

had he had the very distinct *C. melana* before him. There is a very palpable error somewhere, but I am unable to clear it up.

"The genus *Cyaniris* is better represented in the tropics than is generally supposed. I have myself taken ten species, including *C. haraldus*, Fabricius, in the Malay Peninsula, eight confined to high elevations; also seven in the mountains of Eastern Java, and four in Celebes, besides *C. duponcheltii*, Godart (? = *C. puspa*, Horsfield)* in Sumba and Sambawa, and *C. akasa* in Sambawa at 4,500 feet elevation." (Doherty, l. c.)

C. melana appears to be nearest to, but amply distinct from, *C. marginata*, de Nicéville; it is considerably smaller, has no white patches on the upperside of either wing, and the iridescent blue coloration is almost invisible in some lights, highly resplendent in others. The markings of the underside are smaller and more regular than in the rains form of *C. marginata*. The hindwing differs in shape from any *Cyaniris* known to me, the outer margin being decidedly truncated. In the Phayre Museum, Rangoon, is a male of this species taken at Myitta, in the Tenasserim valley, in March.

678. *Cyaniris albooceruleus*, Moore.

Polyommatus albooceruleus, Moore, Proc. Zool. Soc. Lond., 1879, p. 131; *Cyaniris albooceruleus*, de Nicéville, Journ. A. S. B., vol. li, pt. 2, p. 71, n. 8, pl. i, figs. 4, male; 4a, female (1883).

HABITAT: Simla; Masuri; Dehra Doon; Naini Tal; Khati, N. W. Kumaon, 7,000 feet; Nepal; Sikkim.

EXpanse: ♂, 1.12 to 1.50; ♀, 1.35 to 1.40 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings pure pearly white. Forewing with the outer margin broadly at the apex and decreasingly towards the hinder angle dusky black, this black border being reduced to a very fine black line at the hinder angle; the base, broadly along the costa and inner margin and within the outer black band pale clear shining blue, thus leaving a patch of the white ground-colour on the disc of the wing only. Hindwing with the base and abdominal half of the wing irrorated with very pale shining blue; the spots of the underside showing through slightly on the disc; an indistinct marginal series of dusky spots, and a fine anteciliary black line. UNDERSIDE, both wings white, slightly tinted with blue. Forewing with a slender blackish disco-cellular streak, a curved discal series of five or six elongate spots, and a marginal series of very indistinct small spots, obsolete at the hinder angle. Hindwing with ten or eleven small dusky spots, of which three are subbasal, the rest arranged irregularly across the disc; a submarginal series of small spots, and a fine marginal black line. FEMALE. UPPERSIDE, forewing with the costal and outer borders very broadly dusky black, the discal patch white, the inner margin broadly irrorated with blue. Hindwing with the discal area between the nervules bluish-white, all the rest dusky; a submarginal series of oval dusky spots, and the marginal black line. UNDERSIDE, both wings exactly as in the male. Cilia white on both sides in both sexes."

"Nearly allied to *Cyaniris akasa*, Horsfield, from which (*apud* Moore in 'Lep. Cey.') the male differs on the upperside of the forewing having no dusky on the base and costal margin, and the outer black border being narrower throughout."

"Two males were taken by me in the bed of the Simla river on the 20th October and 2nd November, 1879, respectively, and one female also at Simla, but the exact locality and date were not recorded. All three specimens are quite perfect; the males agree absolutely except in size. I also took one male in Sikkim in October at about 3,500 feet elevation."

"Mr. Moore seems to have described the female of some other species as the female of *C. albooceruleus*, as he states that in that sex the broad outer marginal black band on the upperside of the forewing does not reach the posterior angle, whereas in my female the band is very wide at that point. As the undersides of both sexes of the specimens

* Dr. Horsfield says that *C. duponcheltii*, Godart, from Tumor, differs from *C. puspa*, Horsfield, "by the deep azure tint diffused over its upper surface, and by the number and arrangement of the ocellated spots underneath." (Cat. Lep. & I. Co., p. 68 (1828). Professor Westwood (Gen. Diurn. Lep., vol. ii, p. 491, n. 60 (1852) records *Lycena duponcheltii* from Tumor, Papua, Bengal, Java, Amboyna, and he retains *L. puspa* as distinct, recording it from East India, Ceylon, Java, (l. c., n. 56).

described above agree absolutely, I think I have correctly paired them, while, if the female of this species be variable, Mr. Moore's description would be correct." (*de Nicolle*, l. c.) Females from Mawri and Sikkim since obtained agree also with my description of that sex, and not with Mr. Moore's. Colonel Lang reports *C. alboceruleus* from "Nain Tal, 5,500 to 8,600 feet (Cheena), May, and again August to October." Mr. Doherty records it from "Khat, N.-W. Kumaon, 7,000 feet, rare." It occurs rarely in Sikkim in March, April, May, October, November, and December. It has a rather more extended range than *C. marginata*, mihi, as it occurs to the west as far as Simla at any rate. I am unaware, or have failed to recognise, that there is any seasonal dimorphism in this species. It is a rare species, but is very easily recognised.

I append as a foot-note Mr. Moore's original description of this species.*

679. *Cyaniris transpectus*, Moore. (PLATE XXVI, FIGS 170, ♂ WET-SEASON FORM; 171, ♂ DRY SEASON FORM)

Polyommatus transpectus, Moore, Proc Zool Soc Lond, 1879, p. 139, *Cyaniris transpectus*, de Nicolle, Journ. A. S. B., vol. lii, pt. 2, p. 70, n. 6, pl. 1, fig. 6, male 6a, female (1883)

HABITAT. Sikkim; Khasia Hills, Eastern Bengal; Myitta, Tenasserim valley.

EXPANSE. ♂, 95 to 140; ♀, 120 to 135 inches.

DESCRIPTION: "MALE UPSIDE, both wings lavender-blue. Forewing with the costal margin somewhat broadly, and the outer margin very broadly, especially at the apex, dusky black; a patch of irrorated white scales on the disc between the third median nervule and the submedian nervine, obsolete in some specimens. Hindwing with a broad even outer black border, somewhat divided by a series of bluish lunules, which are most prominent at the anal angle, and often enclose black spots. UNDERSIDE both wings white, slightly tinted with blue. Forewing with a slender dusky discocellular streak, a discal series of six elongate spots, arranged in a regular sinuous line in some specimens (as in the female figured), or in others more irregularly (as in the male figure 1), a submarginal lunular line, a marginal series of linear spots, and a fine anteciliary line. Hindwing with the spots arranged as in *C. puspa*, Horsfield, but they are less prominent, those on the margin reduced to linear marks. Cilia white on both sides in both sexes. FEMALE UPSIDE, both wings very deep blue, almost black. Forewing with a broad pure white patch from near the subcostal nervure to the inner margin, a prominent discocellular streak, and the base thickly irrorated with deep blue scales. Hindwing with the outer margin rather less deeply blue than in the forewing, and bearing a series of pale lunules including black spots, the disc white but irrorated towards the abdominal margin with blue scales, as is also the base of the wing. In some specimens the white area on both wings is much restricted, appearing on the hindwing only at the middle of the costal margin. UNDERSIDE as in the male." (*de Nicolle*, l. c.)

I have figured and described as above the form of both sexes of this species which occurs in Sikkim in the rains. The form which is found in the spring and autumn (dry season) differs very considerably. In the male the blue coloration of the upperside of the male is much lighter and less purple, and the costa, apex, and outer margin are very narrowly black. The forewing has a patch of white on the disc quite as large as in *C. alboceruleus*, Moore and it reaches the inner margin. The hindwing has a large patch of white from the apical half of the costa to the middle of the wing, all the rest of the surface is powdered with blue scales, and is crossed by the darker veins; there is a fine anteciliary black line, but no broad outer black border as in the rains form. All the spots on the underside of both wings are much less prominent. The female differs quite as much. The base, apex, and outer margin are less broadly black, leaving a pure white discal patch twice as large as in the

* "MALE and FEMALE. UPSIDE, both wings pale clear blue, discal area of the forewing and apical area of the hindwing white. Forewing with a broad outer marginal black band terminating in a point at the posterior angle in the male but not reaching the angle in the female. Hindwing with a narrow marginal black line and a series of small indistinct spots, the latter still less apparent in the female. Cilia white, with an inner bordered line adjoining the band on the forewing. UNDERSIDE both wings white, with small and slender black markings disposed similarly to those in *P. (=C.) puspa*, Horsfield, but without the lunular line encompassing the marginal spots." (*Moore*, l. c.)

rains form, and the disco-cellular nervules are marked with a black line. The hindwing has the base powdered with dusky and blue scales, there is a submarginal dusky lunular fascia, enclosing a series of prominent black spots, and an antehial black fine line. Underside of both wings with the spots small or obsolete. The female of this species is easily recognised from all others by having no blue iridescent scales towards the base of the wings on the upperside. It occurs commonly in Sikkim in March, April, May, September, October, and November. Its range is from Sikkim eastwards through Assam to Burma. I append as a footnote Mr. Moore's original description of this species.*

Figure 170 shews both sides of a male specimen of the wet-season form; fig. 171 shows both sides of a male specimen of the dry-season form, both from Sikkim and now in my collection.

680. *Cyaniris latimargo*, Moore.

C. latimargo, Moore, Proc. Zool. Soc. Lond., 1883, p. 523, pl. xlviii, fig. 9, male.

HABITAT: Sikkim, N.-E. Bengal.

EXPANSE: ♂, 1'25 inches.

DESCRIPTION: "Allied to *C. transpectus*, Moore. MALE. UPPERSIDE, both wings of a darker blue, with a purplish tint, with a broad black outer marginal band of one-eighth inch in width; the costal borders also black-bordered. Hindwing with the abdominal margin black-bordered. UNDERSIDE, both wings with similarly disposed but broader markings than those in *C. marginata*." (Moore, l. c.)

Mr. Moore informs me in a letter that he has this species from Sikkim. I have not been able to recognise it with certainty, but I am almost sure that it is the rains form of *C. transpectus*. Mr. Moore says that the costal border of the forewing is black-bordered. If it is so, it must be but narrowly black; it is prominently black in four species only, at least as far as I know, *C. akasa*, *C. vardhana*, *C. marginata*, and *C. melana*.

681. *Cyaniris puspa*, Horsfield.

Polyommatus puspa, Horsfield, Cat. Lep. E. I. Co., p. 67, n. 3 (1838); *Cyaniris puspa*, Moore, Proc. Zool. Soc. Lond., 1883, p. 245; id., de Nicéville, Journ. A. S. B., vol. lii, pt. 2, pl. i, fig. 5a, female (1883); id., Butler, Ann. and Mag. of Nat. Hist., fifth series, vol. xvi, p. 335, n. 70 (1885); *Lycena puspa*, var. Felder, Verh. zool.-bot. Gesells. Wien, vol. xviii, p. 282 (1868); *Polyommatus lavenderularis*, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xi, p. 341 (1877); *Cyaniris lavenderularis*, id., Lep. Ceyl., vol. i, p. 75, pl. xxxiv, figs. 6, 6a, male; 7, female (1881); *C. puspa*, var. *lilacea*, Hampson, Journ. A. S. B., vol. lvii, pt. 2, p. 356, n. 91 (1888).

HABITAT: Almost throughout India, (except the desert tracts), the outer Himalayas, Assam, Burma, Ceylon, the Andaman Isles, and Java.

EXPANSE: ♂, 1'1 to 1'5; ♀, 1'2 to 1'4 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings blue with a defined border of blackish-brown, and a large white patch on the disc; a deeper tint extends from the base to the edge of the brown margin, varying according to the direction of the light, being either intensely azure or diluted, and transmitting a ground-colour of brown. UNDERSIDE, both wings white with a bluish cast, with, along the posterior margins, two parallel brown strigæ, of which the interior is undulated, enclosing an interrupted series of oblong brown spots, gradually assuming a deeper tint as they approach the anal angle; interior of this follows a macular band, originating by two successive ocellate dots, from the margin of the forewing and extending in an irregular curve through both pair. Forewing bears on the disc a short curved streak. Hindwing with a similar angular mark, but more obscure; with, in its basal portion, numerous black ocellate spots bordered with white, of which five are more prominent; two of these stand near the exterior margin, the apical one being larger and of a more florid tint; two, less conspicuous, are disposed near the anal interior margin, and a fifth intermediate

* MALE. UPPERSIDE, both wings blue, with a broad outer marginal black band, broadest at the apex of the forewing; the band on the hindwing maculated. UNDERSIDE, both wings white, with indistinct slender dusky markings disposed as in *P. [= C.] puspa*; the costal spot only prominent and visible above." (Moore l. c.) This description appears to apply best to the dry-season form of this species.

not far from the base. *Antenna* annulated with white. Tufts of greyish-blue hairs at the sides of the *thorax* and *abdomen*. FEMALE. UPPERSIDE, both wings with the blue colour confined to the base." (Horsfield, l. c.)

C. puspa in Sikkim does not exhibit quite as great a seasonal dimorphism as obtains in *C. transpectus*, Moore, and *C. marginata*, de Nicéville. In the rains form the coloration of both wings on the upperside is of a deeper purple-blue than in the dry-season form; there is hardly any white discal patch, while in the dry-season form this is as large as in the rains form of *C. marginata*; the costal and outer margins are also more broadly black in the rains form. The hindwing in the rains form has a moderately wide outer black border, with the inner edge lunulated; this border, in the dry-season form, is reduced to a series of oval marginal black spots, followed by a fine black anteciliary line. The markings of the underside of both wings are fully twice as prominent in the rains form.

C. puspa is probably the commonest and most widely ranging species of the genus occurring in India, and, except in Sikkim, where the changes of season are very great, it is fairly constant. It is somewhat rare in the outer ranges of the Western Himalayas, becoming more plentiful eastwards; in Sikkim it is one of the very commonest "blues" met with. It occurs eastwards as far as Sibsagar in Upper Assam, also in Burma and in the Andaman Isles. On the continent of India I have taken it in the Beerbhoom district; it occurs on Parisnath, at Khandalla on the Western Ghâts, in North Kanara, in Orissa, Ganjam, in the Nilgiris, Rutnagherry, Cannanore, and in Ceylon. Mr. Moore has separated off the Ceylon form under the name of *lavendularis*. I have a very large series of this form before me, and cannot find a single character by which it can be distinguished from the ordinary Indian form of *C. puspa*. Mr. Moore has figured a specimen in his "Lepidoptera of Ceylon" as the female of his *C. lavendularis*, which certainly is not the opposite sex of that species, nor does it look to me like a female at all. What it really is I cannot say. I append a description of *C. lavendularis*.^{*} Dr. Felder distinguishes this form from Ceylon as follows: "Differing from the Bengal form [of *C. puspa*] by the blackish-fusces border of the forewing [on the upperside] being almost narrower by half, and the spots before the margin of the underside being smaller." (Felder, l. c.) Mr. E. E. Green informs me that he has bred *C. lavendularis* in Ceylon, and that the larva feeds upon the young leaves of *Hyptis madagascariensis*.

Mr. Hampson has described (l. c.) a variety of *C. puspa*, which he calls *lilacra*, as follows: "HABITAT: Southern slopes of the Nilgiris, and the Nellyampathy Hills, Cochin. MALE. UPPERSIDE, both wings with no white on the disc. UNDERSIDE, both wings as in the typical *C. puspa*, Horsfield. FEMALE. UPPERSIDE, both wings with the whole white discal area suffused with blue, more especially towards the base. The seasonal broods do not differ." He also records *C. puspa* and *C. lavendularis* from the Nilgiris.

C. lambi, Distant, from the Malay Peninsula and Nias Island is indistinguishable absolutely from the dark rains form of *C. puspa* from Sikkim. In any future revision of the genus at should, I think, be placed as a synonym of that species. It agrees with *C. puspa*, var. *lilacra*,

^{*} *Cyaniris lavendularis*, Moore. *Polioptilus lavendularis*, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xx, p. 341 (1877); *Cyaniris lavendularis*, id., Lep. Cey., vol. 1, p. 75, pl. xxxiv, figs. 6, 6a, male; 7, female (1881). HABITAT: Ceylon. EXPLAN: Male, 1.1 inches, female 1.3 inches. DESCRIPTION: MALE. UPPERSIDE, both wings dark lavender-blue, with an extremely narrow black outer marginal border. UNDERSIDE, both wings greyish-white. Forewing with a dusky-black streak at the end of the cell, a discal series of oblique spots, and a marginal row of small spots enclosed by a dentate line. Hindwing with three black subanal spots, some specimens with a smaller spot at the base of the subcostal nervule and another at the base of the first median nervule, a curved series of seven discal spots, and a marginal row of spots enclosed by a dentate line. FEMALE. UPPERSIDE, both wings paler than in the male, and of a purple lavender-blue. Forewing with the base of the costa and an outer band black. Hindwing with black anterior border and marginal row of prominent pale-bordered black spots. Cilia white, with inner black border. UNDERSIDE as in the male.

^{*} Allied to *P. [= C.] puspa*, Horsfield, differs from Java specimens above in its uniform colour and narrower black borders. (Moore, l. c. in Lep. Cey.)

In all the specimens from Ceylon of this species that I have seen, there is a medium-sized patch of white irroration on the disc of both wings which is not mentioned by Mr. Moore, though he refers to them in describing *C. placida* (vide p. 104, foot-note). The outer black borders to both wings on the upperside of the male cannot be called "extremely narrow," in fact there are not many Indian species which have them as broad. As figured they are quite as broad as is usual in *C. puspa*. As stated above, his description of the female does not apply to the female of this species.

Hampson, in having no white discal patches on the upperside of both wings in the male. Its description is given below.*

682 *Cyaniris chennellii*, de N.

C. chennellii, de Nicéville, Journ. A. S. B., vol. Iii, pt. 2, p. 72, n. 9, pl. i, fig. 10, male (1883).

HABITAT: Shillong, Assam.

EXPANSE. ♂, 1.10 to 1.25; ♀, 1.20 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings lavender-blue. Forewing with the outer margin widely dusky-black, widest at the apex; a dusky disco-cellular streak. Hindwing with the costal and outer margins widely dusky-black. UNDERSIDE, both wings pale grey. Forewing with a slender disco-cellular streak outwardly defined with whitish, a discal slightly sinuous series of six small rounded spots also outwardly defined with whitish; very pale and indistinct submarginal lunular line, marginal linear spots, and anteciliary line. Hindwing with two subbasal small black spots, a faint disco-cellular streak, and an irregular discal series of nine black spots outwardly defined with whitish, of which the third, fourth and fifth from the costa are much paler, marginal markings as on the forewing. Cilia of both wings somewhat dusky on the upperside, concolorous with the wings on the underside" (*de Nicéville*, l. c.) FEMALE. UPPERSIDE, forewing dusky-black, with a small discal induscent bluish-purple patch on the disc, a prominent disco-cellular black streak. Hindwing blackish, the lower discal area streaked with bluish-purple between the veins, and a submarginal series of oval black spots between the veins reaching the discoidal interspace; the one in the submedian interspace geminate, each spot surrounded with a bluish line. Cilia of the forewing dusky, whitish on the hindwing, with an anteciliary black line. UNDERSIDE, both wings as in the male.

From Shillong specimens of the female of *C. jynteana*, mihi, I can at once distinguish the same sex of *C. chennellii* by the blue discal patch on the upperside of the forewing being much darker, in *C. jynteana* it is almost pure white in some lights; and on the underside the discal spots of the forewing are arranged in a regularly sinuous line and are six in number; in *C. jynteana* they are five only, and the anterior one is much out of line, being much nearer to the base of the wing, and all are placed angle to angle; moreover in *C. jynteana* the spots are elongated, while in *C. chennellii* they are quite round.

As far as I am aware, *C. chennellii* is confined to Shillong. It is a well-marked, easily distinguished species. It probably occurs throughout the warm months. I have specimens taken by Dr. E. R. Johnson and the Rev. Walter A. Hamilton in March, May and September.

* *Cyaniris lambi*, Distant. *Polyommatus (Cyaniris) lambi*, Distant, Ann. and Mag. of Nat. Hist., fifth series, vol. x, p. 245 (1882); *Cyaniris lambi*, id., Rhop. Malay, p. 211, n. 1, pl. xxi, fig. 22, male (1884). HABITAT: Province Wellesley, Peik, Sungai Ujong, Malacca, Nias Island. EXPANSE. Male and female, 1.2 to 1.4 inches. DESCRIPTION. "MALE. UPPERSIDE, both wings somewhat dark lavender blue. Forewing with the costal area and outer margin somewhat broadly fuscous, widest at base and apex. Hindwing, with the costal, posterior, and abdominal margins somewhat broadly fuscous. UNDERSIDE, both wings greyish-white. Forewing with the costal area and outer margins slightly infuscated, and with the following pale fuscous spots—a transverse linear one at the end of the cell, one between the third and fourth subcostal nervules, one above the upper discoidal nervule, three in linear series and nearer the outer margin, divided by the first median nervule; and three larger, and placed more inwardly, divided by the first median nervule and the lower discoidal and third median nervules, and a much larger, and placed more inwardly, divided by the first median nervule and the lower discoidal and third median nervules, and a much larger, and placed more inwardly, divided by the first median nervule and the lower discoidal and third median nervules. Hindwing with seven large, and prominent black discal spots—one, small, between bases of costal and subcostal nervules, followed by two which are more rounded and much larger, one in the cell at about the base of the first median nervule, near which is a smaller spot, contiguous, but outside the cell, and two situated on the abdominal margin—these are followed by a discal series of six pale fuscous spots, the first and innermost of which is situated between the subcostal nervules near their base, second and third on each side of the discoidal nervule, and fourth, fifth and sixth in irregular series, separated by the second and first median nervules, a transverse pale fuscous fascia at the end of the cell, and a much-waved pale fuscous submarginal fascia, between which and the outer margin are nine marginal spots, the upper four of which are pale fuscous, and the remaining five almost black. Body and legs more or less concolorous with the wings. FEMALE. UPPERSIDE, forewing fuscous, with a pale greyish white discal space much suffused with bluish, extending from near the base through the middle of the cell above to about the median nervule beneath, and outwardly reaching the middle of the submedian nervule. Hindwing pale fuscous, with a similar but smaller pale discal area as on the forewing, and with the posterior margin fuscous as in the male. UNDERSIDE, both wings as in the other sex.

"*C. lambi* is most nearly allied to the Ceylonese species *C. lavenderis*, Moore." (*Distant*, l. c. in Rhop. Malay.) I have seen two male specimens of this species from the Malay Peninsula.

683 *Cyaniris albidisca*, Moore.

C. albidisca, Moore, Proc. Zool. Soc. Lond., 1883, p. 524, pl. xlviii, fig. 7, male; *id.*, Swinhoe, l. c., 1885, p. 133, n. 65.

HABITAT: Nilgiri, Annamalai and Pulni Hills, S India; Poona, January (Swinhoe).

EXPANSE: ♂, 1'25 to 1'40; ♀, 1'3 to 1'5 inches.

DESCRIPTION: "Allied to *C. puspa*, Horsfield. MALE. UPPERSIDE, both wings with a prominent white discal patch. Forewing dark blue, with a narrow black marginal band decreasing to a point at posterior angle. Hindwing with a narrow black, slightly macular, marginal band. UNDERSIDE, both wings white, with similarly disposed but more slender and less prominent markings than those in *C. puspa*." (Moore, l. c.)

C. albidisca appears to be absolutely restricted to the hills of South India. Colonel Swinhoe records it from Poona, but his specimens which are now before me appear to me rather to be females of *C. puspa*. *C. albidisca* is by no means easy to recognise where it and *C. puspa* occur together, as in the Nilgiris, but in the male the white patches on the upperside of both wings are better defined, the outer black borders are narrower (as narrow as in the dry-season form of *C. puspa* in Sikkim), and the markings of the underside more attenuated. The female has the blue gloss on the upperside less brilliant than in that of *C. puspa*, and the white patches larger. The markings of the underside are more prominent than in the male. I possess *C. albidisca* from the Nilgiri and Pulni Hills only; Colonel Swinhoe possesses a male from the Annamalai Hills.

684 *Cyaniris cyaneus*, n. sp. (FRONTISPIECE, FIG. 129 ♂).

HABITAT: Nicobar Isles

EXPANSE ♂, 1'2; ♀, 1'1 to 1'3 inches

DESCRIPTION: MALE. Nearest to *C. jyntana*, de Nicéville. UPPERSIDE, both wings differ in the blue colour being of a much deeper, richer and more iridescent shade. Forewing with the outer black margin somewhat narrower. UNDERSIDE both wings purer white. Forewing with the discal series of spots placed very irregularly; anteriorly there is a spot, sometimes two, placed obliquely, below the costa, then three arranged in a straight line near the outer margin, then two placed nearer the base of the wing but arranged obliquely; the usual marginal markings and disco-cellular streak. Hindwing with the three subbasal spots, the one on the middle of the costal margin and the one on the middle of the abdominal margin very distinct and black, as are also all the submarginal spots, the usual irregular discal series pale fuscous, a marginal series of increasing round black spots, with an inner lunulated line. FEMALE. UPPERSIDE, both wings blackish. Forewing with the disc whitish, glossed with brilliant iridescent blue in some lights, a distinct disco-cellular spot. Hindwing, with the costa broadly blackish, the disc as in the forewing, a submarginal series of blackish oval spots, inwardly defined by a blue then a distinct lunulated blackish line. UNDERSIDE as in the male.

The late Mr. A. R. de Roepstorff obtained three males and two females of this species on Kamorta, one of the Nicobar Isles.

The figure shows both sides of the type male specimen 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: ♀, 1'3 inches.

A single specimen obtained by Mr. E. H. Man on Little Nicobar.

685 *Cyaniris placida*, de N.

C. placida, de Nicéville, Journ. A. S. B., vol. iii, pt. 2, p. 68, n. 3, pl. 1, fig. 8, male (1883); *id.*, Moore, Proc. Zool. Soc. Lond., 1883, p. 523, pl. xlviii, fig. 5, male, *id.*, Butler, Ann. and Mag. of Nat. Hist., 6th series, vol. xvi, p. 334, n. 69 (1885), *id.*, Distant, Rhop. Malay., p. 453, n. 4, pl. xlv, fig. 7, male (1886).

HABITAT: Sikkim; Khasi Hills, S. Asagar, Upper Assam; Myittha, Tenasserim Valley; Penang.

EXPANSE: ♂, 1'1 to 1'4 inches.

DESCRIPTION: "MALE. UPPERSIDE, *both wings* rather deep lavender-blue. *Forewing* with the costa very narrowly, and the outer margin more widely, but decreasingly, to the hinder angle black. *Hindwing* with the outer margin narrowly black, the inner edge of the black border lunulated, sometimes reduced to black spots between the nervules, and a black anteciliary line. **UNDERSIDE, both wings** white, slightly tinted with blue. *Forewing* with a fine disco-cellular streak defined outwardly with whitish; a discal series of five or six more or less irregularly shaped and placed spots; a submarginal lunulated line, marginal spots and anteciliary line. *Hindwing* with three subbasal black spots; a faint slender disco-cellular line; a discal very sinuous series of eight spots, the upper one on the costa and the lower on the abdominal margin deep black and the most distinct; marginal markings as on the forewing. *Cilia* white on both sides."

"Next to *C. pupa*, Horsfield, this species seems to be the commonest *Cyaniris* in Sikkim; I took it at various elevations in October, and Mr. Otto Moller has taken it in large numbers in the spring. The males are very constant, but I have not seen the female."

