THE FAUNA OF BRITISH INDIA

INCLUDING

CEYLON AND BURMA

Published under the patronage of the Secretary of State for India.

EDITED BY LT.-COL. R. B. S. SEWELL, C.I.E., Sc.D., F.R.S., I.M.S. (*ret.*).

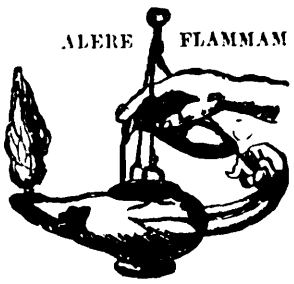
BUTTERFLIES.

VOL. II.

BY

G. TALBOT, F.R.E.S.

TAYLOR AND FRANCIS, LTD.,
RED LION COURT, FLEET STREET, LONDON, E.C 4
December, 1947.



PRINTED IN GREAT BRITAIN BY TAYLOR AND FRANCIS, LTD.,
RED LION COURT, FLEET STREET, LONDON.

CONTENTS.

	Page
Author's Preface	iv
Systematic Index	vii
Family Danaidæ	1
Family Satyridæ	106
Family Amathusiidæ	403
Family Acræidæ	461
Bibliography	470
List of Forms Described as New	487
Addenda and Corrigenda to Vol. I.	489
Alphabetical Index	497

AUTHOR'S PREFACE.

It will surprise no one that considerable delay has occurred in the publication of this Volume. The main body of the manuscript was finished early in 1941 ; it lay in safety in a salt mine until returned to the author for revision in September, 1943. Printing started in 1944, but with the restrictions of war-time proceeded very slowly until 1947

This Volume, as in the case of Vol. I., has been entirely rewritten in the light of the most recent published information. Our knowledge of the families dealt with here has been greatly increased since the first edition by Bingham, 1905, not only in respect of the taxonomy but also in distribution, and the existence of other species, subspecies and forms in the Indian area. Special attention has been devoted by the author to the Danaidæ in general, whilst researches by Dr. A. S. Corbet on the genus *Euplœa* have considerably clarified the problems presented by that genus.

In the family Satyridæ the work on *Mycalesis* by Brigadier Evans (1920) has been largely followed, and the difficult *mineus* group has been elucidated by Talbot and Corbet (1939).

In the family Amathusiidæ Corbet (1941) and Corbet and Pendlebury (1936, 1938) have investigated *Thauria* and *Amathusia* respectively.

Our knowledge of the butterflies of Assam and Burma has been considerably added to by the publications of the late General Sir H. C. Tytler.

Knowledge of the early stages and habits has advanced slowly. The splendid work of T. H. Bell (1909, 1910) has been augmented by detailed descriptions of early stages published by D. G. Sevastopul in a series of papers. A

great deal still remains to be done and descriptions by early authors need to be confirmed and re-written with more attention to the chaetotaxy and other structural characters.

The student will find a few of those inevitable changes in nomenclature that arrive with the passing of years.

An "Addenda and Corrigenda" to Vol. I. is included, giving notes on important recent contributions made to the groups dealt with in that Volume.

The illustrations comprise 104 text-figures and two coloured plates. As no specially increased grant was made available and costs were rising it became necessary to prepare only two plates and fewer text-figures than the author would have liked.

The plates have been reproduced from Bingham (Vol. I.) and also text-figures, excepting those mentioned below.

Specimens in the British Museum, drawn by Miss D. Fitchew. —Figs. 6, 7, 9, 12, 13 *b*, *c*, 18, 19, 21 to 24, 27, 28, 30, 33, 35 to 41, 44, 46, 51, 55 to 61, 63, 64, 65, 67, 68, 69, 71, 73, 75, 78, 79, 81, 82, 83, 87

Specimens in the British Museum, photographed by W H. T. Tams.—Fig. 3.

Drawings of genitalia, from specimens in the British Museum.—Figs. 2, 20, 42, 43, 45 (Mr. N. Bennett). Figs. 4, 49, 50, 52, 53 (Dr. A. S. Corbet).

Drawings by Miss D. Fitchew from the works of Horsfield & Moore, F Moore, Davidson & Aitken.—Figs. 5, 8, 34, 97, 98, 100, 101, 103. Sources acknowledged in the text.

Reproduced from Roepke (Rhop. Javanica).—Figs. 32, 88.

Acknowledgements are tendered to the following :—
For permission to reproduce figures :—
The Bombay Natural History Society, in respect of fig. 98.
Dr. W Roepke, in respect of figs. 32 and 88, taken from his *Rhopalocera Javanica* (1936).

I have pleasure in acknowledging the help given by friends and colleagues and to particularly mention Dr. A. S. Corbet, who read all the galley proofs and in other ways helped in the unravelling of various difficulties; Brigadier W H. Evans, C.S.I., C.I.E., D.S.O., etc., who was ever ready to give me the benefit of his knowledge and experience; Lieut.-Colonel H. D. Peile for helpful criticism and useful data; the Authorities at the British Museum (Natural History) for help and advice in studying the collections and consulting the literature.

Finally, I should like to thank the editor, Lieut.-Colonel R. B. Seymour Sewell, C.I.E., Sc.D., F.R.S., for his friendly co-operation; also the printers, Messrs. Taylor & Francis, for their very able work under many war-time difficulties.

SYSTEMATIC INDEX

[A list of new names is given on p. 487.]

Page

Order LEPIDOPTERA.

Suborder **Rhopalocera**

Fam. 3. DANAIDÆ *Doubleday* 1

Subfam. DANAINÆ *Bates* 2

1. Idea *Fabricius* .. 4
200. lynceus lynceus (*Drury*). 8
201. jasonia (*Westwood*) 9
f. diabolica (*Fruhstorfer*) 9
202 *a*. malabarica malabarica (*Moore*) 10
b. malabarica kanarensis (*Moore*) 11
203 *a*. agamarschana agamarschana (*C. & R. Felder*) 12
f. arrakana (*Fruhstorfer*) . 13
b. agamarschana hadeni (*Wood-Mason & de Nicéville*) . 13
c. agamarschana cadelli (*Wood-Mason & de Nicéville*) 14
204. hypermnestra linteata (*Butler*) 14
205. leuconoë siamensis (*Godfrey*) 15
2. Danaus *Kluk* 16
206. chrysippus chrysippus (*Linn.*) ... 20
f. alcippoides (*Moore*) ... 22
f. dorippus (*Klug*). 22
f. transiens (*Suffert*) . 22
f. bowringi (*Moore*). 22
f. amplifascia *Talbot*. . 22
207. plexippus plexippus (*Linn.*) . 25
f. nipalensis (*Moore*) 26
f. grynion (*Fruhstorfer*) . 26
f. albipars *Talbot* 26
208 *a*. melanippus indicus (*Fruhstorfer*) 27
b. melanippus camorta (*Evans*) . 28
c. melanippus nesippus (*C. Felder*) 28
209. affinis malayana (*Fruhstorfer*) 28
210. limniace leopardus (*Butler*) . 31
211 *a*. hamata musikanos (*Fruhstorfer*) . 33
b. hamata dravidarum (*Fruhstorfer*) . 34
c. hamata septentrionis (*Butler*) 34
212 *a*. gautama gautama (*Moore*) 36
b. gautama gautamoides (*Doherty*) 36
213 *a*. aglea aglea (*Stoll*). 37
b. aglea melanoides (*Moore*) . 39
f. phormis (*Fruhstorfer*) 40
c. aglea melanoleuca (*Moore*) . 40

	Page
214. ageloides ageloides (*C. Felder*)	41
215. aspasia aspasia (*Fabricius*)	42
216. melaneus plataniston (*Fruhstorfer*)	44
217. sita sita (*Kollar*)	45
f. tytia (*Gray*)	46
f. pedonga (*Talbot*).	46
218. taprobana (*C. & R. Felder*)	47
219. nilgiriensis (*Moore*)	48
220 *a*. similis exprompta (*Butler*)	51
b. similis persimilis (*Moore*)	51
221. vulgaris macrina (*Fruhstorfer*)	53
222. juventa nicobarica (*Wood-Mason & de Nicéville*)	53
3. Euplœa *Fabricius*	54
223. modesta modesta *Butler*	59
f. mouhotii (*Moore*)	60
224 *a*. crameri nicévillei (*Moore*)	60
b. crameri olivacea (*Moore*)	61
c. crameri esperi *C. Felder*.	62
d. crameri frauenfeldii *C. Felder*	62
225. redtenbacheri camaralzeman *Butler*	63
226. doubledayi doubledayi *C. & R. Felder*	65
227. eyndhovii aesatia *Fruhstorfer*	66
228 *a*. core core (*Cramer*)	67
f. vermiculata *Butler*	67
b. core asela *Moore*.	69
c. core distans *Talbot*.	70
d. core godartii *Lucas*	70
f. layardi *Druce*	72
f. dominans *Fruhstorfer*	72
f. recussa *Fruhstorfer*	72
f. defigurata *Fruhstorfer*	72
e. core andamanensis *Atkinson*	72
f. core ferrari *Tytler*	73
g. core bumila *Evans*	73
h. core scherzeri *C. Felder*.	73
i. core camorta *Moore*.	74
j. core simulatrix *Wood-Mason & de Nicéville*	74
229 *a*. algea deione *Westwood*	75
f. arida *Fruhstorfer*	76
f. suffusa *Tytler*	76
b. algea limborgii *Moore*	76
c. algea ménétrièsii *C. & R. Felder*	76
230 *a*. sylvester montana *C. & R. Felder*	77
b. sylvester coreta (*Godart*)	78
c. sylvester hopei *C. & R. Felder*	80
d. sylvester harrisii *C. & R. Felder*	81
f. crowleyi (*Moore*)	81
231 *a*. mulciber mulciber (*Cramer*)	83
b. mulciber kalinga *Doherty*	85
232. tulliolus ledereri *C. & R. Felder*	86
233 *a*. phænareta corus (*Fabricius*)	88
b. phænareta vitrina *Fruhstorfer*	89
c. phænareta phœbus *Butler*	89
234 *a*. midamus rogenhoferi *C. & R. Felder*.	92
f. irawada *Moore*	93
f. noblei (*Swinhoe*).	93
b. midamus chloë (*Guérin*)	93
f. eclecta (*Swinhoe*).	94
c. midamus roepstorffi (*Moore*)	94
235 *a*. klugii klugii *Horsfield & Moore*	95
f. grantii (*Butler*)	97
f. illustris (*Butler*)	98
f. regalis (*Moore*)	98
f. uniformis (*Moore*)	98
f. macclellandi (*Moore*)	98
b. klugii sinhala *Moore*.	99
c. klugii kollari *C. & R. Felder*	99
d. klugii erichsonii *C. & R. Felder*	101

	Page
f. apicalis (*Moore*).	102
f. pembertoni (*Moore*)	102
f. masoni (*Moore*)	102
f. burmeisteri (*Moore*) .	102
236 *a*. leucostictos leucogonis (*Butler*) .	102
f. lazulina (*Moore*).	103
b. leucostictos novaræ *C. Felder* . ..	103
237 *a*. diocletianus diocletianus (*Fabricius*)	104
b. diocletianus ramsayi (*Moore*) .	105
c. diocletianus despoliata *Fruhstorfer*	106
f. talboti *Tytler*.	106
Fam. 4. SATYRIDÆ *Swainson*.	106
1. Mandarinia *Leech*	110
238. regalis baronesa *Fruhstorfer*	110
2. Mycalesis *Hübner* .	110
239. maianeas maianeas *Hewitson* ..	116
240. adamsoni adamsoni *Watson*. ..	118
241 *a*. anaxias anaxias *Hewitson* .	119
b. anaxias aemate *Fruhstorfer* .	119
c. anaxias radza *Moore*.	120
d. anaxias manii *Doherty* ..	120
242. anaxioides *Marshall*	120
243 *a*. francisca sanatana *Moore*. .	121
f. gopa *C. & R. Felder*. .	122
b. francisca albofasciata *Tytler*	124
244. gotama charaka *Moore*.	124
f. oculata (*Moore*).	125
245. orseis nautilus *Butler*	125
246. fuscum fuscum (*C. & R. Felder*) . .	127
247. anapita anapita *Moore*	128
248 *a*. perseus tabitha (*Fabricius*)	131
f. samba *Moore*.	132
b. perseus blasius (*Fabricius*) ...	132
249 *a*. mineus mineus (*Linn.*)	134
f. otrea (*Stoll*)	135
f. subfasciata (*Moore*) . .	136
b. mineus polydecta (*Cramer*)	136
c. mineus nicobarica (*Moore*)	137
250 *a*. igilia igilia *Fruhstorfer* ..	137
b. igilia mercea *Evans*	138
251. intermedia (*Moore*)	139
252 *a*. visala visala *Moore*	140
f. indistans (*Moore*).	141
b. visala orcha *Evans*.	143
c. visala subdita (*Moore*)	143
d. visala andamana (*Moore*) ..	145
253. perseoides (*Moore*)	145
254. rama (*Moore*).	146
255. evansii *Tytler*..	146
256. adolphei (*Guérin*)	147
257. oculus *Marshall*.	148
258. mystes *de Nicéville*. .	149
259. mnasicles perna *Fruhstorfer* ..	151
260 *a*. suavolens suavolens *Wood-Mason & de Nicéville* .. .	152
b. suavolens tytleri *Talbot*.	153
c. suavolens konglua *Tytler*	153
d. suavolens duguidi *Tytler*	154
261 *a*. mestra mestra *Hewitson*	154
b. mestra vetus *Fruhstorfer*	155
c. mestra sadona *Tytler*	155
262. heri *Moore* .. .	155
263. misenus *de Nicéville*	156
264. nicotia *Westwood* ..	156
f. langi *de Niécville*.	157
265. malsara *Moore*.	157
f. rudis (*Moore*)	158
266 *a*. annamitica annamitica *Fruhstorfer* .	159
b. annamitica watsoni *Evans* . ..	159
267 *a*. lepcha lepcha (*Moore*)	160
b. lepcha davisoni (*Moore*) . .	161
c. lepcha bethami (*Moore*)	161
d. lepcha kohimensis *Tytler* . .	161
268. malsarida *Butler* .	162
f. khasiana *Moore*.	162
269 *a*. patnia patnia *Moore*.	163
b. patnia junonia *Butler*.	164

	Page
270. oroatis surkha *Marshall*.	165
f. fervida (*Butler*)	165
3. Lethe *Hübner* . .	166
271. visrava (*Moore*)	170
272. siderea *Marshall*	171
273. sidonis (*Hewitson*)	172
f. nicévillei (*Evans*).	174
f. irma *Evans* .	174
f. vaivarta *Doherty*.	174
274. dakwania *Tytler* .	175
275. nicetella *de Nicéville*	175
276 *a*. maitrya maitrya *de Nicéville*. ..	176
b. maitrya thawgawa *Tytler* ..	177
277 *a*. violaceopicta kanjupkula *Tytler* ..	177
b. violaceopicta burmana *Tytler* .. .	178
278. nicetas (*Hewitson*). ..	179
279. tristigmata *Elwes*	180
280. ocellata lyncus *de Nicéville* ..	181
281. kabrua *Tytler* . .	182
282 *a*. jalaurida jalaurida (*de Nicéville*)	182
b. jalaurida elwesi (*Moore*)	183
283 *a*. moelleri moelleri (*Elwes*)	184
b. moelleri bruno *Tytler*.	184
284. atkinsonia (*Hewitson*).	184
285 *a*. goalpara goalpara (*Moore*)	185
b. goalpara gana *Talbot*.	186
c. goalpara kabruensis *Tytler* ..	186
286. sura (*Doubleday*)	187
287 *a*. dura dura (*Marshall*).	188
b. dura gammiei (*Moore*)	188
c. dura mansonia *Fruhstorfer*	189
288 *a*. baladeva baladeva (*Moore*)	194
b. baladeva aisa *Fruhstorfer*	194
289. ramadeva (*de Nicéville*) ...	195
290. andersoni (*Atkinson*).	195
291. gemina gafuri *Tytler*.	196
292 *a*. europa europa (*Fabricius*) .	197
b. europa niladana *Fruhstorfer*	198
c. europa nudgara *Fruhstorfer* .	199
d. europa tamuna *de Nicéville*.	199
293 *a*. rohria rohria (*Fabricius*)	200
b. rohria neelgheriensis (*Guérin*)	201
294 *a*. drypetis drypetis (*Hewitson*) . .	203
b. drypetis todara *Moore*.	203
295. daretis (*Hewitson*)	204
296. confusa confusa *Aurivillius*.	205
297. dynsate (*Hewitson*) ..	207
f. sihala *Moore*	208
298. minerva tritogeneia *Fruhstorfer* .	208
299 *a*. mekara mekara (*Moore*) .	209
f. vajra *Fruhstorfer*	210
b. mekara zuchara *Fruhstorfer* .	210
300. satyavati *de Nicéville* .	210
301. chandica chandica (*Moore*) ...	211
302. distans *Butler*	213
303. christophi christophi *Leech* ..	214
304. naga naga *Doherty*.	214
305. margaritæ *Elwes*	215
306 *a*. insana insana (*Kollar*) .	216
b. insana dinarbas (*Hewitson*) . .	217
307. brisanda *de Nicéville*.	218
308. sadona *Evans*	219
309 *a*. serbonis serbonis (*Hewitson*)	219
b. serbonis teesta *Talbot*.	220
c. serbonis bhutya *Talbot*.	221
d. serbonis naganum *Tytler* . .	221
e. serbonis pallida *Tytler* . .	222
310. vindhya (*C. Felder*)..	222
f. dolopes (*Hewitson*) .	222
311. kansa (*Moore*) .	223
f. vaga *Fruhstorfer*	223
312. sinorix (*Hewitson*)	224
313. scanda (*Moore*)	224
314 *a*. latiaris latiaris (*Hewitson*) .	225
b. latiaris perimele *Fruhstorfer* ...	226
315 *a*. gulnihal gulnihal *de Nicéville* . .	227

	Page
b. gulnihal peguana (*Moore*)	227
f. issa *Fruhstorfer*	228
316. bhairava (*Moore*)	228
317 *a.* verma verma (*Kollar*)	229
b. verma sintica *Fruhstorfer*	230
c. verma stenopa *Fruhstorfer* ..	230
318 *a.* pulaha pulaha (*Moore*) . .	232
f. plagiata *Talbot*	232
b. pulaha pandyia *Talbot*. . .	233
f. pulla *Talbot* .	233
c. pulaha pulahoides (*Moore*)	233
319. pulahina *Evans*	234
320. armandii khasiana (*Moore*) . . .	234
f. alcas *Talbot*	235
321. bhadra (*Moore*)	236
f. beata *Talbot*	236
322. muirheadi bhima (*Marshall*) ..	237
323 *a.* yama yama (*Moore*).	238
b. yama buckleyi *Talbot*	239
4. Pararge *Hübner*.	239
324 *a.* menava menava (*Moore*)	241
b. menava maeroides (*C. & R. Felder*).	242
325 *a.* schakra schakra (*Kollar*) .	242
b. schakra aiyuna *Talbot*.	244
326 *a.* maerula maerula (*C. & R. Felder*) ...	244
b. maerula tarbena *Talbot*... .	244
327. eversmanni cashmirensis *Moore*	245
328. masoni (*Elwes*)	246
329. praeusta burmana *Tytler* .	247
5. Rhaphicera *Butler* .	247
330 *a.* satricus satricus (*Doubleday*)	248
b. satricus kabrua *Tytler*	249
331 *a.* moorei moorei *Butler*.	250
b moorei mantra *Talbot*.	250
6. Orinoma *Gray* .	251
332. damaris *Gray*	251
7. Cœnonympha *Hübner* ..	252
333. myops macmahoni (*Swinhoe*).	253
8. Maniola *Schrank*	254
334. pulchella (*C. & R. Felder*) ...	255
335 *a.* pulchra pulchra (*C. & R. Felder*)	256
b. pulchra sylvia *Hemming* . .	257
c. pulchra baroghila *Tytler*	257
d. pulchra astorica *Tytler*	257
e. pulchra neoza (*Lang*) . ..	257
336. cœnonympha (*C. & R. Felder*)	258
f. maiza (*Lang*)..	258
f. goolmurga (*Lang*) .	259
337 *a.* lupinus centralis (*Riley*) . .	259
b. lupinus iskander *Hemming* .	260
c. lupinus kashmirica *Moore* ..	260
d. lupinus cheena (*Moore*) .	261
338. narica (*Hübner*)	261
339. wagneri mandane (*Kollar*) .	262
340 *a.* davendra davendra (*Moore*) . .	263
b. davendra latistigma *Moore*. . .	264
c. davendra chitralica (*Evans*) .	264
d davendra brevistigma *Moore*.	265
341 *a.* tenuistigma tenuistigma *Moore*	265
b. tenuistigma laspura *Evans* . ..	266
9. Hipparchia *Fabricius*	266
342 *a.* parisatis parsis (*Le Cerf*)	268
b. parisatis shiva (*Le Cerf*)	268
343. heydenreichi shandura *Marshall* ..	270
344. persephone enervata (*Staudinger*)	271
f. analoga (*Alpheraky*) ..	271
345 *a.* mniszechii balucha (*Evans*) . ..	272
f. pallida (*Evans*)	272
b. mniszechii droshica (*Tytler*) . .	272
c. mniszechii gilgitica (*Tytler*)	273

