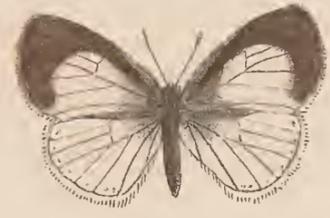
Vincent Brooks, Day & Son. Lit. imp.

L. Reeve & C<sup>o</sup>. London.

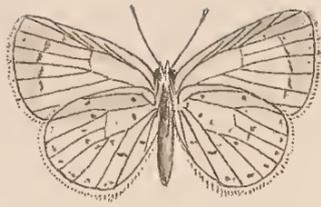




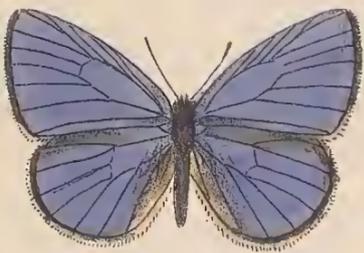
1



1<sup>a</sup>



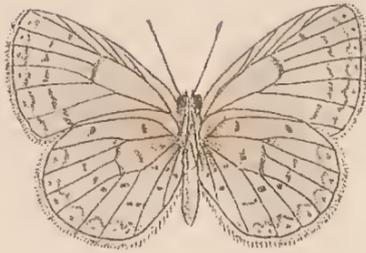
1<sup>b</sup>



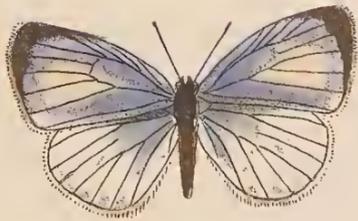
2



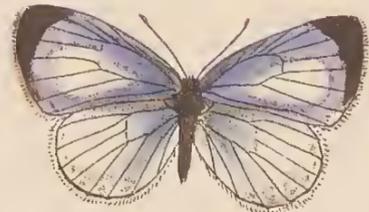
2<sup>a</sup>



2<sup>b</sup>



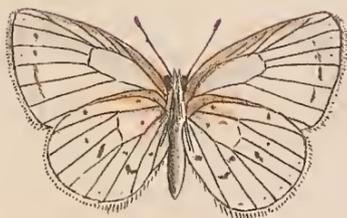
3



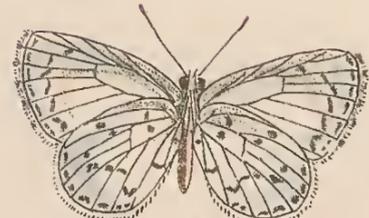
3<sup>a</sup>



3<sup>b</sup>



3<sup>c</sup>



3<sup>d</sup>

J.N. Fitch del, et lith.

Vincent Brooks Day & Son Lith'g

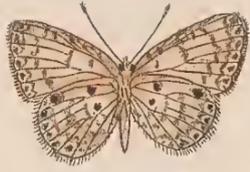




1



1a



1b



1c



1d



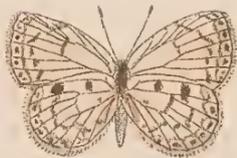
1e



2



2a



2b



2c



2d



2e



LOVELL REEVE & CO.'S PUBLICATIONS—*Continued.*

The Narcissus, its History and Culture, with Coloured Figures of all known Species and Principal Varieties. By F. W. BURBIDGE, and a Review of the Classification by J. G. BAKER, F.L.S. Super-royal 8vo, 48 Coloured Plates, 30s.

British Wild Flowers, Familiarly Described in the Four Seasons. By THOMAS MOORE, F.L.S. 24 Coloured Plates, 14s.

British Grasses; an Introduction to the Study of the Gramineæ of Great Britain and Ireland. By M. PLUES. Crown 8vo, with 16 Coloured Plates and 100 Wood Engravings, 9s.

British Ferns; an Introduction to the Study of the FERNS, LYCOPODS, and EQUISETA indigenous to the British Isles. With Chapters on the Structure, Propagation, Cultivation, Diseases, Uses, Preservation, and Distribution of Ferns. By M. PLUES. Crown 8vo, 16 Coloured Plates, and 55 Wood Engravings, 9s.

The British Ferns; Coloured Figures and Descriptions, with Analysis of the Fructification and Venation of the Ferns of Great Britain and Ireland. By Sir W. J. HOOKER, F.R.S. Royal 8vo, 66 Coloured Plates, 36s.

Garden Ferns; Coloured Figures and Descriptions of a Selection of Exotic Ferns, adapted for Cultivation in the Garden, Hothouse, and Conservatory. By Sir W. J. HOOKER, F.R.S. Royal 8vo, 64 Coloured Plates, 36s.

Filices Exoticæ; Coloured Figures and Description of Exotic Ferns. By Sir W. J. HOOKER, F.R.S. Royal 4to, 100 Coloured Plates, £6 11s.

Handbook of British Mosses, containing all that are known to be natives of the British Isles. By the Rev. M. J. BERKELEY, M.A., F.L.S. 24 Coloured Plates, 21s.