"*C. placida* is very close to, if not identical with, the *Lycæna cagaya* of Felder (Reise Novara, Lep., vol. ii, p. 278, n. 347, pl. xxxiv, figs. 11, 12, male; 13, female, 1865, from Luzon). In *C. cagaya* the marginal spots on the upperside of the hindwing in the male are more prominent than in *C. placida*." (de Nicéville, l. c.)

This species appears to be very constant in Sikkim. I have seen a few specimens of the male which have an irrorated discal white patch on the upperside of the forewing. Mr. Moller has Sikkim specimens taken in March, May, and October. I am still unable to identify the female. Its range appears to be from Sikkim eastwards to Upper Assam, reappearing in Upper Burma, where Mr. Doherty obtained it, and at Penang. There is also a male specimen in the Phayre Museum, Rangoon, from Syinbyudine, on the Tavoy-Siam frontier, taken in December. I append as a footnote Mr. Moore's description of this species.*

686. *Cyaniris jyntseana*, de N.

C. jyntseana, de Nicéville, Journ. A. S. B., vol. lii, pt. 2, p. 69, n. 5, pl. i, fig. 7, male; 7a, female (1883); *C. jyntseana*, Moore, Proc. Zool. Soc. Lond., 1883, p. 524, pl. xlviii, fig. 10, male; *C. jyntseana*, var. *Distant*, Rhop. Malay., p. 457, n. 3, pl. xlix, fig. 6, male (1886).

HABITAT: Sikkim, Shillong, Khasia and Jyntea Hills, Malacca?

EXpanse: ♂, 1.05 to 1.40; ♀ 1 to 1.25 inches.

DESCRIPTION: "MALE. UPPERSIDE, *both wings* somewhat 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 disco-cellular 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 slender disco-cellular streak, a discal series of five similar spots, of which the upper one is much out of line, being placed nearer to the base of the wing; a submarginal lunulated line and marginal spots very pale brown; the usual fine anteciliary black line. *Hindwing* with three subbasal black spots; a slender brown disco-cellular 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 disco-cellular black spot. *Hindwing* blackish, white in the middle, glossed with blue, and along the veins irrorated with black scales; a submarginal series of pale lunules. **UNDERSIDE, both wings** marked exactly as in the male."

"The males differ in size, in the absence in some specimens of the white patch on the disc of the forewing on the upperside, and also in the width of the marginal black border,

* "Allied to *C. lavendulævis*, Moore. MALE. UPPERSIDE, *both wings* of a darker but duller blue, and of a uniform tint throughout, *C. lavendulævis* having the discal areas slightly whitish; marginal black borders similar but slightly narrower. **UNDERSIDE, both wings** similarly marked, except that in the *forewing* there are but four transverse discal spots, which are also disposed in a more linear series." (Moore, l. c.) The discal spots are very irregular in number, specimens with five and six spots are common from Sikkim.

which sometimes disappears at the hinder angle. The underside is very constant, all the spots and markings being very small and distinct." (*de Nicéville*, l. c.)

Mr. Distant has seen a single male only from Malacca, and writes regarding it: "Although this specimen differs from the typical form of the species by the darker colouring of the forewing, and especially by the brownish hue of the hindwing, it was yet identified without doubt by Mr. Moore himself as representing his *C. jyntheana*. When one compares the figures of this species given by Messrs. Moore, de Nicéville, and myself, the difficulty of properly portraying the colour of these small *Lycanidæ* (either by hand-colouring or chromo lithography) becomes painfully apparent. This difficulty, however, is scarcely detrimental to determination, for the markings beneath, on which true identification depends, will be seen to be uniform and unmistakable."

"Both Mr. Moore and Mr. de Nicéville seem to have described this species under the same name at about the same time. Mr. Moore's description, however, has priority, as the portion of the 'Journal of the Asiatic Society of Bengal' in which Mr. de Nicéville's contribution appeared, though bearing date 1883, was really delayed in publication till 1884." (*Distant*, l. c.) With regard to this latter statement, the following are the facts of the matter. Mr. Moore's paper, in which he describes *C. jyntheana* and four other species also described by myself, was received 12th September, read 20th November, 1883, and issued 1st April, 1884. My paper was received and read 7th March, 1883, and issued 6th March, 1884. At every date, therefore, my paper has priority, though the essential one, that of publication, need only be considered, and even in this my paper has 25 days' advantage.

C. jyntheana in Sikkim is distinctly dimorphic; my figures of the male and female apply to the rains form. The dry season form of the male has the blue coloration of the upperside of both wings brighter, the discal white patches larger, and the outer black margin of the forewing narrower. The markings of the underside in the rains form being so very small, there is hardly any room for the dry-season form having them still smaller. The female of the dry-season form has the upperside of both wings more richly glossed with shining blue, the white patches larger, with a well-marked costal, apical, and outer black margin, and the black spot on the disco-cellular nervules very distinct on the forewing. The hindwing has the marginal lunular line and enclosed black spots more prominent. It is a fairly common species in Sikkim. Mr. Otto Möller possesses specimens taken in March, April, May, October, and November. Mr. Doherty is of opinion that the specimen of this species from Malacca described and figured by Mr. Distant is the *C. melana* of Doherty (see page 97 *antea*). *C. jyntheana* is probably confined to Sikkim and Assam. It is a very distinct and easily recognized species.

I append Mr. Moore's description of this species as a footnote.*

687. *Cyaniris sikkima*, Moore

C. sikkima, Moore, Proc. Zool. Soc. Lond., 1883, p. 524, pl. xlviii, fig. 11, male.

HABITAT: Sikkim.

EXPANSE: ♂, 12 inches

DESCRIPTION: "Allied to *C. jyntheana*, de Nicéville. Forewing shorter, hindwing also shorter and comparatively broader. UPPERSIDE, both wings with the marginal blackish band broader. Forewing with a slender blackish disco-cellular streak. UNDERSIDE, both wings similarly marked to *C. jyntheana*, the discal oblique spots being shorter, and the submarginal dentate lunules broader." (*Moore*, l. c.)

I have not been able to recognise this species with any certainty, though I think it is

* "Near *C. fusca*, Horsfield. MALE. Forewing comparatively shorter. UPPERSIDE with the blue less intense and slightly paler, the discal area slightly white-speckled, with a blackish outer marginal band of one-twelfth inch in width. Hindwing with a narrow macular marginal band. UNDERSIDE, both wings greyish white. Forewing with a slender indistinct dusky black disco-cellular streak, four transverse discal outwardly-oblique sort linear spots, a small costal spot, a submarginal and marginal row of lunular spots. Hindwing with three small black subbasal spots, an irregular discal transverse series of nine spots, an indistinct submarginal and marginal row of dentate lunular spots, the usual disco-cellular streak (*Moore*, l. c.) Mr. Moore has here described the rains form of this species.

probably the dark rains form of *C. jyntana*. From the plate it appears to be a rather larger species than the *C. jyntana* as figured by Mr. Moore, the outer black marginal border about one-third broader, the markings of the underside much the same. Mr. Moore recorded *C. jyntana* from the Khasia and Jynta Hills, so I think that when he described *C. sikkima* he considered it to be the Sikkim representative of that species, though I have specimens of *C. jyntana* from Sikkim named by Mr. Moore since his description of *C. sikkima* was published.

688. *Cyaniris caelestina*, Kollar.

Lycana caelestina, Kollar, Hügel's Kaschmir, vol. iv, pt. 2, p. 423, n. 10 (1848); *Cyaniris caelestina*, Moore, Proc. Zool. Soc. Lond., 1882, p. 244; *Lycana kollari*, Westwood, Gen. Diurn. Lep., vol. ii, p. 491, n. 69 (1852); *Cyaniris kollari*, Butler, Proc. Zool. Soc. Lond., 1886, p. 367, n. 45, idem, id., Ann. and Mag. of Nat. Hist., sixth series, vol. i, p. 143, n. 51 (1888); *Polyommatus kasmira*, Moore, Proc. Zool. Soc. Lond., 1865, p. 503, n. 100, pl. xxxi, fig. 1, male; idem, id., l. c., 1874, p. 271, n. 67.

HABITAT: Western Himalayas.

EXPANSE: ♂, 1'00 to 1'35; ♀, 1'05 to 1'35 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings purplish lavender-blue, exterior margins blackish. UNDERSIDE, both wings cream-white. Forewing with an indistinct disco-cellular streak, beyond which, one-third from the apex, is a single white-encircled black spot; a transverse discal series of four white-encircled black spots; a marginal double row of indistinct blackish lunules. Hindwing with twelve basally-disposed, white-encircled, black spots; a marginal row of blackish spots, bordered by a submarginal series of indistinct blackish lunules. FEMALE. UPPERSIDE, both wings lighter blue. Forewing with the costa and exterior margin, hindwing with the anterior margin broadly dull black, the latter with a marginal row of blackish spots, bordered by a submarginal series of lunules. UNDERSIDE, both wings as in the male. Cilia white." (Moore, l. c. in Proc. Zool. Soc. Lond., 1865.)

LARVA when full grown '6 of an inch in length; of the usual lycænid shape, coloration pale 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 shallowly constricted; no mouth-like opening on the eleventh or erectile organs on the twelfth segments. Feeds on *Primæpia utilis*, native name Bhenkal. 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.

I am indebted to Mr. P. W. Mackinnon for living examples of the larvæ and pupæ of this species collected at Masuri in the Western Himalayas. He informs me after careful watching that ants do not attend the larvæ.

Both Eversmann (1843) and Kollar (1848) described species of blues under the name of *Lycana caelestina*; hence considerable confusion has arisen. I think, however, that instead of following Westwood's action in renaming Kollar's species *kollari*, both names may be retained, as Eversmann's species, as far as I can ascertain, is a true *Lycana*, while Kollar's is a *Cyaniris*. In 1882 Mr. Moore put straight the synonymy of the two species of this group occurring in the Western Himalayas. This Mr. Butler has of late upset. In Proc. Zool. Soc. Lond., 1886, p. 367, he gives *kollari* of Westwood, with *caelestina*, of Kollar, as a synonym, remarking that "Kollar's name having been already used by Eversmann cannot possibly be admitted." In the Ann. and Mag. of Nat. Hist., 1888, vol. i, p. 148, he revives *kasmira* of Moore, which the latter gentleman said, in 1882, is a synonym of *caelestina*, Kollar, and gives *kollari* of Westwood without any synonymy as a distinct species. I can recognise two species of this group only, but Butler appears to recognise three, *kasmira*, *kollari*, and *huesgeli*. He notes, however, that the two former may possibly be races, or even alternating generations, of

one species. He also states that *kasmira* is intermediate in size between *hugelii* and *kollari*.

There is no difficulty whatever in recognising *C. caelestina*. Both sexes are considerably smaller than *C. hugelii*, and the male has the outer black border on the upperside of the forewing broader, and considerably dilated at the apex. It is an extremely common species, occurring throughout the outer ranges of the Western Himalayas, at any rate from Kashmir and Murree to Naini Tal. Mr. Doherty records it from Bagheswar, Kumaon, as low as 3,500 feet, and Garbyan, also in Kumaon, as high as 12,000 feet.

689. *Cyaniris dilectus*, Moore.

Polyommatus dilectus, Moore, Proc. Zool. Soc. Lond., 1879, p. 139; *Cyaniris dilectus*, de Nicéville, Journ. A. S. B., vol. lii, pt. 2, p. 63, n. 4, pl. i, fig. 5, male (1883).

HABITAT: Simla; Kumaon; Nepal; Sikkim; North Cachar; Sibsagar, Upper Assam; Upper Burma.

EXPANSE: ♂, 1'00 to 1'40; ♀, 85 to 1'35 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings pale blue, with a very fine black anteciliary line, which towards the apex of the forewing in some specimens becomes slightly diffused inwardly. Forewing with a patch of irrorated white scales on the disc below the cell and between the median nervules, very prominent in some specimens, obsolete in others (as in the Sikkim specimen figured). Hindwing with a similar patch, but placed between the second median nervule and the costal nervure, and almost reaching the apex. UNDERSIDE, both wings as in *C. alboceruleus*, Moore, but with a more or less prominent submarginal series of dusky lunules. FEMALE. UPPERSIDE, forewing almost as in *C. alboceruleus*, but the outer margin less broadly black, the basal area glossed with very bright metallic blue, not unmetallic pale lavender-blue as in the latter species, the disco-cellular streak more prominent. Hindwing with the submarginal series of round dusky prominent spots inwardly defined by bluish lunules. UNDERSIDE, both wings as in the male."

"Both sexes of this species were taken by me in the neighbourhood of Simla, most frequently on Tawa Devi, also at different elevations in Sikkim in October. Mr Otto Moller has also taken males in large numbers in Sikkim at low elevations in the spring." (*de Nicéville*, l. c.)

In Sikkim this species is slightly dimorphic. The rains form has barely a trace, sometimes none whatever, of the discal white patch, which in the dry-season form is very prominent on the upperside of the forewing. On the hindwing this patch is also much larger in the dry-season form. The markings of the underside of both wings are also more prominent in the rains form. This species is one of the most distinct in the genus and very easily recognised. I have, however, entirely failed to distinguish its female from Sikkim, though I am sure that the Simla females above described are correctly identified. In Simla but few species of the genus occur, so it is comparatively easy to pair the sexes; this is not the case in Sikkim. Mr. Doherty records it from Khati, N. W. Kumaon, 7,000 feet, Toli and Garjiaghat, E. Kumaon, 2000 to 3000 feet, scarce. His specimens were very small. I append Mr. Moore's original description of it as a foot note.*

690. *Cyaniris hugelii*, Moore.

C. hugelii, Moore, Proc. Zool. Soc. Lond., 1882, p. 244; *Lycerus argiolus*, Kollar (nec Linnæus), Hügel's Kasmir, vol. iv, pt. 2, p. 423, n. 12 (1848).

HABITAT: Western Himalayas.

EXPANSE: ♂, ♀, 1'42 to 1'70 inches.

DESCRIPTION: "Differs from *C. caelestina*, Kollar, in its larger size. MALE. UPPERSIDE, both wings similar in colour, but of a darker blue tint. Forewing with a more slender blackish

* "MALE. UPPERSIDE, both wings pale lilac-blue with a very slender marginal black line; discal area of forewing and apical area of hindwing slightly whitish. Cilia white. UNDERSIDE, both wings white, with small slender indistinct blackish markings disposed as in *P. (=C.) pusha*, Horsfield. FEMALE similar to *P. (=C.) pusha*. UPPERSIDE, both wings paler, the exterior dusky-brown band on the forewing of less breadth, and the blue extending to posterior margin. Hindwing bluer, less dusky anteriorly, with a marginal row of indistinct dusky spots." (*Moore*, l. c.)

marginal band *Hindwing* with a clearly-defined marginal line **UNDERSIDE**, *both wings* with similar but more distinct markings than in *C. caelestina*, 'the discal series of spots on the *Hindwing* more linear in shape, the marginal spots and submarginal lunular band much more prominent **FEMALE** more dusky throughout than in *C. caelestina*. **UPPERSIDE**, *forewing* with broader blackish marginal borders and disco cellular lunule *Hindwing* with the blackish costal border and marginal spots broader, the latter with well defined inner pale dentate marks, the inner area beyond and the veins also dusky black" **UNDERSIDE**, *both wings* as in the male.

"This species has hitherto been considered to be Kollar's *L. caelestina*; but both his description and measurements undoubtedly agree with *C. kasuana*" (Moore, l. c.)

This species has exactly the same range as *C. caelestina*, Kollar, and is equally common. Mr. Doherty records it from all Kumaon, from as low as 3,500 feet at Bagheswar, and as high as 12,000 feet at Garbyan. It may at once be known by its large size, and the marginal black border of the forewing of the male on the upperside being very narrow throughout.

691 *Cyaniris singalensis*, Felder

Lycena singalensis, Felder, Verh. zool. bot. Gesellsch. Wien, vol. xviii, p. 282 (1868); *Polyommatus singalensis*, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xx, p. 342 (1877); *Cyaniris singalensis*, id., Lep. Cey., vol. i, p. 76, pl. xxxv, figs. 1, 1a, male (1881)

HABITAT Nilgiris, Ceylon

EXPANSE. ♂, 1.2 to 1.5; ♀, 1.2 inches.

DESCRIPTION: "A geographical form of *L. [= ?] argiolus*, Linnaeus. Nearest to *L. kollari*, Westwood, from the Himalayas, but **UPPERSIDE** with the streak before the cilia blackish fuscous. **UNDERSIDE** with the border spots nearer the margin. *Forewing* with the external virgulæ broader. *Hindwing* with the dots larger" (Felder, l. c.)

"**MALE**. **UPPERSIDE**, *both wings* light blue; cilia white, with blackish inner border. **UNDERSIDE**, *both wings* white. *Forewing* with a dusky brown streak at the end of the cell, a submarginal series of five slightly recurved dentate spots, a spot near the costa, and a marginal row of small spots enclosed by an inner row of dentate lunules. *Hindwing* with three subbasal spots, a spot on the costa beyond the middle, a spot within and a streak at the end of the cell, a curved discal series of five irregular shaped spots, a curved streak above the anal angle, and marginal row of small spots enclosed by dentate lunules. *Tibiae* and *tarsi* black streaked above"

"Near to *P. kasuana*" [= *C. caelestina*, Kollar] (Moore, l. c. in Ann. and Mag. of Nat. Hist.)

"**FEMALE**. **UPPERSIDE**, *both wings* with the anterior and exterior borders pale brown. *Hindwing* with a row of pale blue sinuous marks on the border." Otherwise as in the male. (Moore, l. c. in Lep. Cey.)

Felder describes this species with reference to *L. kollari*, = *C. caelestina*; it is really nearer to *C. huegelii*, Moore, as the black border to the forewing on the upperside in the male does not expand towards the apex as in that species. It may readily be known from *C. huegelii*, however, in both sexes by the submarginal series of lunules on the underside of the forewing being of equal size throughout and not prominent, while in *C. huegelii* the three posterior of these lunules rapidly increase in size, often almost forming quadrate spots, and are very conspicuous. It may be known from *C. lanka*, Moore, the only other species of the group occurring in Ceylon, by the much lighter shade of blue of the upperside in the male and by the markings of the underside, which also are quite different. It appears to be a much rarer species in Ceylon than *C. lanka*, and according to Wade occurs at Kandy. The type specimen was from Kallupahane. Messrs. Mackwood and Fairlie have sent me specimens ticketed Masdeliya, Dimbula, and Naturata. I possess nine male specimens of a *Cyaniris* from the Nilgiri Hills sent me by Mr. G. F. Hampson as *C. limbatus*, Moore, but as they are "light blue" on the upperside instead of "lilac-blue," which latter colour I take to be darker than light blue, I place them with *C. singalensis*, rather than with *C. limbatus*. As far as I can see, this difference

in the shade of the blue on the upperside of the male is the chief character by which the two species can be distinguished, though the spots on the underside of the forewing are rather more irregularly placed in *C. limbatus* than they are in *C. singalensis*,

692. *Cyaniris lanka*, Moore

Polyommatus lanka, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xx, p. 342 (1877); *Cyaniris lanka*, id., Lep. Cey., vol. 1, p. 76, pl. xxxv, figs 2, 2a, male (1881)

HABITAT: Ceylon.

EXPANSE: ♂, 1.3 to 1.5; ♀, 1.2 inches

DESCRIPTION: "MALE. UPPERSIDE, both wings very dark blue. Cilia white, with blackish inner marginal border. UNDERSIDE, both wings white. Forewing with a dusky brown streak at the end of the cell, a submarginal transverse linear row of four [or five] linear spots, a spot near the costa, and a marginal row of dentate spots. Hindwing with two equidistant brown spots on the anterior border, a spot within and a streak at the end of the cell, a curved discal series of five spots, two lunate marks on the abdominal border, and an outer marginal row of dentate spots. Tibiæ and tarsi with black bands"

"Near to *P. kasmia* [*-C. celestina*, Kollar]. (Moore, l. c. in Ann. and Mag. of Nat. Hist.)

FEMALE. UPPERSIDE, forewing glossy bluish-purple, outwardly paler; the costa somewhat broadly, the outer border more broadly and decreasingly black. Hindwing rather paler than in the forewing, the costa bounded posteriorly by the costal nervure and its second branch black, a series of oval black spots between the veins on the margin, the veins outwardly black, an anteciliary black line. Cilia whitish. UNDERSIDE, both wings as in the male.

The nearest ally to this species is *C. limbatus*, Moore, especially specimens of that species from Shillong. It may, however, be known by its very dark lavender-blue colour on the upperside of the male, and by the discal spots on the underside of the forewing in both sexes being arranged almost in a line and divided only by the veins; in every other Indian species they are arranged more or less angle to angle. It appears to be the commonest species of the genus in Ceylon. Mr. Hutchison records it from the "Central Province, hills, 3,000 to 6,000 feet, in forest land, at all times. Gregarious. Settles by hundreds in damp spots on the roads." Wade records it from Kandy, and Messrs. Mackwood and Fairlie have sent me specimens from Lindula, Panduloya, East Matall, Masdehiya, Lagella, and Kakgalla.

693. *Cyaniris limbatus*, Moore.

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

HABITAT: Khasi Hills; Patnath Hill, Behar, Bengal; Nilgiris; Travancore; Ceylon.

EXPANSE: ♂, 1.1 to 1.5; ♀, 1.4 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings lilac blue. Cilia white, with an inner black line. Forewing with a very narrow exterior marginal black band. Hindwing with a very narrow marginal black line and a few minute speckles at apex. UNDERSIDE, both wings white, with slender dusky markings, as in *P. [=C.] puspa*, Horsfield"

"Differs from *F. [=C.] dilectus*, Moore, in its more pointed forewing, darker colour, and more prominent marginal line." (Moore, l. c.)

FEMALE. UPPERSIDE, forewing with the costa, apex and outer margin broadly black, the rest of the wing iridescent bluish-purple, paler outwardly; a somewhat indistinct disco-cellular spot. Hindwing blue, the veins costa and outer margin broadly black, the latter bearing series of blue well formed lunules. UNDERSIDE, both wings as in the male. Described from a specimen from Shillong.

There is no difficulty whatever in distinguishing this species from *C. dilectus*, the latter being of a much lighter blue colour on the upperside, and almost always having irrorated patches of white on both wings. It is very much nearer to *C. lanka*, Moore, the latter, however, in the male being still darker on the upperside, the narrow black border still narrower, and the discal series of spots on the underside of the forewing arranged almost in a connected line, not well-separated and irregularly-placed as in *C. limbatus*. It differs from *C. singalensis*,

Felder, only in the colour of the upperside in the male being of a deeper shade; the markings of the underside in that species are perhaps placed rather more in echelon. Specimens from Shillong, Assam, are rather larger than those from the Nilgiris, and the spots on the underside are a trifle more prominent, but they do not otherwise differ. I possess twenty-two specimens of this species from Ceylon, whence it has not previously been recorded.

Dr. Felder described the genus *Lycanopsis*, placing in it his *anaga*, which is a synonym of *haraldus*, Fabricius. Mr. Distant suppresses the genus *Lycanopsis*, stating that he "can find no sufficient character to separate" it "from *Cyaniris*." Felder himself appended to his diagnosis of the typical species the remark 'In the pattern of the underside reminds one also of the group of *Lycena* [= *Cyaniris*] *argiolus*, Linnaeus,' and as Mr. Moore gives this species as the type of *Cyaniris*, there seems little doubt as to common identity." Mr. Distant may be right in suppressing this genus, but, judging from the figure of the male of the type species, I should not be surprised to find that it is structurally distinct from the species of the genus *Cyaniris*; unfortunately I have no specimen to examine. It is much larger than most species of *Cyaniris*; the upperside of the male has the outer half (nearly) of the forewing black, the rest of the wing bright cerulean-blue, the apex and outer margin of the hindwing only black, and the rest blue. The underside is much more remarkable, and differs from every species of known *Cyaniris* in having marginal markings only on both wings, the disc and base being immaculate. According to Mr. Distant the female is equally remarkable. I append Mr. Distant's description of *C. haraldus*,* and Dr. Felder's definition of the genus *Lycanopsis*.†

Genus 111.—ZIZERA, Moore. (PLATE XXVI).

Zizera, Moore, Lep. Cey., vol. i, p. 76 (1881); id., Distant, Rhop. Malay, p. 212 (1884).

"FOREWING, small, elongated, triangular; *costal nerve* extending to half length of the wing, *first subcostal nerve* emitted at one-half length before the end of the cell, and slightly touching the costal nerve near its end, *second subcostal* at one-third, *third subcostal* at one-sixth, *fourth subcostal* from half of third and terminating before the apex, *fifth subcostal* from the end of the cell; *discoidal cell* long, broadest in the middle; *middle* and *lower disco-cellular nerves* slightly oblique in the middle; *lower discoidal nerve* from the middle; *second median nerve* emitted at one-sixth, *first median* at one-half before the end of the cell; *submedian nerve* slightly recurved. HINDWING, small, short, oval; *costal nerve*

* *Cyaniris haraldus* *Papilio haraldus*, Fabricius, Mant. Ins., vol. ii, p. 82, n. 744 (1797); *Hesperia haraldus*, id., Ent. Syst., vol. iii, pt. 1, p. 317, n. 201 (1793). *Danis haraldus*, Butler, Cat. Fab. Lep. B. M., p. 161, n. 1 (1869); *Lycanopsis haraldus* id., Trans. Linn. Soc. Lond., Zoology, second series, vol. i, p. 546, n. 2 (1877); *Cyaniris haraldus*, Distant, Rhop. Malay., p. 211, n. 3, pl. xxi, fig. 6, male (1884). *Polyommatus haraldus*, Godart, Enc. Méth., vol. ix, p. 677, n. 188 (1893); *Lycanopsis anaga*, Felder, Reise Novara, Lep., vol. ii, p. 357, n. 303, pl. xxxii, figs. 10, 11, male (1865). HABITAT: Malacca, Sumatra. EXPANSE: Male and female, 1.25 to 1.60 inches. DESCRIPTION. "MALE. UPPERSIDE, both wings bright cerulean blue. Forewing with the costal margin narrowly and the apex and outer margin broadly blackish. Hindwing with the costal area beyond the base creamy-white, the posterior margin blackish, and the abdominal margin creamy-white. UNDERSIDE, both wings creamy-white. Forewing with the following blackish markings:—costal margin narrowly, and an outer series of somewhat cruciform spots placed between the nerves, bounded on each side by a marginal and sub-marginal line, the last preceded by a disjointed series of linear streaks. Hindwing similarly marked as the forewing, but with the series of spots larger and not cruciform. FEMALE. UPPERSIDE, both wings blackish, with a broad white fascia crossing the disc, commencing near the third median nerve of the forewing, and continued across the hindwing to about the middle of the abdominal margin. UNDERSIDE, both wings as in the male."

"This species varies greatly in size, and the female is on the upperside of a most distinct and divergent character, closely resembling the general markings found in the genus *Catocala*, Hubner. The female also appears to be at least difficult of capture, as it is rare in collectors, and although I possess a specimen (unlocalised) I have never received it from the Malay Peninsula." (Distant, l. c.)

† Genus *Lycanopsis*, Felder, Reise Novara, Lep., vol. ii, p. 357 (1865). "Eyes tolerably large, naked. Palpi adpressed-squamose, smooth, directed upwards, with the second joint (in the male) subincrassate, not reaching the forehead, with the terminal joint scarcely extending beyond the fourth part of the second, but strong, somewhat nodding, formed as in some *Lycena*. Antennæ slender, hardly (or little) extending beyond the middle of the costa, annulated with white below, the club suboval, rather short, excavated below. WINGS very entire, with the veins as in *Hypochrysope*, Felder, but with the median vein closer, with its first branch more distant from the second in the HINDWING."