	Page
d. mniszechii lehana *Moore*.	273
e. mniszechii baldiva (*Moore*)	274
346. thelephassa (*Hübner*)	275
347 *a.* digna digna *Marshall*.	276
b. digna pallas (*Evans*).	276
348 *a.* actæa ziara *Talbot*	277
b. actæa magna (*Evans*).	278
c. actæa pimpla (*C. & R. Felder*) . .	278
349 *a.* huebneri huebneri (*C. & R. Felder*).	280
f. cadesia *Moore*	281
f. modesta (*Moore*).	281
f. pallida (*Tytler*)	281
b. huebneri safeda (*Tytler*) .	281
c. huebneri pupilata (*Tytler*)	281
350 *a.* moorei moorei (*Evans*) .	282
b. moorei gilgitica (*Tytler*)	283
351 *a.* boloricus boloricus (*Grum-Grshimaïlo*)	283
b. boloricus chitralica (*Tytler*)	283
10. Œneis *Hübner* .	284
352. buddha garhwalica *Tytler* ..	285
353 *a.* pumilus pumilus (*C. & R. Felder*) . ..	286
b. pumilus bicolor (*Seitz*).	286
354. palæarcticus sikkimensis *Staudinger*	287
11. Aulocera *Butler* .	287
355 *a.* brahminus brahminus (*Blanchard*)	289
f. scylla *Butler*	289
f. werang *Lang*	289
b. brahminus dokwana *Evans* .	289
c. brahminus brahminoides *Moore*.	290
356 *a.* padma padma (*Kollar*)	290
b. padma burnettii *Evans*	291
c. padma grandis *Tytler*.	292
d. padma loha *Doherty*	292
e. padma chumbica *Moore* . .	292
f. padma fulva *Evans*	293
g. padma japroa *Tytler*.	293
h. padma thawgawa *Tytler* ..	293
357 *a.* swaha swaha (*Kollar*).	294
b. swaha tellula *Fruhstorfer*	295
c. swaha gilgitica *Tytler*	295
d. swaha garuna *Fruhstorfer*	295
358. saraswati (*Kollar*).	295
12. Agapetes *Billberg*	296
359. halimede montana (*Leech*)	297
13. Erebia *Dalman*	298
360 *a.* mani mani (*de Nicéville*)	300
b. mani shandura *Tytler*.	301
c. mani lorimeri *Tytler*.	301
361 *a.* kalinda kalinda *Moore*. .	302
b. kalinda chitralica *Evans*	302
c. kalinda kamriana *Tytler* . .	303
362 *a.* shallada shallada *Marshall & de Nicéville* .	303
b. shallada tarbena *Evans* .	304
363 *a.* nirmala nirmala *Moore*.	304
b. nirmala materta (*Fruhstorfer*) .	306
c. nirmala daksha (*Moore*)	306
d. nirmala kala *Evans*	307
e. nirmala scandina (*Fruhstorfer*) ..	307
364 *a.* scanda scanda *Kollar*.	308
b. scanda opima (*Watkins*)	308
365. hybrida (*Butler*)	309
366. baileyi (*South*) .	309
367 *a.* annada annada *Moore*.	310
b. annada cæca (*Watkins*) ..	311
c. annada orixa (*Moore*).	311
f. ophthalmica (*Staudinger*)	311
d. annada suroia (*Tytler*)	312
e. annada watsoni (*Watkins*)	312
368. hyagriva (*Moore*)	312
369 *a.* narasingha narasingha (*Moore*) .	314
b. narasingha dohertyi *Evans* ..	315
14. Ypthima *Hübner*. ..	315
370. megalomma megalia *de Nicéville*	318
371. inica *Hewitson* f. ariaspa *Moore* .	319

	Page
372 *a*. lycus lycus *de Nicéville*	320
b. lycus lycoides *Watson* . ..	321
373 *a*. nareda nareda (*Kollar*) .	321
b. nareda newara *Moore*.	322
c. nareda sarcaposa *Fruhstorfer* .	323
374. pandocus watsoni (*Moore*)	323
375. akbar *Talbot* .	324
376. asterope mahratta *Moore*.	325
f. alemola *Swinhoe*.	325
77. burmana *Evans*	325
378. yphthimoides (*Moore*) ..	326
379. chenui (*Guérin*)	326
380 *a*. ceylonica ceylonica *Hewitson*	328
f. gellia *Fruhstorfer*.	328
b. ceylonica hübneri *Kirby* ...	329
f. howra *Moore*	330
c. ceylonica kasmira *Moore*.. .	330
381. bolanica *Marshall*	331
382 *a*. lisandra avanta *Moore*.	332
f. ordinata *Butler*	333
b. lisandra singala *R. Felder*. .	333
f. thora *Moore*	333
c. lisandra striata *Hampson* ..	334
d. lisandra cerealis *Watson*. ..	334
e. lisandra bara *Evans*	334
383 *a*. philomela tabella *Marshall*	335
b. philomela peguana *Evans* ..	336
384. indecora *Moore* .	336
385 *a*. baldus baldus (*Fabricius*) ...	337
f. marshalli *Butler*.	338
b. baldus madrasa *Evans* ..	338
c. baldus satpura *Evans*.	338
386 *a*. similis similis *Elwes & Edwards*	339
b. similis affectata *Elwes & Edwards*.	339
c. similis yoma *Evans*	339
387. savara savara *Grose-Smith* .	340
388 *a*. methora methora *Hewitson* . . .	341
f. gela *Fruhstorfer*.	341
b. methora sobrina *Elwes & Edwards*.	341
389 *a*. dohertyi dohertyi (*Moore*) . ..	342
b. dohertyi persimilis *Elwes & Edwards*.	342
390 *a*. sakra sakra *Moore*.	343
b. sakra nikæa *Moore*.	344
c. sakra austeni (*Moore*)	344
15. Zipœtis *Hewitson*	345
391. saitis *Hewitson*	345
392. scylax *Hewitson*	346
16. Orsotriœna *Wallengren* .	347
393 *a*. medus medus (*Fabricius*) .. .	349
f. runeka (*Moore*).	349
b. medus mandata (*Moore*) . .	350
f. mandosa (*Butler*).	350
c. medus nicobarica *Evans* ..	351
17. Erites *Westwood* . . .	351
394. angularis angularis *Moore*.	352
f. pseudofalcipennis *Fruhstorfer*.	353
395 *a*. falcipennis falcipennis *Wood-Mason & de Nicéville*...	353
b. falcipennis rotundata *de Nicéville* .	354
396. argentina delia *Martin*.	354
18. Ragadia *Westwood* ..	355
397 *a*. crisilda crisilda *Hewitson* . ..	356
b. crisilda crito *de Nicéville*	356
c. crisilda critolaus *de Nicéville*... .	356
d. crisilda critolina *Evans*	357
19. Cœlites *Westwood* ...	357
398. nothis adamsoni *Moore*.	358
399 *a*. epiminthia epiminthia *Westwood*.. .	358
b. epiminthia binghami *Moore*... ..	359
c. epiminthia calverti *Tytler*	359
20. Neorina *Westwood*..	359
400. hilda *Westwood* ..	360
401. patria westwoodii *Moore*. . .	361
402. crishna archaica *Fruhstorfer*	361
21. Ethope *Moore* ..	362
403. himachala (*Moore*) .	362
404. diademoides diademoides (*Moore*).	363
22. Melanitis *Fabricius*.	364
405. leda ismene (*Cramer*)	366

Page

f. determinata *Butler* . 367
406 *a*. phedima tambra *Moore*. . 370
b. phedima varaha *Moore*. 370
f. ampa *Swinhoe*.. 371
c. phedima bethami *de Nicéville*. 371
d. phedima galkissa *Fruhstorfer* .. . 371
e. phedima bela *Moore*. 372
f. aswa (*Moore*) . 372
f. phedima ganapati *Fruhstorfer* 373
f. aswina *Fruhstorfer* 373
407 *a*. zitenius zitenius (*Herbst*) . 374
f. semifasciata *Fruhstorfer* . . 374
f. decolorata *Fruhstorfer* 374
f. anisakana *Tytler*. 374
b. zitenius gokala *Moore*. 375
f. aculeata *Hampson* . 375
c. zitenius kalinga *Moore*. ... 375
d. zitenius auletes *Fruhstorfer* 376
e. zitenius andamanica *Evans* 376
23. Cyllogenes *Butler* 376
408. suradeva (*Moore*) 377
409. janetæ *de Nicéville* 378
24. Parantirrhœa *Wood-Mason*. 378
410. marshalli *Wood-Mason*. 379
25. Elymnias *Hübner* 379
411 *a*. hypermnestra fraterna *Butler* 383
b. hypermnestra caudata *Butler* . 384
c. hypermnestra undularis (*Drury*) 386
d. hypermnestra tinctoria *Moore* . 387
♀f. paraleuca *Fruhstorfer* 387
412 *a*. cottonis cottonis (*Hewitson*) . 388
b. cottonis obnubila *Marshall* . 388
413. panthera mimus *Wood-Mason & de Nicéville* 389
414. dara dædalion (*de Nicéville*) 390

Page

415. singhala *Moore* . . 391
416. peali *Wood-Mason* 392
417 *a*. nesæa timandra *Wallace* . .. 393
b. nesæa cortona *Fruhstorfer* 393
c. nesæa lioneli *Fruhstorfer* . . . 393
418 *a*. malelas malelas (*Hewitson*) 395
♀f. subdecorata *Fruhstorfer* . 395
b. malelas nilamba *Fruhstorfer* 396
419. casiphone saueri *Distant* . . 396
420 *a*. patna patna (*Westwood*) .. 397
b. patna patnoides (*Moore*) . .. 398
421. penanga chelensis *de Nicéville*. . 399
422 *a*. vasudeva vasudeva *Moore*.. 400
♀f. thycana *Wallace* . 400
b. vasudeva deva (*Moore*) 401
c. vasudeva burmensis (*Moore*) 401
423. esaca andersonii (*Moore*) 402

Fam. 5. AMATHUSIIDÆ *Stichel* . 403
Subfam. 1. AMATHUSIINÆ *Moore*. . 404
1. Xanthotænia *Westwood* 406
424. busiris busiris *Westwood* .. 406
2. Faunis *Hübner* 407
425. canens arcesilas *Stichel*. 409
f. subpallida *Tytler* 409
426 *a*. eumeus assama (*Westwood*) 410
b. eumeus burmana *Tytler* 410
c. eumeus incerta (*Staudinger*) .. 410
427. faunula faunuloides (*de Nicéville*) 411
3. Æmona *Hewitson* . 411
428. amathusia amathusia (*Hewitson*) . . 413
f. pealii *Wood-Mason* 413
429 *a*. lena lena *Atkinson*. 414
b. lena haynei *Tytler* .. 414

	Page
c. lena kalawrica *Tytler.*	415
d. lena karennia *Tytler.*	415
e. lena kentunga *Tytler.*	415
f. lena salweena *Tytler.*	416
4. Stichophthalma *C. & R. Felder.*	416
430 *a.* nourmahal nourmahal (*Westwood*)	417
b. nourmahal nurinissa *de Nicéville* ..	418
431 *a.* camadeva camadeva (*Westwood*) . . .	419
b. camadeva nicévillei *Röber* . .	420
c. camadeva aborica *Tytler*	420
d. camadeva nagaensis *Rothschild*	420
e. camadeva camadevoides *de Nicéville.*	420
f. camadeva burmana *Tytler* .	421
432 *a.* louisa louisa (*Wood-Mason*)	421
b. louisa tytleri *Rothschild* ..	422
c. louisa sparta *de Nicéville.*	423
d. louisa evansi *Tytler*	424
e. louisa fruhstorferi *Röber*	424
f. louisa antonia *Röber* . ..	424
433. godfreyi *Rothschild*	425
5 .Thaumantis *Hübner* .	425
434 *a.* diores diores *Doubleday* ..	427
f. ramdeo *Moore.*	427
b. diores splendens *Tytler*	427
435. klugius lucipor *Westw.*	428
6. Thauria *Moore*	430
436 *a.* aliris amplifascia *Rothschild* ..	431
b. aliris lathyi *Fruhstorfer* ..	431
c. aliris intermedia *Crowley* . .	431
d. aliris merguia *Tytler.*	432
7. Amathusia *Fabricius* .	432
437 *a.* phidippus chersias *Fruhstorfer* ..	435
b. phidippus andamanensis *Fruhstorfer.*	436
438 *a.* friderici friderici *Fruhstorfer* . .	436
b. friderici holman-hunti *Corbet & Pendlebury.*	437
8. Amathuxidia *Staudinger*	438
439. amythaon amythaon (*Doubleday*)	439
9. Zeuxidia *Hübner*	440
440. amethystus masoni *Moore*..	442
441. doubledaii doubledaii *Westwood* ..	443
442. aurelius aurelius (*Cramer*)	444
Subfam. Discophorinæ *Stichel.*	445
10. Discophora *Boisduval.*	446
443 *a.* sondaica muscina *Stichel*	448
b. sondaica zal *Westwood*	448
f. indica *Staudinger.*	449
f. spiloptera *de Nicéville & Möller.*	450
444 *a.* deo deo *de Nicéville.*	451
b. deo deodoides *Tytler.*	451
445 *a.* lepida lepida (*Moore*).	452
f. significans *Stichel.*	453
b. lepida ceylonica *Fruhstorfer*	454
446 *a.* timora timora *Westwood* .	455
b. timora andamensis *Staudinger* .	456
447. necho engamon *Fruhstorfer* .	457
11. Enispe *Doubleday*	457
448 *a.* cycnus cycnus *Westwood* .	458
b. cycnus verbanus *Fruhstorfer* ..	459
449. euthymius euthymius (*Doubleday*) ..	460
f. tessellata *Moore.*	460
f. melæna *Tytler.*	461
Fam. 6. Acræidæ *Doubleday.*	461
1. Acræa *Fabricius* ..	462
450 *a.* issoria issoria (*Hübner*) ..	463
b. issoria anomala *Kollar* ..	465
c. issoria sordice (*Fruhstorfer*)	466
451. violæ (*Fabricius*)	466

Family DANAIDÆ.

Danaidæ, Doubleday, 1847 *a*, pp. 84, 96 ; Seitz, 1907, p. 75 ; Fruhstorfer, 1910, p. 191 ; Evans, 1923, p. 519 ; Hulstaert, 1931, pp. 1–217 ; Evans, 1932 *a*, p. 85.

Classification.—Some authorities have considered the Danaids to form a subfamily of Nymphalidæ. It is true that these have certain characters in common. Yet the Danaids possess several most distinct characteristics, especially in their scent-organs, their acrid juices, their general wing-pattern, and food of the larvæ.

Owing to the remarkable diversity of scent-organs on the wings of the Danaids, the species were formerly grouped under many genera. It is not now considered that these characters possess generic value, and as the term " subgenus " is no longer thought convenient, the main groups indicated by the old " genera " are defined as *species-groups*. A quite similar state of things is found to exist among the Satyridæ.

The family is divisible into subfamilies. Only one subfamily, the Danainæ, is found in the Indian area. This subfamily comprises the genera *Danaus*, *Idea*, *Ideopsis*, and *Euplœa*. The genus *Ideopsis* does not enter the Indian area.

Structure.—Wings with entire margins and no appendages. Both wings with the cell closed, and usually with recurrent veins. Fore wings with *udc* absent or very short; vein 1*a* present as a short basal spur from 1*b*. Head and thorax with tufts of white scales in all species. Antennæ gradually thickened without a distinct club. Eyes large. Fore leg of the male (vol. i. p. 11, fig. 1*a*) brush-like, the tarsus formed of one segment which is narrow and somewhat pointed at the extremity. Fore leg of the female (vol. i. p. 11, fig. 1*b*) fully formed, the tarsus composed of four or five segments which are rather broad and bear spines, the end of the tarsus having a club-shaped appearance. Palpi thin and hairy.

All species with secondary sexual organs in the male. Hind wing usually with patches of modified scales along the veins in the inner area ; many species with a small pouch or sac filled with androconia, a structure peculiar to the Danaids. Abdomen with anal hair-pencils.

The hair-pencil is a tubular stylus carrying a rosette of radiating hairs usually concealed within it. These pencils are shorter in *Danaus* than in *Euplœa*. See vol. i. p. 29, for further details.

The genitalia are of simple construction. Valvæ simple, very broad, sacculus angulate ; apex produced. Tegumen

broad; uncus usually hood-shaped, reduced or absent. Vinculum V-shaped; saccus long. Penis well developed, usually long; cornuti present. (From *Mehta*, 1933 *b*).

Early stages.—

Egg.—Large and soft, oblong, more than half as high as broad, yellowish, sometimes pearly; longitudinally ribbed with many delicate transverse lines. In *Idea* there is a more hexagonal reticulation, and the ribs are zigzag.

Larva.—More or less cylindrical, smooth, and, except in the *Ithomiinæ* (an American group), furnished with a dorsal pair of fleshy filaments on one or more of the abdominal segments. The body is usually brightly coloured.

Pupa.—Suspended, short, smooth, ovate, constricted in the middle, and usually with bright gold or silver ornamentation; often with brown transverse stripes.

Habits.—Flight slow and awkward, comparatively weak, the insects very easy to catch. They enjoy considerable immunity from the attacks of birds and reptiles, owing to the possession of acrid juices. Experiments made with spiders and birds in captivity have shown that the Danaids are usually not accepted as food. The insect may be seized but is rejected.

The Danaids are very tenacious of life, and, like *Acræa* and *Parnassius*, they are less easy to kill by pinching the thorax, than is a Satyrid or Nymphalid.

They usually have a number of broods, are gregarious, and sometimes assemble in thousands. They rarely frequent wet places, and are attracted to flowering trees. Some species make migratory flights.

Distribution.—A tropical family with a few species extending into the Palæarctic Region in Asia and into North America. The genera *Danaus*, *Idea*, and *Ideopsis* are essentially Indo-Australian, but some *Danaus* inhabit North and South America, and Africa. A whole subfamily (*Ithomiinæ*) is restricted to South America. The genus *Amauris* is entirely African. *Euplœa* is essentially Indo-Australian, the only exception being three or four species found in Madagascar and the neighbouring islands.

The Danaids inhabit the low-lands, onlv ascending rarely to 7,500 feet.

Subfamily DANAINÆ. (Figs. 1, 2).

***Danainæ*, Bates, 1862, pp. 515, 516; Kirby, 1871 *a*, p. 1; Marshall & de Nicéville, 1883, p. 21; Bingham, 1905, p. 2; Bell, 1909, pp. 24, 32, 33, 40, 42, 44 (early stages); Fruhstorfer, 1910, p. 272.**
***Euplœinæ*, Moore, 1880 *a*, p. 1; id., 1890, p. 8.**
***Limnaina*, Moore (part.), 1883 *a*, p. 214.**

♂♀. Palpus short, the 1st or basal segment always shorter than the 2nd. Tibia as long as the femur. Tarsal claws absent.

Fore tarsus of male elongate, filiform, furnished with long hair; of the female wide and club-shaped, with four segments all firmly joined together and forming a spiny club. Venation, with few exceptions, the same in both sexes. Hind wing furnished with patches of androconia.

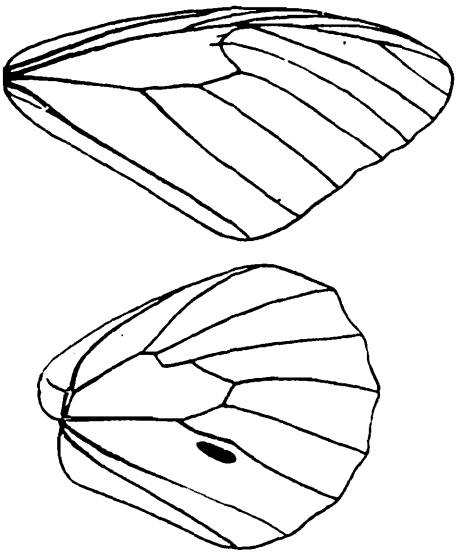


Fig. 1.—*Danaus chrysippus chrysippus* (L.).
Venation of male.