Synopsis of British Mosses, containing Descriptions of all the Genera and Species (with localities of the rare ones) found in Great Britain and Ireland. By CHARLES P. HOBKIRK, F.L.S. New Edition, entirely revised. Crown 8vo, 6s. 6d.

British Fungi, Phycomycetes and Ustilagineæ. By GEORGE MASSEE. 8 Plates, 6s. 6d.

British Fungology. By the Rev. M. J. BERKELEY, M.A., F.L.S. Re-issue with a Supplement of nearly 400 pages by Worthington G. Smith, F.L.S., bringing the work up to the present time. 2 vols. 24 Coloured Plates, 36s.

The Esculent Funguses of England. Containing an Account of their Classical History, Uses, Characters, Development, Structure, Nutritive Properties, Modes of Cooking and Preserving, &c. By C. D. BADHAM, M.D. Second Edition. Edited by F. CURREY, F.R.S. 12 Coloured Plates, 12s.

The Uses of British Plants. Traced from Antiquity to the Present Day, together with the Derivations of their Names. By the Rev. Prof. G. HENSLow, M.A., F.L.S. With 288 Illustrations. Crown 8vo, 4s. 6d.

The Potamogetons of the British Isles: Descriptions of all the Species, Varieties and Hybrids. By ALFRED FRYER. Illustrated by ROBERT MORGAN, F.L.S. Sections 1-3, each 21s. Coloured; 15s. uncoloured.

Phycologia Britannica; or, History of British Seaweeds. By Dr. W. H. HARVEY, F.R.S. New Edition. Royal 8vo, 4 vols. 360 Coloured Plates, £6 6s.

Phycologia Australica; a History of Australian Seaweeds. Comprising Coloured Figures and Descriptions of the more characteristic Marine Algæ of New South Wales, Victoria, Tasmania, South Australia, and Western Australia, and a Synopsis of all known Australian Algæ. By Dr. W. H. HARVEY, F.R.S. Royal 8vo, Five Vols., 300 Coloured Plates, £6 10s.

British Seaweeds; an Introduction to the Study of the Marine ALGÆ of Great Britain, Ireland, and the Channel Islands. By S. O. GRAY. Crown 8vo, with 16 Coloured Plates, 9s.

West Yorkshire; an Account of its Geology, Physical Geography, Climatology, and Botany. By J. W. DAVIS, F.L.S., and F. ARNOLD LEES, F.L.S. Second Edition, 8vo, 21 Plates, many Coloured, and 2 large Maps, 21s.

Natal; a History and Description of the Colony, including its Natural Features, Productions, Industrial Condition and Prospects. By HENRY BROOKS, for many years a resident. Edited by Dr. R. J. MANN, F.R.A.S., F.R.G.S., late Superintendent of Education in the Colony. Demy 8vo, with Maps, Coloured Plates, and Photographic Views, 18s.

St. Helena. A Physical, Historical, and Topographical Description of the Island, including its Geology, Fauna, Flora, and Meteorology. By J. C. MELLISS, A.I.C.E., F.G.S., F.L.S. In one large Vol., Super-royal 8vo, with 56 Plates and Maps, mostly coloured, 36s.

Handbook of the Vertebrate Fauna of Yorkshire; being a Catalogue of British Mammals, Birds, Reptiles, Amphibians, and Fishes, which are or have been found in the County. By WILLIAM EAGLE CLARKE and WILLIAM DENISON ROEBUCK. 8vo, 8s. 6d.

The Structure and Life History of the Cockroach (*Periplaneta Orientalis*). An Introduction to the Study of Insects. By L. C. MIALl, Professor of Biology in the Yorkshire College, Leeds, and ALFRED DENNY, Lecturer on Biology in the Firth College, Sheffield. Demy 8vo, 125 Woodcuts, 7s. 6d.

LOVELL REEVE & CO., LTD., 6, HENRIETTA STREET, COVENT GARDEN.