"The veins and antennæ shew some resemblance to several groups of *Lycena*, while the structure of the head and palpi shew still nearer connection with *Hypochrysope*, from which genus, however, it may easily be distinguished, chiefly by its shorter and differently clubbed antennæ." (Felder, l. c.)

arched at the base, extending to the apex; *first subcostal nervule* at one-fourth before the end of the cell; *upper disco-cellular nervule* shorter, [outwardly] oblique, *lower disco-cellular erect*; *discoidal nervule* from their middle; *discoidal cell* short, broad; *third and second median nervules* from the end of the cell; *submedian nervule* straight; *internal nervure* recurved at base; no tail. BODY, slender, *abdomen* long; *palpi* very long, portect, second joint projecting more than half its length beyond the front of the head, laxly pilose beneath, third joint long, slender, half the length of the second, naked; *legs* slender; *antennæ* with a stout broad spatular club. Type, *Z. alsus*, "Wiener Verzeichniss, the "Bedford Blue" of England. (Moore, l. c.)

I should describe the veins of the forewing as follows: First subcostal nervule strongly bowed upwards a little beyond its origin and touching the costal nervure, the latter at the point of junction is slightly bowed downwards, second subcostal given off midway between the bases of the first subcostal and upper disco-cellular, third subcostal given off at less than half the distance between the apex of the cell and of the wing, reaching the costa long before the apex of the wing, subcostal nervule terminating at the apex; middle disco-cellular nervule slightly outwardly oblique, concave; lower disco-cellular as long as the middle, concave, slightly inwardly oblique.

LARVA green, onisciform, the upper portion of the body finely shagreened or covered with short tubercles emitting colourless hairs, no prominent markings. PUPA, pale green, of the usual lycaenid shape, finely hairy.

The genus *Zizera* hardly differs in venation from the genera *Lycena*, *Chilades*, and *Cyaniris* which immediately precede it, but I find that in *Zizera* the second median nervule of the hindwing is given off at instead of before the lower end of the cell, as in those genera. The species of the genus have, however, a very distinct *facies* of their own. Some of them are the smallest known species of butterflies. Mr Trimen states that he has a specimen of his "*Lycena barbara*," taken at Robertson in South Africa, which expands only five lines, or less than half an inch. In India the smallest butterfly I have seen is a specimen of *Z. gaska*, Trimen, which is only 6 of an inch in expanse. The genus is widely distributed, occurring almost throughout Europe, in North and South Africa and throughout Asia, and probably in other regions, but its exact distribution cannot be stated, as so very few entomologists use this name for this group of butterflies, usually calling them *Lycena*. In India the genus occurs almost everywhere. In the Himalayas one species has been recorded from an altitude of 9,000 feet, but it is in the plains that it seems to flourish best, two out of the four species admitted by me as distinct actually swarming at times. Wherever there is a little low vegetation, there almost certainly will one species or another, often more than one, be found; even in such desert regions as the neighbourhood of Aden and Karachi they appear to flourish exceedingly and to be very numerous in individuals. In India I can recognise but four species, though modern authors have recorded fully a dozen. If my readers will carefully study (as I have done) the wide distribution of these species, and note how continually the same locality is given for the parent species and its variety or varieties in each case, and also bear in mind the great effect the wet and dry-seasons have on these butterflies, I think that they can but arrive at the same conclusion as I have done. The largest species is *Z. maha*, Kollar, the male of which can at once be distinguished by its silvery blue colour on the upperside, with a more or less broad outer black border; the female is very variable, some specimens being entirely black above, others nearly as blue as the darkest-marked males. The other three species are all lilac-blue on the upperside of the male, the females more or less black, with sometimes a good deal, sometimes very little, of blue towards the base of the wings. *Z. hymon*, Hubner, agrees with *Z. maha* in the markings of the underside, having a spot near the middle of the discoidal cell of the forewing, which spot is absent in the other two species. *Z. gaska*, Trimen, is easily distinguished by having a spot on the costa of the forewing on the underside internal to the spot at the end of the discoidal cell which is not present in either of the other species; and *Z. otis*, Fabricius, agrees with *Z. gaska* in having no spot

in the middle of the cell of the forewing, but differs from it in lacking the two spots (one on either side of the spot closing the discoidal cell) on the costa. As mentioned above, much uncertainty exists as to the extent of the species of this genus, and as my opinion will probably be called in question, I shall in the following pages give the original descriptions as far as possible of all the species described from India, and in the habitat headings and in the key to the species give only the localities for each that have been recorded by others. Climate, as has already been said, has a great effect on these butterflies, but as these occur everywhere in India, and the different climatic belts are not sharply defined, I cannot even divide them, as I otherwise should attempt to do, into local races. Seasonal variation too is very marked in *Z. maha*, the specimens which occur in the rains being very much darker than those which are about in the dry-season. The markings of the underside of all the species vary considerably according to the season at which they emerge from the pupa, this being especially remarkable in *Z. maha* and *Z. otis*; in these the markings are almost entirely obliterated in the cold dry-weather forms. All the Indian species of *Zizera* are weak-flying butterflies, which abound where grass, coarse herbage, and weeds grow; they seldom rise much above the ground, and never settle on high bushes and trees, as so many *Lycanida* do.

Key to the Indian species of *Zizera*.

- A. Spot in cell of forewing on underside internal to disco-cellular spot.
- a. Of large size, male above silvery-blue.
 - 694. *Z. MAHA*, Western Himalayas, plains of N.-W. India, Central India.
 - 695. *Z. CHANDALA*, Kashmir, Western Himalayas, N.-W. and Central India.
 - 696. *Z. DILUTA*, Bengal, Western Himalayas, Punjab, Cachar.
 - 697. *Z. SQUALIDA*, Cachar, North-West India.
 - 698. *Z. OSSA*, Bombay, Deccan.
 - b. Of small size, male above violet-blue.
 - 699. *Z. LYSIMON*, South Europe, Africa, Asia, parts of Australasia.
 - 700. *Z. KARSANDRA*, Arabia, throughout India, Burma, Ceylon, and the Nicobars.
 - 701. *Z. MORA*, Karachi.
- B. No spot in cell of forewing on underside internal to disco-cellular spot.
- a. Two spots on costa of forewing on underside, one on either side of disco-cellular spot.
 - 702. *Z. GAIKA*, South Africa, Arabia, India, Ceylon, Malayan.
 - b. No spots whatever on costa of forewing on underside.
 - 703. *Z. OTIS*, Burma, Malay Peninsula, Java, Sumatra, N. Celebes, China.
 - 704. *Z. SANGRA*, India, Andaman and Nicobar Isles, Burma, Formosa.
 - 705. *Z. INDICA*, N.-W. Provinces, Central India, Deccan, N.-W. Himalayas, Formosa.
 - 706. *Z. DEKRETA*, Mhow.

694. *Zizera maha*, Kollar. (PLATE XXVI, FIG. 172 ♂).

Lycana maha, Kollar, Hügel's Kaschmir, vol. iv, pt. 2, p. 422, n. 9 (1848); *Zizera maha*, Moore, Proc. Zool. Soc. Lond., 1882, p. 245; id., Swinhoe, l. c., 1886, p. 426, n. 42; id., Doherty, Journ. A. S. B., vol. II, pt. 2, p. 133, n. 177 (1886); id., Butler, Ann. and Mag. of Nat. Hist., sixth series, vol. I, p. 148, n. 52 (1886).

HABITAT: Masui (Kollar); Kangra district, N.-W. Himalayas (Moore); Mhow, April, May, and June; Manpore, June (Swinhoe); Kumaon generally from the plains up to 9,000 feet (Doherty); Campbellpore, 17th April; Hassan Abdal, 9th May, 1886 (Butler).

EXpanse: ♂, ♀, '95 to 1'30 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings silvery-bluish, with the entire border fuscous. UNDERSIDE, both wings cinereous, with a series of black dots larger in the forewing, smaller in the hindwing, all the dots circled with whitish. FEMALE. UPPERSIDE, both wings fuscous, ringed with bluish." (Kollar, l. c.)

Mr. Butler notes: *Z. maha* "is easy to recognize, the male above being of a pale, silvery-lilac or azure tint, changing in certain positions to grey and silvery white; the extreme outer margin black, the forewing with a dusky submarginal stripe; the female is steel-blue above, with the costal borders and the outer border of the forewing broadly black; the hindwing usually with a broad whitish outer border, on which are some black marginal spots; the pattern below corresponds nearly with that of *Z. diluta*, Felder, excepting that the hindwing is

browner, and the markings on that wing are smaller and less distinct. We [the British Museum] have two dozen specimens in our collection, varying only in the tint of the upperside in the males, which in some examples is silvery blue, in other silvery lilac."

The type specimens of this species are said by Kollar to have been obtained at Masuri in the Western Himalayas. At Simla, which is about 70 miles as the crow flies from Masuri, I know this species well in life. It presents two distinct seasonal forms. In the one which occurs in the dry-season, the male on the upperside of the forewing has an anteciliary fine black line and traces of a submarginal dusky fascia; the female has the basal two-thirds of the forewing on the upperside blue, the outer third black; the markings of the underside not prominent. This form is the *ossa* of Swinhoe. The wet-season form in Simla has the black anteciliary line and the submarginal fascia on the upperside of the forewing in the male conjoined, giving a somewhat broad outer dark margin; the female is black on the upperside, sometimes with a few scattered blue scales on the basal area; the markings of the underside are prominent. This form is the *chandala* of Moore. It is difficult to say from the description by Kollar to which form his *maha* applies. In Sikkim *Z. maha*, Kollar, is a most variable species. The palest form of the male has the upperside pale silvery blue, with a very narrow outer black margin; the next darkest form bears an indistinct submarginal black fascia on the forewing; the next darkest has this fascia joined to the outer black margin; the darkest of all has the outer third of the forewing and all but the disc and base of the hindwing black. The females are even more variable; the palest being less dark than the darkest male in the forewing, the hindwing with a marginal series of black spots; the next darkest has the disc and base only of the forewing blue, the hindwing throughout thickly powdered with black scales; the next darkest has the base of the forewing alone shot with blue; the darkest form of all has the upperside entirely black. The pale forms occur in the dry-season, the dark ones in the rains. The colour of the ground on the underside varies from pale whitish-brown to darkish brown, and there is much diversity also in the prominence of all the spots. In Sikkim, it occurs almost throughout the year. In Calcutta, where I know *Z. maha* equally well, the same seasonal dimorphism occurs, and, from the large series of specimens I possess from all parts of India, I had that this phenomenon occurs wherever the two seasons, wet and dry, are strongly marked.

Taken in the broad sense in which I view it, *Z. maha* occurs almost throughout India, but neither in Ceylon, the Andamans and Nicobars, nor in Burma. Its range is apparently bounded on the west by the Indus, Major Yerbury having obtained it at Campbellpore; in the Himalayas it occurs on the outer ranges only; to the east it extends to Assam; and is found throughout peninsular and continental India. There is very little doubt in my mind that the "*Lycæna*" *argia* of Ménétriés (of which *Z. japonica*, Murray, and *Z. alope*, Fenton, are synonyms), which occurs in China, Japan, and Corea* should be added to the synonymy of this species. Mr. Leech collected over 200 specimens in every locality he visited in those countries, and found the species quite as variable there as it is in India, indeed even more so, as he says that the spot in the discoidal cell of the forewing on the underside is sometimes absent, a feature I have not observed in Indian examples. I am not aware of any form of *Z. maha* occurring in Central Asia, but it is probable that it is found there. I give in full below the descriptions and localities of *Z. chandala*, *Z. diluta*, *Z. squalida*, and *Z. ossa*, and the remarks on them recorded by different authors who have studied these species.

LARVA when full-grown about $\frac{1}{4}$ of an inch in length, green, onisciform, with a dorsal line of a darker green than the ground, the entire upper surface finely shagreened, the minute whitish tubercles giving out very fine short colourless hairs. No distinctive markings whatever. Head smooth, black, shining, as usual. Feeds in Calcutta on *Oxalis corniculata*, *Linaeus*. **PUPA** very pale green, attached to the under side of the leaves of the food-plant; finely hairy, without markings, of the usual lycaenid shape.

The figure shows both sides of a male specimen from Simla in the collection of the Indian Museum, Calcutta.

* J. H. Leech, Proc. Zool. Soc. Lond., 1887, p. 415, n. 56.

695. *Zizera chandala*, Moore.

Polyommatus chandala, Moore, Proc. Zool. Soc. Lond., 1865, p. 504, n. 104, pl. xxxi, fig. 5 male*; idem, id., l. c., 1874, p. 272, n. 68; *Zizera chandala*, Swinhoe, l. c., 1886, p. 426, n. 43.

HABITAT: Lower Himalayas, and plains of N.-W. India; Kashmir (Moore); Oudh, Punjab, Lower Himalayas (Lang); Mhow, November, February, April, and May (Swinhoe).

EXPANSE: ♂, 1'0 inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings dull silvery-blue, with purplish-brown exterior margins. UNDERSIDE, both wings pale grey. Forewing with a spot within the discoidal cell, a disco-cellular streak, a transverse discal linear series of six [sometimes seven] clear-white-encircled black spots, between which and exterior margin is a series of indistinct pale-bordered lunules. Hindwing with basal and discal series of pale brown, whitish-encircled spots, and a marginal row of indistinct pale-bordered lunules. Cilia purplish-brown." (Moore, l. c. in Proc. Zool. Soc. Lond., 1865.)

"This is a generally-distributed species, affecting both the plains and the lower Himalayan valleys, occasionally ascending the mountain slopes to 6,000 feet altitude. I have taken it in the later autumn months in Oudh, the Punjab, and lower Himalayas." (Note by Colonel A. M. Lang, R.E.)

"Mr. Moore, in Proc. Zool. Soc. Lond., 1882, p. 245, has put this species as a synonym of *Z. maha*, Kollar. This I think is a mistake. He had, if I recollect rightly, only two examples, both males, in his collection. They were quite common at Mhow; and I found no difficulty in recognizing them; they are much paler blue than *Z. maha*. The females are the same colour as the males, instead of brown like *Z. maha*, and the underside in both sexes has very faint spots on the hindwing, each spot having a whitish ring round it." (Swinhoe, l. c.)

I am of opinion that Mr. Moore was quite right in 1882 in sinking his *Z. chandala* under *maha*; Mr. Butler in 1888 also sinks *chandala* under *maha*. It is almost impossible for any one now to say exactly what form Kollar described as *maha*; not that this matters, as I have shown how infinitely variable this species is. Mr. Elwes very justly remarks† that he is "quite unable to say what are the limits and distinctive characters of these various species [i.e., *maha*, *chandala*, and *diluta*], if they are distinct."

696. *Zizera diluta*, Felder.

Lycena diluta, Felder, Reise Novara, Lep., vol. ii, p. 280, n. 353, pl. xxxv, figs. 12, 13, male (1865); *Zizera diluta*, Rothney, Ent. Month. Mag., vol. xix, p. 35 (1882); id., de Nicéville, Journ. A. S. B., vol. liv, pt. 2, p. 46, n. 63 (1885); id., Butler, Proc. Zool. Soc. Lond., 1886, p. 367, n. 46, idem, id., Ann. and Mag. of Nat. Hist., sixth series, vol. i, p. 149, n. 54 (1888); id., Wood-Mason and de Nicéville, Journ. A. S. B., vol. lv, pt. 2, p. 365, n. 113 (1886).

HABITAT: Bengal (Felder); Barrackpore (Rothney); Calcutta (de Nicéville); Campbellpore, June, July, October; Murree, August, September; Akhor, 22nd April; Campbellpore, 4th and 5th May; Hassan Abdal, 27th June, 18th July; Thundiani, 21st and 29th August; Nandar, 25th September, 1886 (Butler); Silcuri, Cachar (Wood-Mason and de Nicéville).

EXPANSE: ♂, 1'1 inches (from Felder's figures).

DESCRIPTION: "MALE. UPPERSIDE, both wings dilute glaucous, with the base and the disc glittering cyaneous blue, with a fuscous streak before the cilia. Forewing with the external border powdered with fuscous. Hindwing with the anterior margin powdered with fuscous and with fuscous dot-shaped spots before the margin. UNDERSIDE, both wings most pale hoary-brownish, with submarginal spots arranged in a series, angulate in the forewing, lunulate in the hindwing, and others annular marginal inserted of that colour, and a fuscous disco-cellular litura, diffusely bordered with whitish. Forewing with a pair of obsolete subcostal spots, a pair subbasal and others exterior in a fascia blackish bordered with whitish. Hindwing powdered with greyish at the base, with four small basal spots and others beyond

* The figure of the upperside of this species is very poor; instead of being silvery-blue it is purplish-blue, a totally different shade of colour.

† Proc. Zool. Soc. Lond., 1882, p. 286.

the middle in a bent fascia fuscous margined with whitish, FEMALE. UPPERSIDE darker, with an obsolete disco-cellular litura and the external border inwardly diffuse fuscous. UNDERSIDE as in the male, but all the spots barely blackish." (Felder, l. c.)

"In spite of Felder's very poor figure of the upperside, I have never seen any other than this species that could be identified with *Z. diluta*; it has hardly a feature in common with *Z. maha*, which is much nearer to *Z. chandala*." (Butler, l. c. in Proc. Zool. Soc. Lond.)

Most probably the type specimens of this species were collected by the late Dr. F. Stoliczka in Calcutta. Placing then Calcutta specimens of *Z. diluta* by the side of Simla specimens of *Z. maha*, I cannot imagine how Mr Butler could have written that the two species have "hardly a feature in common." Specimens of the dry-season form of both (Simla 9th November, Calcutta 8th January) are identical, were the tickets removed I do not think any one could sort them into the two localities. It is more than probable that Dr. Felder did not recognise *Z. maha* when he described *Z. diluta*, nor is he likely to have known of *Z. chandala*, which was described in the same year as his species. Mr. Butler describes a variety from Hassan Abdal, 9th May, Thundiani, 29th August, 1886, both in North-West India, a "Underside, both wings greyer; black spots with narrower white margins." (l. c. in Ann. and Mag. of Nat. Hist.)

697. *Zizera squalida*, Butler.

Lycena squalida, Butler, Trans. Ent. Soc. Lond., 1879, p. 4; *Zizera squalida*, id., Ann. and Mag. of Nat. Hist., sixth series, vol. 1, p. 148, n. 53 (1888).

HABITAT: Cachar; Campbellpore, 21st June; Hassan Abdal, 18th July, 1886. (Butler)

EXPANSE: ♀, 1'0 inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings vary in colour from silver-grey with a lilac gloss to smoky-grey with a faint bluish gloss. Forewing with a blackish external border, considerably narrower than in *Z. diluta*, 1 cline, and more sharply defined internally. Hindwing, costal half brownish; a marginal series of blackish spots. UNDERSIDE, both wings scarcely differ from those of *Z. maha*, Kollar, excepting that the discal series of black spots on forewing forms a more or less pronounced angle below the second median nervule" (Butler, l. c. in Ann. and Mag. of Nat. Hist.) FEMALE. "Allied to *L. [=Z.] karsandra*, Moore, much larger. UPPERSIDE, both wings greyish-brown. Forewing sprinkled with lilac scales towards the base. Body blackish. Antennæ with white annulations. UNDERSIDE, both wings sordid white, with black spots, bordered with pure white, arranged as in *L. karsandra* and allies, but the discal series of the forewing less arcuated and smaller; a submarginal series of stone-grey spots, and in front of them a series of lunules of the same colour." (Butler, l. c. in Trans. Ent. Soc. Lond.)

Mr. Butler has recently recorded this species from North West India, and states that the type specimen from Cachar was a female. He now says that "this form is intermediate in character between *Z. maha* and *Z. diluta*, excepting in the angulation of the discal series of spots on the underside; it may possibly be a hybrid. We possess six examples." If these six examples are all exactly alike, it is very unlikely that they are all hybrids, as I believe that in nature hybrids are extremely rare. *Z. squalida* was first described with reference to *Z. karsandra*, which belongs to quite a different group from *Z. maha* and *Z. diluta*, to which Mr. Butler now compares it.

698. *Zizera oasa*, Swinhoe.

Z. oasa, Swinhoe, Proc. Zool. Soc. Lond., 1867, p. 132, n. 57, pl. ix, figs. 11, male, 12, female.

HABITAT: Poona, September to June; Bombay, September to October. (Swinhoe)

EXPANSE: ♂, ♀, 1 1/2 inches.

DESCRIPTION: "UPPERSIDE, both wings pale bluish-grey, costa and outer border black; the breadth of the outer border of the forewing differs a little in the male, but is much wider in the female, is diffused inwardly, and often occupies nearly half the wing. UNDERSIDE, both wings pale brownish-grey, with the markings as in *Zizera maha*, Kollar, and *Z. diluta*, Felder."

"A very distinct and pretty little species; in great plenty in Bombay during September" (*Swinhoe*, l. c.) "Common at all elevations in the Nilgiris." (*G. F. Hampson*).

In the above description Colonel Swinhoe does not say how his species differs from *Z. maka* and *Z. diluta*. To identify such closely-allied species, a comparative description is necessary. It is evidently, however, the dry-season form of *Z. maka*, Kollar.

699. *Zizera lysimon*, Hubner. (PLATE XXVI, FIG 173 ♀).

Papilio lysimon, Hübner, Eur. Schmett., vol. i, pl. cv, figs. 534, 535, male (1798-1803); id., Ochsenheimer, Schmett. Eur., vol. i, pt. 2, p. 24 (1803); *Polygammatys lysimon*, Godart, Enc. Méth., vol. ix, p. 701, n. 240 (1823); *Lycana lysimon*, Herrich-Schäffer, Schmett. Eur., vol. i, p. 118, pl. v, figs. 28, 29, male and female (1843); id., Westwood, Gen. Diurn. Lep., vol. ii, p. 499, n. 93 (1852), id., Staudinger, Hor. Soc. Ent. Ross., vol. xiv, p. 239 (1878); id., Elwes, Proc. Zool. Soc. Lond., 1881, p. 888, id., Lang, Butt. of Eur., p. 117, n. 16, pl. xxiv, figs. 3, male and female (1884); id., Trimen, South-Afr. Butt., p. 45, n. 140 (1887); *Platylus lysimon*, Kheil, Rhop. Ins. Nias, p. 30, n. 99 (1884); *Lycana galba*, Lederer, Verh. zool.-bot. Gesellsch. Wien, vol. v, p. 190, pl. i, fig. 4, male (1855); *Z. knysna*, Trimen, Trans. Ent. Soc. Lond., third series, vol. i, p. 282 (1864), id., id., Rhop. Afr. Aus., vol. ii, p. 255, n. 156 (1866); *Zizera knysna*, Butler, Proc. Zool. Soc. Lond., 1884, p. 484, n. 15.

HABITAT: South France, Spain (Andalusia and Granada), Western Asia, China, Africa, part of Australasia (*Lang*), Asia Minor (*Staudinger*); Beirut, Syria (*Lederer*); China (*Elwes*); Mauritius, Madagascar, Bengal, Java, Timor (*Westwood*); South, South Tropical, North Tropical, Extra-Tropical North Africa (*Trimen*); Aden (*Butler*); Nias Island (*Kheil*).

EXPANSE: ♂, ♀, 8 to 10 inch (Indian specimens).

DESCRIPTION: "MALE. UPPERSIDE, both wings dull violet, with a silky gloss, outer margin rather widely bordered with blackish. *Cilia* broad, whitish. Forewing, costa very narrowly edged with a white line. UNDERSIDE, both wings whitish-grey, ocelli blackish, whitish-ringed; a sinuate row of ocelli beyond the middle, a whitish-edged fuscous streak closing the discoidal cell, a distinct ocellus in the cell (sometimes an indistinct ocellus below it), and two rows of pale fuscous, indistinctly whitish-edged, lunular spots along outer margin. Hindwing, three minute ocelli near the base, forming with that in the discoidal cell a short row across the wing, base blackish-dusted. FEMALE. UPPERSIDE, both wings greyish-brown, inner marginal area more or less dusted with violet-blue from the base. Forewing, a fuscous line closing the discoidal cell. UNDERSIDE, both wings quite similar to those of the male, but all the spots more conspicuous, especially the marginal lunular rows. Forewing, spot below that in the discoidal cell always present, often distinct." (*Trimen*, l. c. in Trans. Ent. Soc. Lond.) The spot below the cell on the underside of the forewing is extremely rare in Indian specimens, and does not occur always in the female.

LARVA when full-fed less than half an inch in length, green, onisciform, densely covered with short whitish tubercles, from which spring somewhat long colourless hairs; head small, black, and shining; a dorsal line of a somewhat darker shade of green than the ground, no other distinctive markings whatever. The usual extensile organs on the twelfth segment. Feeds in Calcutta on *Amarantus viridis*, Linnaeus. Dr. Augustus Forel, of Zurich, has identified the ant which attends the larva as *Tapinoma melanocephalum*, Fabricius. PUPA pale green, of the usual lycenid shape, covered with a few short scattered colourless hairs. The transformations of this species appear to be here described for the first time.

From the list of localities inhabited by this species given by entomologists, it will be seen how great is its range. To these localities I add the outer Himalayas at low elevations, throughout continental and peninsular India, Ceylon, Assam, and the Nicobar Islands; but not, as far as is known, in the Andaman Isles or Burma, though it probably occurs in the latter region, as Mr. Butler records it under the name of *Z. karsandra* from the Malay Peninsula. As in the case of *Z. maka*, I have not added to the synonymy of *Z. lysimon* the different names by which the latter, in my opinion, has been discriminated in India, preferring to give descriptions of them with remarks by various writers separately. As usual, there appears to be a good deal of seasonal dimorphism in this species. Male specimens taken in Calcutta

In the dry-season have the outer black margin on the upperside of both wings very narrow, while those occurring in the rains have it fully if not more than twice as broad; this variation has been remarked also by Mr. Trimen in South African specimens. The females are very variable too—some being entirely black, others having a great deal of blue on the upperside. The underside of both sexes varies in the tint of the ground and in the intensity of the markings, but, as long as the markings are visible at all, the species cannot be mistaken for any other. In some specimens found in the height of the dry-season, the markings of the underside are quite obliterated.

The figure shows both sides of a female specimen in my collection from Bholabât, Malda.

700. *Zizera karsandra*, Moore.

Polymnatus karsandra, Moore, Proc Zool Soc. Lond., 1865, p. 305. n. 106 pl. xxii, fig. 7, female; id., Wood Mason and de Nicéville Journ. A S B, vol. 1, pt. 2, p. 235 n. 42 (1881); *Lycena karsandra*,^a Felder, Verh. zool.-bot. Gesellsch. Wien, vol. xviii, p. 282 (1868), id., Butler, Trans. Linn. Soc. London, Zoology, second series, vol. 1, p. 548, n. 3 (1877); *Zizera karsandra*, Moore, Lep. Cey., vol. 1, p. 78, pl. xxxv, figs. 6, 6a, male (1881); id., Distant, Rhop. Malay., p. 213, n. 2, pl. xxii, fig. 22, male (1884), id., Swinhoe, Proc. Zool. Soc. Lond., 1884, p. 501, n. 24, idem, id., l. c., 1885, p. 132, n. 59, idem, id., Trans. Ent. Soc. Lond., 1885, p. 341, n. 23, id., Butler, Proc. Zool. Soc. Lond., 1886, p. 367, n. 47, id., Swinhoe, l. c., p. 426, n. 44, id., Doherty, Journ. A S B, vol. 1, pt. 2, p. 133, n. 178 (1886).