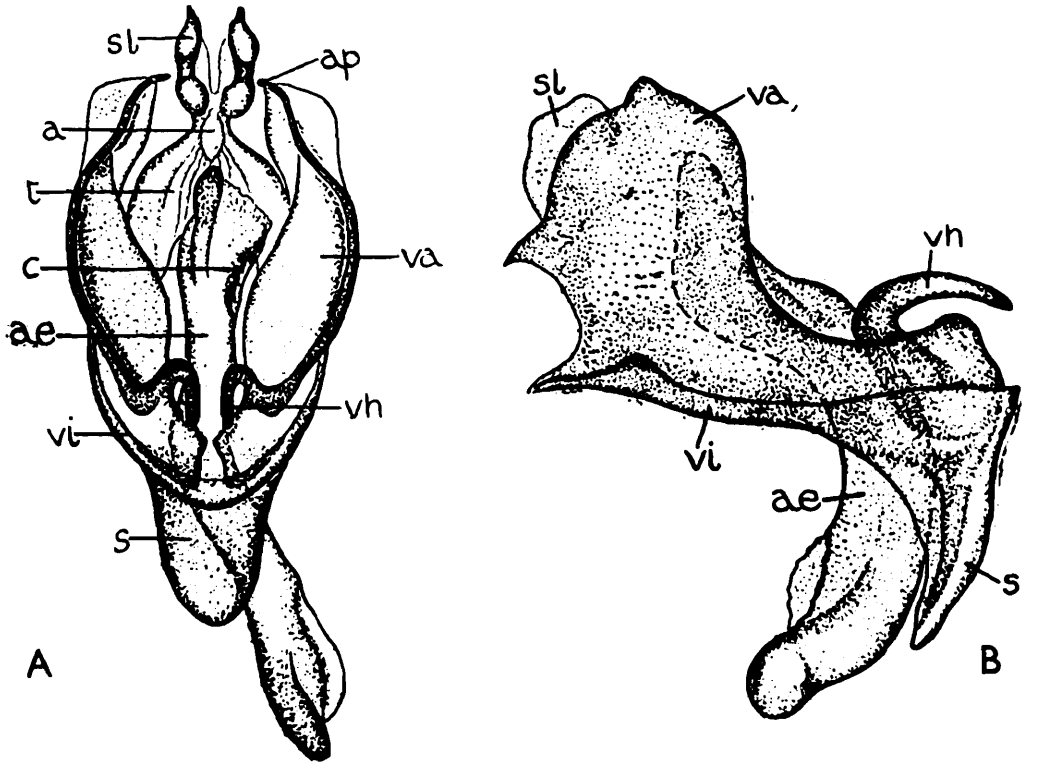


Fig. 2.—*Danaus plexippus plexippus* (L.).

Male genitalia. A, ventral view: *a*, anal tube; *ae*, ædeagus; *c*, cornuti; *s*, saccus; *sl*, side lobes; *t*, tegumen; *va*, valve (*ap*, apex; *vh*, ventral hook); *vi*, vinculum. B, lateral view. Lettering as for A.

Early stages, habits, and distribution as given for the family. Food-plants of the larva usually species of milkweeds

(Asclepiadaceæ), and sometimes figs (Moraceæ), and species of Apocynaceæ.

A number of species of this subfamily serve as models for mimicking species belonging to other families (see vol. i. p. 36).

Key to Indian genera of Danainæ.

1. Claws furnished with paronychia and pulvilli.	2.
Claws without paronychia and pulvilli. Hind wing with a ♂ brand.	*Danaus* Kluk, p. 16.
2. Hind wing with vein 6 nearer 5; vein 5 nearer 4.	3.
Hind wing with vein 6 nearer 7; vein 5 equidistant between 6 and 4	4.
3. Wing pattern conspicuously black and white	*Idea* Fabr., p. 4.
4. Wing pattern not conspicuously black and white	*Euplœa* Fabr., p. 54.

Key to larvæ of some Danainæ.

The subjoined key to eight species found in Peninsular India is from *Bell*, 1909.

A. With four pairs of tentacles.	
a. Body banded black and white, with red spots	[(Moore), p. 9. *Idea malabarica*
b. Body banded brown and white; no spots.	
a'. Spiracular band white, touched with orange; tentacles flesh-coloured or pink, front pair generally curled up.	[C. & R. Felder, p. 99. *Euplœa klugii kollari*
B. With three pairs of tentacles.	[Godart, p. 78.
a. Tentacles on segments, 3, 4, 12	*Euplœa sylvester coreta*
b. Tentacles on segments 3, 6, 12.	[p. 20.
a' Body banded black and white, with yellow subdorsal spots	[*chrysippus* (Linn.). *Danaus chrysippus*
b'. Body banded black and white, with white and yellow spots	[*xippus* (Linn.), p. 25. *Danaus plexippus ple-*
C. With two pairs of tentacles.	[*pardus* (Butl.) p. 31.
a. Black banded broadly black and white	*Danaus limniace leo-*
b. Body claret-brown, spotted with yellow and white	[(Stoll), p. 37. *Danaus aglea aglea*

Genus **IDEA** Fabricius.

Idea, Fabricius, 1807, p. 283; Hemming, 1934 *a*, p. 21 (type, *Papilio idea* Clerck, 1764); Talbot, 1941 (revision).

Hestia, Hübner, 1816, p. 15; Butler, 1867 *b*, p. 467; Scudder, 1875, p. 189 (type, *H. lyncea* Hübn.); Moore, 1883 *a*, p. 217 (type, *H. lynceus* Drury); Marshall & de Nicéville, 1883, p. 23; Moore, 1890, p. 16; Bingham, 1905, p. 3; Fruhstorfer, 1910, p. 218; Hulstaert, 1931, p. 75; Evans, 1932 *a*, p. 85; Hemming, 1934 *a*, p. 21 (type, *H. lyncea* Hübn., 1816, = *Papilio lynceus* Drury, 1773).

Nectaria, Billberg, 1820, p. 76; Moore, 1880 *a*, p. 2 (type, *N. jasonia* Westw.); id., 1883 *a*, p. 215 (type, *N. idea* Clerck); Hemming, 1934 *a*, p. 21 (type, *Papilio idea* Clerck, 1764).

Type of the genus, *I. idea* (Clerck).

♂♀. Antennæ long, filiform, club slight. Palpus laterally flattened. Tarsal claws curved, provided with paronychia and

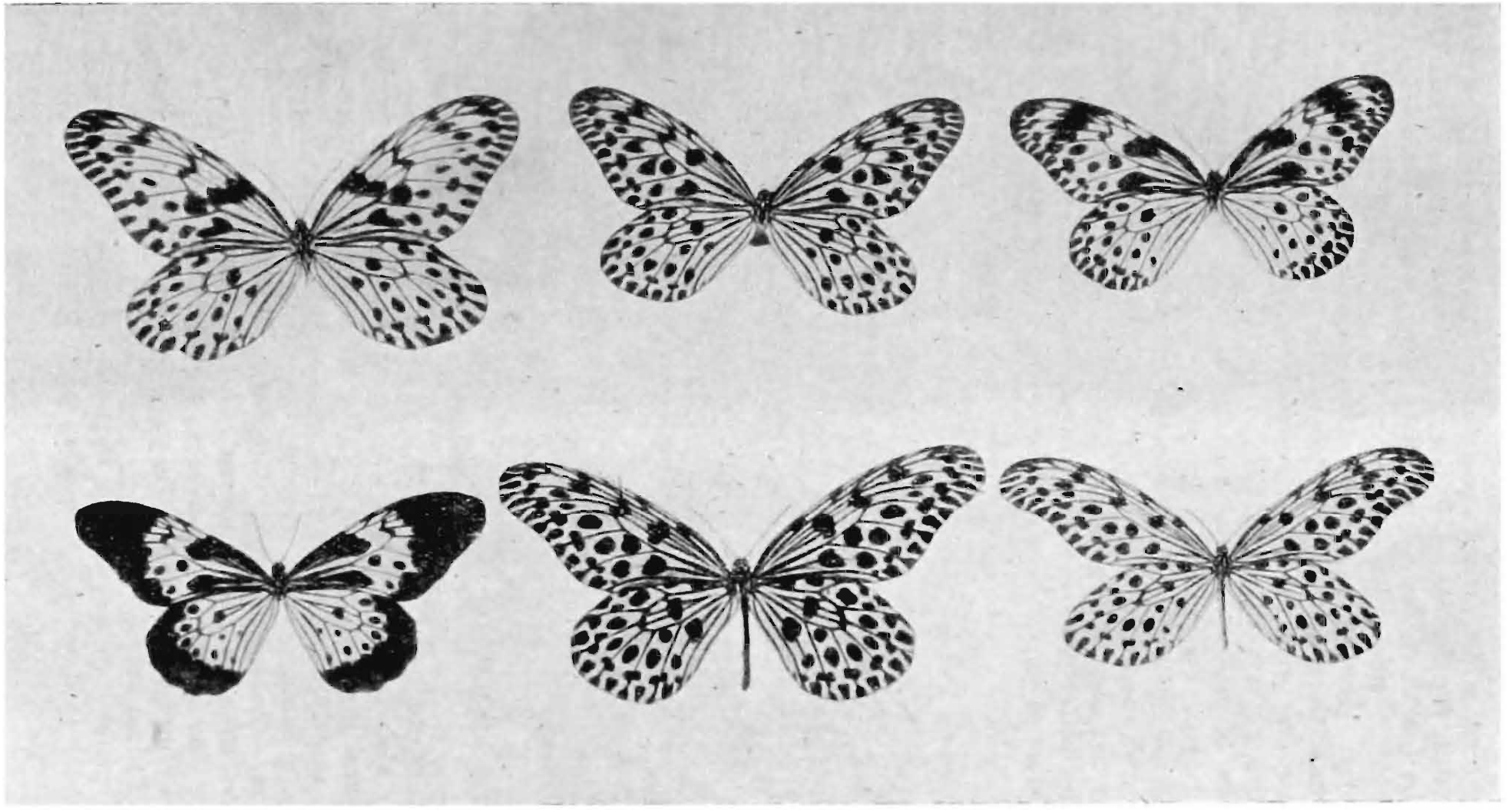


Fig. 3.—Species of *Idea*. 1, *jasonia* (Westw.), ♂, Ceylon; 2, *malabarica malabarica* (Moore), ♂, S. India; 3, *agamarschana agamarschana* (C. & R. Felder), ♂, Mergui; 4, *agamarschana hadeni* (Wd.-M. & de Nicéville), ♂, Bassein; 5, *lynceus lynceus* (Drury), ♂, Penang; 6, *stolli logani* (Moore), ♂, Perak.

pulvilli. Body long and feeble. Wings rather large, semi-transparent. Fore wing produced in the male, broad and rounded in the female. Costa widely arched; cell more than half the length of the wing; vein 11 anastomosed with 12; *udc* short; *mdc* oblique towards the base, incurved; *ldc* excurved. Hind wing elongate, obovate, or ovate; cell more than half the length of the wing; discocellulars obtusely angulate one with the other; precostal vein forked, arising after the origin of the subcostal; no patches of androconia.

Valve of male coarsely dentate or with two separated teeth; uncus vestigial.

Habits.—Butterflies of the woods, through which they flutter awkwardly, looking like inconsequential pieces of paper against the dark background.

"The butterflies are mostly gregarious, are fond of following the course of small streams, above which they float up and

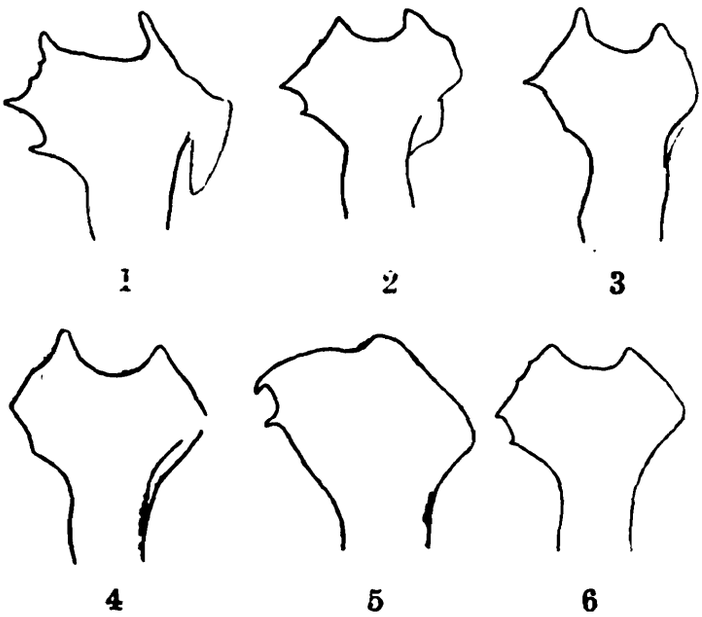


Fig. 4.—Genitalia of *Idea*. Figs. 1–6 as in fig. 3; figs. 5 and 6 from Selangor.

down, also frequently gambol round high-flowering forest trees, and love to settle in the late afternoon on projecting twigs, mostly in pairs, so that one might think they were beginning family life." (*H'ruhstorfer*, 1910).

Larva.—See *I malabarica* (Moore.)

Distribution.—CEYLON, SOUTH INDIA, ASSAM, and BURMA to Malaya, the Philippines, Formosa, the Loo Choo Islands, east to New Guinea. Eleven species are known, of which six occur in the Indian area.

The genus can be divided into two groups: (1) *Lynceus Group*, (2) *Idea Group*, formerly called *Hestia* and *Nectaria* respectively.

Key to Indian species of Idea.

A. Fore wing produced and narrow ; vein 10 arising from near upper angle of cell. Hind wing with *ldc* very short. Abdominal pencils of equal length. Fore wing costa prominently black at end of vein 12 ; spots in middle of cell zig-zag . . . *Lynceus* Group.

1. Fore wing cell-spots and costal spot merged to form a black band.. 2.
   Fore wing cell-spots and costal spot separated .. . .. . 3.
2. Fore wing subapical spot in area 4 small, not joined to the spot above it . .. . *jasonia* (Westw.), p. 9.
   Fore wing subapical spots, including spot in area 4, forming a black band, this band either free or merged in an outer wide black border ... .. *agamarschana* (C. & R. [Feld.), p 12.
3. Wings grey-white or slightly dusky. Fore wing post-discal spot in area 3 with its distal edge pointed or much narrower than proximal edge.. *malabarica* (Moore), p. 9.
   Wings very dusky, never grey-white. Fore wing post-discal spot in area 3 oval, being wider at the middle. *lynceus* (Drury), p. 8.

B. Wings broad. Fore wing with vein 10 well removed from upper angle of cell. Hind wing with *ldc* long. Two abdominal pencils much shorter than the other two. .. . .. . *Idea* Group.

1. Hind wing upperside with marginal black spots . . .. .. *hypermnestra* (Westw.), [p. 1
2. Hind wing upperside with a marginal black border bearing a row of white spots *leuconoë* (Erichs.), p. 15.

Note on species of the Lynceus *Group.*

Following a revision of this genus by Talbot (1941) the specific identity of some forms is maintained as in Bingham (1905) and not as considered by Fruhstorfer (1910) and Evans (1932*a*). Such species have been dissected and large material examined. It is obvious that *lynceus* (Drury) is a species distinct from the four others forming the group. On the structure of the male genitalia the four others appear to be related to one another, with *jasonia* (Westw.) as the most distinct. It is difficult to associate either of the three Indian forms with the Malaysian *stolli* (Moore), for this species, in all its forms, is characterised by a produced hind wing. It is considered, therefore, that *jasonia*, *malabarica* (Moore), *agamarschana* (C. & R. Feld.), and *stolli* should rank as species in a single complex.

Figs. 3 of imagos, and 4 of genitalia include the Malayan subspecies of *stolli* for comparison.

Idea lynceus (Drury).

♂♀. *Upperside* with greyish-white ground-colour, dusted with black, more strongly so in the male ; spots large and rounded, more or less ovate. Fore wing with a prominent cell-spot or bar, more or less heavy ; a large discal spot in area 2, close to the cell ; a larger discal spot below the cell, more or less elongate ; a post-discal series of spots ; a marginal series of hammer-headed bars on the veins, with a series of somewhat oblong spots or bars between the veins. Hind wing with a prominent cell-spot ; two rounded spots in area 7 ; a discal spot in area 2, close to the cell ; a second discal spot below the lower edge of the cell in area 1*c*, more or less divided into two by the fold ; a post-discal series of seven somewhat ovate spots ; marginal spots similar to those on the fore wing. Antennæ black. Head and thorax black, spotted with white Abdomen black above, white beneath.

♂ *genitalia* (fig. 4 (5)).—Valve somewhat quadrate ; apical or distal edge but slightly incurved near dorsal side ; ventral or inner edge deeply excavated at distal end where two prominent teeth are formed.

Distribution.—BURMA to Malaya, Sumatra, Nias and Borneo. Three subspecies distinguished, one from Burma.

200. **Idea lynceus lynceus** (Drury). (Figs. 3 (5), imago ; 4 (5) genitalia).

Papilio lynceus, Drury, 1773, p. 12, pl. 7, fig. 1.
Hestia lynceus lynceus, Fruhstorfer, 1910, p. 219 (Sumatra).
Idea lynceus lynceus, Talbot, 1941, p. 107.
Hestia reinwardti, Moore, 1883 *a*, p. 218.
Hestia lynceus reinwardti, Evans, 1932 *a*, p. 86 (Mergui).

♂♀. *Upperside* ground-colour darker than in other subspecies ; spots in the distal area of fore wing, and all the spots of the hind wing larger than in other subspecies. Fore wing with the post-discal spot in area 6, and the one in area 3, produced towards the cell. Hind wing cell-spot rather large, almost touching the cell margins.

Expanse.—♂♀, 120–140 mm.

Habitat.—LOWER BURMA, Peninsular Siam, Malaya, Sumatra. Very rare in Burma, but common elsewhere.

The British Museum contains 3 ♂, 1 ♀, from Bankasoon Malasoon, and Hangpru (Mergui). Although these specimens are a little paler than the Malayan ones, it would, perhaps, not be wise to consider them as forming a separate subspecies, as much variability exists in the genus.

The Malayan specimens were called *reinwardti* by Moore, but they cannot be separated from Sumatran ones. The type ♂ of *reinwardti* is labelled " Penang, " but the ♀ type is labelled " Sumatra."

201. **Idea jasonia** (Westwood). (Figs. 3 (1), imago; 4 (1) genitalia).

Hestia jasonia, Westwood, 1848, p. 87, pl. 42, fig. 1 (♂); Butler, 1867 *b*, p. 470.
Nectaria jasonia, Moore, 1880 *a*, p. 2, pl. 1, fig. 1.
Hestia jasonia, Marshall & de Nicéville, 1883, p. 27, pl. iii, fig. 1 (♂); Moore, 1883 *a*, p. 219; *id.*, 1890, p. 22, pl. 3, figs. 1, 1 *a*, *b* (♀); Bingham, 1905, p. 9; Ormiston, 1918, p. 4; *id.*, 1924, p. 1.
Hestia jasonia jasonia, Fruhstorfer, 1910, p. 219; Hulstaert, 1931, p. 76, pl. iv, fig. 1 (♀).
Hestia lynceus jasonia, Evans, 1923, p. 519; *id.*, 1927, p. 55; *id.*, 1932 *a*, p. 85, pl. x, fig. C 1.1 (♂); Woodhouse & Henry, 1942, p. 36, pl. i, figs. 5 (♀), 6 (♂).
Idea jasonia, Talbot, 1941, p. 106.
Hestia jasonia jasonia f. *diabolica*, Fruhstorfer, 1910, p. 219.
Idea jasonia f. *diabolica* Talbot, 1941, p. 106.

♂♀. *Upperside* with the ground-colour lighter than in *lynceus* from Burma, and the spots smaller. Fore wing with cell-spot enlarged and united with the costal spot, forming a prominent transverse band; discal spot below vein 2 produced distad, almost touching the post-discal spot; post-discal spot in area 6 placed almost above the spot in 5, these two spots more or less pointed on each side. Hind wing markings as in *lynceus*, but all much reduced.

Form **diabolica** (Fruhst.).—♂♀. Usually smaller than the typical form. *Upperside* ground-colour smoky brown, and in some specimens of the female with the black markings increased in size. According to Ormiston (1918) this form occurs in the low wet country.

♂ *genitalia* (fig. 4 (1)).—Valve rather broad; apical or distal edge broadly and strongly incurved with a prominent dorsal and a ventral process; ventral or inner edge excavated at the middle, with two teeth more prominent than in *lynceus*.