LOVELL REEVE & CO.'S PUBLICATIONS—*Continued.*

- Monographiæ Entomologicæ. I. A Monograph of the genus TERACOLUS. By E. M. BOWDLER SHARPE. Parts 1-11, 4to, with Four Coloured Plates, 7s. 6d. each.
- Monographiæ Entomologicæ. II. A Monograph of the MEMBRACIDÆ. By GEORGE BOWDLER BUCKTON. F.R.S., F.L.S. 4to, with 60 Coloured Plates, £6 15s.
- Foreign Finches in Captivity. By ARTHUR G. BUTLER, Ph.D., F.L.S., F.Z.S., F.E.S. Complete in One Vol., royal 4to, with 60 Coloured Plates, £4 14s. 6d.
- The Lepidoptera of Ceylon. By F. MOORE, F.L.S. Three Vols., Medium 4to, 215 Coloured Plates, cloth, gilt tops, £21 12s. Published under the auspices of the Government of Ceylon.
- The Butterflies of Europe; Illustrated and Described. By HENRY CHARLES LANG, M.D., F.L.S. Complete in Two Vols., super-royal 8vo, with 82 Coloured Plates, containing upwards of 900 Figures, cloth, £3 18s.
- The Hemiptera Heteroptera of the British Islands. By EDWARD SAUNDERS, F.L.S. Complete in 1 vol. Small Edition, with a Structural Plate, 14s. Large Edition, with 31 Coloured Plates, 48s.
- The Lepidoptera of the British Islands. By CHARLES G. BARRETT, F.E.S. Complete in 11 vols, £6 12s. Large Paper Edition, with 504 Coloured Plates, £33 15s.
- The Larvæ of the British Lepidoptera, and their Food Plants. By OWEN S. WILSON. With Life-sized Figures drawn and coloured from Nature by ELEANOR A. WILSON. 40 Coloured Plates, 63s.
- The Coleoptera of the British Islands. By the Rev. Canon FOWLER, M.A., F.L.S. Complete in Five Vols. Large Edition, with 180 Coloured Plates, £14. Small Edition, with Two Structural Plates, £4
- Catalogue of British Coleoptera. By D. SHARP, M.A., F.R.S., and Rev. Canon FOWLER, M.A., F.L.S. Price 1s. 6d.
- The Hymenoptera Aculeata of the British Islands. By EDWARD SAUNDERS, F.L.S. Complete with 3 Plates, 16s. Large Paper Edition, with 49 Coloured Plates, 68s.
- The Hemiptera Homoptera of the British Islands. By JAMES EDWARDS, F.E.S. Complete with a structural plate, 14s. Large Edition, with 31 Coloured Plates, 48s.
- British Insects. A Familiar Description of the Form, Structure, Habits, and Transformations of Insects. By E. F. STAVELEY, Author of "British Spiders." Crown 8vo, with 16 Coloured Plates and numerous Wood Engravings, 12s.
- British Beetles; an Introduction to the Study of our indigenous COLEOPTERA. By E. C. RYE. Second Edition, revised and in part rewritten by the Rev. Canon FOWLER, M.A., F.L.S. Crown 8vo, 16 Coloured Steel Plates, and 11 Wood Engravings, 9s.
- British Butterflies and Moths; an Introduction to the Study of our Native LEPIDOPTERA. By H. T. STANTON. Crown 8vo, 16 Coloured Plates, and Wood Engravings, 9s.
- British Bees; an Introduction to the Study of the Natural History and Economy of the Bees indigenous to the British Isles. By W. E. SHUCKARD. Crown 8vo, 16 Coloured Plates and Woodcuts of Dissections, 9s.
- British Spiders; an Introduction to the Study of the ARANEIDÆ found in Great Britain and Ireland. By E. F. STAVELEY. Crown 8vo, 16 Coloured Plates and 44 Wood Engravings, 9s.
- Curtis's British Entomology. Illustrations and Descriptions of the Genera of Insects found in Great Britain and Ireland, containing Coloured Figures, from Nature, of the most rare and beautiful Species, and in many instances, upon the plants on which they are found. Eight Vols., Royal 8vo, 770 Coloured Plates, £24.
- Harvesting Ants and Trap-door Spiders; Notes and Observations on their Habits and Dwellings. By J. T. MOGGRIDGE, F.L.S. With SUPPLEMENT, 17s. The Supplement separately, cloth, 7s. 6d.
- Elements of Conchology; an Introduction to the Natural History of Shells, and of the Animals which form them. By LOVELL REEVE, F.L.S. Royal 8vo, Two Vols., 62 Coloured Plates, £2 16s.
- Conchologia Iconica; or, Figures and Descriptions of the Shells of Mollusks, with remarks on their Affinities, Synonymy, and Geographical Distribution. By LOVELL REEVE, F.L.S., and G. B. SOWERBY, F.L.S., complete in Twenty Vols., 4to, with 2727 Coloured Plates, half-calf, £178. A detailed list of Monographs and Volumes may be had.
- Conchologia Indica. Illustrations of the Land and Freshwater Shells of British India. By S. HANLEY and W. THEOBALD. 160 Coloured Plates, £8 5s.
- The Edible Mollusca of Great Britain and Ireland; with the Modes of Cooking them. By M. S. LOVELL. Crown 8vo, with 12 Coloured Plates. New Edition, 9s.
- British Zoophytes; an Introduction to the Hydroida, Actinozoa, and Polyzoa found in Great Britain, Ireland, and the Channel Islands. By ARTHUR S. PENNINGTON, F.L.S. Crown 8vo, 24 Plates, 9s.
- Handbook of the Freshwater Fishes of India; giving the Characteristic Peculiarities of all the Species at present known, and intended as a guide to Students and District Officers. By Capt. R. BEAVAN, F.R.G.S. Demy 8vo, 12 Plates, 10s. 6d.

LOVELL REEVE & CO., LTD., 6, HENRIETTA STREET, COVENT GARDEN.