HABITAT: Plains of N-W. India (Moore); Ceylon (Felder and Moore); Karachi, April and May, August, November and December; Poona, September to April; Bombay, August; Sattara, November; Ahmednuggur, August to November; Metazai, South Afghanistan, May, Mhow, October to May, Quetta, Sukkur, Punjab, Aden (Swinhoe); Petang; Campbellpore, May and June, Murree, October (Butler); Rambagh, Bagheswar, 1–4,000 feet, Kumaon (Doherty); Kamorta, Nicobar Isles (Wood-Mason and de Nicéville).

EXPANSE ♀, 83 inch

DESCRIPTION. FEMALE "UPPERSIDE, both wings purple-brown. UNDERSIDE, both wings greyish brown, exterior margins defined by a brown line. Forewing with a spot within discoidal cell, a disco-cellular streak, a spot above it, and a transverse discal series of six spots black, each encircled with white; a marginal and submarginal row of pale brown, white-bordered lunules. Hindwing with a series of twelve black spots, and a pale disco-cellular streak, encircled with white; a marginal row of pale brown, whitish-encircled spots, and a submarginal row of whitish lunules. Cilia greyish-brown" (Moore, l. c. in Proc. Zool. Soc. Lond.).

"A common species in the plains, from Oudh to the Punjab" (Note by Colonel A. M. Lang, R.E.).

"Colombo, Ceylon; in gardens and grassy land. Almost always abundant. Hovers round weeds and plants, and constantly settling on the ground" (Hutchinson).

"The commonest *Lycena* in Karachi. It occurs in great plenty in April and May, a few in August, and then again in countless numbers throughout November and December." (Swinhoe, l. c., Proc. Zool. Soc. Lond., 1884).

"This insect is very variable in colour, the type [a female] is brown. Irrespective of sex, the colour varies from blue to dark brown. I have many examples from Quetta, Metazai, Sukkur, Karachi, the Punjab, Central India, the Deccan, and also from Aden, of many shades of colour, quite impossible to separate." (Swinhoe, l. c., Proc. Zool. Soc. Lond., 1886).

"The commonest *Lycena* in Karachi. It occurs in great plenty in April and May, and again in countless numbers in November and December." (Swinhoe, Journ. Bomb. Nat. Hist. Soc., vol. 4, p. 273, n. 27 (1887)).

Colonel Lang reports that *Z. karsandra* is "not common in Kumaon. Taken on top of Cheena, 8,600 feet, on 5th June; at Bhowali, 6,500 feet, on 16th May; at Khairna, Kosi Valley, on 18th July. Taken also at Lucknow in November, and Bareilly in December."

^a Felder places his *Lycena brahmata* as a synonym of *Lycena karsandra*. It really is the dry-season form of *Chilades laius*, Cramer. (See page 89, ante.)

701. *Zizera mora*, Swinhoe.

Z. mora, Swinhoe, Proc. Zool. Soc. Lond., 1884, p. 506, n. 25, pl. xlvii, fig. 2.

HABITAT : Karachi, June, 1879 ; June, 1882.

EXPANSE : 1'0 inch (from the figure).

DESCRIPTION : " Similar in shape and colour above and below to *Z. karsandra*, Moore, but larger ; the markings below are very different and quite distinct. UNDER-SIDE, *forewing* with a black spot within the cell and a black mark at the end of the cell, and beyond this a row of six black thick longitudinal streaks between the veins, spear-shaped with the points outside, running from near the costa to near the hinder margin, and a small longitudinal subcostal streak slightly above and behind this row. *Hindwing* with a subcostal spot one-third from the base, a streak within the cell, another adjoining a mark at the end of the cell, and a whorl of streaks outside corresponding to the row on the forewing—the first streak subcostal, very long, the second a little shorter, the next four less than half the length, and three more mere spots, each lessening in size ; all the streaks and spots deep black, surrounded with white and distinctly separated from each other, giving the outer row of streaks on both wings the appearance of being stamped on a broad white band. *Both wings* with a submarginal row of spots slightly darker than the ground-colour of the wings on a greyish ground."

" I thought at first it was merely an aberration of *Z. karsandra*, Moore ; but as I have taken examples two years running, marked exactly similarly, and not at any other period of the year, it is clearly a distinct form. The Calcutta Museum has also a specimen received from Karachi." (Swinhoe, l. c.)

Z. mora is a " sport " or aberration of *Z. lysimon*, Hubner, such as frequently occurs amongst the *Lycenidæ*, as has been pointed out with regard to the genus *Lycæna* by Dr. Lang as follows : " Variations very frequently occur. On the underside the spots are very liable to enlargement or coalescence, or to be elongated into dashes or streaks, often producing a very remarkable appearance."* In the description of *Z. mora*, Colonel Swinhoe does not give the sexes of the specimens he describes ; they are probably females however. The one referred to in the Indian Museum, Calcutta, is a female, and has the spots of the underside even more curiously shaped and enlarged than the specimen figured. I possess another female of the same type from Bholahât, Malda, and a male from the Hanna Pass, 6,000 feet, taken in September by Colonel A. M. Lang, which shows a tendency towards the elongation of the spots

702. *Zizera galka*, Trimen. (PLATE XXVI, FIG. 174 ♀).

Lycæna galka, Trimen, Trans. Ent. Soc. Lond., third series, vol. 1, p. 403 (1862), idem, id., South-Afr. Butt., vol. ii, p. 50, n. 143 (1887) ; *Zizera galka*, Butler, Proc. Zool. Soc. Lond., 1884, p. 484, n. 15, *Lycæna lysimon*, Wallengr. (nec Hübner), Kong. Svens. vet.-akad. Handl., second series, vol. ii, Lep. Rhop. Caffr., p. 39, n. 8 (1857), id., Trimen, Rhop. Afr. Aust., vol. ii, p. 256, n. 158, pl. iv, fig. 7, male (1866), *L. pygmaea*, Snellen, Tijds. voor Ent., vol. xix, p. 163, n. 50 pl. vii, fig. 3 (1876) ; *Zizera pygmaea*, Moore, Lep. Cey., vol. i, p. 79, pl. xxxv, figs. 5, 5a, male (1881), idem, id., Proc. Zool. Soc. Lond., 1882, p. 245 ; id., Butler, l. c., 1883, p. 149, n. 17 ; id., Swinhoe, l. c., 1884, p. 507, n. 26, idem, id., l. c., 1885, p. 132, n. 60, idem, id., 1886, p. 497, n. 46 ; id., Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 39 (1886), id., Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 333, n. 175 (1886) ; id., Distant, Rhop. Malay., p. 454, n. 3, woodcut no. 126, male (1886).

HABITAT : South and South Tropical Africa, Aden, Western Himalayas, continental and peninsular India, Ceylon, Burma, Malay Peninsula, Andaman Isles, Sumatra, Java.

EXPANSE : ♂, ♀, '6 to 1'0 inch.

DESCRIPTION : " MALE. UPPERSIDE, *both wings* pale blue, a narrow brownish-grey border on the outer margin. *Cilia* whitish. UNDERSIDE, *both wings* whitish-grey, with minute, whitish-ringed, blackish spots ; a thin, greyish, whitish-edged mark closing the discoidal cell ; a transverse row of spots beyond the middle (that of the forewing strongly curved, commencing with two minute spots on the costa before the middle, and reaching to the submedian nervure ;—that of the hindwing composed of eight spots, from the costa about the middle to the inner margin) ; two dentate, submarginal, lunular, greyish, whitish-edged lines ;

* Bust. of Eur., p. 93 (1884).

and a thin, black, bounding line immediately within the *culia*. *Hindwing* with a basal black spot; before the middle a transverse row of three spots, no metallic-centred spots near the anal angle." FEMALE. UPPERSIDE, *both wings* smoky-black with a slight gloss, never with any blue coloration towards the base. UNDERSIDE, *both wings* precisely as in the male.

"This *Lycæna* seems allied to *L. acca*, Westwood [= *Zizera messapus*, Godart, from South and North Tropical Africa], but the wings are longer and of more delicate texture, and the abdomen also is more slender and elongate than in most of the genus." (Trimen, l. c. in Trans. Ent. Soc. Lond.)

Like the two preceding species, *Z. gaska* has a wide range. It is a very small butterfly—the smallest in India—and has a feeble low flight amongst grass and herbage, and is therefore very likely to be overlooked; it is probable that its range will hereafter be found to be considerably extended. In Calcutta, at any rate, it is distinctly rarer than any of its congeners; you may net many a *Zizera* of the three other species before you will find a single *Z. gaska*. Colonel Swinhoe records it from Karachi, July, not common; Bombay, November; Poona, January to March, Mhow, September to December. Mr. Moore records it from Ceylon, "found in the same localities and has the same habits as *Z. karsandra*" [= *lysimon*], Mergui, March; Thapo, King Island, January; Elphinstone Island, March (these localities are in the Mergui Archipelago). Mr. Doherty records it from Rambagh, 1,000 feet, Kumaon. To these localities I can add Simla (*Dr. E. R. Johnson*), Bholahât, Malda (*W. H. Irvine*), Sikkim (*Otto Moller*), Orissa (*W. C. Taylor*); Ganjam and Sirur (*E. A. Minchin*), Bhadrachalam (the late *G. Nevill*); Ootacamund (*G. F. Hampson*); the Andaman Isles (the late *A. R. de Roepstorff*); and Rangoon (*Phayre Museum*). I have not given a description of *Z. pygmaea* separately, as I think no one will dispute the fact that it is an absolute synonym of *Z. gaska*.

The figure shows both sides of a female example from Ootacamund in my collection.

703. *Zizera otis*, Fabricius (PLATE XXVI, FIG. 175 ♂)

Papilio otis, Fabricius, Mant. Ins., vol. ii, p. 73, n. 689 (1787), *Hesperia otis*, id., Ent. Syst., vol. iii, pt. 1, p. 296, n. 127 (1793), *Lycæna otis*, Butler, Cat. Fab. Lep. B. M., p. 169, n. 7, pl. ii, figs. 8, 11 (1869); *Zizera otis*, Butler, Ann. and Mag. of Nat. Hist., fifth series, vol. xviii, p. 186, n. 29 (1886), *Polyommatus (Cupido) otis*, Westwood, Trans. Ent. Soc. Lond., 1888, p. 471, n. 15, *Lycæna lysimone*, Saellen, Tijds. voor Ent., vol. xix, pp. 152, 161, n. 49, pl. vii, figs. 25 (1876), id., Butler, Trans. Linn. Soc. Lond., Zoology, second series, vol. 1, p. 548, n. 2 (1877), *Zizera lysimone*, Linn. Rhop. Malay., p. 212, n. 1, p. 197, woodcut no. 58, part of *neuraton* of *forewing*, pl. ix, fig. 9, male (1834).

HABITAT. Sheemagar, Modah, Upper Burma, December and January; Sungei Ujong; Malacca; Penang; Singapore; Sumatra, Java, Northern Celebes; Hong Kong.

EXPANSE: ♂, ♀, 70 to 95 of an inch (Distant)

DESCRIPTION. MALE. "UPPERSIDE, *both wings* pale violaceous. *Forewing* with the costal area pale brownish, the outer margin (widest at apex) broadly dark brown. *Hindwing* with the costal area broadly pale brownish, the posterior margin (narrowing to anal angle) dark brownish. *Culia* of both wings greyish, darker at base. UNDERSIDE, *both wings* pale brownish-ochraceous. *Forewing* with a linear brown spot margined with grey at the end of the cell, and a curved series of six brown spots margined with grey, placed between the nervules, and situated midway between the end of the cell and the outer margin, the uppermost situated between the bifurcation of the third and fourth subcostal nervules, the sixth (sometimes duplex and sometimes absent) placed above the submedian nervure; the outer margin darker and containing two dark waved lines. *Hindwing* with a linear spot at the end of the cell as on the forewing, and with the following series of brown spots margined with grey:—three near the base, two above and beyond the cell, five midway between the cell and the posterior margin, the first situated beneath the lower subcostal nervule, the fifth before the submedian nervure, and a smaller spot above the middle of the abdominal margin; posterior margin darker and marked as on the forewing. *Body* above and beneath more or less concolorous with the wings. FEMALE. UPPERSIDE, *both wings* pale brownish, with a broad violaceous streak at the base. UNDERSIDE, *both wings* as in the male."

"I have received a fine series of this species, which proves (as could be reasonably expected) that the species is subject to considerable variation both in size and in the distinctness of the markings on the underside of the wings. It also appears to be a very abundant lycænid in the Malay Peninsula." (*Distant*, l. c.)

The correct identification of this species seems to have puzzled several writers. Mr. Elwes* says that Mr. Moore refers specimens from Shanghai of *L. argia*, Ménétrics, to *L. otis* [= *L. otis*], Fabricius. *L. argia* is almost certainly a synonym of *Z. maha*, Kollar, which can have nothing to do with the present species. Again Mr. Trimen† says that *L. lysimon*, Hubner, is probably "the *otis* of Fabricius (1787), but it is impossible to decide the point from that author's descriptions." If Mr. Butler is correct in saying‡ that "*L. lysimon*, Snellen, is identical with" *Z. otis*, Fabricius, then the latter species cannot be confounded with *Z. lysimon*, though Mr. Butler remarks§ that *L. otis*, "though allied to *L. lysimon*, Hubner, is sufficiently distinct to rank as a species."

I propose, as in the case of *Z. maha*, Kollar, and *Z. lysimon*, Hubner, to keep separately the different descriptions and names which have been applied synonymically in my opinion to this species. As pointed out by Mr. Distant, there is much variability in this species; in the male the outer black border to the wings on the upperside is sometimes narrow, sometimes very broad; the female has sometimes much blue at the base of the wings on the upperside, sometimes none at all. The markings of the underside in both sexes vary too; in some specimens they are quite obsolete, rendering identification very difficult, in others they are very prominent. I have no doubt that much of this variation is due to seasonal causes; the specimens which are inconspicuously marked on the underside occurring in the dry and cold seasons, the prominently marked ones in the rains, and so on.

In the "Habitat" above I have given only the localities recorded by the authors referred to in the synonymy of the species, but taken in the broad sense in which I view it, *Z. otis* occurs in the outer Himalayas, throughout continental and peninsular India, in Ceylon, the Andaman and Nicobar Isles, Assam, from the Chittagong district to Singapore, in Java, and in China.

I have bred the larva of this species in Calcutta, but made no notes regarding it. It is very similar to the larva of *Z. maha*, and feeds on *Alysicarpus vaginalis*.

The figure shows both sides of a male specimen in my collection from Khurda, Orissa.

704. *Zizera sangra*, Moore.

Polymmatius sangra, Moore, Proc. Zool. Soc. Lond., 1865, p. 772, pl. xli, fig. 8, male; idem, id., l. c., 1877, p. 588; *Lycæna sangra*, Butler, Proc. Zool. Soc. Lond., 1880, p. 668, n. 16; idem, id., Journ. Linn. Soc. Lond., Zoology, second series, vol. i, p. 548, n. 4 (1877); *Zizera sangra*, de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 46, n. 64 (1885); id., Doherty, l. c., vol. iv, pt. 2, p. 233, n. 276, id., Wood-Mason and de Nicéville, l. c., p. 365, n. 111; id., Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 39 (1886); id., Swinhoe, Proc. Zool. Soc. Lond., 1886, p. 427, n. 47.

HABITAT: Bengal; Port Blair, South Andamans; Kamorta, Nicobars; Mergui Archipelago* (Moore); Calcutta, Sikkim (de Nicéville); Cachar; Andamans and Nicobars (Wood-Mason and de Nicéville); Ranibagh, Jhulaghat, 1-2,000 feet, Kumaon (Doherty); Mhow, October to February (Swinhoe); Malacca, Penang, Formosa (Butler).

EXPANS: ♂, "7 inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings pale purple-blue, the exterior margin pale purple-brown. Cilia pale grey. UNDERSIDE, both wings pale grey. Forewing with a blackish white-bordered streak closing the cell, a row of transverse discal spots, a marginal and submarginal row of lunules. Hindwing with markings the same, and with an additional subbasal row of three similar spots. Palpi and body beneath and legs white." (Moore, l. c. in Proc. Zool. Soc. Lond., 1865)

* Proc. Zool. Soc. Lond., 1881, p. 388.

† South-Afr. Butt., vol. ii, p. 46 (1887).

‡ Ann. and Mag. of Nat. Hist., fifth series, vol. xviii, p. 186, n. 29 (1886).

§ Cat. Fab. Lep. B. M., p. 169, n. 7 (1869).

"Varies much in size in different localities. I have four definite uniform sizes taken in four different parts of India; some are slightly paler than others, but otherwise all are identical. The uniform manner in which almost all the different Indian species of *Zizera* are marked on the wings below is very curious. *Z. pygmaea* [= *Z. gaika*] has markings peculiar to itself, but *Z. maha*, *Z. chandala*, *Z. karsandra* and *Z. dicata* [= *decreta*] have the spots below arranged in almost exactly the same manner, *Z. sangra* differing from the others merely in the absence of the spot inside the cell." (Swinhoe, l. c.)

I do not entirely agree with Colonel Swinhoe's remarks above regarding the uniformity of the markings in the Indian species of *Zizera*. When closely studied they are found to differ materially in detail.

705. *Zizera indica*, Murray.

Lycena indica, Murray, Trans. Ent. Soc. Lond., 1874, p. 525, pl. x, figs a, male; 3, female; id., Butler, Proc. Zool. Soc. Lond., 1880, p. 668, n. 17; *Zizera indica*, Moore, Lep. Cey., vol. i, p. 79, pl. xxxv, fig. 7, male (1881), idem, id., Proc. Zool. Soc. Lond., 1882, p. 245, id., Butler, l. c., 1883, p. 149, n. 18, id., Swinhoe, l. c., 1885, p. 232, n. 58.

HABITAT: Allahabad (Murray); Ceylon; N.-W. Himalayas (Moore); Mhow, December and January; Formosa (Butler); Poona, December to June; Ahmednuggur, June (Swinhoe).

EXPANSE: ♂, 75 to 83; ♀, 75 to 92 of an inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings blue. Forewing with a narrow costal and somewhat broad hind-marginal brown border. Hindwing, with a similar brown border, broad on costa, narrow on hind-margin. UNDERSIDE, both wings grey-brown. Forewing, no spot between base and disco-cellular spot, which is brown, edged on both sides by white; a conspicuous discal row of six black spots, edged with white; of these the lowest is less distinct and is gemmated; a double hind-marginal series of brown lunules, of which the inner is surmounted by whitish, and the outer edged on both sides by the same colour. Hindwing, a basal row of three spots, a disco-cellular spot, and an angulated discal row of eight spots, all brown, narrowly surrounded by whitish. Hind-marginal markings as on forewing. Cilia pale brown, unspotted. FEMALE. UPPERSIDE, both wings brown, blue at base. UNDERSIDE, both wings as in the male."

"This insect seems to be very common in the neighbourhood of Allahabad, as I possess a considerable series, collected there by my brother. I have failed to find it anywhere described, and Mr. Moore has also expressed his belief that it is a new species. It belongs to the *Z. lysimon* group. But for Mr. Moore's repeatedly expressed opinion that this insect was undescribed, I should have been inclined to doubt whether it were distinct from his *Z. sangra*." (Murray, l. c.)

"We are quite unable to say how *Z. indica*, Murray, differs from *Z. sangra*, Moore. (Wood-Mason and de Nicolle, Journ. A. S. B., vol. iv, pt. 2, p. 365, n. 112 (1886)."

There is no doubt that this species is strictly synonymous with *Z. sangra*, which again is a synonym of *Z. olis*, Fabricius. Colonel Swinhoe places *Z. sangra* and *Z. indica* together (vide Proc. Zool. Soc. Lond., 1886, p. 427, n. 47). It has nothing whatever to do with *Z. karsandra*, though Mr. Butler in the following note appears to think that it has. "Colonel Swinhoe separates this [*Z. indica*] into two forms, between which, however, I fail to see any constant difference. The species is very close to *Lycena* [= *Zizera*] *karsandra*, Moore, of which I think it possible that it may be only a variety; the ocellated marginal series of dusky spots on the underside of the hindwing, however, are less defined than in *Z. [= Z.] karsandra*. Of the first series of specimens Colonel Swinhoe says, 'Very common here [Mhow] in December and January;' and of the second, 'Not common here, only eight taken in December and two in January; is smaller than any Karachi examples of Moore's *karsandra*, and has a tinge of blue in the fresh specimens which I never observed in the Karachi ones.' I must confess my inability to admit the first of these differences: some of the Karachi specimens which Colonel Swinhoe sent us are certainly as large as some of the Mhow specimens of *Z. indica*; the blue spot [? spot], however, is certainly brighter in the latter."

706 *Eizera decorata*, Butler

Z. indica, var. *decorata*, Butler, Proc Zool Soc Lond, 1883, p. 150, *Z. decorata*, Swinhoe, l. c., 1886, p. 427.

n 45

HABITAT Mhow, December and January (*Butler*), Mhow, October to May (*Swinhoe*).

EXpanse 7 to 8 of an inch

DESCRIPTION "Smaller and paler than *Z. indica*, Murray, the discal series of black spots across the **UNDERSIDE** of the *forewing* always very large; the other markings badly defined."

"I am inclined to agree with Colonel Swinhoe that this is probably a small form of the preceding. It appears, however, to be a 'very common' one, and therefore may turn out to be as distinct as our *Ganoris brassica* and *G. sape* [two butterflies of the subfamily *Pierinae* or "Whites"] are when its life-history has been studied. It is impossible to be sure, from a mere examination of the imago, whether a butterfly or moth is a variety or a species; perhaps one of the best proofs of this may be found in the Geometrid genus *Lithonia* (*Eumenes* auct.), where the moths differ far less than the authenticated varieties of species in other genera (such as *Abaxas* for instance), yet the larvae are widely distinct both in form and colouring." (*Butler*, l. c.)

As Colonel Swinhoe has erected this variety into a separate species, I keep it distinct; it is neither better nor worse than several of the so-called "species" which have preceded it.

Genus 112.—AZANUS, Moore. (PLATE XXVI).

Azanus, Moore, Lep. Cay, vol. 1, p. 79 (1881).

FOREWING, elongated, triangular; *costa* almost straight, *apex* acute, *exterior margin* oblique and slightly concave, *inner margin* short, *inner angle* acute; *costal nervure* curved in its middle, and slightly bent before reaching the *costa*; *first subcostal nervule* emitted at one-third before the end of the cell, anastomosed to the *costal nervure* for a short distance near its end, *second subcostal* at one-sixth, *third* and *fifth* subcostals at the end of the cell, *fourth* subcostal at one-half beyond and terminating at the apex, *disco-cellular nervules* very slender, [*lower*] *discoidal nervule* from their middle, *discoidal cell* long; *second median nervule* emitted before the end of the cell, *first median* at one-third before its end, *submedian nervure* straight. **HINDWING**, small, short; *apex* convex, *anal angle* acute, *abdominal margin* short, *costal nervure* much curved at the base, extending to the apex, *first subcostal nervule* emitted at one-fourth before the end of the cell, *disco-cellular nervules* very slender; *discoidal nervule* from their middle, *discoidal cell* somewhat short, broad; *third* and *second median nervules* emitted from the end of the cell, *first median* at one-half before its end, *submedian* and *internal nervures* straight, no tail. **Thorax** robust, woolly, **abdomen** short. **Palpi** porrect, second joint long, laxly pilose beneath, extending half its length beyond the head, third joint slender, squamose, half the length of the second. **Legs** slender, *tarsi* five-jointed and finely spined beneath. **Antennæ** with a prominent spatular club. Type, *A. subulcus*, Cramer." (*Moore*, l. c.)

I should describe the subcostal nervules of the forewing as follows:—first emitted at about one-third before the end of the cell, strongly bent upwards soon after its origin and completely anastomosing with the costal nervure for a short distance, then free, second much nearer the base of the first than to the base of the upper discoidal, third emitted about midway between the apices of the cell and the wing; what Mr. Moore calls the fourth subcostal nervule is the terminal portion of the subcostal nervure, which extends to the apex of the wing; his fifth is the upper discoidal, which is emitted from the subcostal nervure some distance before the apex of the cell, consequently there is no upper disco-cellular nervule; the third median nervule is much bowed, the second median nervule of the hindwing originates some little distance before, not at the apex of the cell, as stated by Mr. Moore, and the outer margin of the forewing is convex, not concave.

But few entomological writers have used the genus *Azanus*; I therefore find some difficulty in giving its distribution. One species certainly occurs in Somali land and Aden, as well as in

India and Ceylon; another appears to be purely Indian; while a third species occurs in Africa, Syria, India, and Ceylon; two more are purely African. If, as is probable, the four species of Mr. Trimen's Section E. of the genus *Lycena** belong to the genus *Azanus*, then the genus will be further extended into South, and South and North Tropical Africa. No species appears to occur in Europe, or eastwards of Bengal. In India three species occur; they are all small, not more than an inch in expanse; males blue on the upperside, one species with a somewhat broad outer pale fuscous border; underside pale brownish, with numerous bands and spots. The females as usual have the blue coloration of the upperside more or less restricted to the base, or absent altogether. The transformations of no species have been described.

Key to the Indian species of *Azanus*.

- A. Underside with no blackish spot near the middle of the cell of the forewing, but with two small black dots on the costa above the spot on the disco-cellular nervules.
 α. Male with the outer margins of both wings on the upperside broadly pale fuscous; both sexes with the markings of the underside conspicuous.
 707. *A. UBALDUS*, Somali land, Africa, Aden, Western Himalayas, Western and Southern India, Ceylon.
 β. Male with the outer margins of both wings on the upperside defined by a narrow antecubital black line only, both sexes with the black spots of the underside obsolete.
 708. *A. UGANDÆ*, Baluchistan, Sind, Western Himalayas, Punjab, Oudh, Malda, Sikkim, Orissa, South India.
 B. Underside with a prominent round black spot near the middle of the cell of the forewing, no black dots on the costa above the spot on the disco-cellular nervules.
 709. *A. GAMBA*, Abyssinia, Aden, Syria, Punjab, Kunon, Central and South India, Ceylon.

707. *Azanus ubaldus*, Cramer.

Papilio morinda, Cramer, Pap. Fr., vol. iv, p. 209 pl. 322, figs. 1, 2, male (1782), id., Herbst, Pap., pl. cccxii, figs. 3, 4, male (1804), *Polioptilus ubaldus*, Guenée, Linn. Meth., vol. ix, p. 682, n. 204 (1823), *Azinus ubaldus*, Moore, Proc. Zool. Soc. Lond., 1865, p. 245, id., Butler, l. c., 1886, p. 366, n. 41, id., Doherty, Journ. A. S. P., vol. iv, pt. 2, p. 124, n. 162 (1885), *Catocalopsis ubaldus*, Butler, l. c., Zool. Soc. Lond., 1885, p. 14, n. 16, *Lycena zena* Moore, l. c., 1865, p. 505, n. 107, pl. xxxi, fig. 9, female, *Azanus zena*, Butler, l. c., 1884, p. 48, n. 11, idem, id., l. c., 1885, p. 763, n. 18, idem, id., l. c., 1886, p. 365, n. 39, id., Swinhoe, l. c., 1884, p. 507, n. 28, idem, id., 1885, p. 14, n. 73, idem, id., 1886, p. 428, n. 51.

HABITAT. Comorandel Coast (Cramer), plains of N.-W. India; N.-W. Himalayas (Moore) Karachi, July and August, Poonah, November to January and in August, Ahmednuggur, June, August, and September, Mhow, January, April, May, September to November (Swinhoe); Rimbigh and Haldwani at the foot of the hills, Jhulaghat in the Kili Valley, 2,000 feet, Kumaon (Doherty); near Attock Bridge, Khanabul side, November, Mowat, October and November, Aden, March, June, September and November; Huswah, near Aden, March and September; Kutch; Karachi; Somali land; Campbellpore, Punjab, November (Butler). Throughout India generally, except in Bengal, Assam and Burma; also in Ceylon.