Expanse: ♂♀, 120–140 mm.

Habitat—CEYLON. Found in forest country from sea-level to 5,000 feet; not rare.

Idea malabarica (Moore).

♂♀. Wing-shape as in *lynceus* (Drury). Markings much paler than in other Indian species, somewhat resembling *stolli* (Moore) from the Malayan region. Fore wing post-discal spots in areas 2 and 3 triangular.

♂ *genitalia* (fig. 4 (2)).—Valve broad; apical or distal edge with a deep semicircular excavation; ventral or inner edge incurved at the middle, the two teeth thus formed being rather short.

Distribution.—SOUTHERN INDIA. Two subspecies.

202 *a*. **Idea malabarica malabarica** (Moore). (Figs. 3 (2) imago ; 4 (2) genitalia ; 5 larva and pupa).

Hestia malabarica, Moore, 1877 *a*, p. 46 (♀) ; Hampson, 1880, p. 347 ; Moore, 1883 *a*, p. 220 ; Marshall & de Nicéville, 1883, p. 26 ; Macpherson, 1887, p. 164, pl. (early stages) ; Hampson, 1889, p. 347 (Nilgiris) ; Moore, 1890, p. 18, pl. 1, figs. 1, 1 *a* (larva, pupa), 1 *b*, 1 *c*, (♂♀) ; *id.*, *l. c.*, pl. 2, figs. 1, 1 *a* (larva, pupa) ; Bingham, 1905, p. 3 ; Bell, 1909, p. 46 ; Evans, 1910, p. 381 (Palni Hills).

Hestia jasonia malabarica, Fruhstorfer, 1910, p. 219 ; Hulstaert, 1931, p. 76.

Hestia lynceus malabarica, Evans, 1923, p. 519 ; *id.*, 1927, p. 55 ; *id.*, 1932 *a*, p. 85.

Idea malabarica, Talbot, 1941, p. 106.

Hestia lynceus, Marshall & de Nicéville (*non* Drury), 1883, p. 25.

♂♀.—*Upperside* a little lighter than *jasonia*, the markings not larger. Fore wing with separate cell-spot ; the two anterior post-discal spots placed proximad of the others, and, together with the third spot, are smaller than in *jasonia*.

Expanse : ♂♀, 120–160 mm.



Fig. 5.—*Idea malabarica malabarica* (Moore). Larva and pupa. (After *Moore*, 1890).

♂ *genitalia* (fig. 4 (2)).—Valve broad ; apical or distal edge with a deep semicircular excavation ; ventral or inner edge incurved at the middle, the two teeth thus formed being rather short.

Early stages (from *Macpherson*, 1887) :—

Egg.—White, oval, marked with longitudinal rows of hexagonal indentations. The eggs hatch in from six to seven days.

Larva.—Emergence takes place from a little to one side of the apex of the egg. The egg-shell is eaten for the first meal. The newly hatched larva is transparent pale yellow, head and feet black, and through the skin are visible the white rings of the more mature grub, also the two black dots on the back of the second segment. It has four pairs of minute fleshy tentacles arranged as in the more mature grub.

The first skin is cast in a few days, and the larva then assumes the colours and markings which it retains until it changes to a pupa. It eats its cast skin in the first two stages only. The young larva has the peculiar habit of eating holes in the centre of the leaf instead of from the margin forwards, as with most caterpillars, but this habit it gives up as it increases in size. It conceals itself generally on the under surface of the leaf.

The larva attains its full size in from 20 to 25 days. It is now about two inches long, cylindrical, slightly tapering towards the extremities, and provided with four pairs of black fleshy tentacles, a pair on each of the 3rd, 4th, 6th and 12th segments. Skin smooth, glossy ; head black ; segment 2 white, with two small dorsal dots ; all the other segments white, with a broad band of black round the centre of each ; segments 6, 7, 8, 9, 10, and 11 have on each side of the black ground small round patches of bright scarlet, particularly distinct on segments 6 and 11 ; venter black ; legs black. Food-plant not recorded.

Pupa.—About an inch long by seven-sixteenths of an inch broad. Golden-yellow, with large patches of bright metallic gold, the black spots on the wings of the butterfly showing through the yellow parts of the chrysalis. In 12 or 13 days the pupa turns black, and in about 24 hours later the butterfly emerges.

Habitat.—SOUTH INDIA : Malabar, Travancore, the Nilgiris, Mysore ; not rare. According to Hampson (1889) the insect is found on the western slopes of the Nilgiris, from 3,000 to 4,000 feet, and is confined to the region of heavy rainfall.

202 *b*. **Idea malabarica kanarensis** (Moore).

Hestia kanarensis, Moore, 1890, p. 21, pl. 2, figs. 2, 2 *a* (♂♀) (North Kanara).
Hestia jasonia kanarensis, Fruhstorfer, 1910, pp. 218, 219 ; Hulstaert, 1931, p. 76.
Hestia lynceus kanarensis, Evans, 1923, p. 519 ; *id.*, 1927, p. 55 ; *id.*, 1932 *a*, p. 85.
Idea malabarica kanarensis, Talbot, 1941, p. 106.
Hestia malabarica, Marshall & de Nicéville (*non* Moore), 1883, p. 26 (part.) ; Bingham, 1905, p. 4 (part.).
Hestia lynceus, Davidson, Bell & Aitken, (*non* Drury), 1896, p. 239.

♂♀. Smaller than *malabarica*, the ground-colour whiter, the markings similar. Hind wing markings more reduced, especially the discal spots in areas 1 *c* and 2.

Expanse : ♂♀, 120–140 mm.

The larva is said to feed on *Aganosoma cymosa* G. Don., family Apocynaceæ.

Habitat.—PENINSULAR INDIA : North Kanara ; not rare.

Idea agamarschana (C. & R. Felder).

♂♀. Distinguished from *lynceus* (Drury) by the shorter and more rounded wings, with increased black markings. Fore wing with a broad subapical band, and a broad basal costal stripe that more or less fills the cell. Hind wing usually without a discal spot in area 1*c*.

♂ *genitalia* (fig. 4 (3)).—Valve narrower than in other Indian species; apical or distal edge deeply excavated, somewhat as in *malabarica*, but with ventral process more prominent than dorsal one; ventral or inner edge gently incurved at the middle, with distal tooth more produced than the proximal one.

Distribution.—BURMA, MERGUI ARCHIPELAGO, and ANDAMAN ISLANDS. Three subspecies.

203 *a*. **Idea agamarschana agamarschana** (C. & R. Felder). (Fig. 6, ♂).

Hestia agamarschana, C. & R. Felder, 1865, pp. 351, 352, t. xliii, fig. 7 (♂, "Andaman Islands"); Butler, 1867 *b*, p. 470; Moore, 1877 *b*, p. 582 ("Port Blair"); *id.*, 1883 *a*, p. 219 ("Andaman Islands"); Marshall & de Nicéville, 1883, p. 27; Moore, 1886, p. 29; *id.*, 1890, p. 23, pl. 4, fig. 1 (♂, after Felder); Bingham, 1905, p. 5; Adamson, 1905, p. 156.

Hestia jasonia agamarschana, Fruhstorfer, 1910, p. 219 (Tenasserim); Hulstaert, 1931, p. 76.

Hestia lynceus agamarschana, Evans, 1923, p. 519; *id.*, 1932 *a*, p. 86.

Idea agamarschana agamarschana, Talbot, 1941, p. 107.

Hestia jasonia margherita, Fruhstorfer, 1903 *a*, p. 56 (Upper Assam); *id.*, 1910, p. 217; Hulstaert, 1931, p. 76.

Hestia jasonia arrakana, Fruhstorfer, 1910, p. 219 (Arrakan); Hulstaert, 1931, p. 77.

Hestia lynceus arrakana, Evans, 1923, p. 519; *id.*, 1927, p. 55; *id.*, 1932 *a*, p. 85.

Idea agamarschana f. *arrakana*, Talbot, 1941, p. 107 (Arrakan and Upper Burma).

♂♀. *Upperside* ground-colour slightly dusky. Fore wing with a broad subapical band from vein 4 to the costa, formed by the coalescence of the elongate post-discal spots in this area; cell-spot very large, united with the costal stripe, the space between it and the base of the cell much darkened; a small, but prominent, costal spot is placed between the subapical band and the basal stripe; marginal spot on vein 4 with its dilated proximal end merged into the subapical band; basal stripe in 1*b* broad, its lower edge, for the most part, against vein 1*b*. Hind wing markings as in *lynceus*, small as in *kanarensis*, the discal spot in area 1*c* usually absent.

Expanse: ♂♀, 110–130 mm.

The name *margherita* (Fruhst.) was based upon Assam examples with a broader black distal border to the hind wing above. The specimens, collected by Doherty, were said to be in the Oberthür collection. None of these are now in this collection, but there is a specimen labelled "Assam,

Margherita, Chasseurs Bretaudeau, 1895." This agrees with typical examples from Tavoy. It appears very unlikely that the species occurs in Assam.

Form **arrakana** (Fruhst.).—♂♀. Fore wing marginal black spots usually connected, and sometimes also those of hind wing. Fore wing apex black, and subapical black band broader, the subapical white band always narrower than in the nominotypical form ; spots in areas 2 and 3 much larger.

This form is known from Akyab, Arrakan, Chittagong, Upper Burma (Angranlong).



Fig. 6.— *Idea agamarschana agamarschana* (C. & R. Feld.), ♂.

H. M. Parish, who collected this insect, says (in a manuscript note) that it is very common in the mangrove jungle and very narrow tidal creek at Akhiaghât, head of the Naf Estuary which separates the district of Chittagong from Arrakan.

Habitat.—CHITTAGONG and ARRAKAN to SOUTHERN BURMA, and KING ISLAND.

203 *b*. **Idea agamarschana hadeni** (Wood-Mason & de Nicéville). (Figs. 3 (4) imago ; 4 (4) genitalia).

Hestia hadeni, Wood-Mason & de Nicéville, 1880 *a*, p. 242, pl. xiii, fig. 2 (♀) (Bassein) ; Moore, 1883 *a*, p. 219 ; Marshall & de Nicéville, 1883, p. 29, pl. iv, fig. 3 (♀) ; Moore, 1890, p. 25, pl. 4, fig. 3 (♀) ; Bingham, 1905, p. 6 ; Adamson, 1905, p. 157 ; Fruhstorfer, 1910, p. 219, t. 75 *b* (♂) ; Hulstaert, 1931, p. 76.
Hestia lynceus hadeni, Evans, 1923, p. 519 ; *id.*, 1927, p. 55 ; *id.*, 1932 *a*, p. 85.
Idea agamarschana hadeni, Talbot, 1941, p. 107.

♂♀. *Upperside* of both wings with a broad, black outer border. Fore wing border anteriorly covering more than a

third the length of the wing, and narrowing towards the tornus ; black basal stripe reaching the base. Hind wing with the outer border of fairly even width, its inner edge slightly crenulate ; post-discal and other spots not larger than in the nominotypical form.

Expanse : ♂♀, 120–140 mm.

Habitat.—BURMA : Bassein, in the mangrove jungle ; rare.

203 *c*. **Idea agamarschana cadelli** (Wood-Mason & de Nicéville).

Hestia cadelli, Wood-Mason & de Nicéville, 1880 *a*, p. 225, pl. xiii, fig. 1 (♂) ; *id.*, 1881 *b*, p. 244 (♀, Andaman Islands) ; Moore, 1883 *a*, p. 219 ; Marshall & de Nicéville, 1883, p. 28, pl. iv, fig. 2 (♂) ; Moore, 1890, p. 24, pl. 4, fig. 2.
Hestia agamarschana cadelli, Bingham, 1905, p. 6.
Hestia jasonia cadelli, Fruhstorfer, 1910, p. 219 ; Hulstaert, 1931, p. 77.
Hestia lynceus cadelli, Evans, 1923, p. 519 ; *id.*, 1932 *a*, p. 86.
Idea agamarschana cadelli, Talbot, 1941, p. 107.

♂♀. The black markings more extended than in the nominotypical form, connecting this with *hadeni*. *Upperside* of fore wing with the black basal stripe more extended in the cell than in *hadeni* ; posterior stripe also broader and almost filling the space below the cell ; area 1 *a* entirely dusky ; subapical band and apical black broader than in the nominotypical form ; discal spot in area 2, post-discal spots, and hammer-head markings enlarged. Hind wing spots larger than in the nominotypical form, the marginal markings more or less coalescent.

Habitat.—ANDAMAN ISLANDS ; not rare.

Idea hypermnestra (Westwood).

Belongs to the species-group *Idea*, formerly called '*Nectaria*.'

♂♀. Wings more rounded and broader than in the two species previously described. Fore wing with basal part of costa not black ; cell-spot united with a bar placed at right angles to the costa. Hind wing markings as in the two preceding species.

Distribution.—BURMA to Malaya, Borneo and Sumatra.

204. **Idea hypermnestra linteata** (Butler).

Hestia linteata, Butler, 1879 *b*, p. 536, pl. lxix, fig. 6 (Malacca).
Hestia (*Nectaria*) *hypermnestra linteata*, Fruhstorfer, 1910, p. 221.
Hestia hypermnestra linteata, Evans, 1932 *a*, p. 86 (Mergui).
Idea hypermnestra linteata, Talbot, 1941, p. 109.

♂♀. *Upperside* of fore wing with the anterior post-discal spots, in areas 4 to 6, elongate ovals, placed in a slight and even curve, their outer ends close to the hammer-head markings, their inner ends not produced proximad ; post-discal spots in areas 2 and 3 each united with a smaller spot on veins

3 and 4 ; discal spot in 1 *b* large and somewhat square ; a small spot on the inner margin in 1 *a*, placed between the discal and post-discal spots. Hind wing with the marginal intraneural spots well developed, the hammer-head markings smaller and narrow.

Expanse : ♂♀, 140–160 mm.

Habitat.—Lower Burma (Bankasoon; Malasoon); Mergui Islands ; very rare. Also in Malaya, where it is not common.

Idea leuconoë (Erichson).

♂♀. Allied to *hypermnestra* (Westw.), but distinguished by the dark outer borders of both wings bearing a row of marginal or antemarginal white spots. Fore wing with a black band across the cell, united with a subcostal bar, much as in *hypermnestra*, and more or less angled in the cell. A post-discal, strongly sagittate, black band, anteriorly placed much nearer the apex than to the cell, and sometimes more or less broken between the veins ; the anterior four or five marginal spots and one at the tornus smaller than the others ; a discal spot in area 2, and another below it in 1 *b*, placed on the blackened fold-streak. Hind wing with the usual black cell-spot, and usually two small spots below the cell, placed on either side of the fold in area 1 *c* ; a post-discal series of wedge-shaped black spots, more or less connected.

Distribution.—The Loo Choo Islands to the Philippines, Talaud Islands, Western Borneo, Engano, Batu Islands, Malaya, Siam and Southern Burma. Several subspecies are distinguished, but only one enters the Indian area.

205. Idea leuconoë siamensis (Godfrey).

Hestia leuconoë siamensis, Godfrey, 1916, p. 117 ; Evans, 1932 *a*, p. 86.
Idea leuconoë siamensis, Talbot, 1941, p. 114.

♂♀. *Upperside* white with slight yellow suffusion over the proximal areas, stronger in the female. Fore wing with the black cell-patch broad posteriorly, narrow anteriorly, and reaching the costal vein ; the three black longitudinal lines in the cell are distinct throughout, the two lower ones much heavier than the other one. The black markings as a whole much reduced as compared with the Borneo and Philippine races ; discal spot in area 2 usually absent or vestigial ; marginal white spots usually without black dusting, larger than in the Borneo race, distinctly defined in areas 5 and 6, with also a small distinct spot in 7 Hind wing with the post-discal spots only connected in areas 2 and 3 ; cell-spot small, traversed by the lower longitudinal black line ; marginal white spots large.

Expanse : ♂♀, 120–160 mm.

Habits.—" The butterflies keep mostly to the tops of trees, especially in the early mornings, but they occasionally circle

slowly down with clumsy top-heavy movements, and are then easily captured " (*Godfrey*, 1916).

Habitat.—Siam ; recorded from SOUTHERN BURMA (Victoria Point) by Evans (1932 *a*).

The only specimens in the British Museum are the types and two other males from Siam.

Genus **DANAUS** Kluk.

Danaus, Kluk, 1802, p. 84 (part.) ; Latreille, 1807, p. 490 ; *id.*, 1809, p. 201 ; Hemming, 1933 *b*, p. 222 (type, *Papilio plexippus* Linn.) ; *id.* 1934 *a*, p. 21 (type, *Papilio plexippus* Linn., 1758) ; Bryk, 1937 ; Talbot, 1943 *b* (revision).

Danaus, Linnaeus, Forbes, 1939, p. 123.

Danaida, Latreille, 1804, pp. 185, 199 ; Fruhstorfer, 1910, pp. 192–193 ; Hulstaert, 1931, pp. 5, 11, 17–20 ; Hemming, 1934 *a*, p. 22 (type, *Danaida plexippus*, Fabr., Latr., 1804).

Danais, Latreille, 1807, p. 291 ; Marshall & de Nicéville, 1883, p. 31, pls. v.–vii. ; Bingham, 1905, p. 7 ; Seitz, 1907, p. 75 ; Bell, 1909, pp. 2, 44, ; Evans, 1923, p. 519 ; *id.*, 1927, pp. 55–57 ; *id.*, 1932 *a*, p. 85 ; Hemming, 1934 *a*, p. 22 (type, *Papilio plexippus* Linn.. 1758).

Radena, Moore, 1880 *a*, p. 3 ; *id.*, 1883 *a*, p. 223 (type *R. similis*, Linn.) ; Marshall & de Nicéville, 1883, pp. 31, 32 (=*Danais* group) ; Moore, 1890, p. 27.

Tirumala, Moore, 1880 *a*, p. 4 (type, *Papilio limniace* Cram.) ; *id.*, 1883 *a*, p. 230 ; Marshall & de Nicéville, 1883, pp. 31, 45 (=*Danais* group) ; Moore, 1890, p. 29 ; Fruhstorfer, 1910, p. 201 (=*Danaida* group) ; Hulstaert, 1931, p. 42 (=*Danaida* group, part.).

Salatura, Moore, 1880 *a*, p. 5 (type, *S. genutia* Cram.) ; *id.*, 1883 *a*, p. 239 ; Marshall & de Nicéville, 1883, pp. 31, 49 (=*Danais* group) ; Moore, 1890, p. 44.

Parantica, Moore, 1880 *a*, p. 7 (type, *P. aglea* Cram.) ; *id.*, 1883 *a*, p. 247 ; Marshall & de Nicéville, 1883, pp. 31, 35 (=*Danais* group) ; Moore, 1890, p. 53 ; Hulstaert, 1931, p. 55, pl. vi, fig. 7 (venation) (=*Danaida*, subgenus).

Chittira, Moore, 1880 *a*, p. 8 (type, *C. fumata* Butl.) ; *id.*, 1883 *a*, p. 251 ; Marshall & de Nicéville, 1883, pp. 31, 42 (= *Danais* group) ; Moore, 1890, p. 66 ; Fruhstorfer, 1910, p. 208 (= *Danaida* group) ; Hulstaert, 1931, p. 57, pl. vi, fig. 8 (venation) (=*Danaida* subgenus).

Limnas, Moore (*non* Hübner), 1883 *a*, p. 237 (type, *L. chrysippus* Linn.) ; *id.*, 1890, p. 36.

Ravadeba, Moore, 1883 *a*, p. 244 ; Fruhstorfer, 1910, p. 205 (= *Danaida* group) ; Hulstaert, 1931, p. 50, pl. vi, fig. 6, (venation) (=*Danaida* subgenus).

Bahora, Moore, 1883 *a*, p. 245 (type, *B. philomela* Zink.) ; *id.*, 1890, p. 51.

Caduga, Moore, 1883 *a*, p. 249 (type, *C. tytia* Gray) ; *id.*, 1890, p. 60.

Badacara, Moore, 1890, p. 65 (type, *B. nilgiriensis* Moore).

Pradena, Fruhstorfer, 1900, p. 2 (type, *P. juventa* Cram.).

Panlymnas, Bryk, 1937, p. 56 (= *Danaus* subgenus).

Type of the genus, *Papilio plexippus* (Linn.)

♂♀. Antennæ less than half length of fore wing, gradual, with distinct club. Palpus erect, short. Claws of mid and hind tarsi long, simple, without paronychia and pulvilli.