LENGTH. ♂, 2, ♀, 1.5 to 1.00 inch.

DESCRIPTION. MALE. UPPERSIDE, both wings shining bluish-purple. Forewing with the apex broadly and the outer margin decreasingly pale shining fuscous; the blue scales on the disc apparently differently formed to those on the rest of the wing, giving the appearance of a sexual streak or band. Hindwing with the costal and outer margins somewhat broadly pale shining fuscous. UNDERSIDE, both wings exactly as in the female. FEMALE. UPPERSIDE, both wings pale purple-brown. Hindwing with a small brown spot near the anal angle of the exterior margin. UNDERSIDE, both wings pale grey, exterior margins defined by a brown line. Forewing with a black dot [always two] on the costa, one third from apex, a disco-cellular spot, an interrupted transverse discal band, and a submarginal lunulated line pale brown, each with whitish borders. Hindwing with three subbasal spots, another on anterior margin, and two from anal angle black, encircled with white, a discal series of pale whitish lines, and a marginal row of white circles. (Moore l. c. in Proc. Zool. Soc. Lond., 1865) Mr. Moore figured this species under the name of *L. zena* with a tail to each hindwing; this is of course incorrect.

* South African Lutterlies, vol. ii p. 72 (1887)

Mr. Moore has himself sunk his *A. zena* as a synonym of the *Papilio ubaldus* of Cramer, as it is probable that when he described *A. zena* he was unaware that Cramer had figured it in the preceding century. Messrs. Butler and Swinhoe have not followed Mr. Moore in this matter, but keep *A. zena* distinct from *A. ubaldus*. As neither of these writers have indicated how these two supposed distinct species differ the one from the other—and I am unable to say from Cramer's figure what the distinctions are—I have followed Mr. Moore in uniting them under the older name, more especially as I can find no character by which to segregate my long series of specimens from far distant localities into two species.

A. ubaldus occurs in the Western Himalayas, Sind, the Punjab, the Deccan, Orissa, and again in South India (Bangalore, and the Nilgiri and Pulni Hills); and Mr. Francis A. Fairlie took a specimen in July at Jaffna in Ceylon, whence this species has not previously been recorded. Colonel A. M. Lang notes that it is "common in Oudh in the winter months, November to February. I have caught it also at Umballa, in the Punjab. It is not an Himalayan insect." This last remark is not quite correct, subsequent investigation having shown that it occurs on the outer ranges of the Himalayas. Major Verbury has found it on Babul trees in October in the Punjab. Its transformations are undescribed, but Mr. W. C. Taylor of Orissa informs me that the "larva feeds on *Acacia leucophloea*, a tree something like a Babul." Mr. Doherty (l. c., p. 112) states that, though the larvæ are attended by ants, the twelfth segment is not furnished with the usual protrusible bunches of hairs. It may be that in this species these organs have become entirely aborted from disuse through being no longer required (owing to the vigilant protection of the ants) to frighten away enemies.

708. *Azanus uranus*, Butler.

A. uranus, Butler, Proc. Zool. Soc. Lond., 1886, p. 366, n. 40, pl. xxxv, fig. 1, male; idem, id., Ann. and Mag. of Nat. Hist., sixth series, vol. i, p. 146, n. 44 (1888).

HABITAT: Hassan Abdal, 13th October; Campbellpore, 8th June, 29th October, 17th, 21st and 29th November, Punjab; Chitta Pahar, Lumbahdoon, 2,000 feet, 28th November (Butler); Karachi, three taken in August, 1885, and one taken by Captain Becher, in the Hubb River in September, 1885 (Swinhoe); Oudh; Malda district; Kumaon; Sikkim; Orissa; Madras; and the Deccan.

EXpanse: ♂, ♀, "8 to '9 of an inch.

DESCRIPTION: "MALE. Allied to *A. zena*, Moore [= *A. ubaldus*, Cramer], but differing from all specimens in the [British] Museum series, or that of Mr. Moore's collection, in the much brighter and more uniform lilac colour of the UPSERIDE (in *A. zena* it is chiefly confined to the middle of the wings, and has almost the appearance of a band); in the brighter blue at the base, the browner tint of the UNDERSIDE, on which the white-edged markings are consequently less well-defined; and in the obsolete character of the black spots, which are either reduced to minute points or wholly absent." (Butler, l. c. in Proc. Zool. Soc. Lond.) FEMALE. UPSERIDE, both wings blue on the disc and base, the costa and outer margins broadly pale fuscous. UNDERSIDE, both wings like the male.

"*A. uranus* and *A. ubaldus* agree in the uniform lilac colouring of the upperside in the male; but the pattern of the underside and the colouring of the female on both sides in *A. ubaldus* much more nearly agrees with *A. zena*; indeed, though the males of *A. zena* and *A. ubaldus* are as unlike and as easy to separate as any two species of *Lycana*, the females may readily be confounded. The female of *A. uranus* is either pale copper-brown suffused with lilac, or lilac bordered with copper-brown, on the upperside; on the underside it only differs from the male in having the black spots of the hindwing rather better defined; and the bands on the underside are (as in the male) grey, whereas in *A. zena* and *A. ubaldus* they are copper-brown; the pattern of the bands differs chiefly in their more macular character." (Butler, l. c. in Ann. and Mag. of Nat. Hist.)

A. uranus appears to be a perfectly good and distinct species. Colonel Swinhoe has recorded it from Beluchistan, it occurs at Karachi in Sind, several places in the Punjab, at Faizabad in Oudh, Mr. W. H. Irvine has sent me a long series of both sexes taken at Bholahat in the Malda district, Mr. Otto Moller has taken it in the Sikkim terai in July and August,

Mr. W. C. Taylor has taken it in Orissa in January, August, and September, and lastly Mr. E. A. Minchin has found it at Sirur in the Deccan in February. Colonel Swinhoe possesses specimens from Poona and Mhow also.

709. *Asanus gamra*, Lederer. (PLATE XXVI, FIG. 176 ♂).

Lycena gamra, Lederer, Verh. zool.-bot. Gesellsch. Wien, vol. v, p. 189, pl. i, fig. 3, male (1855); *Asanus gamra*, Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 132, n. 163 (1886); *Asanus crameri*, Moore, Lep. Cey., vol. i, p. 80, pl. xxxvi, fig. 1 (1881); *Asanus ubaldus*, Swinhoe (nec Cramer), Proc. Zool. Soc. Lond., 1885, p. 134, n. 72; idem, id., l. c., 1886, p. 428, n. 56; *Lampides sigillata*, Butler, Ann. and Mag. of Nat. Hist., fourth series, vol. xviii, p. 483 (1876); *Asanus sigillata*, id., Proc. Zool. Soc. Lond., 1884, p. 483, n. 11.

HABITAT: Syria (*Lederer*); Haldwani, Kumaon (*Doherty*); Ceylon (*Moore*); Poona, November and January; Mhow, January, April, and May (*Swinhoe*); Abyssinia; White Nile; Aden, January and February (*Butler*); Punjab; Orissa; Madras; South India.

EXPANSE: ♂, ♀, '83 to 1'00 inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings pale purple-blue, exterior margins defined by a slender black line. Cilia white. UNDERSIDE, both wings pale brownish-grey, outer marginal line black. Forewing with a brown basal streak below the costal nervure, a white-bordered blackish spot within the cell, and a less distinct spot below it, a disco-cellular pale-bordered brown streak, a transverse subapical white-bordered brown band broken at its lower end, a marginal row of brown pale-bordered spots, and an inner white submarginal lunular line. Hindwing with a white-bordered black clavate basal streak, three subbasal spots, two spots on the middle of the abdominal margin, a costal spot, and an outer marginal row of spots, the two from the anal angle speckled with metallic green; a curved disco-cellular and a discal pale-bordered brown catenulated band. FEMALE. UPPERSIDE, both wings pale violet-brown, the basal areas pale violet-blue. Forewing with a whitish-bordered brown disco-cellular spot. Hindwing with a marginal row of indistinct pale-bordered blackish spots. UNDERSIDE, both wings as in the male. Pulpæ above black. Legs with black tarsal bands."

"This is a comparatively broader insect than *A. ubaldus*, Cramer, the forewing is also less acuminate at the apex, and the underside has additional spots towards the base." (*Moore*, l. c.)

The above description applies in every respect to specimens of both sexes of *A. gamra* from Beirut, Syria, and *A. crameri* from Ceylon, and to males of *A. sigillata* from Aden identified by Mr. Butler himself. Colonel Swinhoe has recorded this species in error in two places as *A. ubaldus*. *A. gamra* is a very distinct species, the spot in the cell of the forewing on the underside in both sexes and usually the spot below it (in some examples this latter is wanting) serving at once to distinguish it from *A. ubaldus* and *A. wanus*. In addition to the localities given above, I have specimens from Umballa, Orissa, Ganjam, Dumagadin, Bhadrachallani, Bangalore, and Radgodi. It does not appear to occur anywhere in Bengal proper or to the eastwards. In Ceylon it occurs at "Colombo, in cinnamon gardens, local, rare" (*Hutchinson*), and at "Hambantotte, June, among bushes, common" (*Wade*). Mr. G. F. Hampson says that it is "found rarely on the plains at the foot of the Nilgiri Hills." Mr. W. Doherty informs me that he has taken it at Muscat in Arabia.

The figure shows both sides of a male example from Bangalore in my collection.

Genus 113.—*ORTHOMIELLA*, nov. (PLATE XXVI).

FOREWING, costa evenly and gently curved throughout, apex rather acute, outer margin convex, inner margin rather sinuous, inner angle acute, produced; costal nervure ending opposite the apex of the discoidal cell; first subcostal nervule completely anastomosed with the costal nervure, into which it runs immediately after its origin, the costal nervure being bent downwards to meet it, again becoming free and reaching the margin some distance beyond the apex of the cell; second subcostal with its base nearer to the base of the first subcostal than to the base of the upper discoidal; third subcostal originating midway between the apices of the cell and the wing; middle disco-cellular nervule slightly outwardly oblique, concave; lower disco-cellular of the same length as the middle disco-cellular, slightly inwardly oblique, concave; second median nervule originating some little distance

before the lower end of the discoidal cell; *submedian nervule* following the inner margin, slightly bent downwards towards its extremity. Hindwing, *costa* arched at base, then slightly concave to apex, *apex* acute, *outer margin* at first straight, then convex; *anal angle* rounded; *costal nervule* very long, sinuous, following the outline of the wing, ending on the margin at the apex of the wing; *first subcostal nervule* originating some distance before the apex of the discoidal cell; *disco-cellular nervules* nearly erect, concave; *second median nervule* originating immediately before the lower end of the cell; *submedian* and *internal nervures* straight. *Antennæ* short, less than half the length of the costa of the forewing, with a large flattened spatulate club. *Palpi* long, perfect, second joint furnished with very long bristly hairs beneath, third joint naked, acicular. *Eyes* hairy. *Head* with a tuft of long hairs between the bases of the antennæ. Male with no secondary sexual characters. Female with the outer margin of the forewing more convex than in the male, otherwise similar. Type, *Chilades ? pontis*, Elwes.

Orthomiella belongs to the group of genera (*Asanus*, Moore, *Evers*, Hubner, *Talica*, Moore, and *Nacaduba*, Moore) which have the first subcostal nervule of the forewing for some distance anastomosed completely with the costal nervule, then again becoming free and reaching the margin. It is perhaps nearest to *Asanus*, as that genus, like *Orthomiella*, has no tail to the hindwing. The outline of the hindwing in *Orthomiella* is however quite unique amongst Indian *Lyceninae*, the costa instead of being slightly convex is slightly concave, and the apex instead of being rounded is acute reminding one very much of the outline of *Atymnus palis*, Wiener Verzeichniss, and its Indian local race *A. siforu*, Moore; only in those butterflies the costa of the hindwing is gently convex, while in *Orthomiella* it is slightly concave. The spatulate club to the antennæ in the type species of *Orthomiella* is larger than in any other Indian species of *Lyceninae*. The genus contains two species only, *O. pontis*, Elwes, is known from Sikkim only, and *O. sinensis*, Elwes, which I have not seen, is described from China. The former is deep shining purple, of the same shade as in *Nacaduba ardates*, Moore, and allies on the upperside in the male; the female is rich bright steel blue, the colour more restricted to the middle of the wings than in the male. The underside of both sexes is marked somewhat similarly to the dry-season form of *Chilades loius*, Cramer.

710. *Orthomiella pontis*, Elwes (PLATE XXVI, FIG. 177 ♂).

Chilades ? pontis, Elwes, Proc. Zool. Soc. Lond., 1887, p. 446, *idem*, *id.*, Trans. Ent. Soc. Lond., 1888, p. 384, n. 253, pl. viii, fig. 5, male.

HABITAT. Sikkim.

EXpanse. ♂, 9 inch (Elwes); my specimens are ♂, 1.1, ♀, 1.0 to 1.15 inches.

DESCRIPTION. "MALE UPPEXSIDE, both wings dull purplish-black with faint green or (in some lights) purple reflection, darker towards the body. *Cilia* alternated with black and white. UNDERSIDE, both wings dull grey, with irregular darker markings, which on the hindwing coalesce into a blackish patch, powdered with grey on the inner half of the wing. Body, black, with grey hairs. *Palpi* grey. *Antennæ* faintly tinged, with a short distinct club." FEMALE UPPEXSIDE, both wings rich shining steel blue. Forewing with the costa narrowly the outer margin broadly and evenly black. Hindwing with costa and outer margin broadly black, abdominal margin broadly pale. UNDERSIDE, both wings as in the male. The shape of the wings is newly the same in both sexes.

The shape of the hindwing is very peculiar, the costal margin, which is straight, forming almost a right angle with the outer margin. I know of no other species in which the character is so well marked. Described from three males (a fourth exists in Godman's collection ex coll. Lidderdale) taken by me on May 27th, 1886, on the bridge crossing the Rangbi river on the way from Darjiling to Mongpo, at about 6,000 feet elevation, in dense dripping evergreen-forest. This curious little insect is unlike anything found in India on the Himalayas, but has a very near ally in China, *C. sinensis*, Elwes" (Elwes, l. c.).

In Mr. Otto Moller's collection are about a dozen males taken in Sikkim of this very distinct and pretty little butterfly, and Mr. A. V. Knyvet has taken three females. On the

upper side the male is deep glossy shining purple, the outer margins of both wings narrowly black, the costal margin of the hindwing, bounded posteriorly and sharply by the subcostal nervure and its second branch, also black. On the underside the forewing has a dark brown spot across the middle of the cell, outwardly defined with whitish, a round spot below this one exactly posterior to the base of the first median nervule, a large spot closing the cell, with two below it and in the same straight line divided by the first median nervule, and a discal series of four conjoined spots, some indistinct marginal lunular markings, the disc of the wing is suffused with pale ferruginous. The markings of the hindwing are difficult to trace, as those on the disc are all run together into a large brownish fuscous patch, leaving a single large round spot on the costa near its middle alone free, the marginal markings are more prominent than in the forewing.

The figure shews both sides of a male specimen from Sikkim in my collection taken early in May.

I am rather doubtful about the propriety of the position in the order of the genera of the *Lycænide* that I have assigned to the two genera which follow. They agree with the genera which immediately precede them in possessing a somewhat long filiform tail from the termination of the first median nervule of the hindwing which is characteristic of the next group of "Blues." They however disagree from both the tailed and tailless "Blues" in the robustness of their structure and in the swiftness of their flight in these respects agreeing much better with the "Harstreaks." In the structure of the veins these two genera present no peculiarities whatever, nor have they any secondary sexual characters on the wings of the male. The first genus, *Lycænesthes*, Moore, however is unique amongst Indian *Lycænide* in possessing two or three elongated tufts of cilia towards the anal angle of the hindwing, which, owing to their extreme delicacy, are very liable to be destroyed. This genus appears to be well represented in Africa. A few species occur in tropical India and from Malaya to Northern Australia. The transformations of one species of this genus are known. The other genus, *Niphanda* Moore, is probably much more restricted in its range, and is much smaller in the number of species it contains, two only having with certainty been placed in it. One occurs only in Sikkim, the other only in the Malay Peninsula. Very little is known about either, and their transformations have yet to be discovered.

Genus 114.—LYCÆNESTHES, Moore. (PLATE XXVI)

Lycænesthes, Moore, Proc. Zool Soc Lond., 1865 p. 773. id. Hewitson, Trans. Zool Soc Lond., 1874, p. 343. idem id., Lep. Cey., vol. 1, p. 87 (1881). id., Distant, Rhop. Malay., p. 232 (1884). id., Trimen, South Afr. Butt., vol. 1, p. 92 (1885).

* WINGS, moderately broad. FOREWING, with the costal margin arched at the base, apex rather acute, outer margin slightly oblique, subcostal nervure with its first branch arising at one third the length of the wing, second and third equidistant, fourth remote, fifth joined at the base to the third. HINDWING, rounded exteriorly, two small very fine tail like fascicles of hair near the anal angle. Eyes hairy, palpi long, compressed, pointed, third joint long, attenuated, half the length of the second, antennæ slender at the base, thickened near the end, which is finely pointed; legs moderate, femora slightly pilose beneath, mid and hind tibia with two short apical spurs; thorax and abdomen robust. (Moore, loc. cit. in Proc. Zool Soc. Lond.)

In the type species in the forewing the costal nervure terminates about opposite to the apex of the discoidal cell the bases of the first and second subcostal and upper discoidal nervules are about equidistant, the third subcostal nervule is long, given off from the subcostal nervure nearer to the apex of the cell than of the wing, middle disco-cellular nervule shorter than the lower, slightly outwardly oblique; lower disco-cellular straight, upright; second median nervule given off some little distance before the lower end of the cell. In the hindwing the upper disco-cellular nervule is recurved, outwardly oblique, the lower is straight, upright; the second median nervule given off nearer to the lower end of the cell than it is in the forewing.

The venation of this genus is most ordinary; it does not present a single peculiarity, nor has the male any secondary sexual characters. *Lycænesthes* differs, however, from all other

Indian genera in having three very fine ciliated tails to the hindwing. These tails are very short, the one from the termination of the first median nervule rather longer than the ones on each side of it, and they are composed of a slight bundle or fascicle of long hair-like scales, or cilia, which are very easily broken off; in most cabinet specimens they have entirely disappeared. In the males the coloration of the upperside is shining purple with a very narrow outer black margin; on the underside they are pale brown, marked very similarly to *Nacaduba*, *Jamides*, and allied genera; there is a white line on either side of the disco-cellular nervules, a catenulated discal band, two more or less distinct whitish marginal fasciæ, with, in the hindwing, some additional basal bands, often a black spot on the costa near the base, one on the middle of the abdominal margin, and a third near the margin in the first median interspace crowned with orange. The females are dull black on the upperside, with the base of the wings more or less blue, and a submarginal series of black spots to the hindwing.

As far as I am able to judge, the genus *Lycænesthes* contains but two good species occurring in India,—*L. emolus*, Godart, which has an immense range, occurring in north-eastern India, thence southwards to Orissa and Ganjam, in the Andaman Isles, from Assam through Burma to the Malay Peninsula, in Borneo and Amboina, and doubtless many other islands in the Malay Archipelago, and again in Northern Australia. The second species, *L. lycænina*, Felder, has, so far as is known, a more restricted range. It also occurs in many parts of India, in Ceylon, Assam, the Malay Peninsula, and in Borneo. These two species can be distinguished in the males by their different outline, *L. emolus* being a much more rounded insect than *L. lycænina*; the latter has the apex of the forewing, and especially the anal angle of the hindwing, much more acute than the former; the hindwing is also narrower, the outer margin less rounded, more oblique. The markings of the underside in *L. lycænina* are usually more prominent, and the tails more conspicuous, but these are not reliable guides for specific discrimination, though one has to rely on them to distinguish the females; as far as I know there is no other distinctive character, except the presence of the subbasal costal spot on the underside of the hindwing in *L. lycænina*, which may however occasionally be absent, as it always is in *L. emolus*. Of the other described species, *L. lycambes*, Hewitson, from "North India" is almost certainly synonymous with *L. lycænina*; and *L. orissia*, Moore, is nothing but an occasional variation of the same species. Mr. Hewitson enumerates as many as twenty-nine species as belonging to this genus, mostly from Africa, but a few from the Malay Archipelago. Mr. Trimen gives six species as occurring in South Africa (South-African Butterflies, vol. ii, p. 93). The Indian species have a very quick flight, settling frequently on the leaves of trees and bushes; the males are fond of sucking up moisture in damp places.

An account of the transformation of *L. emolus*, Godart, will be found under the description of that species.

Key to the Indian species of *Lycænesthes*.

A. Male with apex of forewing and anal angle of hindwing rounded.

711. *L. EMOLUS*, India, Andamans, Assam, Burma, Malay Peninsula, Borneo, Amboina, North Australia.

B. Male with apex of forewing and anal angle of hindwing acute.

712. *L. LYCÆNINA*, India, Ceylon, Assam, Malay Peninsula, Borneo.
713. *L. LYCAMBES*, North India.

711. *Lycænesthes emolus*, Godart.

Polymnatus emolus, Godart, Enc. Méth., vol. ix, p. 656, n. 133 (1823); *Lycæna emolus*, nec Gerstaecker, Decker's Reisen, vol. iii, pt. 2, p. 373, n. 26, pl. xv, fig. 4 (1873), nec Trimen, Rhop. Afr. Austr., pt. ii, p. 234, n. 136, pl. iv, figs. 8, 9 (1866); *Lamprodes balliston*, Hübner, Zutr. Ex. Schmett., figs. 229, 230, male (1823); *Lycænesthes balliston*, Semper, Journ. Mus. Godef., vol. xiv, p. 165, n. 87 (1879); *Dipsas lycanoides*, Felder, Sitzb. Ak. Wiss. Wein. Math.-Nat. Cl., vol. xl, p. 454, n. 21 (1860); ? *Pseudodipsas lycanoides*, id., Reise Novara, Lep., vol. ii, p. 258, n. 305, pl. xxx, fig. 25, male (1865); ? *Lycænesthes lycanoides*, Hewitson, Ill. Diurn. Lep., p. 219, n. 1, pl. xcii, fig. 39, female (1878); *L. bengalensis*, Moore, Proc. Zool. Soc. Lond., 1865, p. 773, pl. xli, fig. 9, male; id., Distant, Rhop. Malay., p. 458, n. 2, pl. xlv, fig. 9, male (1886).

HABITAT: Bengal (Godart and Moore); Cape York, Australia (Semper); Amboina (Felder); Malacca (Distant); Borneo (Druce); Eastern India, Orissa, Ganjam, Sikkim, Assam, Burma, Andaman Isles, Singapore.

EXPANSE: ♂, 1.00 to 1.40; ♀, 1.10 to 1.45 inches

DESCRIPTION. MALE. UPPERSIDE, both wings dark purple-blue, exterior margins defined by a narrow suffused black line. Hindwing with a small indistinct black spot at anal angle, abdominal margin brown. UNDERSIDE, both wings pale greyish-brown. Forewing with a short transverse double white line at the extremity of the cell, enclosing the discal veinlet [disco-cellular nervules], beyond which are a transverse discal chain-like white band and an outer indistinct brownish submarginal and a narrow white marginal line. Hindwing with basal, discoidal, and a curved discal series of chain-like white bands; an indistinct, inwardly angled, double-lunulated, white marginal line; a black spot bordered above with orange-red near the anal angle of the exterior margin, a small white-encircled black spot on middle of abdominal margin. Head above brown; eyes encircled with white; palpi above and beneath brown, at the sides white; thorax, body, and legs beneath white. FEMALE UPPERSIDE, both wings pale purple-brown, with a suffused bluish patch at the base; exterior margins suffused with darker brown. Hindwing with an inner narrow white exterior marginal line. UNDERSIDE, both wings as in the male." (Moore, l. c. in Proc Zool. Soc. Lond., 1865)

LARVA when full-fed $\frac{1}{62}$ of an inch in length, somewhat dark green in colour (of a darker shade than most lycænid larvæ), smooth and shining, the whole upper surface covered with minute pits to be seen only under a strong magnifying glass. The head is very small and retractile as usual, and of a pale green colour, the second segment is unmarked, the third to sixth segments inclusive have some obscure reddish-brown dorsal blotches, the three following segments are unmarked, the tenth to twelfth segments have somewhat similar blotches to those on the third to sixth segments, but they are more distinct and darker in shade. There is a pale yellow lateral line just above the legs. All the segments are irregularly and broadly pitted at the sides; these pits seem more or less to assume the form of a longitudinal subdorsal depression, below which to the lateral line the colour of the insect is slightly paler. The whole larva is much depressed, somewhat wider than high, and seems to gradually increase in breadth to the tenth segment, the last segment is almost as broad and rounded. The larva varies greatly in colour and markings, some being pale green throughout and unmarked, others again are reddish brown throughout. It feeds, in Calcutta, on *Nephelium Litchi*, Lamb, *Casua fistula*, Lunæus, and *Hedyotis trypana*, Roxb., and not improbably, as it feeds on so many bushes, it will eat others. Dr. Forel identifies the ant which attends the larva as *Cecophylla smaragdina*, Fabricius, the large red and green ant which makes immense nests of growing leaves in trees. Pupa $\frac{1}{4}$ of an inch in length, of the usual lycænid shape, the tail pointed, the thorax slightly humped, and ending in a somewhat sharp ridge-line on the back; it is coloured pale ochreous, and bears a prominent diamond-shaped mark posteriorly. It is smooth throughout, reddish-brown, sprinkled with minute darker dots.

The correct identification of this species has long puzzled entomologists. In 1866 Mr. Trimen doubtfully identified Godart's *Polyommatus emolus* with a South African species of *Lycænesthes* (Rhop. Afr. Aust., p. 234, n. 136); the latter species however in 1887 he doubtless correctly states to be the *Lycænesthes lindes* of Hewitson (South-Afr. Butt., vol. ii, p. 100, n. 170), and states that *L. bengalensis*, Moore, "is almost certainly the same as Godart's species." In 1878 Mr. W. F. Kirby remarks: "I think it probable that this species [*lycanoides*, Felder, = *bengalensis*, Moore] is the true *Polyommatus emolus*, described by Godart as from Bengal." (Ill. Diurn. Lep., p. 219, n. 1) Mr. Semper in 1879 adds to the synonymy by stating that the *balliston* of Hübner is almost certainly the *bengalensis* of Moore (Journ. des Mus. Godef., vol. xiv, p. 165, n. 87). Lastly, in 1878, Mr. Hewitson gives the *lycanoides* of Felder as the same as *bengalensis* (Ill. Diurn. Lep., p. 219, n. 1), but Mr. Trimen states that, "judging from Felder's figure of the underside, and his description of the male, and Hewitson's figure of the female, I consider it very doubtful whether *lycanoides* can be held synonymous with Moore's."

butterfly." I have previously (*antea*, p. 47) expressed a doubt as to *Dipras lycanoides*, Felder, being synonymous with the species now being dealt with, but am unable to definitely settle the matter in the absence of specimens of the species from Amboina. I am quite satisfied however that *emolus* equals *balliston* and *bengalensis*.

L. emolus is a fairly constant species; the chief variation appears to be in the intensity of the markings of the underside. Its distribution is a little peculiar; it is common in Bengal and the north-eastern coast, but does not appear to occur at all in the Bombay Presidency or on the western coast, and is absent from South India and Ceylon. It is common throughout Assam and Burma, and occurs in the Andaman Isles, in the Malay peninsula and islands, and in North Australia.

712. *Lycænesthes lycanina*, Felder. PLATE (XXVI, FIG. 178 ♂).

L. lycanina, Felder, Verh. zool.-bot. Gesellsch. Wien, vol. xviii, p. 281 (1868); id., Hewitson, Ill. Diurn. Lep., p. 219, n. 2, pl. xc, figs. 6, ♀, female (1878); id., Moore, Lep. Cey., vol. i, p. 87, pl. xxxv, figs. 8, 8a, male (1881); id., Distant, Rhop. Malay., p. 232, n. 1, pl. xxi, fig. 3, male (1884); *L. orissica*, Moore, Journ. A. S. B., vol. liii, pt. 2, p. 23 (1884).

HABITAT: Bengal, Sikkim, Assam, Burma, Malay Peninsula, Orissa, South India, Ceylon, Borneo.

EXPANSE: ♂, 1'0 to 1'3; ♀, 1'1 to 1'2 inches.

DESCRIPTION: "MALE. Nearest to *L. lycanoides*, Felder [from Amboina, ?=*L. emolus*, Godart], but smaller. UPPERSIDE, both wings a little more vivid in colour. Hindwing outwardly well-rounded, less dentate. UNDERSIDE, both wings palely hoary-fuscous. Forewing beyond the middle with a bifurcated catenular fascia, filled up with powdering of the ground-colour, and another submarginal of fuscous spots circled with whitish (the upper ones inwardly subsagittate), some obsolete whitish spots arranged in a striga before the margin. Hindwing powdered with bluish-grey at the base, an ocellated anteo-basal spot, and another internal, blackish circled with whitish, a postico-basal fasciole composed of two spots, and another disco-cellular of the same number of spots, contiguous to a third situated beyond the middle twice slightly broken, and catenular border spots two-fold connate, inwardly more or less sagittate, of the same colour, those of the forewing concolorous, of which the marginal situated between the first and second median nervules bearing a small black spot, inwardly narrowly circled with rufescent-fulvous." (Felder, l. c.) FEMALE. UPPERSIDE, both wings dull blackish, the basal areas more or less sprinkled with blue scales. Hindwing with a submarginal series of oval black spots placed between the veins, inwardly defined by a fine white line, that in the first median interspace the most prominent, often with a series of white lunules above them. Cilia white. UNDERSIDE, both wings as in the male.

L. lycanina may be usually known from *L. emolus* in the male by its brighter and lighter purple coloration on the upperside; the apex of the forewing is more acute, the outer margin straighter; in the hindwing the outer margin seems to be truncated, the anal angle very acute instead of being rounded. On the underside the markings are usually more prominent, the discal band in both sexes on both wings is more or less broken in the middle, very markedly so in the hindwing, while in *L. emolus* it is continuous. In *L. lycanina* there is almost always a prominent black spot near the base of the hindwing below and touching the costal nervure which is never present in *L. emolus*; this spot is often small and inconspicuous, sometimes absent altogether; similarly also the subanal black spot is sometimes entirely absent; this latter variation has been described as a distinct species as below by Mr. Moore.* *L. lycanina* has almost

* *Lycænesthes orissica*, Moore, Journ. A. S. B., vol. liii, pt. 2, p. 23 (1884). HABITAT: Orissa. EXPANSE: Male, 9 of an inch. DESCRIPTION: "MALE, smaller than *L. lycanina*, Felder, and *L. lycambes*, Hewitson. UPPERSIDE, both wings of a similar purpurascence. UNDERSIDE, both wings pale purpuraceous greyish-brown, markings similar, but more regularly disposed. Hindwing has the subbasal costal black spot prominent, but the subbasal (subanal) black spot—so conspicuous in the above species—is absent, the entire exterior margin being uniformly marked." (Moore, l. c.)

I possess five males and two females of what I call *L. lycanina*, Felder, from Orissa, which includes the type specimen of *L. orissica*. They vary considerably in size; some are as large as typical *L. lycanina*; the markings on the underside are not always more regular than in typical *L. lycanina*; the subbasal costal spot on the underside of the hindwing is entirely absent in one specimen, very prominent in one, small in the

as wide a distribution as *L. emolus*, but whereas the latter occurs in the Andaman Isles and not in South India and Ceylon, the former occurs in South India and Ceylon and not in the Andamans. Otherwise their distribution is much the same in India. The type specimen was taken at Avisavalle in Ceylon, Hutchison records it from "Pusalawe, hills about 3,000 feet, forests, September," and Wade from Kandy. I give below as a foot note* Mr. Distant's very full description of the male of this species, as Felder's description is not very easy to follow, although there is no doubt that it refers to this species, as it is the only one of the genus that occurs in that island.

The figure shows both sides of a male specimen from the Shevaroy Hills in my collection.

713 *Lyænesthes lycambes*, Hewitson.

L. lycambes, Hewitson, Ill. Diurn. Lep., p. 220, n. 3, pl. xc, figs. 11, 12, male (1872).

HABITAT: North India (*Hewitson*).

EXpanse: ♂, 1.15 inches.

DESCRIPTION. MALE. "UPPERSIDE, both wings dull lilac-blue, the outer margins very narrowly bordered with brown. UNDERSIDE, both wings pale brown (stone-colour). Forewing with a spot at the end of the cell, and crossed beyond the middle by a broken band bordered on both sides with white, and by a double submarginal series of lunular white spots. Hindwing, with numerous irregular linear white spots; the usual black spot crowned with orange." (*Hewitson*, l. c.)

Without consulting the type specimen it is impossible to say what this species is. As figured it agrees in shape with *L. lycenna* Felder, and is probably conspecific with it. It is not at all unlikely that Hewitson considered *L. lycenna* to be confined to Ceylon, and described one of its numerous varietal forms from North India as a distinct species.

Genus 115.—NIPHANDA, Moore. (FRONTISPIECE).

Niphanda, Moore, Proc. Zool. Soc. Lond., 1874, p. 572.

FEMALE. WINGS, broad, strong. FOREWING, elongated, trigonal; costa arched; hind margin extending much beyond hindwing; exterior margin slightly convex towards posterior angle. posterior anal angle acute, median [subcostal] nerve with four branches, the second and fourth arising at the extremity of the cell, the third starting from the second near its extremity before the apex. HINDWING, arched along anterior margin, outer angle much rounded; abdominal margin long and nearly straight, anal angle acute. Palpi very long, porrect, extending much beyond the head flattened; second joint fusiform squamose; third joint slender, naked, slightly thickened vertically at the tip. "Antennæ" short in the female, less than half the length of the costa of the forewing; long in the male, nearly two-thirds the length of the costa, with a very long, slender, gradually formed club. "BODY robust. LEGS slender, minutely squamose. Near to *Chrysophanus*," Hubner (*Moore*, l. c.) MALE. FORE-

rest, and the subanal black spot is entirely absent in the type specimen only, but it is small in three of the others large in the rest. It will thus be seen how variable is this species in a single locality, and that it is not advisable to describe a supposed distinct species from a single specimen of an obviously variable species without first consulting a considerable series to make sure that its supposed specific differences are not individual differences only.

* MALE. UPPERSIDE, both wings lavender blue, the margins narrowly fuscous. UNDERSIDE, both wings greyish brown, crossed by the following pale greyish linear fasciæ:—forewing with two discal cellular at the end of the cell, followed by two also terminating at the third median nervule, with two following from near the base of the third median nervule to the subanal nerve; a single one between the third and second median nervules, and two somewhat waved submarginal. Hindwing with about eight arranged in pairs, the basal pair not extending above the middle of the cell, the two following from near the base of the second subcostal nervule to near the abdominal margin, the third pair very short, and bounded by the costal nervule and the second subcostal nervule, and the fourth pair situated between the second subcostal nervule and the second median nervule, and two much angulated submarginal fasciæ, a small brown spot margined with greyish beneath and at a short distance from the base of the costal nervule, and a similar spot near the base of the abdominal margin, a black subarginal spot with a few bluish scales and inwardly margined with ochraceous situated between the second and fifth median nervules, and a narrow transverse dark streak at the anal angle. Body both above and beneath more or less colorless with the wings.

"Although I have somewhat minutely described the arrangement of the greyish linear fasciæ of the underside of the hindwing belonging to a male specimen, such description must not be taken to imply that these markings are of a constant and invariable character, as in the small series now before me there is a slight but unmistakable divergence in that respect." (*Distant*, l. c.)

WING. more triangular than in the female; *costa* almost straight; *outer margin* much less convex; *anal angle* more acute. Both sexes with the *costal nervure* ending opposite the apex of the discoidal cell; *first subcostal nervule* emitted at about one-third from before the apex of the discoidal cell, slightly bowed upwards towards the costal nervure not far from its origin; *second subcostal* emitted about midway between the bases of the first subcostal and of the upper discoidal; *third subcostal* emitted midway between apices of cell and wing; no *upper disco-cellular nervule*; *middle disco-cellular* from upper discoidal, in a straight line with the lower disco-cellular, and of equal length, upright; *lower discoidal nervule* from their middle; *second median nervule* emitted some little distance before the lower end of the cell. HINDWING, *outer margin* in the male between the terminations of the costal nervure and second subcostal nervule straight, outwardly oblique; from the termination of the second subcostal nervule to the anal angle (which is very acute) also straight but inwardly oblique; *second and third median nervules* emitted from the end of the cell. These characters are taken from *N. cymbia*, de Nicéville, the only species I have seen. Mr. Moore's description of the subcostal nervules of the forewing is quite incomprehensible to me.

Mr. Distant (Rhop. Malay., p. 459) does not appear to think that *Niphanda* is a good genus, as he places the type species, *N. tessellata*, Moore, in the genus *Lycanesthes*, Moore. In nervation the points of difference between *Lycanesthes emolus*, Godart (= *balistus*, Hübner, and *bengalensis*, Moore), which is the type of the genus, and *Niphanda cymbia*, de Nicéville, are but slight. In both sexes of *N. cymbia* the first subcostal nervule of the forewing is more bent up towards the costal nervure than in *L. emolus*; the disco-cellular nervules in *N. cymbia* are perpendicular, in *L. emolus* they meet outwardly at an angle; in the hindwing in *N. cymbia* the disco-cellular nervules are straight and in almost the same straight line, in *L. emolus* they are both concave, and their general direction is outwardly oblique. The chief point of difference between the two genera is, in my opinion, the presence of three fine ciliated tails to the hindwing in *Lycanesthes*, which appear to be entirely absent in *Niphanda*. As far as is known at present, *Niphanda* contains but two species—*N. cymbia* which occurs in Sikkim, and *N. tessellata* at Penang. A third species, *Niphanda fusca*, Bremer and Grey, has been recorded from Amurland, China and Japan, by Mr. J. H. Elwes,* and from Japan, Yesso and Corea by Mr. J. H. Leech,† but I quite agree with the former writer that in form and coloration it does not seem to very closely resemble the other described species of the genus, though it may belong to it.

714. *Niphanda cymbia*, de N. (FRONTISPIECE, FIGS. 130 ♂, 131 ♀).

N. cymbia, de Nicéville, Journ. A. S. B., vol. lii, pt. 2, p. 76, n. 16, pl. ix, figs. 8, male; 8a, female (1883); *N. cymbia*, Staudinger, Lx. Schwett., p. 270, pl. xciv, male (1888); *N. plumosoides*, Moore, Proc. Zool. Soc. Lond., 1883, p. 524, pl. xlviii, fig. 8, female; *N. tessellata*, de Nicéville, (nec Moore), Journ. A. S. B., vol. li, pt. 2, p. 61, n. 168 (1882).

HABITAT: Sikkim.

EXPANSE: ♂, 1.05 to 1.15; ♀, 1.15 to 1.40 inches.

DESCRIPTION: "MALE. UPPERSIDE, forewing shining violet; the costa, outer margin, a disco-cellular streak and the veins black. Hindwing also violet, with the costal, outer and abdominal margins black, this black border ascending in two conical-shaped spots between the median nervules. UNDERSIDE, both wings sullied white, the markings fuliginous. Forewing with a basal streak, an increasing band from the subcostal nervure to the inner margin crossing the middle of the cell, an oval spot closing the cell, a discal series of six quadrate spots broken at the second median nervule, the two lower ones nearer the base of the wing, a patch beyond the four upper spots, wide on the costa, decreasing to the fourth spot, where it ends in a fine point, a submarginal irregular line and marginal spots, the two spots between the median nervules the largest and most prominent, a fine anteciliary black line. Hindwing with a spot at the base, three spots beyond, the one on the costa the largest and darkest; a double spot closing the cell, with two spots above it, the upper one very large, oval and black; a very irregular discal series,

* Proc. Zool. Soc. Lond., 1881, p. 883.

† Proc. Zool. Soc. Lond., 1887, p. 410, n. 31.

marginal markings as on the forewing. *Cilia* fuliginous on both sides of both wings very long at the anal angle of the hindwing. *Antennæ* black, with the slender club tipped with white above, the shaft obscurely annulated with white below. *Body* black above, whitish below, the segments laterally marked with whitish. FEMALE UPPERSIDE, *both wings* fuliginous-grey, paler on the disc. *Forewing* with the disco-cellular and discal spots of the underside showing through. *Hindwing* with a submarginal series of pale spots, then a dark band, and finally a series of black roundish spots increasing to the fourth which is the largest, the two anal ones small and linear, all outwardly defined with a fine grey line. UNDERSIDE, *both wings* with the ground-colour much paler than in the male, being almost white, all the markings larger and more prominent.

"A fairly common species in the low valleys below Darjiling; the females largely predominating in numbers, however, over the males." (de Nicéville, l c.) It occurs in Sikkim in October and November, probably at other seasons.

Mr Otto Moller possesses a curious aberration of a female of this species, which has the forewing on the upperside white tinted with blue at the base, the costa, discoidal spot, submarginal and marginal bands dark brown, the hindwing is also abnormally pale, and sprinkled with blue scales at the base.

As Mr. Moore described this species, but under a different name, a short time after the publication of my description and name I repeat his description as a foot note.* He appears to have described two female specimens as male and female.

The figures show both sides of both sexes of specimens from Sikkim in my collection.

A species very closely allied to *N. cymbra* has been described from the Malay Peninsula as below†. The male of *N. tessellata* appears to differ from that sex of *N. cymbra* in being a

* *Niphanda plumbeoides*, Moore, Proc Zool Soc Lond, 1883 p 574, pl xlviii fig B, female. HABITAT: Sikkim. LIXANSÆ. Male, 1.2, female 1.1 inches. DESCRIPTION. MALE and FEMALE. UPPERSIDE, *both wings* violaceous brown, with a very faint shade of light blue in some lights. *Forewing* with the discal line, spaces between the veins whitish brown, palest in the middle, and traversed by an indistinct darker transverse discal fascia, a marginal row of black spots. *Hindwing* with a marginal row of whitish bordered black spots, of which the second and third from anal angle are the largest, and two parallel discal curved rows of small whitish spots. *Cilia* alternated with whitish. UNDERSIDE, *both wings* dirty white. *Forewing* with a blackish inner slender streak ascending half length of upper base of the cell a curved streak from below its base to middle of the cell, and a lunular spot at its end, an interrupted discal macular band, the upper part with a broad outer fascia and a submarginal and a marginal lunular band, the latter with two blackish spots on its middle. *Hindwing* with a bluish brown spot at base of the cell three subbasal spot, one on middle of abdominal margin, and two large spots on anal border, a similar spot below the outer one, and a streak at end of the cell, an irregular discal series with paler brown outer borders, and an outer marginal row bordered by a submarginal paler lunular band, the second and third from the anal angle the largest. Base of *palpi* white beneath, *legs* white, with brown tarsal bands, a *terrace* annulated with white bands.

† Both sexes on the upperside have much the appearance of a dark female *Lycæna* [= *Laracus*] *pinus*, *Fabr* cius, and *L. (=?) theophrastus* *Latreille*, but these insects are, structurally, quite distinct. (Moore, l c.)

† *Niphanda tessellata*, Moore, Proc Zool Soc Lond, 1874 p 572, pl lxvi, fig 6 female. *Lycænettes tessellata*, Distant, Rhop. Malay, p 458, n 3 pl xlii, fig 33, male. pl xliii, fig 21, female (1886). *L. pinus* (id., Ann. and Mag. Nat. Hist., fifth series, vol. xvi, p 253 (1887). HABITAT: Penang. EXPLAN. Male, 1.2; female 1.5 inches. DESCRIPTION. MALE. UPPERSIDE, *both wings* dark violaceous blue. *Forewing* with the costa and outer margin somewhat broadly fuscous. *Hindwing* with narrow black spots between the veins. UNDERSIDE, *both wings* greyish mottled with purplish. *Forewing* with the following dark fuscous markings—a broad basal streak beneath the costal nervure, extending to about the middle of the cell, where it is joined to a large spot which crosses and extends beneath the cell, a large disco-cellular spot at the end of the cell, a curved fascia between the end of the cell and the outer margin, extending from the second subcostal nervule to the second median nervule, a somewhat similar fascia extending from the second median nervule near the end of the cell to near the inner margin, a pair narrow marginal and submarginal fasciae containing a large, round, dark spot between the second and third median nervules. *Hindwing* with the following dark markings—four basal spots, two large spots, one the cell divided by the upper subcostal nervule a marginal series of smaller dark spots and paler discal spots, of which the most prominent are a transverse one at the end of the cell, and a transverse waved series of rounded ones, all these spots are margined with greyish. *Body* and *legs* more or less concolorous with the wings. (Distant, l c. in Rhop. Malay.) FEMALE. UPPERSIDE, *both wings* pale glossy blue. *Cilia* white, streaked with brown. *Forewing* with a broad dusky black band along the costa and exterior margin, a patch below the apex, a disco-cellular spot, and a lower discal spot also black, a short white streak at the posterior angle. *Hindwing* broadly dusky black along anterior margin the exterior margin with a series of black spots bordered with bluish white and an inner dusky line. UNDERSIDE, *both wings* white. *Forewing* with an irregular basal patch, a quadrate disco-cellular spot and an interrupted transverse discal series of quadrate spots dark blackish brown, a suffused streak along the costa, a streak bordering the upper portion of the discal spots, and a series of spots with inner bordered line on exterior margin pale brown, the punctulate posterior spot being large, prominent, and nearly black. *Hindwing* with irregular pale-bordered basal marks, a contiguous transverse series of four quadrate spots, two spots beyond middle of anterior margin, and a series of spots on exterior margin blackish brown, the basal and anal spots being most

paler shade of purple on the upperside; the female is suffused with blue towards the base of both wings on the upperside, which coloration *N. cymbia* entirely lacks in that sex.

I call the fourth division which I have made in the Indian *Lycænidae* the *Polyommatus* group. It contains nine Indian genera, and completes the assemblage of the "Blues." All these genera are tailed except some species, or forms, or individuals of the genus *Nacaduba*, Moore, which are aberrant in this respect, having no tail to the hindwing; just as the genus *Megisba*, Moore, in the third group, possesses aberrant examples, which depart from the normal structure of the tailless blues in possessing a tail to the hindwing. None of these genera possess secondary sexual characters in the male.

The first subgroup contains three genera, all of which have the first subcostal nervule of the forewing completely anastomosed for a short distance with the costal nervule. As far as the structure of the veins goes, these three genera are practically the same, but they can be distinguished by their varied *facies*. The first genus, *Talicada*, Moore, contains but a single species, and might perhaps with advantage be sunk under the next genus, which also is a very small one, and has some species which agree with the solitary *Talicada* in possessing not a single speckle of blue on the wings. On the upperside of both sexes of *Talicada nysus*, Guérin, the wings are black, the posterior half of the hindwing rich orange—a most extraordinary type of coloration for a butterfly of the family of the "Blues." It is a grass-loving, low-flying creature, with a restricted range, occurring only in Assam, Upper Burma Orissa, the Western Ghâts, South India, and Ceylon. The next genus, *Everes*, Hübner, contains but few species, but one of them has an immense range, occurring all round the northern hemisphere. They vary most extraordinarily in size, are weak-flying, and inhabit the grass. The widely-spread species, *E. argades*, Pallas, has the male blue on the upperside, the other two known Indian species have no blue whatever above. The last genus, *Nacaduba*, Moore, contains the greatest number of species of the three, and is found throughout the Indo-Malayan region; one species has been recorded from Australia. It has a well marked *facies*, the males are always deep purple-blue on the upperside, both sexes with catenulated bands on the underside. It shares with *Megisba*, Moore, the peculiarity of containing tailed and tailless species; one species, indeed, appears to be dimorphic with regard to this character. As far as I am aware, all the species of the genus affect trees and bushes avoiding the ground, though the males are very fond of sucking up the moisture from damp spots.

Genus 116.—TALICADA, Moore. (PLATE XXVI).

Talicada, Moore, Lep. Cey., vol. i, p. 96 (1881).

"FOREWING, costa arched at the base, outer margin obliquely convex, [inner margin sinuous]; first subcostal nervule emitted at one-half before the end of the discoidal cell, ascending to and anastomosing with the costal nervule to near its end; second subcostal at one-fifth, and third subcostal at one-sixth before the end of the cell, fourth subcostal at beyond half from third and terminating at the apex; fifth subcostal [upper discoidal] from the end of the cell; middle and lower disco-cellular nervules slightly recurved, radial [lower discoidal] nervule from their middle; discoidal cell more than half the length of the wing, broad to near the base; second median nervule at one-sixth before the end of the cell, first median at one-half before the end; submedian nervure nearly straight. HINDWING, broadly oval, furnished with a single slender tail from the end of the first median nervule; costal nervure much arched from the base; first subcostal nervule at one-third before the end of the cell; disco-cellular nervules

prominent; the basal interspaces, irregular streaks from abdominal margin, and lunules to exterior spots pale brown." (Moore, l. c.)

Mr. Distant has figured the male of this species with the two ciliated tails to the hindwing which are characteristic of the genus *Lycanestha*. If this be correct—though I much doubt it—then *tesellata* should be placed in that genus, as Mr. Distant says. He figures the female, however, without tails, and seeing that the general *facies* of both sexes on both surfaces of *N. cymbia* and *N. tesellata* are almost precisely similar, I cannot believe that the Penang species possesses tails while the Sikkim one lacks them entirely. Mr. Distant remarks that "the peculiarity of *L. (=N.) tesellata* is in its Ethiopian appearance, its most closely allied species being found in the West African *N. larydus*, Cramer." I think that *L. cymbia* will be found to be even more closely allied.

slightly recurved, *discoidal nervule* from their middle; *discoidal cell* not extending to half the wing; *second median nervule* from near the end of the cell, *first median* at more than half before the end; *submedian* and *internal nervules* straight. BODY, moderate; *palpi* porrect, flattened, second joint laxly squamose beneath, third joint long, slender; *legs* slender; *antennæ* with the club stout. Allied to *Scolitantides*, Hubner, = *Lycana*, Fabricius. "Type, *T. nyseus*, Guérin." (Moore, l. c.)

In the forewing the costal nerve terminates exactly opposite the apex of the cell, the first subcostal nervule anastomosing with it for some little distance, the second subcostal originates a little nearer to the base of the first than to the base of the upper discoidal nervule, third subcostal from midway between the base of the second subcostal and the apex of the wing, no upper disco-cellular nervule, the middle and lower disco-cellulars almost in one straight line and slightly outwardly oblique.

This remarkable genus contains but a single species, which is confined to Southern India, Ceylon, Assam, and Upper Burma. The sexes are alike, they are black on the upperside, with a broad vermilion patch on the hindwing occupying the lower outer third of the wing; the cilia prominently checkered. The underside is white, the forewing marked with several black bands and a prominent black spot at the end of the cell, the hindwing with numerous large basal black spots, the outer margin from the anal angle to the second subcostal nervule vermilion, enclosing a series of rounded white spots, above the second subcostal nervule to the apex the margin is black instead of vermilion. Where it occurs, I believe the species is common, but I have never seen it alive. The transformations are described under the species.

715. *Talicada nyseus*, Guérin (PLATE XXVI, FIG 179 ♀)

Polyommatus nyseus, Guérin, Dellessert & Souv. d'un Voy. dans l'Inde, p. 78, pl. xxx, figs 1, 1a (1843); *Scolitantides nyseus* Butler, Proc. Zool. Soc. Lond., 1881, p. 607, n. 23. *Talicada nyseus*, Moore, Lep. Cey., p. 97, pl. xxxix, figs 1, a imago, 1b, larva and pupa (1881); id., Swinhoe, Proc. Zool. Soc. Lond., 1885, p. 133, n. 64; *Lycana nyseus*, Staudinger, Ex. Schmiedt., p. 271, pl. xciv, female (1888).

HABITAT: Assam, Upper Burma, Sind, Orissa, South India, Ceylon.

EXPANSE ♂, ♀, 1 4 to 1 7 inches

DESCRIPTION. MALE and FEMALE. "UPPERSIDE, both wings blackish-violet brown, cilia spotted with white. Hindwing with a broad scarlet band occupying the lower two thirds of the outer area, [with a fine black anteciliary line]. UNDERSIDE, both wings white. Forewing with a broad black outer band, crossed by two submarginal series of white spots and a marginal lunular line; a black spot at the end of the cell. Hindwing with a black basal spot, three subbasal, three medial, and in the female a more or less perfect discal series, the apex of the wing also black; lower outer margin broadly scarlet, traversed by a row of white spots and a marginal lunular line, bordered with black dentate marks. Palpi and legs black above, banded with white; antennæ annulated with white." Tail black, tipped with white.

"LARVA onisciform, [hairy]; pale olive-yellow, with a slender green dorsal line and a lateral row of black dots, [purplish along the spiracles]. Feeds on *Bryophyllum* (Thwaiter). PUPA pale olive-yellow, dotted with black, the dorsal area tinted with purple; the thorax humped, very hairy throughout. (Moore, l. c.) General Eveyard informs me that the larva feeds on the *Crassulacæ* order of plants, such as *Bryophyllum*, *Calceolium* and *Kalanchoe laciniata*, these plants grow wild all over India."

"This peculiarly distributed insect [*T. nyseus*] is not found at all in Bombay, nor do I recollect once meeting with it at Khandalla, Matheran, or Egutpura; but in a particular spot at Mahableshwar it was swarming last March, and I have a faint recollection of its being equally abundant at the hill forts of Singhur and Poorundhur near Poona, while at Poona itself it is never wanting during the dry months. Mr. H. Wise informs me that in Kanara he finds it at an elevation of 1,500 feet. It lies very low and settles much on the ground; wings always closed." (Aitken, Journ. Bombay Nat. Hist. Soc., vol. 1, p. 218, n. 60 (1886). Colonel Swinhoe (l. c.) records it from "Poona, September to June; Belgaum, September and October; a very local insect." In Ceylon it occurs in the "Western and Central Provinces. Plains and nearly up to 4,000 feet; generally on borders of cultivated ground, apparently all

the year round. Flight slow; flits about low shrubs and settles on the ground" (Hutchison); "Kandy and Galle, common" (Wade). "Common on the Nilgiris, especially on the lower slopes" (G. F. Hampson). Mr. Butler records this species from Hyderabad, Sind, collected by Colonel Swinhoe. It is found in Orissa, Ganjam, Bangalore, the Pulni Hills, Calicut, the Wynnaad, Rutnagherry, Canara, and Travancore, and doubtless throughout South India in suitable localities in addition to Assam and Upper Burma.

T. myseus is a fairly constant species; in some specimens the red patch on the upperside of the hindwing is broader than in others, and on the underside the black markings vary somewhat in size, and in the hindwing several of the black spots are often wanting in both sexes. Its isolated appearance in Upper Burma and Assam (Shillong, Manipur and the Naga Hills) appears to me to be not a little remarkable. It was first discovered in the Nilgiri hills.