Fore wing triangular, costa widely arched; apex broadly rounded; outer margin, below the apex, straight or slightly incurved; inner margin straight; *udc* absent or much reduced, *mdc* long, very oblique, *ldc* oblique outwardly; vein 10 from apex of cell or stalked with 7, 8, and 9, rarely from just before the angle; vein 11 free or anastomosed with 12. Hind wing usually pyriform, sometimes slightly triangular; cell long; discocellulars variable, the angles between each more or less accentuated; *udc* short or as long as *mdc*; *mdc* straight or incurved, or even broken at the angle; *ldc* long and outwardly oblique, or short and erect; precostal spur from the point of separation of vein 8.

Sex-marks on the hind wing only. A pocket or flap near vein 2, or patches of androconia on veins 2, 1 *b*, and 1 *a*.

♂ *genitalia*: Uncus feeble, rudimentary; tegumen with side-lobes; valve large, rarely spined.

Egg.—Large, ends obtuse, and whole surface very reticulate.

Larva.—Naked, with spots or stripes of various colours; fleshy filaments more or less mobile, the number varying according to the group.

Pupa.—Barrel-shaped, compressed in the middle; green, yellow, or white with black and yellow metallic markings.

Distribution.—As given for the family, and essentially Indo-Australian.

The 17 species occurring in the Indian area can be arranged in six groups.

Key to Groups of Indian Danaus.

1. Hind wing of male with an obvious scent-patch	2.
Hind wing of male with no obvious scent-patch	*Similis*, p. 49.
2. Hind wing of male with a single scent-patch	3.
Hind wing of male with two scent-patches	5.
3. Hind wing with *mdc* sharply angulate above the middle and marked by a conspicuous black spot; veins not marked with black	*Chrysippus*, p. 19.
Hind wing with *mdc* but slightly bent above the middle, not marked with a black spot; veins marked with black	4.
4. Hind wing scent-patch small, oval, raised, forming a sort of flap in area 1*c*, well developed on both sides of wing . . .	*Plexippus*, p. 23.
Hind wing scent-patch in a deep pocket which, on underside, is produced to a rounded flap extending over vein 2	*Limniace*, p. 29.

5. Hind wing upperside of male with a large scent-patch on vein 2 near margin and a smaller one below it it on vein 1 *b*. Smaller species — *Aglea*, p. 37.
Hind wing upperside of male with a large scent-patch on vein 1 *b* near margin and a smaller one on vein 1 *a*. Larger species — *Melaneus*, p. 42.

Key to Species of Indian Danaus.

Chrysippus Group.

1. Wings yellowish-brown. Fore wing with subapical white band — *chrysippus* (L.), p. 19.

Plexippus Group.

1. Hind wing tawny. . — *plexippus* L.), p. 23.
2. Hind wing with discal narrow white streaks .. . . . — *melanippus* (Cram.), p. 27.
Hind wing upperside with discal area white, bordered inwardly with tawny. Hind wing underside with a costal white streak at end of vein 8; dark border inwardly edged with tawny triangles. . . — *affinis* (Fabr.), p. 28.

Limniace Group.

1 Fore wing without a pale streak from base of cell along the costal vein. — 2.
Fore wing with a pale streak from base of cell along the costal vein. — *gautama* (Moore), p. 35.
2. Fore wing with the streaks beyond end of cell not wider than half their length . .. . . — *limniace* (Cram.), p. 30.
Fore wing with the streaks beyond end of cell much narrower than half their length. — *hamata* (McLeay), p. 32.

Aglea Group.

1. Hind wing with basal half yellow.. — *aspasia* (Fabr.), p. 42.
Hind wing without yellow colouring. — 2.
2. Hind wing upperside in the middle of area 6, with two detached or conjoined spots . . .. — *aglea* (Stoll), p. 37.
Hind wing upperside, in area 6, with a single spot — *ageloides* (C. Feld.), p. 41.

Melaneus Group.

1. Fore wing with cell immaculate.. — 2.
Fore wing with cell dark and bearing a pale streak . — 3.
2. Hind wing upperside marginal border broad, dark chocolate, prominently spotted white . . — *melaneus* (Cram.), p. 43.
Hind wing upperside marginal border bright chestnut, obscurely spotted. — *sita* (Kollar), p. 45.
3. Hind wing very sparsely marked, no pale streaks between cell and inner margin. .. . — *taprobana* (C. & R. Feld.), [p. 47
Hind wing more marked, with long pale streaks between cell and inner margin. .. — *nilgiriensis* (Moore), p. 48.

Similis Group.

1. Wing markings with enlarged spots. Hind wing cell mostly white — *juventa* (Cram.), p. 53.
   Wing markings of narrow stripes, no enlarged white markings.. . — 2.
2. Hind wing underside with pale stripe in area 1 *b* broader than the dark stripes of ground-colour on either side . .. . — *similis* (L.), p. 50.
   Hind wing underside with pale stripe in area 1 *b*, at least distally, not broader than the dark stripes of ground-colour on either side. — *vulgaris* (Butl.), p. 52.

Chrysippus Group. (*Limnas* Hübner).

This group comprises only one species. It is sufficiently characterized in the key on page 17, and by the description of *chrysippus* Linn. which follows here.

Larva furnished with three pairs of tentacles.

Danaus chrysippus (Linnæus).

♂♀. *Upperside* ochraceous to tawny-brown. Fore wing with apical half black, extending along the costal margin to base, and on the outer margin to the tornus ; a subapical white band, composed of four spots, divided by the dark veins, from vein 4 to the costa ; a small post-discal spot in area 3, and beyond it a pair of small submarginal spots ; a row of antemarginal white dots, usually incomplete ; two small white costal spots. Hind wing with a narrow outer black border, more or less crenulate on its inner edge ; two or three small black discal spots.

Underside of fore wing with narrow outer black border, bearing antemarginal white dots ; apical area, limited by the white band, ochraceous. Hind wing ochraceous or yellowish-brown ; an outer narrow black border, bearing prominent antemarginal white spots, a black costal spot, divided by a white spot, and black discal spots as on upperside.

Two principal forms exist, the second one being without the black area and white band on the fore wing. A third form has the hind wing scaled with white to a varying extent. Other minor forms occur, and more or less distinct subspecies are formed over the entire range.

Early stages and habits (chiefly from *Bell*, 1909) :—

Egg.—" Sugar-loaf shaped ; cream colour." (*Chaumette*, quoted by Moore, 1890).

Larva.—Tentacles as in *D. plexippus*. Head black, marked with white. Body dark chocolate-brown or black, and clothed. as well as the tentacles, with sparse, short, erect black hairs ; spiracular band yellow, composed of contiguous spots shaped like molar teeth, the fangs pointing upwards ; spiracles oval

and black ; a dorso-lateral row of large yellow spots, these absent on segments 2, 13, and 14 ; between each pair of yellow spots are three or four dorsal white bands, extending to the spiracular band on each side ; a small carmine spot at the base of the tentacles on segments 6 and 12, and a yellow spot round the base of the tentacles on 3 and 12 ; segment 2 banded black and white ; legs and prolegs black, the latter with a white band on their bases. Length 38 mm., breadth 7 mm., height 6 mm. (From *Bell*).

Pupa.—Green. The ridge of segment 7 is composed of a double row of beads, and is golden in front and black behind ; spiracles rather large, but those on segment 2 are mere slits ; head-points gold, shoulder tipped with gold, and a subdorsal gold spot on hind margin of thorax ; cremaster a short, narrow oblong, with hooklets at the extremity, and with ventral extensor ridges ; cremaster and extensor ridges black. Length 18·5 mm. ; breadth, at segment 7, 8 mm. (From *Bell*).

Besides the green pupæ there are others which are pale pinkish wax-white. According to Wood-Mason (quoted by Marshall and de Nicéville, 1883) the pupa is protected by its resemblance to two different parts of the plant on which it feeds and resides, the green pupæ matching the leaves, and the pink ones being of a colour likely to be mistaken by birds, reptiles, and predaceous insects for a blossom.

Habits.—The egg is laid singly on the underside of a leaf where the larva lives. The larva eats the egg-shell as its first meal, then the substance of the leaf, leaving the top cuticle, and afterwards feeds from the edge in the ordinary way ; it wanders to pupate. It is much attacked by ichneumons.

The larva feeds on *Calotropis*, family Asclepiadaceæ. *Asclepias curassavica* Linn., introduced from America, and spread all over India, is also a favourite food-plant.

The imago is, perhaps, the strongest of the Danaines on the wing. It is a dry weather species in the regions of heavy rainfall. (From *Bell*).

Distribution.—The most widely distributed of the Indian Danaines, and probably of all the Indian butterfles.

The whole Aethiopian Region, Canary Islands, North Africa, Syria, Greece, Asia Minor to INDIA, China and Japan, and over the whole of the Indo-Australian Region. A single subspecies in the Indian area.

206. **Danaus chrysippus chrysippus** (Linnæus).

Papilio chrysippus, Linnæus, 1758, p. 471.
Danais chrysippus, Moore, 1865 *a*, p. 761 (Bengal) ; *id.*, 1879 *a*, p. 822 (Tenasserim) ; de Nicéville, 1881, p. 49 (Sikkim) ; *id.*, 1882, p. 55 (Sikkim ; Wood-Mason & de Nicéville, 1882, p. 15.
Limnas chrysippus, Moore, 1882 *b*, p. 234 (Kangra) ; *id.*, 1883 *a*, p. 237.

Danais (*Salatura*) *chrysippus*, Marshall & de Nicéville, 1883, p. 50, pl. vi, fig. 10 (♀, Calcutta).
Limnas chrysippus, Forsayeth, 1884, p. 380 (early stages, Mhow).
Danais (*Limnas*) *chrysippus*, de Nicéville, 1885 *a*, p. 40 (Calcutta).
Limnas chrysippus, Butler, 1885 *a*, p. 300 (near Assam); *id.*, 1886 *a*, p. 356 (Campbellpore; Murree); *id.*, 1886 *b*, p. 182 (Upper Burma).
Danais chrysippus, Doherty, 1886 *a*, p. 113 (Kumaon, 3,000 feet); Wood-Mason & de Nicéville, 1887, p. 345 (Cachar); Taylor & de Nicéville, 1888, No. 40 (Orissa); Hart, 1889, p. 285 (early stages).
Limnas chrysippus, Hampson, 1889, p. 347 (Nilgiris); Moore, 1890, p. 36, pl. 8, fig. 1 (larva), 1 *a*, *b*, *c*, *d* (aberr.), *e* (♂♀).
Danais (*Limnas*) *chrysippus*, de Nicéville, 1894 *a*, p. 117 (Sikkim).
Danais chrysippus, Davidson, Bell, & Aitken, 1896, p. 240 (Canara).
Danais (*Limnas*) *chrysippus*, MacKinnon & de Nicéville, 1897, p. 212 (Mussooree); Watson, 1897, p. 637 (Chin Hills; Manipur).
Danais chrysippus, de Rhé-Philipe, 1902, p. 482 (Lucknow); Leslie & Evans, 1903, p. 667 (Chitral); Adamson, 1905, p. 157 (Burma); Bingham, 1905, p. 11, pl. i, fig. 2; Seitz, 1907, p. 75, t. 28 *a*; Bell, 1909, p. 50 (early stages); Hannyngton, 1910, p. 133 (Kumaon, to 5,000 feet); Evans, 1910, p. 381 (Palni Hills); Tytler, 1911, p. 49 (Naga Hills); Ellis, 1917, p. 105 (Burma); de Rhé-Philipe, 1917, p. 137 (Lahore).
Salatura chrysippus, Ormiston, 1918, p. 5 (Ceylon).
Danais chrysippus, Evans, 1932 *a*, p. 88; *id.*, 1932 *b*, p. 200; Sevastopulo, 1933, p. 149 (early stages, Calcutta); Gough, 1935, p. 260 (Nepal); Woodhouse & Henry, 1942, p. 38, pl. ii, figs. 1 (♂), 2 (♀), pl. xl, fig. 2 (larva, pupa) (Ceylon).
Danaus chrysippus, Peile, 1937, p. 80, pl. ix, fig. 73 (♂).
Danaus chrysippus chrysippus, Corbet, 1940, p. 18 (Hong Kong); *id.*, 1941 *a*, p. 19 (type, South-east China); Talbot, 1943 *b*, p. 121.
Danaida (*Limnas*) *chrysippus*, Fruhstorfer, 1910, p. 193; Eltringham, 1915, p. 166, pls. xvi, xix, xx (scent-organs).
Euplœa dorippus, Klug, 1845, t. 48, figs. 1–3.
Limnas dorippus, Moore, 1883 *a*, p. 238 (Beluchistan, Sind, Kutch).
Danais (*Salatura*) *dorippus*, Marshall & de Nicéville, 1883, p. 52 (Sind).
Danais chrysippus f. *dorippus*, Bingham, 1905, p. 13; Seitz, 1907, p. 76, t. 28 *b* (♂); Evans, 1923, p. 524; Ormiston, 1924, p. 3; Evans, 1927, p. 57; *id.*, 1932 *a*, p. 88; Woodhouse & Henry, 1942, p. 39, pl. ii, fig. 3 (♂) (Ceylon).
Danaida chrysippus f. *dorippus*, Fruhstorfer, 1910, p. 194.
Salatura chrysippus var. *dorippus*, Ormiston, 1918, p. 5 (Ceylon).
Limnas alcippoides, Moore, 1883 *a*, p. 238, pl. xxxi, fig. 1 (♂, Nepal).
Danais (*Limnas*) *alcippoides*, de Nicéville, 1885 *a*, p. 40 (Calcutta).
Limnas alcippoides, Butler, 1886 *a*, p. 356 (Campbellpore).
Danais (*Limnas*) *alcippoides*, Taylor & de Nicéville, 1888, No. 5 (Orissa).
Limnas alcippoides, Moore, 1890, p. 41, pl. 9, figs. 2, 2 *a*, *b*, *c* (♂♀).
Danaida chrysippus f. *alcippoides*, Fruhstorfer, 1910, p. 194; Hulstaert, 1931, p. 29.
Danais chrysippus var. *alcippoides*, Evans, 1932 *a*, p. 88; Woodhouse & Henry, 1942, p. 39 (Ceylon).
Limnas klugii, Butler, 1886 *c*, p. 758 (Somaliland); *id.*, 1886 *a*, p. 356 (Campbellpore); Moore, 1890, p. 42, pl. 9, figs. 1, 1 *a* (♂♀).
Danais (*Salatura*) *alcippus*, Marshall & de Nicéville (*non* Cramer), 1883, p. 51.
Danais alcippus, Leslie & Evans, 1903, p. 167 (Chitral).
Danais chrysippus var. *alcippus*, Bingham, 1905, p. 12; Ormiston, 1924, p. 3.

Limnas bowringi, Moore, 1883 *a*, p. 239 (Hong Kong).
Danais chrysippus f. *transiens*, Suffert, 1900 *a*, pp. 6–7.
Danaus chrysippus chrysippus f. *amplifascia*, Talbot, 1943 *b*, p. 122 (India, S. China, Tong-king).

♂♀. *Upperside* of fore wing tawny, darkening towards the costal margin ; costa narrowly, and the apical third of wing, black ; one or two white spots beyond and above apex of cell ; a subapical white band, with one inner and two submarginal white spots below its lower end ; a more or less complete series of antemarginal white spots and dots of varying size. Hind wing with paler ground-colour ; outer margin somewhat narrowly black, with an incomplete series of white spots ; discocellulars with three black marks.

Underside similar, paler ; ground-colour of hind wing, and apical area of fore wing ochraceous ; white markings and spots more distinct.

Antennæ black ; head and thorax black, spotted with white ; abdomen ochraceous above, whitish below.

Expanse : ♂♀, 70–80 mm.

Variation.—The nominotypical *chrysippus* represents the broad-banded pale subspecies ; a similar form occurs over the Malagassic area. The subspecies occurring on the African mainland is darker and has usually a narrower band. A summary of the forms and distribution of the species is given by Talbot (1943 *b*, pp. 120–122).

Form **alcippoides** (Moore). This name represents a rare form with a white area on the hind wing. It is similar to the West African *alcippus* (Cramer), but the white area is less extensive.

Form **dorippus** (Klug) (=*klugii* Butl.).—Fore wing with no black apical area and no white band ; white spots in the black marginal borders reduced in number or absent altogether. Rare in India ; only in the drier areas.

Form **transiens** (*Suffert*).—Resembles *dorippus*, but the fore wing underside, and sometimes also on the upperside, with a subapical row of four or five white spots. Occurs with *dorippus*, and is rare in India.

Form **bowringi** (Moore).—Fore wing with a prominent white spot in area 2, often reduced to a dot. Otherwise as in the principal form. Occurs in Burma, but the type is a ♀ from Hong Kong.

Form **amplifascia** Talbot.—This name is given to denote a variation with extended white markings on the fore wings. The subapical band is broader, and the costal spots, and spots beyond end of cell, are more or less confluent with one another and with the subapical band. An example is figured by Moore (Lep Ind. i. pl. 8, fig. 1 *e*) and this is taken as the type of the name. The specimen, a ♀ from Poona, is in the British Museum, together with a ♀ from Campbellpore, a ♀ from Hong Kong, and a ♂ from Tong-king. There is also a ♂ from the

Fruhstorfer collection, without locality, representing an extreme form of this variation ; the fore wing of this specimen has a solid white patch that reaches the cell in areas 4 and 5.

Habitat.—The whole Indian faunistic area, extending to Malaya, Sumatra, Borneo, the Philippines, Japan, and China to Asia Minor ; very common.

Plexippus Group (*Danaus* Kluk, *Danaida* Latr., *Salatura* Moore).

Fore wing with vein 10 from apex of cell. Hind wing with *mdc* either not angled, or curved at a right angle. ♂ with a scent-pouch or flap in area 1*c*.

Pattern distinct from that of other groups in the genus. Ground-colour brown, reddish to yellowish. Fore wing with or

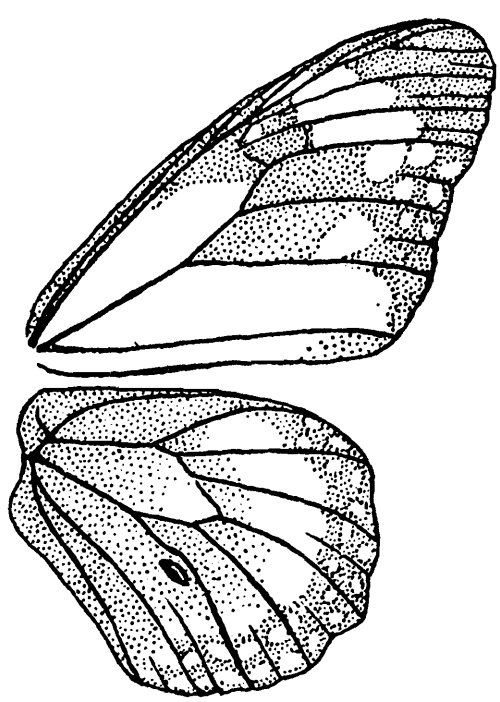


Fig. 7.—*Danaus plexippus plexippus* (L.). Venation of male.

without a subapical white band, the apical area usually black. Hind wing with or without white markings, but always with an outer black border that usually bears white dots on the upperside, and always bears white spots on the underside.

Valve with or without a ventral spine, but the distal end more or less prolonged in the form of a beak.

Larva with three pairs of filaments, on segments 3, 6 and 12.

Danaus plexippus (Linnæus).

There is still some difference of opinion as to whether the species should be called *plexippus* (Linn.) or *genutia* (Cramer). The former name is adopted here after a careful consideration of the original diagnosis and indications (see Talbot, 1943*b*).

♂♀. Upperside reddish-brown. Fore wing with a subapical white band ; apical area, extending into the end of cell and to base of costa, black ; outer margin bordered with black, extending more or less to base of inner margin ; veins scaled with black. Hind wing with the veins black ; outer margin with a black border, outer border usually with a submarginal and an antemarginal row of white dots, two in each area in each row.

Underside paler, the hind wing with more or less white scaling, and with the veins prominently black ; the black scent-pouch with a white spot.

Early stages (from *Bell*, 1909) :—

Larva.—Body with three pairs of tentacles, one pair to each of segments 3, 6 and 12, all subdorsal, the first pair about 6·25 mm. long, and movable, the others shorter and fixed. Head black ; a white marginal band, and another similar band inside it and parallel to it ; clypeus and labrum white. Body velvety black, marked with bluish-white and yellow spots and bluish-white lines ; a lateral broad yellow band, partly including the black spiracles ; above this band on each segment are two central subdorsal yellow spots, with three bluish-white spots in front of them along the front margin of the segment ; behind each yellow spot are three parallel, short bluish-white lines, all parallel to the hind margin of the segment ; segment 2 with two white spots ; segment 12 with two lines instead of three, and these continuous over the back ; the tentacles are placed below the yellow spots, and have the distal half black, the proximal half red. Length 37 mm., breadth 7 mm.