The figure shows both sides of a female specimen in my collection captured at Shillong.

Genus 117.—EVERES, Hubner. (PLATE XXVI).

Everes, Hübner, Verz. bek. Schmett., p. 69 (1816); id., Moore, Lep. Cey., vol. i, p. 85 (1881); id., Distant, Rhop. Malay., p. 221 (1884); id., Scudder, Butt. East. United States and Canada, p. 905 (1889).

"**FOREWING**, elongate, triangular; *costa* slightly arched at the base, *apex* rounded, *exterior margin* lightly oblique and convex, *posterior margin* long; *costal nervure* short, bent slightly upwards before reaching the *costa*, and not extending to half length of the margin; *first subcostal nervule* ascending and anastomosed to the *costal nervure* near its end; *second subcostal* at one-third before the end of the cell; *third subcostal* at one-sixth before its end; *fourth subcostal* from one-half length of the third and terminating at the apex; *fifth subcostal* [upper discoidal] from the end of the discoidal cell; *disco-cellular nervules* slightly oblique; *radial* [lower discoidal] nervule from their middle; *second median nervule* emitted at one-sixth before the end of the cell, *first median* at one-half before its end; *submedian nervure* slightly recurved. **HINDWING**, oval, with a slender *tail* from the end of the first median nervule; *costal nervure* extending to near the apex, arched at the base; *upper disco-cellular nervure* oblique, *lower disco-cellular* erect, *discoidal nervule* from their middle; *discoidal cell* short; *second median nervule* emitted before the end of the cell, *first median* at one-half before its end; *submedian* and *internal nervures* straight. **BODY** small, short; *palpi* slender, *proctot*, second joint pointed at its end and clothed with longish scales at its base beneath, third joint long, slender; *legs* slender; *antennæ* with a slender grooved club. Type, *E. amyntas*, Fabricius,"=*argiades*, Pallas. (Moore, l. c.)

In *Everes* the *costal nervure*, especially in the male, is very short, and anastomoses with the first subcostal nervule for some little distance; the second subcostal is emitted rather nearer to the base of the first than to that of the upper discoidal nervule; the third subcostal originates nearer to the base of the upper discoidal than to the apex of the wing; there is no upper disco-cellular nervule, the middle disco-cellular is straight, outwardly oblique, the lower disco-cellular also straight, but inwardly oblique.

"**LARVA** (*E. argiades*, var. *coretas*, Ochsenheimer) pale green, with a darker dorsal stripe, dark lateral streaks, and light brown and white spots. Feeds on trefoil and other *Leguminosæ*. (Lang, Butt. of Eur., p. 102 (1884).)

"**LARVA** elliptical in form, flatter and more elongated than in *Cyaniris*, Dalman, with a flatter terminal segment, of a greenish colour, with a dark dorsal stripe and many oblique lateral lines. They feed on a variety of *Leguminosæ*; in Europe they have been found on *Lotus*, *Anthyllis*, *Medicago*, *Trifolium*, *Pisum*, and *Onobrychis*, and even on *Rhamnus*; in North America it feeds on *Lespedeza*, *Phaseolus*, *Desmodium*, *Galactia*, *Trifolium*, and *Astragalus*. **PUPA** longer and slenderer than in *Cyaniris*, being nearly four times longer than broad, the abdomen but slightly more elevated than the thorax, and the whole body covered with long distant hairs by which they may readily be distinguished; in colour they resemble the caterpillars, or are darker and spotted with black." (Scudder, l. c.)

This genus, as far as I know, contains but five distinct species, one of which, *E. exiguus*, Distant, was described from a single female example taken at Singapore; another, *E. kala*,

de Nicéville, from another unique example taken near Shillong; and a third, *E. unbrid*, Doherty, also from a unique male taken in Burma. Of the two remaining species, *E. fischeri*, Eversmann, occurs in S.-E. Russia, the Ural, the Altai Mountains, China, and Corea, and very closely resembles *E. kala*; and *E. argades*, Pallas, is violet-blue above in the male with an exterior black border, whitish cilia, and some marginal black spots to the hindwing. On the underside it is marked very much like the true *Lycana*, having a disco-cellular mark, a discal series of spots and marginal lunular fasciæ on both wings, as in the species of that genus. Its chief characteristic, however, is a submarginal orange fasciæ on the hindwing below; this often is very much reduced, sometimes absent altogether. The marginal black spots of the hindwing are often spangled with metallic silvery scales. The female is frequently entirely smoky-black above, sometimes with much blue on the base and disc of the wings. According to my views, *E. argades* occurs in North America, in Europe, almost throughout Asia, the Malay archipelago, and in Australia. It is probably the most widely-ranging species of the family.

Key to the Indian species of Evers.

- A. Forewing, underside, with the discal series of spots arranged in a straight unbroken line.
716. *E. ARGIADES*, North America, Europe, Asia, Australia.
- B. Forewing, underside, with the discal series of spots arranged in a much curved line, all the spots large, deep black circled with a fine white line, and very prominent
717. *E. KALA*, Assam.
- C. Forewing, underside, with the discal series of spots arranged in two straight lines or fasciæ, broken posterior to the second median nervule.
718. *E. UMBRIEL*, Burma.

716 *Evers argades*, Pallas. (PLATE XXVI, FIG. 180, ♂).

Papilio argades, Pallas, Reise, vol. 1, App. p. 472, n. 65 (1771); *Lycana argades*, Elwes, Proc. Zool. Soc. Lond., 1881, p. 887, id., Lang, Butt. of Eur., p. 101, n. 4, pl. xxii, figs. 5, male and female (1884); id., Leech, Proc. Zool. Soc. Lond., 1887, p. 415, n. 54, id., Pryer, Rhop. Nihonica, p. 17, n. 51, pl. 4, figs. 23A, male, 23B, female (1888); *Papilio amyntas*, Fabricius, Syst. Ent., p. 533, n. 384 (1775); idem, id., Mant. Ins., vol. 11, p. 70, n. 666 (1787); id., Wiener Verzeichniss, p. 185, n. 18 (1776); id., Hübner, Eur. Schmett., vol. 4, pl. lxxv, figs. 322-324 (1798-1803); *Hesperia amyntas*, Fabricius, Ent. Syst., vol. 11, pt. 2, p. 285, n. 95 (1793); *Polyommatus amyntas*, Godart, Enc. Méth., vol. ix, p. 659, n. 146 (1823); *Lampides amyntas*, Butler, Cat. Fab. Lep. B. M., p. 164, n. 10 (1869); *Papilio tircias*, Rottenburg, Naturf., vol. vi, p. 23, n. 10 (1775); id., Esper, Schmett., vol. 1, pt. 1, pl. xxxiv, figs. 2, 2 (1778); id., Hübner, Eur. Schmett., vol. 1, figs. 319-321 (1798-1803); *Papilio polyteichus*, Bergstrasser, Nomencl., vol. ii, p. 79, pl. xlv, figs. 3-5 (1779); id., Ochsenheimer, Schmett. Eur., vol. 1, pt. 2, p. 61 (1821); *Hesperia parrhasius*, Fabricius, Ent. Syst., vol. 11, pt. 1, p. 289, n. 108 (1793); *Papilio parrhasius*, Donovan, In. Ind., pl. xlv, fig. 5, male (1800); *Polyommatus parrhasius*, Godart, Enc. Méth., vol. ix, p. 657, n. 136 (1823); *Lycana parrhasius*, Horsfield, Cat. Lep. E. I. Co., p. 86, n. 20 (1829); id., Horsfield and Moore, Cat. Lep. Mus. K. I. C., vol. i, p. 22, n. 11, pl. 12, fig. 3, male (1857); *Lampides parrhasius*, Butler, Cat. Fab. Lep. B. M., p. 165, n. 12 (1869); id., Semper, Journ. des Mus. Godef., vol. xiv, p. 155, n. 53 (1879); *Cypide parrhasius*, Snellen, Tijd. voor Ent., vol. xxi, p. 19, n. 85 (1875); *Evers parrhasius*, Moore, Lep. Cey., vol. i, p. 85, pl. xxxvi, fig. 7 (1881); id., Distant, Rhop. Malay., p. 221, n. 2, woodcut n. 66, male (1884); *Papilio glandon*, de Prunner, Lep. Ped. (1798); *Cypide puer*, Schrank, Fauna Boica, vol. 11, pt. 1, p. 215, n. 1374 (1801); male only; *Papilio alcetas*, Hübner, Eur. Schmett., vol. 1, p. 51 (1803); *Papilio coretas*, Ochsenheimer, Schmett., Eur., vol. i, pt. 2, p. 60 (1808); *Polyommatus coretas*, Meigen, Eur. Schmett., vol. ii, p. 14, n. 18, pl. xlv, figs. 5a, ♂ (1830); *Polyommatus comyntas*, Godart, Enc. Méth., vol. ix, p. 660, n. 147 (1823); *Argus comyntas*, Boisduval and Leconte, Lep. Am. Sept., p. 220, pl. xxxvi, figs. 6, 7, male; 8, larva; 9, pupa (1833); *Evers comyntas*, Scudder, Butt. East. United States, p. 911, p. vi, fig. 9, male; 10, female (1889); *Lycana hellotia*, Mémoires, Cat. Lep. Mus. Petr., vol. 11, pp. 84, 124, n. 1395, pl. x, fig. 6, female (1857); *Evers hellotia*, Butler, Ann. and Mag. of Nat. Hist., 5th series, vol. ix, p. 17, n. 17 (1882); *Lycana praxiteles*, Felder, Verh. zool.-bot. Gesellsch. Wien, vol. xii, p. 489, n. 151 (1862); idem, id., Reise Novara, Lep., vol. 11, p. 281, n. 355, pl. xxxv, fig. 5, male (1865); *Lycana tipora*, Moore, Proc. Zool. Soc. Lond., 1865, p. 506, n. 108, pl. xxxi, fig. 8, male; *Evers diptera*, Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 132, n. 158 (1886).

HABITAT: North America, Central and Southern Europe (except Britain and Spain), North-Western Asia, the South of Siberia, the Amur, Japan, Corea, China, almost throughout India, Ceylon, Assam, Burma, the Malay Peninsula, Nicobar Isles, Sumatra, Java, Celebes, Sumba, Sambawa, Ceram, Philippines, Australia.

EXPANSE: ♂, ♀, 75 to 150 inches.

DESCRIPTION: MALE. **UPPERSIDE,** *both wings* blue with an outer black margin of very variable width; sometimes with a black disco-cellular spot. *Cilia* whitish throughout. *Hindwing* with a more or less prominent marginal series of black spots, sometimes indistinctly crowned with orange; the wing outwardly bounded by a very fine white line and an anteciliary fine black line; tail very variable in length, tipped with white, the shaft more or less white. **UNDERSIDE,** *both wings* sometimes almost pure white, often more or less sullied with brownish. *Forewing* with a fine blackish line on the disco-cellular nervules, a discal series of spots, sometimes brownish and confluent into a macular band, sometimes well separated, distinct, black surrounded by a fine white line; two somewhat indistinct submarginal series of dark lunules, the inner series sometimes very prominent and formed into large quadrate spots; an anteciliary fine black line. *Hindwing* with the disco-cellular nervules defined by a narrow dark line; sometimes with four prominent black spots only, one beyond the middle of the costa, two near the base, and one near the middle of the abdominal margin, an obscure discal irregular series of pale brown spots, the marginal series of lunules as in the forewing, bearing two prominent black spots beyond the tail, irrorated with greenish-silvery scales and crowned broadly with orange; sometimes with the discal irregular series of spots as prominent and as black as the rest, with a complete marginal silver-spangled series of black spots, with a broad orange band placed inwardly against them; a fine anteciliary black line. **FEMALE.** **UPPERSIDE,** *both wings* sometimes entirely sooty black, sometimes with the basal and discal area of the forewing and the disc of the hindwing blue, sometimes the entire upper surface almost as blue as in the blackest-bordered males, but the blue of a different shade. *Hindwing* with the marginal black spots usually more prominent than in the male. **UNDERSIDE,** *both wings* as in the male.

The above description is drawn up from Indian specimens only. The variations indicated appear to be confined to no particular locality, though I believe there is a very marked seasonal dimorphism in many localities, the lightest-coloured males and females occurring in the dry-season, the dark males and completely black females in the rains. No author has placed the *parhasius* of Fabricius and the *dipora* of Moore as synonyms of *argiades*, but no author has undertaken to show how these three species differ. I can find absolutely no character by which to separate them; in every direction the species is a most variable one, and these variations are not confined to any particular region or locality, though every variation could not perhaps be found in any one place. In Europe Dr. Lang says that *L. argiades* has "two or three broods in the year; the individuals of the spring brood are smaller than those which appear later in the season; and to these the name *polysperchon*, Beigstrasser, is generally given. Besides this seasonal variation, there is an aberration found at the same time and in the same localities as the typical form: this is the *corelas*, Ochsenheimer, which differs from the type in the absence of the orange spots on the underside." I have not seen any Indian specimens with no orange whatever below, though many have that colour quite obsolescent. Mr. Elwes writes: "This species seems to be widely distributed through Northern and Eastern Asia, China, and Japan. I have compared many specimens from Amurland, Shanghai, and Japan, and find them so very variable, both in size, colour, and the spots of the hindwing, that I am unable to see how the larger and brighter specimens described as *L. hellotis*, Menéndez, and *L. praxitels*, Felder, can be separated from *L. argiades*. As a rule the Oriental and Japanese specimens are larger and more richly spotted, especially at Tokio, Japan; but some of those from Askold and Shanghai are quite as small as German specimens of *L. polysperchon*, Bergsträsser. This variety also occurs on the Ussuri at Raddefskaia and Askold." Mr. Leech writes: "Common all over Japan and Corea during the warm months. It varies in size from $\frac{3}{4}$ inch to $1\frac{1}{4}$ inches. The female also varies in colour and markings, some specimens being much suffused with blue." Mr. Pryer writes of the Japan form: "This species is very abundant, and a succession of broods appears during the year; they vary much in size, and female specimens are often to be found with more or less blue on the upperside."

In India *E. argiades* occurs in the moister portions of Ladak, throughout Kashmir, all along the Himalayas, in Assam, Burma, at Bholahât in the Maida District, Oissa, Ganjam,

Nagpur, Mhow, the Nilgiris, Travancore, Ceylon, and on the Islands of Nankowri and Katschaff of the Nicobars. I am surprised to find that it does not occur on the Western Ghâts. In North America *E. argiades* appears to be as variable a species as elsewhere and in the same way. In Mr. Scudder's most full description of it at all stages he notes the difference in the sizes of the specimens, males varying from 9.5 to 15.25, and females from 10.0 to 15.0 millimetres. He also refers to the variations that obtain in the coloration and markings, the female as well being dimorphic. He considers the American insect to be a distinct species from the European and Asiatic one, and applies to it the name *E. coryntas*, Godart. He says that they are considered to be identical by "some careless authors" (p. 925), but he does not point out in what direction the supposed differences between the old and new world forms may be looked for. I have quite failed to discover them in the imago.

As writers on Indian Lepidoptera have hitherto kept *E. parthasius* and *E. dipora* distinct, I append descriptions of them as foot-notes. I also give a description of the species as it appears in Europe by Dr. Lang. * The transformations are described on page 136 ante.

The figure shows both sides of a male example from Pangri in the Western Himalayas deposited in my collection.

717. *Everes kala*, n. sp. (PLATE XXVI, FIG. 181).

HABITAT: Khasi Hills.

EXPANSE: 1½ inch.

DESCRIPTION: UPPERSIDE, both wings fuliginous-black. Forewing with a rather prominent oval disco-cellular deep black spot. Hindwing with a submarginal series of oval indistinct black spots, each spot outwardly defined by a fine short white line; tail very short, fine, black tipped with white. Cilia whitish marked with black. UNDERSIDE, both wings plumbeous-grey, a fine antecubital black line, then a series of small oval dull fuscous spots circled by a white line; then a series of larger rather quadrate dull fuscous spots inwardly defined by a fine white line. Forewing with a very prominent discal series of six rounded deep black spots,

* *Everes parthasius*, Fabricius. HABITAT: Java (Hartfield, Moore and Butler), Bengal, Ceylon (Moore); Mhow (Swinhoe); Nicobar Isles (Wood Mason and de Nicolle), Malacca, Singapore (Distant); Celebes (Snellen); Australia (Simpson). EXPANSE. Male, 1.00, female, 1.25 inches. DESCRIPTION: "MALE. UPPERSIDE, both wings deep violet blue, with a narrow brown outer marginal band. Hindwing, the band with black spots slightly bordered with white. UNDERSIDE, both wings greyish white. Forewing with a white-bordered dusky-brown disco-cellular lunule, an outer discal lunular line, and two u. apical lunular lines. Hindwing with three black subbasal and an apical spot, a white-bordered dusky-brown disco-cellular lunule, a discal row of lunules, and a marginal lunular line the latter enclosing two large subanal black spots bordered with ochreous. FEMALE. UPPERSIDE, both wings violet-brown, the lower basal and discal areas more or less greyish-blue. Hindwing with a marginal row of white bordered black spots, the two spots between the median nervulus bordered with a red inner lunule." UNDERSIDE, both wings as in the male. (Moore, l. c. in Lep. Cey.)

Occurs in Ceylon at "Colombo. In open and cultivated land" (Hutchinson) "Galle and Kandy. Very common" (Wade).

Everes dipora, Moore. *Lycena dipora*, Moore, Proc. Zool. Soc. Lond., 1865, p. 306, n. 106, pl. xxx, fig. 3, male; *Everes dipora*, Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 132, n. 158 (1886). HABITAT: Kasauli, N.-W. Himalayas; Kashmir (Moore); Kumaon (Doherty). EXPANSE. Male, 92 of an inch. DESCRIPTION: "MALE. UPPERSIDE, both wings dull violet blue, exterior margins broadly brown. Cilia grey, with a narrow medial brown line. Forewing with a disco-cellular spot. Hindwing with a tail. UNDERSIDE, both wings greyish cream colour, exterior margins defined by a brown line. Forewing with a narrow disco-cellular mark, and a transverse discal straight series of white-enriched black spots, a submarginal row of pale brown spots. Hindwing with three basal and three interrupted discal series of eight white-enriched black spots, a medially disposed marginal orange-red band, bordered inwardly with brown lunules, outwardly with (two clear, the rest ill-defined) black spots. Cilia as above." (Moore, l. c.)

"A slight delicate species, from Kasauli; not very common, generally found near water." (Note by Colonel A. M. Lang, R. E.)

"Everywhere (in Kumaon) from 1,000 to 10,000 feet. The red area on the hindwing below is variable. The female is dark brown above. The male is indistinguishable from *E. parthasius*, Fabricius." (Doherty, l. c.) Colonel Lang has taken it near Naini Tal from 3,000 to 5,500 feet, June and July, and in the valleys above Nainital at about 5,500 feet in April.

Lycena argiades, Pallas. HABITAT: Central and Southern Europe (except Britain and Spain), North-Western Asia, the South of Siberia, and the Amur. (Lang). EXPANSE: 80 to 110 inches. DESCRIPTION: "MALE. UPPERSIDE, both wings violet-blue, with a narrow brown hind-marginal border. Forewing without spots. Hindwing with a short tail, two or three small brown spots along the hind margin near the anal angle. UNDERSIDE, both wings greyish-white, tinged with blue at the base, a faint hind-marginal orange band. Forewing has a narrow linear discoidal spot, and a row of seven black spots parallel to the hind margin. Hindwing has a row of black spots enclosed by the orange band, and an irregular row running across the medial area of the wings, besides two placed near the base. FEMALE. UPPERSIDE, both wings brown, slightly tinged with violet-blue at the base. Hindwing, besides having two or three black spots near the anal angle, shows faint traces of an orange band. UNDERSIDE, both wings as in the male. Cilia in both sexes white." (Gfr., H. C. Lang, Butt., of Eur., p. 204, n. 4, pl. xxx, fig. 5, male and female (1884).)

each spot outwardly defined by a fine white line; of these the four first or anterior spots are in a straight line, but arranged a little outwardly obliquely across the wing; the two lower spots are parallel to the outer margin, the posterior spot of all the largest of all; a similar disco-cellular spot. *Hindwing* with four subbasal spots arranged in a slightly convex line across the wing, of which the anterior touches the costal nerve and is the largest; two are in the middle of the wing and divided by the median nervure only, the posterior spot the smallest and placed on the abdominal margin; a linear disco-cellular spot; a discal somewhat irregular series of eight spots, of which the fourth and seventh from the costa are much larger than the others; an oval marginal orange spot in the first median interspace. *Antennæ* with a large spatulate club, the white annulations prominent.

Described from a single specimen generously presented to me by the Rev. Walter A. Hamilton, by whose native collectors it was obtained. I do not know any species to which it can be compared, nor am I sure of the sex of the specimen, but it is probably a male. I even place it in the genus *Evers*, Moore, with great doubt. It comes into this group, as it has the first subcostal nervule of the forewing anastomosed completely with the costal nervure for a portion of its length, as I learn by applying benzine to my solitary specimen. The large size and great prominence of the spots on the underside renders this little species easy to be recognised.

The above description was written more than a year ago. Since it has been placed in type, I have discovered a solitary specimen of *Lycana fischeri*, Eversmann, from Askold, in the collection of the Indian Museum, Calcutta. This specimen differs only from my *E. kala* on the underside of the hindwing in possessing five subbasal spots, there being an additional one on the abdominal margin; in having a much larger expanse of orange towards the anal angle, extending over three interspaces, and the two marginal black spots divided by the first median nervule prominently sprinkled with metallic silvery scales. In spite of these differences, I am of opinion that it is more than probable that *E. kala* will ultimately be found, when more specimens of it from Assam are obtained, to be a synonym of *E. fischeri*, with which it agrees exactly in neurulation. I append below for reference a description of that species.*

The figure shows both sides of the type specimen in my collection,

Evers exiguus, Distant, from Singapore, differs so markedly from the other species of the genus that I think it belongs very doubtfully to it. Its description is given below †

* *Evers fischeri*, Eversmann. *Lycana fischeri*, Eversmann, Bull. Moscou, vol. xvi, p. 537 (1843); id., Herrich-Schäffer, Eur. Schmett., vol. i, figs. 218, 219 (1844); id., Elwes, Proc. Zool. Soc. Lond., 1881, p. 888, id., Lang, Butt. Eur., p. 102, n. 5, pl. xxii, fig. 6 (1884); id., Leech, Proc. Zool. Soc. Lond., 1887, p. 475, n. 55. HABITAT: The Steppes of South-Eastern Russia, dry meadows in the Ural Mountains and the Altai (Lang); Vladivostok and Askold in Siberia, Shanghai in China (Elwes); Gensan and Ningpo in Corea (Leech). EXPANSE: 90 to 100 inch. DESCRIPTION. MALE and FEMALE. "UPPERSIDE, both wings dark brown. Forewing has a small dark discoidal spot. Hindwing with a very minute tail, a row of faint light spots placed parallel to the hind margin. Cilia of both wings white. UNDERSIDE, both wings ground-colour light grey. Forewing has a double row of narrow black spots placed parallel to the hind margin; internal to this is an irregular row of larger spots, that near the anal angle being the largest, and besides these there is a black discoidal spot surrounded like the others by a light ring; there are no basal spots. Hindwing has a double row of hind-marginal spots enclosing a faint orange band, the black spots near the anal angle being spotted with silvery green; between this row and the narrow linear discoidal spot is an irregular row of black spots in light rings; besides these, there are basal spots four in number."

† Like most other exclusively (sic) Russian species, rare and difficult to obtain. (Lang, l. c.)

Found at Vladivostok and Askold, also at Shanghai, but not, as far as I know, in Japan. Chinese specimens do not agree perfectly with Siberian ones; they are smaller, and the blue eyes do not show through the hindwing of the female; but I do not think they can be separated. (Elwes, l. c.)

Occurs at Gensan in June. It is also very common in the snowy valley, Ningpo, in April. The pale band on the outer margin of the hindwing (on the upperside) may be either very distinct, faint, or totally absent. The spots on the underside have a great tendency to coalesce in the manner common to many of this genus. (Leech, l. c.)

† *Evers exiguus*, Distant, Rhop. Malay., p. 455, n. 2, pl. xlv, fig. 17, female (1886). HABITAT: Singapore. EXPANSE: Female, 85 of an inch. DESCRIPTION: "FEMALE. UPSIDE, both wings pale dusky-brown, the basal areas more or less shaded with violaceous blue. Hindwing with a submarginal broken lunate greyish fascia, and a marginal series of blackish spots margined with greyish, the spot between the two lower median nervules inwardly margined with reddish-ochraceous. Cilia greyish. UNDERSIDE, both wings greyish-brown. Forewing with three discal greyish-margined fasciæ, the first short at the end of the cell, the second extending from the bifurcation of the fourth and fifth subcostal nervules to the second median nervule, the third commencing at that nervule, its outer margin being connected with the inner margin of the second,

718. *Everes umbriel*, Doherty.*E. umbriel*, Doherty, Journ. A. S. B., vol. lvi, pt. 2, p. (1889).

HABITAT: Myitta, Tenasserim Valley, Burma.

EXPANSE: ♂, '95 of an inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings black. Cilia of the forewing anteriorly black, whitish at the lower angle, of the hindwing whitish, except at the ends of the veins where it is black. UNDERSIDE, both wings grey-white (much whiter than in *E. kala*, de Nicéville); with the following blackish markings, the discal ones quadrate:—Forewing with a streak across the end of the cell, a broad straight transverse discal band, inwardly dislocated below the second median nervule, the lower part outwardly oblique; outer margin widely dark, containing an inner lunular and an outer slender straight whitish fascia. Hindwing with a large subcostal, a smaller cellular, and a minute abdominal spot, all near the base; a streak across the end of the cell, and a broad discal transverse band broken into four quadrate masses, of which only the upper two touch each other, the first covering two interspaces, the second (strongly dislocated outwardly) covering three interspaces, the third (nearer the base, oblique) covering two interspaces, and the fourth being a small lunule between the submedian and the internal nervures; outer margin broadly dark, containing a row of whitish lunules (the subanal one orange) surrounding black spots, of which the two subanal ones are touched with metallic green; a whitish submarginal and a black marginal line, both very slender." Cilia of the forewing outwardly black, inwardly narrowly white, becoming entirely white towards the anal angle; of the hindwing almost entirely white, just touched with black at the ends of the veins, Tail black, the tip white.

"The broad broken quadrate discal bands of the underside easily distinguish this peculiar species from *Everes kala*, which has rows of round black spots instead. The type specimen of *E. kala* is in my opinion a male, so that these two species have wholly lost the usual blue colour of their allies, in this resembling *Everes nysus*, Guérin. That species, which seems also to occur near Myitta (though I did not capture any) differs slightly from the typical *Everes* in having the disco-cellular nervules of both wings meeting at a perceptible angle, but it seems scarcely worth while to retain the genus (*Talcaida*, Moore) which has been founded on it." (Doherty, l. c.) With reference to this last remark, from my bleached examples of both species, I do not find that there is much difference in the angle at which the disco-cellular nervules of both wings meet.

E. umbriel certainly looks much more distinct from *E. fischeri* than does *E. kala*, but like that species it has the metallic greenish speckles at the anal angle of the hindwing below, which my species lacks. The conlescing of the discal spots of the underside is probably an aberrational character, as pointed out above by Mr. Leech in *L. fischeri*, and it is on these markings that *E. umbriel* has chiefly been founded. It will probably be found to be a synonym of *E. fischeri* on an examination of a large series from Burma.

Genus 118.—NACADUBA, Moore. (PLATES XXVI and XXVII).

Nacaduba, Moore, Lep. Cey., vol. i, p. 88 (1882); id., Distant, Rhop. Malay., p. 218 (1884).

"FOREWING, triangular; costa regularly arched, [apex sometimes rounded, sometimes very acute], exterior margin slightly convex, [sometimes straight], posterior margin straight; costal nervure extending to half length of the margin, bent upwards to the costa near its end; first subcostal nervule emitted at one-third before the end of the discoidal cell, short,

fascia, a submarginal greyish-margined fascia, and a small subcostal greyish-margined spot on the inner side of the second discal fascia. Hindwing with three discal greyish-margined fasciae, the first shortish at the end of the cell, the second longest and reaching the second median nervule, the third commencing at that nervule, its inner margin connected with the outer margin of the first; two greyish-margined spots at base, one in and one beneath the cell; beyond the outer fascia is a greyish lunulate line, and a marginal series of greyish-bordered spots, the spots between the two lower median nervules broadly margined inwardly with reddish-ochraceous, and a small ochraceous spot at anal angle; two black grey-margined subcostal spots. Body and legs more or less concolorous with wings." (Distant, l. c.)

The figure and description of this species agrees minutely with specimens of *Catochrysops strabo*, Fabricius. I am strongly of opinion that it is that species, but cannot be sure without seeing the unique type specimen. From the figure it has all the appearance of a *Catochrysops*, none whatever of any *Everes* known to me.

curved upwards and touching the costal nerve, *second* subcostal at one-fourth, *third* subcostal close to the end of the cell, *fourth* subcostal at beyond one-half from the third and terminating at the apex, *fifth* subcostal [*upper discoidal*] from the end of the cell; *disco-cellular* nervules slightly concave, radial [*lower discoidal*] nervule from their middle; *discoidal* cell broad, long, extending more than half the wing; *second median nervule* from the angle before the end of the discoidal cell, *first median* at one-third before the end; *submedian nervule* straight. *HINDWING*, bluntly oval, furnished with a single slender tail [at the termination of the first median nervule, sometimes wanting]; *costal nervule* arched at the base; *first subcostal nervule* curved upwards, emitted at one-sixth before the end of the cell; *disco-cellular* nervules slight'y oblique, *discoidal* nervule from their middle; *discoidal* cell broad; *third* and *second median nervules* from the end of the cell, *first median* at nearly one-half before the end; *submedian* and *internal nervules* straight. *BODY* moderate, rather short; *palps* porrect, second joint extending more than half beyond the head, laxly pilose beneath; *legs* slender; *antennæ* with the club grooved, pointed. *Eyes* hairy. Type, *N. prominens*, Moore." (Moore, l. c.)

In the forewing the costal nerve terminates about opposite to the apex of the cell; the first subcostal nervule immediately after its origin is directed up to the costal nerve, with which it completely anastomoses for some little distance; the vein is not short as Mr. Moore supposes, being of ordinary length; the second subcostal has its base nearer to the base of the first subcostal than to that of the upper discoidal; the third subcostal is rather short, emitted about midway between the apex of the wing and the base of the upper discoidal; the discoidal cell does not extend beyond the middle of the wing; the disco-cellular nervules upright; the second median nervule emitted a little before the lower end of the cell.

The chief peculiarity of the genus is the presence in it of two groups, a tailed and a tailless. The tailed group consists of two distinct species, and a third, which I believe to be dimorphic, has one form tailed, the other tailless. Had it not been for the existence of these three species, and of the single species of the genus *Megisba*, Moore, it would have been easy to divide the true "blues" (as distinct from the "coppers" and "hairstreaks") into two groups, one furnished with tails, the other lacking them; but *Nacaduba* comprising within itself a species combining both characters, besides others with and without this feature, and *Megisba malaya*, Horsfield, also having tails in some individuals, lacking them in others, rendered that course impossible. Breeding may hereafter prove that the tailed and tailless forms of *N. ardates*, Moore, the dimorphic species, are truly distinct species, though the neurulation of the imagines of the two forms is precisely similar, in which case it would be convenient to place the tailless form of *N. ardates*, together with *N. dana*, de Nicéville, and *N. hamptonii*, de Nicéville, in a separate genus. The two forms of *N. ardates* may be distinct, though I much doubt it; but I feel quite sure that the tailed and tailless forms of *M. malaya* represent but one species.

All the species of the genus *Nacaduba* are of some shade of blue, violet, or plumbeous-purple on the upperside in the male, with a narrow outer black margin. The underside of both sexes is of a greyish or ochreous-brown colour, crossed by whitish lines in pairs or catenulated bands; there is usually a prominent black spot on the outer margin in the first median interspace of the hindwing usually crowned with orange and marked with some metallic-greenish scales. The female has the upperside black, the disc and base of both wings more or less marked with blue or purple iridescent scales, which in *N. atrata*, Horsfield, look pearly white in some lights. The outer margin of the hindwing usually bears a series of black spots, that in the first median interspace being the largest.

As regards the distribution of the genus, two species, *N. nora* and *N. macrophthalma*, both of Felder, have been recorded from Australia, otherwise it appears to be strictly confined to the Indo-Malayan region. The genus has so lately been constituted that it is impossible to say how many species it contains. It seems to be a natural one, all the species have a similar *facies*, and are readily recognisable. The transformations of a single species, *N. prominens*, Moore, are known, and will be found very briefly described under the description of that species. Both the larva and pupa appear to be of the usual lycænid type.

Key to the Indian species of *Nacaduba*.

A. Underside, forewing, basal area unmarked.

a. Underside, both wings brown, no series of prominent fuscous marginal spots.

a¹. Male, upperside, dark purple; underside, markings wide and sullied.

719. *N. MACROPHTHALMA*, Sikkim, Bhutan, Assam, South India, Ceylon, Andaman and Nicobar Isles, Malay Peninsula, Borneo, Philippines; Australia.

δ¹. Male, upperside, bluish-purple; underside, markings narrow and white.

720. *N. PAVANA*, Sikkim, Bhutan, Cachar, Mergui, Andaman Isles, Java.

δ. Underside, both wings pale greyish-brown, a double series of marginal prominent fuscous spots.

721. *N. KERRIANA*, Upper Burma, Malay Peninsula.

B. Underside, forewing, basal area marked with two white strigæ in addition to those on the disc.

a. Apex of forewing highly acute, outer margin straight.

a¹. Basal fascia on underside of forewing reaching submedian nervure.a². Underside, both wings, ground-colour violet-grey.

722. *N. VIOLA*, Sikkim, Assam, Burma, Malay Peninsula, Nilgiris, Ceylon, Andaman Isles.

δ². Underside, both wings, ground-colour pale hoary-brownish.

723. *N. NJUSA*, Andamans, Amboina, Australia.

δ¹. Basal fascia on underside of forewing not extending below median nervure.

724. *N. NORMIA*, Ceylon.

β. Apex of forewing somewhat rounded, outer margin convex.

a¹. Hindwing furnished with a tail.a². White markings on underside in both sexes very prominent, female, upperside, forewing with the indescent blue discal patch appearing to be white in some lights.

725. *N. ATRATA*, Malda, Sikkim, Bhutan, Assam, Nilgiris, Ceylon, Malay Peninsula, Java.

δ². White markings on underside in both sexes less prominent; female, upperside, forewing with the discal patch never transmitting a white light.a³. Basal band on underside of forewing reaching submedian nervure.a⁴. Male, upperside plumbeous purple, with very narrow outer black marginal thread.a⁵. Male, upperside deep purple, forewing somewhat narrow.

726. *N. PROMINENS*, Malda, Sikkim, Bhutan, Assam, Orissa, North Canara, Nilgiris, Shevaroyis, Ceylon.

δ⁴. Male, upperside paler purple, forewing somewhat broader than in *N. PROMINENS*.

727. *N. PLUMBOMICANS*, Burma, Andaman and Nicobar Isles.

δ⁵. Male, upperside bluish purple, with somewhat broad outer black margins, underside with bands filled in with dark brown, very prominent.

728. *N. COLASTIS*, Kumaon, Sikkim, Assam, Andaman Isles.

δ³. Basal band on underside of forewing reaching median nervure only.

729. *N. BHUTEA*, Sikkim.

δ⁶. Hindwing sometimes furnished with a tail, sometimes tailless; of very small size, the smallest in the genus.

730. *N. ABDATIS*, India, Ceylon, Burma, Andaman and Philippine Isles.

c¹. Hindwing never furnished with a tail.a³. Male, upperside violet-blue; underside, markings inconspicuous.

731. *N. DANA*, Kumaon, Malda, Sikkim, Bhutan, Burma, Nilgiris.

δ⁶. Male, upperside deep violet-purple; underside, markings conspicuous.

732. *N. HAMPSONI*, Dehra Dun, Nilgiris.

719. *Nacaduba macrophthalma*, Felder.

Lycana macrophthalma, Felder, Verh. zool.-bot. Gesellsch. Wien, vol. xii, p. 483, n. 215 (1862); idem, *Kl. Reise Novara*, Lep., vol. ii, p. 273, n. 339, pl. xxxiv, fig. 35, male (1865). *Lampides macrophthalma*, Butler, Trans. Linn. Soc. Lond., Zoology, second series, vol. i, p. 547, n. 2 (1877); *Nacaduba macrophthalma*, Moore, Lep. Cey., vol. i, p. 89, pl. xxviii, figs. 4, 4a, male (1881); id., Butler, Ann. and Mag. of Nat. Hist., fifth series, vol. xi, p. 417, n. 59 (1883); id., Wood-Mason and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 367, n. 283, pl. xvi, fig. 13, male (1886); id., Distant, Rhop. Malay., p. 218, n. i, pl. xx, fig. 3, male (1884); p. 454, n. i, pl. xlii, fig. 8, female (1886); *Lampides* conf. *pactolus*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. xlii, pt. 2, p. 230, n. 40 (1880).

HABITAT: Sikkim, Bhutan, Assam, South India, Ceylon, Andaman and Nicobar Isles, Malay Peninsula, Borneo, Philippine Isles, Australia.

EXPANS: ♂, 1.2 to 1.6; ♀, 1.3 to 1.5 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings plumbeous-violescent. UNDERSIDE, both wings palely hoary-fuscos, with two macular cognate submarginal fasciæ, fuscous circled with whitish (evanescent in the forewing). Forewing with a disco-cellular fasciæ and a fascia beyond it, broken at the second median nervule. Hindwing with a basal fascia, a disco-cellular fasciæ and a contiguous external chain-shaped bent fascia of the ground-colour, circled with fuscous and whitish, indistinct, with a large posterior black ocellus, inwardly circled with a narrow yellowish lunule, outwardly divided with a slender metallic arch set on a whitish anal striga, and a pair of minute anal spots of the same colour."

"Has more acute forewings than the allied *L. [=N.] hermus*, Felder," from Amboina. (Felder, l. c. in Reise Novara).

The type specimen was obtained on Pulo Milu, one of the Nicobar Isles, and the late Mr. de Roepstorff and Mr. Man have obtained it on Kamorta, Nankowri, and Great Nicobar. I have before me three males only from the Nicobars, one from each of the above-named islands, and they present considerable differences in the shade of purple on the upperside and in the prominence of the markings on the underside; when male specimens from the Andamans, Ceylon, Ootacamund, Sikkim, Bhutan, Assam, and Burma are brought together, these differences are still more marked. The only conclusion I can come to is either that many slight local races have arisen, which perhaps may not be constant to locality, or that the differences observed may be due to seasonal causes. The females show as great variation as do the males; three from Ceylon have the metallic blue area confined to a small patch on the disc of the forewing; another from Ceylon has it fully one-third larger, while a third from the same locality has the upperside almost entirely blue, leaving a narrow black border only. If such marked differences extend to the species when inhabiting a small region like the Island of Ceylon, it is not much to be wondered at if as great differences manifest themselves when a much larger region is considered. In the Nilgiris a curious seasonal form of the male occurs; it has the discal fascia of the forewing on the underside filled in anteriorly with blackish, and a large discal patch of the same colour on the hindwing. Mr. E. E. Green possesses a very similar female specimen taken in Ceylon. Mr. G. F. Hampson informs me that this form occurs in the Nilgiris in the rains, the common form appearing in the dry season; this form of differentiation between wet and dry season broods recalls that obtaining in *Lampides alianus*, Fabricius; indeed in general facies and style of markings on the under surface *Lampides* and *Nacaduba* have a strong superficial likeness. Elsewhere, however, I have not observed any similar seasonal variation in *Nacaduba*.

I give below a very full description* of the commonest form of the species which occurs in the Andaman Isles, Cherrapunji and Sibsagar in Assam, and in Sikkim and Bhutan,

* *Nacaduba macrophthalma*, Felder. *Lampides* conf. *pactolus*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. xlix, pt. 2, p. 230, n. 40 (1880). **HABITAT:** South Andaman Isles, Cherrapunji, Sibsagar, Sikkim. **EXPANS:** Male, 1.2 to 1.4; female, 1.5 inches. **DESCRIPTION:** "FEMALE. UPPERSIDE much as in *L. [=N.] pactolus*, Felder (from Amboina), differing in having the dark fuscous outer border of the forewing spotted, and that of the hindwing very much less distinctly marked in the same manner; no disco-cellular mark in either wing, and the whole upperside apparently more clouded with smoky fuscous scales. UNDERSIDE, both wings very pale fuscous, with a submarginal fascia composed of rhomboid spots, and a marginal one of narrow oval spots fuscous of a rather darker shade than the ground, both margined and connected together by whitish, the latter of them developed in the hindwing, in the interval between the first and second median nervules, into a conspicuous jet-black circular spot divided externally by a semi-circle of pale blue metallic scales and encircled internally by luteous white, and into two minute ones, one on each side of the submedian nervule, internally covered with blue scales. Forewing with two small subcostal spots, a short disco-cellular fasciæ, and a discal fascia strongly faulted at the second median nervule, so that the outer white margin of its posterior portion is in line with the inner white margin of its anterior portion, and the inner white margin of its posterior portion is in line with the disco-cellular nervules. Hindwing with a similar disco-cellular fasciæ, and completely faulted and contorted discal and basal fasciæ, all the fasciæ in all the wings margined on both sides with fuscous of a very slightly deeper tint than the ground and with whitish. MALE. UPPERSIDE, both wings semi-translucent palish fuscous, with a light and tolerably brilliant amethystine lustre, edged with a darker rather broad anteciliary line. UNDERSIDE, both wings much as in the female, but with the macular submarginal fuscous fasciæ broader, and the anal and subanal black spots of the hindwing rather larger and conspicuously encircled with fulvous internally." (Wood-Mason and de Nicéville, l. c.)

which was described by Mr. Wood-Mason and myself as a species allied to the *Lycana packius* of Felder, but apparently distinct from *N. macrophthalma*, from which, however, I do not think it wise to separate it.

Next to *N. ardates*, Moore, *N. macrophthalma* is the commonest species of the genus, and males may be often met with in Sikkim at low elevations sucking up moisture from damp spots, Mr. Butler records this species from Borneo and Australia (Trans. Linn. Soc. Lond., Zoology, second series, vol. i, p. 566 (1877): it has therefore the greatest geographical range of all the species of the genus. The females of all the species appear to be very rare in all localities.

720. *Nacaduba pavana*, Horsfield. (PLATE XXVI, FIG. 182 ♂).

Lycana pavana, Horsfield, Cat. Lep. E. I. Co., p. 77, n. 12 (1828); *Nacaduba pavana*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 367, n. 124 (1886); *N. macrophthalma*, Moore (nec Felder), Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 40 (1886).

HABITAT: Java (Horsfield), Sikkim, Bhutan, Cachar, Mergui, Andaman Isles.

EXPANSE: ♂, 8 to 1.5; ♀, 1.0 to 1.2 inches.

DESCRIPTION: "MALE. UPPERSIDE, *both wings* pale violet-blue, which tint being almost equally diffused over a grayish-brown ground, has, in a certain position, a pale silvery reflexion; margin terminated by a very narrow brown thread and a grayish *cilia*. UNDERSIDE, *both wings* grayish-brown with a pale silvery reflexion, forewing with seven, hindwing with ten white strigæ, of which three are marginal, continued uniformly through both wings to the anal ocelli, and bounded exteriorly by a deep black thread. *Forewing* has the medial portion marked by two pairs of strigæ extending half across the surface, being here terminated abruptly at one of the longitudinal nerves; their direction is regularly transverse, and they are slightly undulated; the interior pair is short, and arises at a small distance from the costa; in the intermediate space a small dot is regularly opposed to each striga; the second pair touches the costa and reaches regularly to the disc; in the posterior portion of the surface one striga opposed to each of these pairs, is continued parallel with the other to the interior margin. In the *hindwing* the strigæ, seven in number, are not arranged in pairs, but follow nearly at equal distances, broken and interrupted by obscurer lines, without any curve in the anal region; the basal one is minute, close to the thorax, and in some individuals very obscure; three ocellated spots of an intense black colour, but very unequal in size, are placed in the anal angle at the posterior margin; the exterior one is very large, regularly orbicular, bounded interiorly, and at the sides by a very narrow yellowish-brown iris, and exteriorly by a crescent of silvery irrorations; adjoining to this is an excavated irregularly-reniform spot, which touches a minute ocellus at the extremity of the anal angle; the intermediate spot is marked interiorly with silvery irrorations and a rufous crescent, and the extreme ocellus is also slightly spangled. Tail brown, tip with white. Body brown above and white underneath. Antenna brown, very obscurely banded with gray. FEMALE. UPPERSIDE, *forewing* with a defined brown border extending along the exterior and posterior margins, on the base and disc the violet colour is deeper than in the male, and the silvery gloss is more intense. *Hindwing* has a series of dark brown spots parallel with the posterior margin, of which the penultimate one, opposite the caudal appendage, has a deeper tint; these spots are bounded exteriorly by an intense white thread, and interiorly by a series of obscure lunules directed outwards." UNDERSIDE, *both wings* as in the male. (Horsfield, l. c.)

This species is, perhaps, included in the Indian fauna erroneously, but as I have before me a large series of specimens which appear to me to be distinct from the commonest form of *N. macrophthalma*, Felder, described in a foot-note on the preceding page, and which agree with Horsfield's description of *N. pavana*, I prefer to include them under that name rather than describe them as a new species. These specimens may at once be known in both sexes on the underside by all the bands being white, and not scrid white as in *N. macrophthalma*, and much narrower and better defined. The male may be distinguished by its paler blue coloration on the upperside, and narrower outer black margin. It is, I think, a perfectly good and distinct species.

N. pavana occurs in Sikkim much less commonly than *N. macrophthalma*, also in Bhutan, Cachar, the Andaman Isles, and in the Mergui Archipelago. The specimens from the last-named locality were identified by Mr. Moore as *N. macrophthalma*.

The figure shews both sides of a male specimen from Cachar in the collection of the Indian Museum, Calcutta.

721. *Nacaduba kerriana*, Distant.

N. kerriana, Distant, Ann. and Mag. of Nat. Hist., 5th series, vol. xvii, p. 253 (1886); idem, id., Rhop. Malay., p. 455, n. 7, pl. xlii, fig. 12, male (1886).

HABITAT: Thoungyeen forests, Upper Burma; Malacca; Singapore.

EXPANSE: ♂, 1·4 inches.

DESCRIPTION: MALE. "UPPERSIDE, both wings pale lavender-blue. Forewing with the costal margin narrowly, and the outer margin more broadly fuscous. Hindwing with the outer margin fuscous; and with marginal fuscous spots separated by the median nervules, and which are divided from the outer margin by narrow greyish linear markings. Tail fuscous, apex greyish-white. UNDERSIDE, both wings pale greyish-brown. Forewing with the following whitish fasciæ:—one crossing the cell just before the apex, and extending from the subcostal nervure to near the inner margin; a short disco-cellular fasciæ just beyond the end of the cell, preceded by a small spot between the second and third subcostal nervules; these are followed by a fasciæ which nearly crosses the whole breadth of the wing, commencing at the second subcostal nervule and extending to near the inner margin; the outermost fasciæ being shorter, and commencing at the lower subcostal nervule terminates on the second median nervule; outer margin broadly whitish, containing a double series of dark fuscous spots; extreme margin dark fuscous. Cilia brownish. Hindwing crossed by a series of whitish fasciæ, the outer margin as on the forewing with two marginal black spots, which are separated by the second [first] median nervule and are irrorated by bluish scales and preceded by ochraceous shading. Body above and beneath more or less concolorous with the wings; legs fuscous, streaked with greyish." (Distant, l. c. in Rhop. Malay.)

I possess a single male of this species which agrees on the upperside exactly with Mr. Distant's figure; the underside differs in the ground-colour being paler, the white fasciæ consequently less distinct. It was taken by Major C. T. Bingham in the Thoungyeen forests, Upper Burma, on 1st April, 1882. It is a most singular looking insect, and I certainly should have treated it as an aberration or "spot" of *N. macrophthalma*, Felder, had not Mr. Distant described it as a distinct species from specimens from two localities. In my specimen the double marginal series of black spots on both wings on the underside are very prominent owing to the ground-colour being almost pure white; this feature would alone make *N. kerriana* easily distinguishable, though it is probably less prominent in the type specimen.

722. *Nacaduba viola*, Moore. (PLATE XXVII, FIG. 183 ♂).

Lampides viola, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xx, p. 340 (1877); *Nacaduba viola*, Moore, Lep. Cey., vol. i, p. 89, pl. xxxviii, figs. 1, 1b, male; 1a, female (1881); idem, id., Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 40 (1886); id., Distant, Rhop. Malay., p. 219, n. 3, woodcut n. 65, male, pl. xx, fig. 24, male (1884); id., Wood-Mason and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 367, n. 225, pl. xvii, fig. 12, male (1886); *Nacaduba prox viola*, de Nicéville, Journ. A. S. B., vol. liv, pt. 2, p. 5, n. 296 (1885); *T. ycanesthes merguana*, Moore, Journ. A. S. B., vol. liii, pt. 2, p. 23 (1884).

HABITAT: Sikkim, Cachar, Sibesar, Mergui, Malacca, Singapore, Nilgiris, Ceylon, Andaman Isles.

EXPANSE: ♂, 9 to 1·3; ♀, 1·0 to 1·1 inches.

DESCRIPTION. "MALE. UPPERSIDE, both wings dark violet-blue, with a narrow black marginal line. Cilia whitish at the edge. UNDERSIDE, both wings violet-grey, with six broken very pale narrow delicate whitish bands. Forewing with the two inner and outer bands short. Hindwing with a small black anal and large subanal spot, speckled with blue and ochreous-bordered. FEMALE. UPPERSIDE, forewing smalt-blue in the middle. Hindwing with an indistinct marginal row of pale-bordered black spots." (Moore, l. c. in Ann. and Mag. of Nat. Hist.)

Mr. Moore makes no mention, either in his original description of this species, or in his "Lepidoptera of Ceylon," of either of the characters which separate this species from all others of the genus known to me, except *N. nora*, Felder, viz., the very acute apex and straight outer margin of the forewing, and the posteriorly attenuated hindwing, with the outer margin very straight. Mr. Distant's figures do not show these characteristics at all, and I am inclined to doubt that he has described and portrayed the true *N. viola*. Mr. Moore's description also appears to be incorrect. He says that "the two inner and outer bands on the forewing on the underside are short." In all the specimens I have seen, several of which have been identified by Mr. Moore, only the middle pair of bands on either side of the disco-cellular nervules are short, the other two pairs extending nearly across the wing. I have not seen a female.

N. viola is a rare species. The Indian Museum, Calcutta, possesses four males taken during the cold season by Dr. J. Anderson in the Mergui Archipelago, and Mr. Wood-Mason obtained a single specimen in Cachar. I possess seven specimens only, one from Sibsagar taken by Mr. S. E. Peal, one from Jorehât taken by Mr. J. L. Sherwill, one from Ceylon taken by Mr. Fühle, two from the Andaman Isles taken by Mr. R. Wimberley, and Mr. W. Davison has sent me two males taken by him at Singapore. The Mergui specimens were described as below as a distinct species.*

The figure shows both sides of a male example from Cachar in the collection of the Indian Museum, Calcutta.

723. *Nacaduba nora*, Felder.

Lycana nora, Felder, Sitz. Ak. Wiss. Wien, Math.-Nat. Cl., vol. xl, p. 458, n. 37 (1863); idem, id., Reise Novara, Lep., vol. II, p. 275, n. 341, pl. xxxiv, fig. 34, male (1865); id., Herrich-Schäffer, Stett. Ent. Zeit., vol. xxx, p. 72, n. 24 (1865); *Lampides nora*, Semper, Journ. des Mus. Godef., vol. xiv, p. 157, n. 59 (1879); *Nacaduba nora*, de Nicéville, Journ. A. S. B., vol. lii, pt. 2, p. 73, n. 21, pl. i, fig. 14, female (1883); *Lycana felderi*, Murray, Trans. Ent. Soc. Lond., 1874, p. 527, pl. x, figs. 4, male; 6, female.

HABITAT: South Andaman Isles (de Nicéville), Ambouma (Felder), Australia (Herrich-Schäffer, Murray and Semper).

EXpanse: ♂, ♀, 1.70 inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings leaden-violaceous, with a line before the cilia and the apices of the nervules blackish-fuscous. UNDERSIDE, both wings pale hoary-brownish, the anteciliary line as on the upperside, with submarginal lunules more palely bordered on both sides, outwardly circled with ochraceous powdering, and fuscous contiguous submarginal spots outwardly circled with whitish, a subbasal fascia, a disco-cellular fasciole, and a fascia contiguous to it at the second median nervule, here, and also in the hindwing, broken at the second subcostal nervule, all chain-shaped, yellowish, laterally margined with fuscous and whitish. Hindwing with a hinder spot inwardly with an encircling yellowish lunule, outwardly cut through with a slender metallic arch, and a pair of minute anal spots, black, inwardly bordered with metallic and yellowish."

"Smaller than the preceding [*N. heros*, Felder, from Luzon], also differing in the longer forewing and the shorter interior margin of the hindwing." (Felder, l. c. in Reise Novara.)

FEMALE. "UPPERSIDE, both wings smoky deep purple. Hindwing with a marginal series of increasing whitish lunules the one between the first and second median nervules enclosing a prominent black spot, the anal one two much smaller spots. UNDERSIDE, both wings bright castaneous brown. Forewing with a catenulated band across the middle of the cell from the subcostal nervure to the inner margin, a similar band closing the cell, a discal

* *Lycanethes merguiana*, Moore, Journ. A. S. B., vol. liii, pt. 2, p. 23 (1884). HABITAT: Mergui. EXpanse: Male, 9 of an inch. DESCRIPTION: "MALE UPPERSIDE, both wings violet-blue. Hindwing with two indistinct small anal blackish spots and a larger subanal spot. UNDERSIDE, both wings dull greyish-brown. Forewing with a transverse antemedial pale-bordered band, a short band at the end of the cell, and a broken discal band, two submarginal pale lunulae lines. Hindwing with a pale-bordered subbasal band, one at the end of the cell, and a broken curved discal band; two submarginal pale sinuous lines enclosing a small anal and a large oval subanal black spot, both surmounted by a yellow lunule and speckled with a few metallic-blue scales."

"A much smaller species than *L. bengalensis*, Moore (= *L. emolus*, Godart). Distinguished from it, on the underside, in the forewing having the antemedial pale-bordered band, and in the hindwing in the more irregular and zigzag pale bands, and the large subanal spot. It is also distinct from *L. lycanina*, Felder" (Moore, l. c.)