Pupa.—Green, marked with golden spots ; the ridge on segment 7 is silver with black beading ; four ventral black spots before the cremaster ; cremaster stout, somewhat flattened, shiny black. Length 15·5 mm. ; breadth at segment 7, 7·5 mm. ; height at segment 7, 8·5 mm.

Habits (from *Bell*, 1909) :—

The eggs are laid singly on the underside of a leaf, and the larva always lives there. The larva makes its first meal of the egg-shell, after which it eats tender leaves, old leaves, stalks, etc. It wanders to pupate, fixing itself firmly to the underside of a leaf, twig, etc., for the purpose. The food-plants are Asclepiads of the genus *Cropegia*, mostly creepers of small size, growing in the underwood.

The imago prefers the vicinity of forest, woods and places overgrown with bushes and scrub. It has the weak danaine flight, and associates with other *Danaus* and *Euplœa* in migration, and in resting on the yellow flowers of species of *Crotolaria* ; otherwise it is not often seen at flowers.

In Ceylon, South India and Burma, this species is mimicked by the ♀ of *Elymnias hypermnestra* (Linn.).

Distribution.—Throughout the Indo-Malayan Region as far east as the Key Islands and Celebes. A number of subspecies can be distinguished, and only the nominotypical one occurs in the Indian area.

207. **Danaus plexippus plexippus** (Linnæus). (Fig. 8, larva, pupa).

Papilio plexippus, Linnæus, 1758, p. 471 ; Clerck, 1764, pl. v, fig 1.
Danais plexippus, Moore, 1865 *a*, p. 761 ; *id.*, 1877 *b*, p. 582 (Nicobars) ; *id.*, 1879 *a*, p. 822 (Tenasserim) ; de Nicéville, 1881, p. 49 (Sikkim) ; Wood-Mason & de Nicéville, 1881 *a*, p. 226 (Nicobars) ; Aitken, 1886, p. 128 (aberration) ; Elwes & Möller, 1888, p. 300 ; de Nicéville, 1895, p. 368 ; Mackinnon & de Nicéville, 1897, p. 212 (Mussooree) ; Watson, 1897, p. 637 (Chin Hills, to 7,000 feet ; Manipur) ; de Nicéville, 1902 *a*, p. 4 ; Leslie & Evans, 1903, p. 667 (Chitral, 6,000 feet) ; Bingham, 1905, p. 10 ; Hannyngton, 1910, p. 133 (Kumaon, to 5,000 feet) ; Evans, 1910, p. 381 (Palni Hills) ; Tytler, 1911, p. 49 (Naga Hills, to 5,000 feet) ; South, 1913, p. 353 (Mishmi Hills, 3,500 feet) ; Ellis, 1917, p. 105 (Burma) ; de Rhé-Philipe, 1917, p. 137, (Lahore).
Salatura plexippus, Ormiston, 1918, p. 6 (Ceylon).
Danais plexippus, Evans, 1923, p. 521 ; Ormiston, 1924, p. 4; Evans, 1932 *a*, p. 88 ; Gough, 1935, p. 260 (Nepal) ; Woodhouse & Henry, 1942, p. 38, pl. ii, fig. 4 (♀) (Ceylon).
Danaida plexippus plexippus, Fruhstorfer, 1910, p. 194 ; Hulstaert, 1931, p. 33.
Danaus plexippus plexippus, Corbet, 1940, p. 18 (Hong Kong) ; *id.*, 1941 *a*, pp. 18, 27 (type, South-east China) ; Talbot, 1943 *b*, pp. 115, 126 (use of the name discussed on p. 115).
Papilio genutia, Cramer, 1779, p. 23, pl. ccvi, figs. C, D.
Salatura genutia, Moore, 1880 *a*, p. 6, pl. iv, figs. 2, 2 *a* ; *id.*, 1882 *b*, p. 234 (Kangra).
Danais genutia, de Nicéville, 1882, p. 55 (Sikkim) ; Wood-Mason & de Nicéville, 1882, p. 15 (Nicobars).
Salatura genutia, Moore, 1883 *a*, p. 240.
Danais (*Salatura*) *genutia*, Marshall & de Nicéville, 1883, p. 52 ; de Nicéville, 1885 *a*, p. 40 (Calcutta).
Salatura genutia, Butler, 1885 *a*, p. 300 (near Assam) ; *id.*, 1886 *b*, p. 182 (Upper Burma) ; Moore, 1886, p. 30.
Danaus genutia, Doherty, 1886 *a*, p. 114 (Kumaon, to 7,000 feet) ; Elwes & de Nicéville, 1887, p. 415 (Tavoy) ; Wood-Mason & de Nicéville, 1887, p. 345 (Cachar).
Salatura genutia, Butler, 1888, p. 133 (Punjab).
Danais (*Salatura*) *genutia*, Taylor & de Nicéville, 1888, no. 6 (Orissa).
Salatura genutia, Hampson, 1889, p. 347 (Nilgiris) ; Moore, 1890, p. 45, pl. 10, figs. 1, 1 *a* (larva), 1 *b*, *c* (♂♀).
Danais (*Salatura*) *genutia*, de Nicéville, 1894 *a*, p. 117 (Sikkim).
Danais genutia, Davidson, Bell & Aitken, 1896, p. 240 (Kanara) ; de Rhé-Philipe, 1902, p. 483 (Lucknow) ; Adamson, 1905, p. 158 (Burma) ; Seitz, 1907, p. 76, t. 28 *e* ; Evans, 1932 *b*, p. 200 (Baluchistan) ; Peile, 1937, p. 79, pl. ix, fig. 76 (♀)..
Danais nipalensis, Moore, 1877 *a*, p. 43 (Katmandu).
Salatura nipalensis, Moore, 1883 *a*, p. 240, pl. xxxi, fig. 2 (♂, Nepal).
Danais (*Salatura*) *nipalensis*, Marshall & de Nicéville, 1883, p. 54.
Salatura nipalensis, Moore, 1890, p. 48, pl. 10, figs. 2, 2 *a* (♂, Nepal).
Danais plexippus var. *nipalensis*, Bingham, 1905, pp. 10, 11.

Danaida plexippus plexippus f. *nipalensis*, Fruhstorfer, 1910, p. 165 ; Hulstaert, 1931, p. 34.
Danaida plexippus plexippus f. *grynion*, Fruhstorfer, 1907 *b*, p. 173 (South Annam ; Sikkim) ; *id.*, 1910, p. 195.
Danaus plexippus plexippus f. *albipars*, Talbot, 1943 *b*, p. 126 (♀, Sikkim ; ♂, Burma).

♂♀. *Upperside* of fore wing with costal and inner margins, and apical half of wing, black ; the greater part of areas 1 *b* and 2, a spot at the base of area 3, and cell tawny ; veins with broad black margins ; three post-discal white spots, and a subapical white band crossed by the veins ; an irregular, submarginal and marginal series of white spots. Hind wing tawny, the veins broadly bordered with black ; outer margin black, bearing two more or less complete rows of white spots.

Underside similar ; fore wing with apex dusky brown. Hind wing with ground-colour paler than on upperside. The white spots on both wings distinct.

Antennæ black ; head and thorax black, spotted with white ; abdomen dusky tawny, with white markings beneath.

Expanse : ♂♀, 75–95 mm.



Fig. 8.—*Danaus plexippus plexippus* (L.). Larva and pupa. (After *Moore*, 1890).

Form **nipalensis** (Moore).—Much darkened, the subapical white band reduced, and broken up into four short narrow stripes. Apparently only known by the type specimen in the British Museum, a male from Nepal.

Form **grynion** (Fruhst.).—*Upperside* ground-colour rather pale brown or buff-brown. *Underside* of fore wing similar, of hind wing almost white.

Three males of this form are in the British Museum from Sikkim, also the type male from Annam.

Form **albipars** Talb.—♂♀. Both wings on both sides with extensive white coloration. Fore wing band very broad, white spots enlarged, white scaling over parts of wing. Hind wing mostly white, with traces of brown, at least on inner area ; submarginal and antemarginal spots strongly developed, or the entire marginal area white.

Described from a female from Sikkim, a male from the Karen Hills, and a female without locality, all in the British Museum.

♂ *genitalia* (fig. 2).—Uncus vestigial. Side lobes broad,

tapered at apex. Valve broad anteriorly ; ventral edge much thickened, terminating in a short hooked process, here termed the ventral hook ; dorsal edge strongly incurved below the middle.

Habitat.—Afghanistan, BALUCHISTAN, whole of INDIA, CEYLON, ANDAMAN ISLANDS, CAR and CENTRAL NICOBAR ISLANDS, BURMA, Yunnan to South China and the Riu-Kiu Islands, Tong-king, Annam and Siam ; very common.

Danaus melanippus (Crâmer).

A species subject to much variation in the different parts of its range, but the Indian forms with the pattern and coloration somewhat like that of *plexippus*.

♂♀. Fore wing with the brown area reduced, the white subapical band broken up into spots. Hind wing, in Indian forms, with a white cell-stripe and white discal streaks, the underside more or less white.

Distribution.—BURMA, ANDAMAN and NICOBAR ISLANDS, south and east to Celebes, Java and the lesser Sunda Islands. A number of subspecies are distinguished, and three occur in the Indian area.

208 *a*. **Danaus melanippus indicus** (Fruhstorfer).

Salatura melanippus indicus, Fruhstorfer, 1899 *a*, p. 75 (Burma).
Danaida melanippus indicus, Fruhstorfer, 1910, p. 196, t. 77*c* (♂).
Danais melanippus indicus, Evans, 1932 *a*, p. 88, pl. x, fig. C 2. 13. (♂).
Danaus melanippus indicus, Peile, 1937, p. 79.
Danais melanippus, Gray (*non melanippus*, Cram.), 1846, p. 10, pl. ix, fig. 1.
Danais (*Salatura*) *melanippus*, Marshall & de Nicéville (*non* Cramer), 1883, p. 56 (Nepal ; Assam).
Danais hegesippus, Moore (*non* Cramer), 1865 *a*, p. 761 (South Bengal).
Salatura hegesippus, Moore, 1883 *a*, p. 241.
Danais (*Salatura*) *hegesippus*, Marshall & de Nicéville, 1883, p. 55 ; de Nicéville, 1885 *a*, p. 40 (Calcutta) ; Taylor & de Nicéville, 1888, no. 7 (Orissa).
Salatura hegesippus, Moore, 1890, p. 49, pl. 11, figs. 1, 1*a*, *b* (♂♀).
Danais hegesippus, Adamson, 1905, p. 158 (Burma) ; Bingham, 1905, p. 11, pl. i. fig. 1 (♂) ; Bell, 1909, p. 50.

♂♀. Differs from *plexippus* as follows.—*Upperside* of fore wing with the marginal and anterior black of greater extent : subapical white band divided into well-separated elongate spots. Hind wing black, the cell, and areas beyond it from 1 *a* to 5 with narrow white streaks.

Underside similar. Fore wing in apical area dusky black. Hind wing with discal streaks broader, their distal ends washed with ochraceous ; also additional white streaks in areas 6 and 7

Expanse : ♂♀, 80–95 mm.

Habitat.—BURMA, extending sparsely to BENGAL ; MERGUI ARCHIPELAGO, Siam and Indo-China ; common.

208 *b*. Danaus melanippus camorta (Evans).

Danais melanippus camorta, Evans, 1932 *a*, p. 88 (Central Nicobars).

♂♀. The tawny colour is much paler, and the white discal and cell spots of hind wing more prominent.

Habitat.—CENTRAL NICOBAR ISLANDS ; not rare.

208 *c*. Danaus melanippus nesippus (C. Felder).

Danais nesippus, C. Felder, 1862, p. 486 (Nicobars : Sambelong) ; Moore, 1877 *b*, p. 582.
Danais hegesippus var. *nesippus*, Wood-Mason & de Nicéville, 1881 *a*, p. 226 (♂♀, Nankowry) ; *id.*, 1882, p. 15 (Nankowry).
Salatura nesippus, Moore, 1883 *a*, p. 241.
Danais (*Salatura*) *nesippus*, Marshall & de Nicéville, 1883, p. 55.
Salatura nesippus, Moore, 1890, p. 50, pl. 11, figs. 2, 2 *a*, *b* (♂♀).
Danais hegesippus var. *nesippus*, Bingham, 1905, p. 11.
Danaida melanippus nesippus, Fruhstorfer, 1910, p. 196 ; Hulstaert, 1931, p. 31.
Danais melanippus nesippus, Evans, 1932 *a*, p. 88.

♂♀. The tawny areas are much restricted on both wings. Hind wing with no white spot in area 6, the white streaks narrow.

Habitat.—SOUTH NICOBAR ISLANDS ; common.

Danaus affinis (Fabricius).

♂♀. A very variable species, the pattern resembling *melanippus* (Cram.). Hind wing with a transverse white discal band, including most of the cell, and widening on the inner area, the veins crossing it not heavily blackened as in the allied species.

Underside of hind wing with black streaks of modified scales bordering the veins and separated from them by white scaling.

In some forms, including the nominotypical one, the fore wing markings are also white.

Distribution.—Australia and New Guinea, west to Malaya and the NICOBAR ISLANDS. The species becomes less common west of the Moluccas. A number of subspecies are distinguished, and one occurs in the Indian area.

For a discussion of this species and reasons for regarding it as conspecific with *philene* (Stoll) see Talbot, 1943 *b*.

209. Danaus affinis malayana (Fruhstorfer).

Danais affinis malayana, Fruhstorfer, 1899 *a*, p. 70 (Malay Peninsula).
Danaida affinis malayana, Fruhstorfer, 1910, p. 201, t. 77 *d*.
Danais affinis malayana, Evans, 1932 *a*, p. 88 (Central Nicobars).

♂♀. *Upperside* with black ground-colour. Fore wing with three tawny-brown stripes in the cell, in area 1 *b*, and in 2, just as in *indicus*, but placed closer together ; a subapical band of white spots as in *indicus*, and also a rounded post-discal spot

in area 3 ; two pairs of small submarginal spots in 2 and 3, the former ones smaller ; three pairs of antemarginal dots or small spots in 1*b*, 2 and 3. Hind wing with the white discal band more or less tinged with tawny along its outer edge ; submarginal and antemarginal white spots as in *indicus*.

Underside of fore wing with the brown markings paler. Hind wing with a white costal spot at end of vein 8 ; the dark distal border edged inwardly with tawny triangles, their apices projecting into the white discal band ; streaks of modified scales narrow and short.

Expanse : ♂♀, 65–75 mm.

Habitat.—CENTRAL NICOBAR ISLANDS, Malaya and Siam.

According to Evans (1932*a*) not rare in the Nicobars, but few specimens are seen in collections. According to Fruhstorfer (1910), the butterfly was found to be fairly numerous in Bangkok. In Malaya it does not seem to be common.

Limniace Group (*Tirumala* Moore). (Fig. 9, venation).

The species of this group are very similar to those of the *Similis* Group. Fore wing, in area 2, with two post-discal

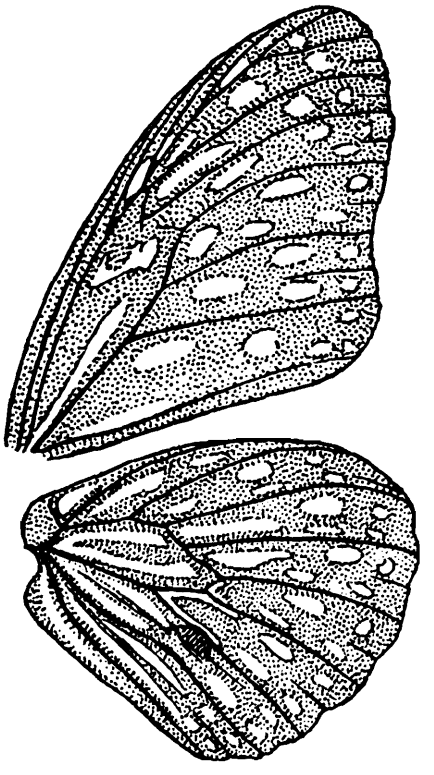


Fig. 9.—*Danaus hamata septentrionis* (Butl.).
Venation of male.

spots, placed one above the other ; in area 3 the discal spot is not produced beyond the spot in 2 ; vein 10 from, or a little above, the angle of the cell. Hind wing with the discocellulars long. The sex-patch lies in area 1*c*, and is produced on the underside as a pendulous sac or flap.

Valve without a horizontal prolongation, but with an erect ventral spine-like process ; ædeagus spined and toothed.

Larva with two pairs of filaments.

Danaus limniace (Cramer).

♂♀. Both wings with the markings larger and whiter than in the two other Indian species of this group. Fore wing in the Indian subspecies with the stripes in area 1 *b* usually connected distally, the upper stripe being shorter and broader. Hind wing with only a thin black forked streak in the cell, and it is sometimes absent. The male scent-pouch, on the underside, is light yellowish-brown with a dark brown border.

Valve strongly dentate on its distal edge.

Early stages (from *Bell*, 1909, in S. India) :—

Larva.—A pair of tentacles on segments 3 and 12, the anterior pair longer and movable, the posterior pair half as long, and fixed ; the tentacles black, with a white stripe on each side for half their length. Body black-brown above, banded with blue-white ; venter whity-green, with bands and blotches of white on segments 4, 5, 11 and 12 ; segment 2 with two white bands ; segment 3 with four similar parallel bands, besides a fifth, continued from the stripe on the tentacle to the dorso-ventral line ; segment 4 with four narrower bands, an anterior broader one, and an interrupted one behind it ; segment 12 with a broad anterior band, the stripes of the tentacles continued down the sides, and two posterior bands ; anal segments with a pair of bands anteriorly coalescing on the margin, and a posterior pair surrounding the shiny black dorsal boss of the anal flap ; connective membrane between the segments, yellowish-orange ; prolegs and legs shiny black, with a basal and preapical white band. Length 37 mm., breadth 7 mm. ; length of anterior tentacles 9·5 mm.

Pupa.—Green ; the line of knobs on the ridge of segment 7 golden, and other golden spots on the shoulder, on segments 5 and 6, on the wings, at the base of antenna, on the eye, and on the thorax ; a few black marks running out obliquely from the cremaster ventrally. Length 22·5 mm., breadth and height at segment 7, 10·7 mm.

Distribution.—CEYLON, the ANDAMAN and NICOBAR ISLANDS, INDIA, BURMA, to South China, Formosa, Luzon, Celebes, Sula Islands, Java, Malaya and Indo-China. Apparently absent from Sumatra, and was only recently recorded from Perak. One subspecies in the Indian area, exhibiting much variation. The nominotypical *limniace* is restricted to China, Formosa, Hainan, Tong-king and Indo-China. The continental form of this species differs from the various island races in its more striped appearance, especially on the hind wing. The inner stripes on the fore wing are usually not coalescent, and the distal spots are larger.

210. **Danaus limniace leopardus** (Butler). (Fig. 10, ♀).

Danais limniace var. *leopardus*, Butler, 1866 *b*, p. 52 (♂, N. India).
Tirumala leopardus, Butler, 1886 *b*, p. 182 (Upper Burma).
Danais leopardus, Butler, 1888, p. 132 (Campbellpore).
Danaida limniace ab. *leopardus*, Fruhstorfer, 1910, p. 204.
Danaus limniace leopardus, Talbot, 1943 *b*, p. 134.
Danais limniace, Kollar (*non* Cramer), 1844, p. 425 (Mussooree); Moore, 1865 *a*, p. 760 (Sikkim); *id.*, 1877 *b*, p. 581 (Nicobars: Nankowry).
Tirumala limniace, Moore, 1880 *a*, p. 4, fig. 3 (imago) (Ceylon).
Danais limniace, Wood-Mason & de Nicéville, 1881 *a*, p. 224 (Nicobars); *id.*, 1882, p. 14 (Nicobars).
Tirumala limniace, Moore 1882 *b*, p. 235 (Kangra); *id.*, 1883 *a*, p. 230.
Danais (*Tirumala*) *limniace*, Marshall & de Nicéville, 1883, p. 47
Tirumala limniace, Forsayeth, 1884, p. 381 (early stages, Mhow).
Danais (*Tirumala*) *limniace*, de Nicéville, 1885 *a*, p. 40 (Calcutta).
Danais limniace, Doherty, 1886 *a*, p. 113 (Kumaon).
Tirumala limniace, Wood-Mason & de Nicéville, 1887, p. 344 (Cachar); Butler, 1888, p. 132 (Punjab); Elwes & Möller, 1888, p. 300.
Danais (*Tirumala*) *limniace*, Taylor & de Nicéville, 1888, no. 2 (Orissa).
Tirumala limniace, Hampson, 1889, p. 347 (Nilgiris); Moore, 1890, p. 30, pl. 6, fig. 1 (larva and pupa), figs. 1 *a*, *b* (♂♀).
Danais (*Tirumala*) *limniace*, de Nicéville, 1894 *a*, p. 117 (Sikkim) Mackinnon & de Nicéville, 1897, p. 212 (Mussooree); Watson, 1897, p. 637 (Chin Hills to 3,500 feet; Manipur).
Danais limniace, Davidson, Bell & Aitken, 1896, p. 240 (North Canara).
Tirumala limniace, Nurse, 1900, p. 511.
Danais limniace, de Rhé-Philipe, 1902, p. 482 (Lucknow); Leslie & Evans, 1903, p. 666 (Chitral, 4,000 feet); Adamson, 1905, p. 157 (Burma); Bingham, 1905, p. 16, fig. 5 (♀); Seitz, 1907, p. 77, t. 28 *e*; Bell, 1909, pp. 52–53 (imago and early stages, S. India); Hannyngton, 1910, p. 133 (Kumaon); Evans, 1910, p. 381 (Palni Hills); Tytler, 1911, p. 49 (Naga Hills); Ellis, 1917, p. 105 (Pegu); de Rhé-Philipe, 1917, p. 137 (Lahore).
Danaida limniace limniace, Fruhstorfer, 1910, p. 204.
Tirumala limniace, Ormiston, 1918, p. 4 (Ceylon).
Danaida limniace mutina, Ormiston, 1924, p. 2 (Ceylon); Hulstaert, 1931, p. 45.
Danaida limniace mutina, Fruhstorfer, 1910, p. 204, t. 28 *a* (♂, Ceylon).
Danais limniace mutina, Evans, 1923, p. 521; Woodhouse & Henry, 1942, p. 37, pl. i, fig. 2 (♂) (Ceylon).

♂♀. *Upperside* black, with bluish-white semihyaline spots and streaks. Fore wing, in area 1 *b*, with two streaks, sometimes coalescent, with a spot beyond; cell with a basal streak, and an outwardly indented distal spot; at base of area 2 a large oval spot, another at base of area 3, with a smaller post-discal spot beyond it; five obliquely placed subapical streaks: post-discal and submarginal series of somewhat irregularly placed spots, the latter the smaller. Hind wing, in areas 1 *a*, 1 *b* and 1 *c*, with basal streaks, double in 1 *b* and 1 *c*; cell with a forked broad streak, the lower branch with a hook, or spur-like short projection; at the base of areas 2 and 3 a slender loop, at the base of 4 and 5 a broad elongate streak, and at the base

of 6 a quadrate spot ; an irregular series of post-discal and submarginal spots, the latter the smaller.

Underside markings much as on the upperside. Fore wing with the basal two-thirds dusky black ; hind wing and apex of fore wing olive-brown.

Antennæ, head, and thorax black, the latter two spotted and streaked with white ; abdomen dusky above, and beneath ochraceous, spotted with white.

Expanse : ♂♀, 90–100 mm.

Habits (from *Bell*, 1909) :—

The eggs are laid singly on the underside of a leaf. The larva eats the egg-shell as its first meal, and then the substance of the leaf, leaving the top cuticle; afterwards it feeds from the edge of the leaf in the ordinary way. The food-plants are species of Asclepiadaceæ, especially *Dregea volubilis* Benth., a very common climbing plant ; also on species of *Colotropus* and Hoya. The imago keeps much to wooded country and hedges



Fig. 10.—*Danaus limniace leopardus* (Butl.), ♀.

around villages, and is commonly seen flying around the food-plant *Dregea*. In Ceylon the butterfly settles frequently on wet roads or at flowers.

Habitat.—Ceylon, Baluchistan and Chitral to Kumaon, Orissa, Bengal, Sikkim, Assam, Burma, the Nicobar Islands, extending to South China, Formosa, Hainan, Tong-king, Siam, Indo-China and Perak. Rare in Chitral and Baluchistan ; not common in Sikkim and Assam ; very common elsewhere, ascending to 5,000 feet. Recorded by Evans as a straggler on Great Cocos Island (N. Andamans).

Danaus hamata (McLeay).

This species is well known as *melissa* Stoll, 1781, but this name is a primary homonym of *Papilio melissa* Fabricius, 1775, and so cannot be used. The next oldest name for the species formerly known as *melissa* is *hamata* McLeay, the nominotypical form of which was described from Australia.

♂♀. Distinguished from *limniace* (Cram.) by the narrower

stripes and smaller spots. On the fore wing the two streaks in area 1 *b* are well separated, rarely connected. Hind wing with two streaks in the cell, along the upper and lower margins, connected at the base. In some of the more eastern races the species approximates in pattern to *limniace*.

Valve distally sharply truncate, with an obtusely-pointed finger-shaped spine.

Early stages. (*Martin*, quoted by Fruhstorfer, 1910).—

Egg.—" Laid singly, each on a separate leaf ; white, globular, much flattened at the point of attachment to the leaf."

Larva.—" Hatches after four days, and is at first white with a black head, after another two days the first moult takes place after which the white larva shows black transverse lines and fleshy spines. A week later, it ceases to feed, pupating shortly afterwards."

Pupa.—" Green, with shiny gloss, golden dots and a golden band at the base of abdomen ; scarcely distinguishable from the green of the food-plant. Pupal stage 8 days. A rapid development for so large a butterfly."

Distribution.—CEYLON, INDIA, BURMA, the ANDAMAN and NICOBAR ISLANDS, to South China and Formosa, south and east to Australia, New Guinea and Pacific islands. Three subspecies are found in the Indian area.

211 *a*. **Danaus hamata musikanos** (Fruhstorfer).

Danaida melissa musikanos, Fruhstorfer, 1910, p. 202, t. 78 *a* (♂).
Danaïs melissa musikanos, Evans, 1923, p. 521 ; *id.*, 1927, p. 56.
Danaida melissa musikanos, Hulstaert, 1931, p. 45.
Danais melissa musikanos, Evans, 1932 *a*, p. 87.
Danaus melissa musikanos, Peile, 1937, p. 78.
Tirumala neomelissa musikanos, Bryk, 1937, p. 121.
Danais hamata musikanos, Woodhouse & Henry, 1942, p. 38, pl. i, fig. 3 (♀).
Tirumala septentrionis, Moore (*non* Butler), 1881 *a*, p. 5, pl. i, fig. 2 ; Ormiston, 1918, p. 5.
Danaida septentrionis, Ormiston, 1924, p. 2.

♂♀. A slightly differentiated and smaller race in which the spots and stripes are broader than in other Indian forms. There is a ♀ in the British Museum in which the lower basal streak in area 1 *b* of the fore wing is absent.

Expanse : ♂♀, 85–95 mm.

Habitat.—CEYLON.

The butterfly is very common in Ceylon, and Ormiston (1918) makes the following observation.—" Occasionally, during the flights " (migration) " hundreds of their wings may be found in places along the roads. I believe this to be mainly the work of the white-bellied Drongo (*Dicrurus leucopygialis*), as I have seen this bird catching them, eating the body, and dropping the wings. I have also seen the Blood-sucker lizard (*Calotes* sp.) eating them."

211*b*. Danaus hamata dravidarum (Fruhstorfer).

Tirumala melissa dravidarum, Fruhstorfer, 1899, pp. 113, 114, 119 (♀, Malabar).
Danaida melissa dravidarum, Fruhstorfer, 1910, p. 202.
Danais melissa dravidarum, Evans, 1923, p. 521 ; *id.*, 1927, p. 56.
Danaida melissa dravidarum, Hulstaert, 1931, p. 45.
Danais melissa dravidarum, Evans, 1932 *a*, p. 87, pl. x, fig. C 2. 10 (♀).
Tirumala neomelissa dravidarum, Bryk, 1937, p. 117.
Danaus melissa dravidarum, Peile, 1937, p. 78.
Danais septentrionis, Davidson, Bell & Aitken (*non* Butler), 1896, p. 240.
Tirumala septentrionis, Hampson, 1889, p. 347 (Nilgiris).
Danais septentrionis, Evans, 1910, p. 381 (Palni Hills).

♂♀. Smaller than *septentrionis* (Butl.), with paler markings and broader stripes, those in area 1 *b* of fore wing usually coalescent; the post-discal patches of hind wing more extended.

Habitat.—Peninsular India ; not rare.

211 *c*. Danaus hamata septentrionis (Butler). (Fig. 11, ♂).

Danais septentrionis, Butler, 1874 *a*, p. 163 (♂, Nepal) ; Moore, 1879 *a*, p. 822 (Upper Tenasserim) ; de Nicéville, 1882, p. 55 (Sikkim).
Tirumala septentrionis, Moore, 1882 *b*, p. 235 (Kangra) ; *id.*, 1883 *a*, p. 231.
Danais (*Tirumala*) *septentrionis*, Marshall & de Nicéville, 1883, p. 48, pl. vi, fig. 8 (♂♀, Assam).
Tirumala septentrionis, Butler, 1885 *a*, p. 300 (near Assam).
Danais septentrionis, Doherty, 1886 *a*, p. 113 (Kumaon, 2,000–4,000 feet).
Danais (*Tirumala*) *septentrionis*, Wood-Mason & de Nicéville, 1887, p. 345 (Cachar).
Danais septentrionis, Elwes & de Nicéville, 1887, p. 414 (Tavoy) ; Elwes & Möller 1888, p. 300 ; Taylor & de Nicéville, 1888, no. 3 (Orissa).
Tirumala septentrionis, Moore, 1890, p. 34, pl. 7, figs. 2, 2 *a* (♂♀).
Danais (*Tirumala*) *septentrionis*, de Nicéville, 1894 *a*, p. 117 (Sikkim) ; Mackinnon & de Nicéville, 1897, p. 212 (Mussooree) ; Watson, 1897, p. 637 (Chin Hills).
Danais septentrionis, Bingham, 1905, p. 17 (part.), fig. 6 (♂) ; Adamson, 1905, p. 157 (Burma) ; Seitz, 1907, p. 77, t. 28 *d* (♂♀).
Danais septentrionis, Hannyngton, 1910, p. 133 (Kumaon, 1,000–5,000 feet).
Danaida melissa septentrionis, Fruhstorfer, 1910, p. 202.
Danais septentrionis, Tytler, 1911, p. 49 (Naga Hills).
Tirumala septentrionis, South, 1913, p. 352 (Mishmi Hills, 3,500 feet).
Danais melissa septentrionis, Evans, 1923, p. 521 ; *id.*, 1927, p. 56.
Danaida melissa septentrionis, Hulstaert, 1931, p. 45, pl. 2, fig. 1 (♂).
Danais melissa septentrionis, Evans, 1932 *a*, p. 88 ; Gough, 1935, p. 260 (Nepal, 4,000 feet).
Danaus melissa septentrionis, Peile, 1937, p. 78, pl. ix, fig. 77 (♂).
Danais melissa, Moore (*non* Cramer), 1865 *a*, p. 760 ; Marshall & de Nicéville, 1883, p. 46.

♂♀. Closely resembles *D. limniace* (Cram.), but is always sufficiently distinct to be easily recognized, even on the wing.

Upperside ground-colour darker, and the semi-hyaline markings narrower, and of a bluer tint than in *limniace*. Fore wing, in area 1 *b* with the two streaks narrow, never coalescent, the upper one forming an oval detached spot ; the short streaks above vein 5 are outwardly never truncate, always acute. Hind wing with the two cell-streaks united at the base, and wide apart distally, the lower one not forming a hook.

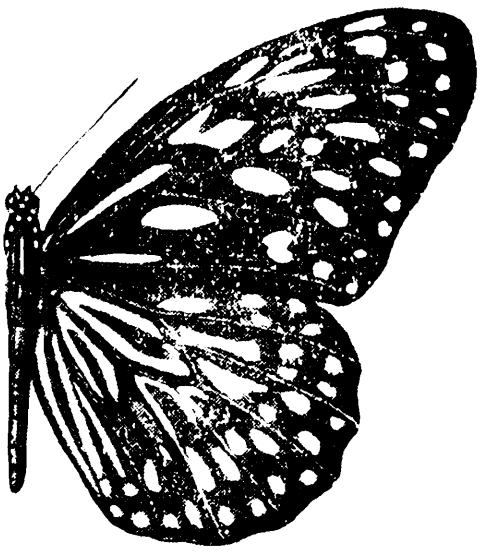


Fig. 11.—*Danaus hamata septentrionis* (Butl.), ♂.

Underside usually darker than in *limniace*, without the golden-brown tinge found in that species.

Expanse : ♂♀, 90–105 mm.

The larva is said to feed on *Vallaris dichotoma* Wall., family Asclepiadaceæ, according to MacKinnon and de Nicéville, 1897 (Mussooree).

Habitat.—Afghanistan ; the HIMALAYAS ; KULU to BHUTAN, BURMA, Yunnan, China, Formosa, Hainan, Tong-king, Siam, Malaya and Sumatra ; common.

According to Adamson (1905), the butterfly is less common in the central dry part of Burma than is *D. limniace* (Cram.).

Danaus gautama (Moore).

♂♀. The pattern somewhat resembles that of the *Similis* group. Fore wing cell with a narrow streak along the upper margin, and two short streaks at the end. The lower streak in 1 *a* long. Hind wing with the anterior discal spots somewhat as in *limniace* (Cram).

Underside of fore wing reddish-brown as in *septentrionis* (Butl.). Hind wing with the scent-pouch light yellowish-green as in that species.

Distribution.—The MERGUI ARCHIPELAGO, BURMA and the NICOBAR ISLANDS, Hainan, Annam, Siam and the Langkawi Islands. Two subspecies in the Indian area.

212 *a*. **Danaus gautama gautama** (Moore).

Danais gautama, Moore, 1877 *a*, p. 43 (♀, Rangoon).
Tirumala gautama, Moore, 1883 *a*, p. 231.
Danais (*Tirumala*) *gautama*, Marshall & de Nicéville, 1883, p. 45.
Tirumala gautama, Moore, 1890, p. 33, pl. 7, figs. 1, 1 *a* (♂♀).
Danais gautama, Bingham, 1905, p. 17 ; Adamson, 1905, p. 157.
Danaida gautama gautama, Fruhstorfer, 1910, p. 203.
Danais gautama gautama, Evans, 1923, p. 521 ; *id.*, 1927, p. 57.
Danaida gautama gautama, Hulstaert, 1931, p. 49.
Danais gautama gautama, Evans, 1932 *a*, p. 88.

♂♀. *Upperside* fuliginous black, with semi-hyaline bluish-white streaks and spots. Fore wing, in area 1 *b* with a long narrow streak which is generally extended to a post-discal spot, and a short, curved, broader upper streak ; cell with two narrow streaks, joined at the base, and an irregular spot, sometimes divided into three, at the apex, the upper of the two basal streaks generally extended to the apical spot ; a curved discal series of streaks, broad and elongate in area 2, short, almost rectangular, in area 3, narrow and elongate in the anterior areas ; an irregular, somewhat crooked submarginal row of spots, and a marginal more regular series of dots. Hind wing, in the cell, with two streaks joined at the base, and with a short, slender, detached streak between their apices ; area 1 *b* white ; areas 1 *a*, 1 *c*, 2 and 3 with two streaks, joined at the base in each ; areas 4 to 8 with single broad short streaks ; submarginal and marginal rows of spots.

Underside similar, hyaline markings clearer.

Antennæ black ; head and thorax black, spotted and streaked with bluish-white ; abdomen fuscous, ochraceous beneath.

Expanse : ♂♀, 90–100 mm.

Habitat.—Mergui Archipelago, Burma, Langkawi Islands, Hainan, Annam and Siam. Usually rare, but common in some places.

212 *b*. **Danaus gautama gautamoides** (Doherty).

Danais gautamoides, Doherty, 1886 *b*, p. 257 (Great Nicobar, ♂♀).
Tirumala gautamoides, Moore, 1890, p. 33, pl. 6, figs. 2, 2 *a* (♂♀).
Danais gautama gautamoides, Bingham, 1905, p. 18.
Danaida gautama gautamoides, Fruhstorfer, 1910, p. 203.
Danais gautama gautamoides, Evans, 1923, p. 521 ; *id.*, 1927, p. 57.
Danaida gautama gautamoïdes, Hulstaert, 1931, p. 49.
Danais gautama gautamoides, Evans, 1932 *a*, p. 88.

♂♀. Smaller than the nominotypical race. Fore wing with the upper cell-streak very short and ill-defined. Hind wing cell-streaks much broader, the lower one with short distal spur.

Expanse : ♂♀, 75–85 mm.

Habitat.—Nicobar Islands ; very rare.

Aglea Group. (*Parantica* Moore, *Ravadeba* Moore, *Bahora* Moore). (Fig. 12, ♂ venation).

♂♀. Fore wing with vein 11 shortly anastomosed with vein 12 (fig. 12) in one Indian species ; cell long and narrow. Hind

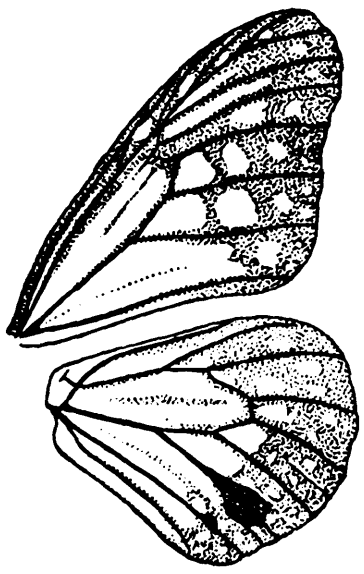


Fig. 12.—*Danaus aglea aglea* (Stoll).
Venation of male.

wing cell long and narrow, *ldc* short and vertical, male with two scent-patches (see key on page 18).

Danaus aglea (Stoll).

♂♀. *Upperside* of fore wing with two subapical spots, two streaks beyond end of cell, the lower one longer than the upper one ; areas 2 and 3 each with a discal and two post-discal spots, somewhat square-shaped, those in 2 the larger, the basal or discal one in 2 the largest of the four ; four prominent submarginal spots, and a series of antemarginal dots ; below the cell, in area 1 *b*, a large patch bearing a longitudinal dark streak. Hind wing with a forked stripe in the cell, short and broad post-cellular patches, submarginal and antemarginal spots ; inner area with narrow stripes.

Early stages. See *aglea aglea* (Stoll).

Distribution.—INDIA, BURMA, CEYLON, ANDAMAN and NICOBAR ISLANDS to South China, Formosa, Hainan, Tongking, Annam, Siam and Malaya. Three subspecies in the Indian area.

213*a*. Danaus aglea aglea (Stoll).

Papilio aglea, Stoll, 1781, pl. cccIxxvii, fig. E (Coromandel).
Parantica aglea, Moore, 1880 *a*, p. 7 ; Butler, 1881, p. 603 (♂, Belgaum) ; Moore, 1883 *a*, p. 248.
Danais (*Parantica*) *aglea*, de Nicéville, 1885 *a*, p. 40 (Barrackpore) ; Taylor & de Nicéville, 1888, no. 1 (Orissa, rare).

Parantica aglea, Hampson, 1889, p. 347 (Nilgiris); Moore, 1890, pp. 54, 55, 56, pl. 13, fig. 1 (larva and pupa, Ceylon), 1*a*, *b*, (♂), *c*, *d* (♀).
Danais aglea, Davidson, Bell & Aitken, 1896, p. 240 (North Kanara); Bingham, 1905, pp. 18–19; Bell, 1909, pp. 48, 53–55, pl. E, fig. 32 (♂); Evans, 1910, p. 381 (Palni Hills).
Parantica aglea, Ormiston, 1918, p. 6 (Ceylon).
Danais aglea, Evans, 1923, p. 520.
Danaida aglea, Ormiston, 1924, p. 4 (Ceylon).
Danaida aglea aglea Fruhstorfer, 1910, p. 208; Hulstaert, 1931, p. 56.
Danais aglea aglea, Evans, 1927, p. 56; *id.*, 1932 *a*, p. 86; Woodhouse & Henry, 1942, p. 36, pl. i, fig. 4 (♀), pl. xl, fig. 1 (larva, pupa).
Danaus aglea aglea, Peile, 1937, p. 76, pl. ix, fig. 78 (♂); Talbot, 1943 *b*, p. 140.
Danais grammica, Boisduval, 1858, pl. xi, fig. 10 (♂).
Danais (*Parantica*) *grammica*, Marshall & de Nicéville, 1883, p. 40 (S. India).
Danais ceylanica, C. Felder, 1862, p. 479; Marshall & de Nicéville, 1883, p. 39.
Parantica ceylonica (sic), Moore, 1880 *a*, p. 8, pl. ii, figs. 2, 2*a*.

♂♀. Ground-colour fuliginous black with subhyaline bluish-white streaks and spots. Fore wing with vein 11 anastomosed with vein 12. *Upperside* of fore wing, in area 1, two comparatively long, broad streaks, united at the base, truncate exteriorly; cell with a very broad, somewhat clavate streak traversed by two fine black lines; discal spots in areas 2 and 3; an irregular post-discal series of three spots and two elongate streaks; a submarginal series of spots; the two series of spots curved inwards opposite the apex of wing, the submarginal series continued along the apical half of costa; a marginal row of much smaller spots, placed in pairs between the veins. Hind wing, in areas 1*a* and 1*b*, with broad long streaks from the base; area 1 and the cell with two streaks, each pair united at the base, the pair in the cell with a short streak obliquely between their apices; an outwardly radiating series of broad, elongate, inwardly pointed spots in areas 2 to 8, followed by somewhat irregular rows of submarginal and marginal spots.

Underside similar, the markings and spots sometimes a little ill-defined and blurred.

Antennæ black; head and thorax black, spotted with white; abdomen blackish-brown, ochraceous beneath.

Expanse: ♂♀, 70–85 mm.

Early stages and habits. (From *Bell*, 1909.)

Larva.—Two pairs of subdorsal tentacles, one on segment 3, the other on 12; the first pair movable and long, the latter fixed and half the length; a dorsal shiny patch on the anal flap. Head round, shiny black; clypeus and labrum with eight white spots. Tentacles claret-red, marked with a white stripe on the inside and outside for half their length. Body

blackish brown-claret concolorous on venter, spotted yellow and blue-white on dorsal half; segments 3 and 4 on each side with a pair of large subdorsal spots, a dorsal yellow spot, five lateral white spots, and three parallel rows of dorsal blue-white spots on the posterior part; segments 5 to 12 similarly marked, but with one subdorsal yellow spot instead of two, and an extra, spiracular, one below; segment 13 has a front row of four large yellow spots, and a hind row arranged as one subdorsal and one spiracular on each side. Legs and prolegs shiny black, with two basal white spots. Length 33 mm.; breadth 5·5 mm.

Pupa.—Yellowish-green; a row of ten black spots along the centre of segment 7, instead of the usual ridge; segment 8 with a parallel row of eight black spots; segment 9 with four similar spots; anal segment with four black long marks, one subdorsal and one lateral on each side; segment 6 with golden dorsal, lateral, and spiracular blotches, five in all; segment 5 with a lateral golden mark; segment 3 with a golden spot at apex of thorax, a subdorsal one just behind the apex, and two lateral ones, at equal height, on each side; segment 2 with a lateral and a dorsal gold spot; there is a gold spot on and at each side of the eye; wings also marked with gold. Length 18 mm., breadth 9 mm., height 9·5 mm.

Habits.—The food-plants of the larva are *Tylophora carnosa* D., *T. tenuis* Blume, and *Cryptolepis buchanani* Roem. & Sch., all Asclepiads. The butterfly has a weak flight, though it remains long on the wing, flying about somewhat aimlessly. It migrates with others of the genus, and frequents the yellow flowers of *Crotalaria*, but normally is not a frequent visitor to flowers.

Habitat.—CEYLON and PENINSULAR INDIA to ORISSA; common.

According to Ormiston (1918) the butterfly is common in Ceylon, but not seen in the Northern Province. Evans (1910) states that it is rare, at low elevations, in the Palni Hills. Taylor (1888) found it rare in Orissa.

A study of the figure of *D. grammica*, published by Boisduval (1858), leaves no doubt that this represents the subspecies from Southern India.

213 *b*. **Danaus aglea melanoides** (Moore).

Parantica melanoides, Moore, 1883 *a*, p. 247 (♂, Nepal); Butler, 1885 *a*, p. 300 (Assam); Moore, 1886, p. 30.

Danais melanoides, Elwes & de Nicéville, 1887, p. 414 (Tavoy); Wood-Mason & de Nicéville, 1887, p. 345 (Cachar); Elwes & Möller, 1888, p. 299.

Parantica melanoides, Moore, 1890, p. 54, pl. 12, figs. 3, 3 *a* (♂♀).

Danais (*Parantica*) *melanoides*, de Nicéville, 1894 *a*, p. 117 (Sikkim); Mackinnon & de Nicéville, 1897, p. 213 (Mussooree); Watson, 1897, p. 637 (Chin Hills).

Danais aglea melanoides, Bingham, 1905, p. 19; Hannyngton, 1910, p. 133 (Kumaon).
Danais melanoides, Tytler, 1911, p. 49 (Naga Hills).
Parantica melanoides, South, 1913, p. 353 (Mishmi Hills).
Danaida aglea melanoides, Ellis, 1917, p. 105 (Pegu Yoma); Evans, 1923, p. 520; *id.*, 1927, p. 56; *id.*, 1932 *a*, p. 86; Gough, 1935, p. 260 (Nepal); Peile, 1937, p. 76.
Danaida aglea melanoides, Hulstaert, 1931, p. 56.
Danais aglea, Moore (*non* Stoll), 1865 *a*, p. 760; *id.*, 1879 *a*, p. 822 (Upper Tenasserim); de Nicéville, 1881, p. 49 (Sikkim); *id.*, 1882, p. 55 (Sikkim); Marshall & de Nicéville, 1883, p. 38, pl. vi, fig 7 (♂♀) (Assam); Doherty, 1886 *a*, p. 113 (Kumaon).
Danaida aglea grammica, Fruhstorfer (*non* Boisd.), 1910, p. 208; Hulstaert, 1931, p. 56.
Danais aglea grammica f. *phormis*, Fruhstorfer, 1909, p. 116 (Annam).
Danaida aglea grammica f. *phormion*, Fruhstorfer, 1910, p. 208.
Danaida aglea phormis, Fruhstorfer, 1911, p. 274.
Danaida aglea ab. *phormis*, Hulstaert, 1931, p. 57.

♂♀. Differs as follows from the nominotypical subspecies.—Wings on the whole longer and narrower; hyaline markings, especially in area 1 of the fore wing, and in cells of both wings, very much broader. In many specimens the black ground-colour in these areas is reduced to a mere slender black line enclosed in the subhyaline marking. All marginal spots fully developed. On the *underside* the streaks are often much blurred and diffuse. Fig. 12, p. 37, shows the wing pattern as well as the venation.

The form **phormis** (Fruhst.) is smaller, with all the light markings narrower.

Habitat.—KASHMIR to SIKKIM, ASSAM, BURMA, Malaya, Siam, Annam, Tong-king and Hainan; common, from about 2,500 feet to 5,000 feet.

213 *c*. **Danaus aglea melanoleuca** (Moore).

Danais melanoleuca, Moore, 1877 *b*, p. 581, pl. lviii, fig. 3 (♀) (S. Andamans, ♂♀); Wood-Mason & de Nicéville, 1880 *a*, p. 225; *id.*, 1881 *b*, p. 244.
Danais (*Parantica*) *melanoleuca*, Marshall & de Nicéville, 1883, p. 38.
Asthipa melanoleuca, Moore, 1883 *a*, p. 246.
Parantica melanoleuca, Moore, 1890, p. 58, pl. 12, figs. 2, 2*a* (♂♀).
Danais melanoleuca, Bingham, 1905, p. 19.
Danaida melanoleuca, Fruhstorfer, 1910, p. 219.
Danais aglea melanoleuca, Evans, 1923, p. 520; *id.*, 1927, p. 56; *id.*, 1932 *a*, p. 86.
Danaida aglea melanoleuca, Hulstaert, 1931, p. 57.

♂♀. *Upperside* ground-colour of both wings much darker than in the nominotypical race, almost black, not fuliginous; the subhyaline streaks and spots, especially on the hind wing,

are of greater extent, and appear more transparent and white. A constant point of difference is the contrast in size of the discal and post-discal spots in areas 2 and 3 of the fore wing, as compared with the proportion these spots bear in the preceding races. The white subapical band more compact, especially beneath, its black bordering more extended than in the nominotypical race.

Habitat.—NICOBAR ISLANDS; common. S. ANDAMAN ISLAND; rare.

Danaus agleoides (C. & R. Felder).

♂♀. Fore wing with vein 11 not anastomosed with 12. Wings shorter, the fore wing less produced than in *aglea*. *Upperside* much darker than in *aglea*, the streaks and spots shorter and narrower. Fore wing with the lower of the two pale streaks beyond the cell as long as, or only a little longer than, the upper streak.

Distribution.—ANDAMAN and NICOBAR ISLANDS, BURMA to Cochin China, Siam, Malaya, Borneo, Sumatra, Nias and Java. Only the nominotypical subspecies occurs in the Indian area.

214. **Danaus agleoides agleoides** (C. & R. Felder).

Danais ageloides, C. & R. Felder, 1860, p. 398; C. Felder, 1862, p. 486; Moore, 1877 *b*, p. 581 (Nicobars); Wood-Mason & de Nicéville, 1881 *a*, pp. 224–225 (♂♀, Nancowry, Gt. Nicobar, Car Nicobar); *id.*, 1882, p. 15 (Nicobars).

Parantica agleoides, Moore, 1883 *a*, p. 248 (Burma).

Danais (*Parantica*) *agleoides*, Marshall & de Nicéville, 1883, p. 41 (Burma; Nicobars).

Parantica agleoides, Moore, 1890, p. 58, pl. 14, figs. 1, 1*a*, *b* (♂♀).

Danais agleoides, Bingham, 1905, p. 20; Evans, 1923, p. 520; *id.*, 1927, p. 56; *id.*, 1932 *a*, p. 86, pl. x, fig. C2. 2 (♂).

Danaus agleoides, Corbet (1941 *b*), p. 806 (= *eryx* Fabr., 1798, *non* Linn., 1771).

Papilio eryx, Fabricius, 1798, p. 423.

Danaida eryx eryx, Fruhstorfer, 1910, p. 207, t. 77 *b*, (♂); Hulstaert, 1931, p. 55.

♂♀. Both wings with the semi-hyaline streaks and spots shorter and narrower than in *D. aglea* (Stoll), on the hind wing with a larger area of black beyond the streaks than in that species; hind wing with the short slender streak, between the apices of the two cell-streaks, longer and always free, never joined either to the upper or to the lower streak.

Underside ground-colour browner than in *aglea*.

Expanse: ♂♀, 70–75 mm.

Habitat.—NICOBAR and ANDAMAN ISLANDS, BURMA to Malaya, Siam and Indo-China. Occurs in Burma as far north as Rangoon and extends more rarely to Chittagong; not rare in the Indian area.

Danaus aspasia (Fabricius).

♂♀. Resembles *D. aglea melanoleuca* (Moore) in the light proximal areas of both wings. Distinguished especially by the more or less yellow colouring of the proximal areas of the hind wing, the cell of which, also, is without any dark streak.

Distribution.—LOWER BURMA and the MERGUI ISLANDS, extending to Malaya, Palawan, Borneo, Sumatra and Java. Only the nominotypical race occurs in the Indian area.

215. **Danaus aspasia aspasia** (Fabricius).

Papilio aspasia, Fabricius, 1787, p. 15 (♀, "Tranquebarie").
Bahora aspasia, Moore, 1883 *a*, p. 245.
Danais (*Parantica*) *aspasia*, Marshall & de Nicéville, 1883, p. 37.
Danais aspasia, Bingham, 1905, p. 20, pl. i, fig. 3 (♂); Evans, 1923, p. 520; *id.*, 1927, p. 56; 1932 *a*, p. 86.
Danaida aspasia aspasia, Fruhstorfer, 1910, p. 205, t. 76 *d* (♂); Corbet & Pendlebury, 1934, p. 116, pl. v, fig. 58 (♀).
Danaida cleona aspasia, Hulstaert, 1931, p. 50.
Papilio aspasia, Fabr., Corbet, 1941 *c*, p. 105 (? Pulau Salang or Malay Pen.).
Danaus aspasia aspasia, Talbot, 1943 *b*, pp. 124, 125, fig. 4 (genit.).
Danais crocea, Butler, 1866 *b*, p. 57, pl. iv, fig. 5 (♂) (Java, India, Borneo).
Bahora crocea, Moore, 1883 *a*, p. 245.
Danais (*Parantica*) *crocea*, Marshall & de Nicéville, 1883, p. 37, pl. v, fig. 6 (♂, Burma).
Danais crocea, Elwes & de Nicéville, 1887, p. 415 (Tavoy).
Bahora crocea, Moore, 1890, p. 52, pl. 12, figs. 1, 1 *a* (♂♀).

♂♀. Fore wing with no hyaline mark in area 1 *b*. Hind wing with areas 1 *a*, *b*, *c*, the cell, and the post-cellular markings in areas 2 to 7 suffused more or less deeply with bright chrome-yellow; distal dark border broader than in the allied *aglea* forms, showing more of the black ground-colour.

Expanse: ♂♀, 75–85 mm.

Habitat.—LOWER BURMA and KING ISLAND to Malaya, Siam, Annam and Indo-China. Rare in Burma.

Melaneus Group (*Chittira* Moore, *Caduga* Moore, *Badacara* Moore). (Fig. 13, venation).

♂♀. Venation as in the *Aglea* Group, but veins 11 and 12 of fore wing not usually anastomosed as in *aglea* (Stoll). Hind wing of male with veins 1 *b* and 2 swollen and depressed before their extremity, accompanied by a patch of androconia more or less extended, also a patch on vein 2 in most species.

Valve broad, more or less triangular, the apex slightly flattened. Uncus large at the base, the point fine and hairy. Aedeagus not armed with spines as in the *Aglea* Group.

Larva with two pairs of filaments, shorter and finer than in the *Aglea* Group.

Danaus melaneus (Cramer).

♂♀. A larger species than *aglea* or *aspasia*, the markings similar, but more resembling those of *sita* (Kollar). Both wings with the cell for the greater part hyaline white, rarely with faint dark lines. Hind wing with dark distal area.

Underside with the distal areas more or less chestnut-brown.

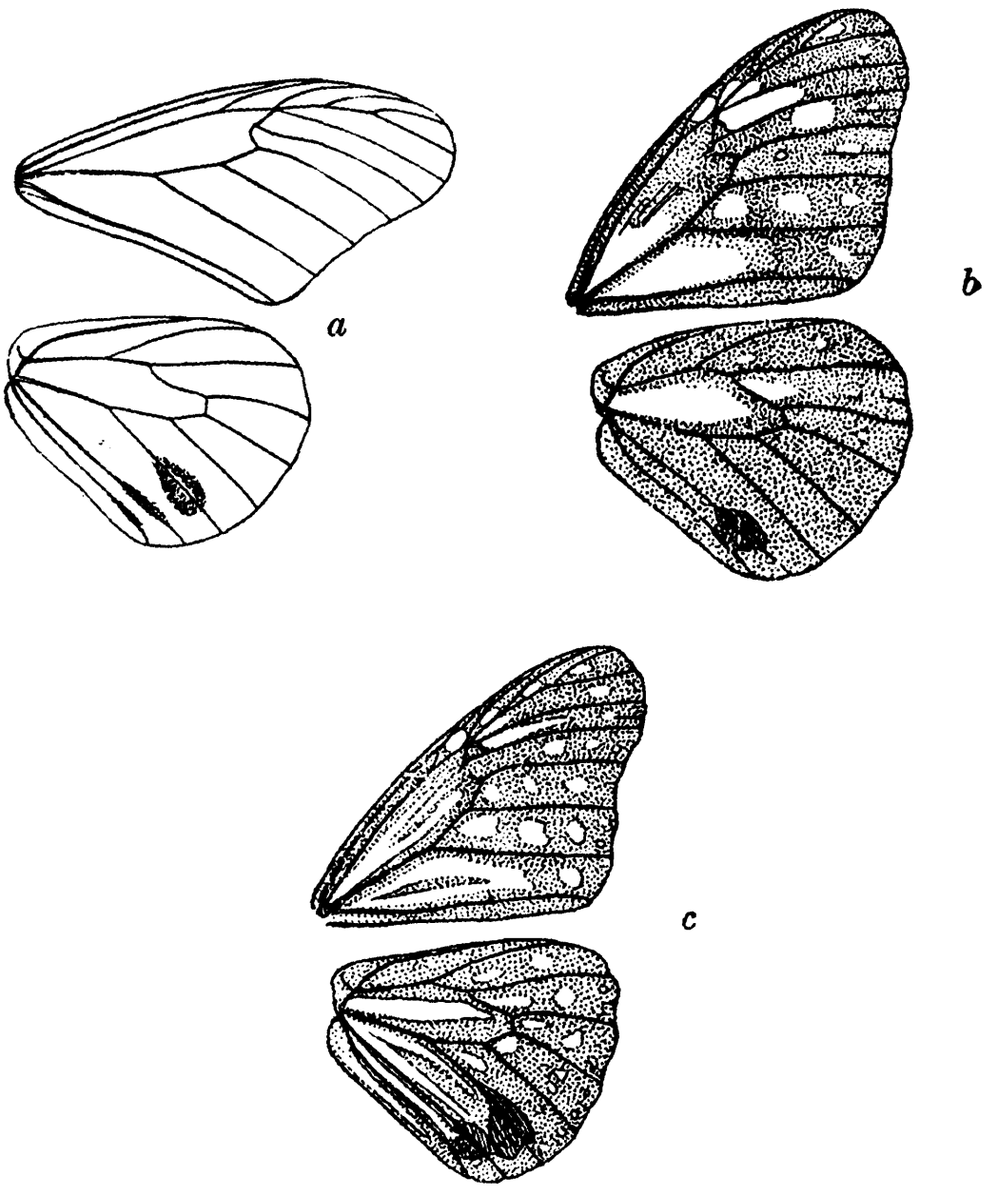


Fig. 13.—Male venation. *a*, *Danaus melaneus plataniston* (Fruhst.); *b*, *D. taprobana* (C. & R. Feld.); c, *D. nilgiriensis* (Moore).

Hind wing with the cell and post-cellular spots more or less scaled with reddish brown.

Distribution.—China, Formosa, Hainan, the HIMALAYAS to BURMA, Malaya, Tong-king, Siam, Indo-China, Sumatra and Java. The nominotypical species is found in China and Northern Yunnan, and reaches the Mishmi Hills.

216. Danaus melaneus plataniston (Fruhstorfer). (Fig. 14, ♂).

Danaida melaneus plataniston, Fruhstorfer, 1910, p. 210 (Himalayas).
Danaida melaneus f. *plataniston*, Hulstaert, 1931, p. 59.
Danais melaneus plataniston, Evans, 1932, p. 87.
Danaus melaneus plataniston, Talbot, 1943 *b*, p. 141.
Danais melaneus, Moore (*non* Cramer), 1865 *a*, p. 760 (Himalayas); *id.*, 1879 *a*, p. 822 (Upper Tenasserim); de Nicéville, 1881, p. 49 (Sikkim); *id.*, 1882, p. 55 (Sikkim).
Caduga melaneus, Moore, 1883 *a*, p. 250.
Danais (*Chittira*) *melaneus*, Marshall & de Nicéville (*non* Cramer), 1883, p. 43, pl. v, fig. 5 (♂♀, Assam).
Caduga melaneus, Butler, 1885 *a*, p. 299 (Manipur).
Danais (*Caduga*) *melaneus*, Wood-Mason & de Nicéville (*non* Cramer), 1887, p. 345 (Cachar).
Danais melaneus, Elwes & Möller, 1888, p. 300.
Caduga melaneus, Moore, 1890, p. 60, pl. 14, figs. 2, 2*a*, *b* (♂♀).
Danais (*Caduga*) *melaneus*, de Nicéville, 1894 *a*, p. 118 (Sikkim); Watson, 1897, p. 637 (Upper Chindwin, 3,500 feet).
Danais melaneus, Adamson, 1905, p. 158 (Burma).
Caduga melaneus, South, 1913, p. 352 (Mishmi Hills).
Danais melaneus, Evans, 1923, p. 520; *id.*, 1927, p. 56.
Danais melanea, Bingham, 1905, p. 7, fig. 2 (♂ venation), p. 14, fig. 3 (♂); Hannyngton, 1910, p. 133 (Kumaon); Tytler, 1911, p. 49 (Naga Hills).
Danaida melaneus plataniston f. *neopatra*, Fruhstorfer, 1910, p. 210 (Sikkim).

♂♀. *Upperside* of fore wing black; hind wing very dark purplish-brown, with faintly bluish-white subhyaline markings.

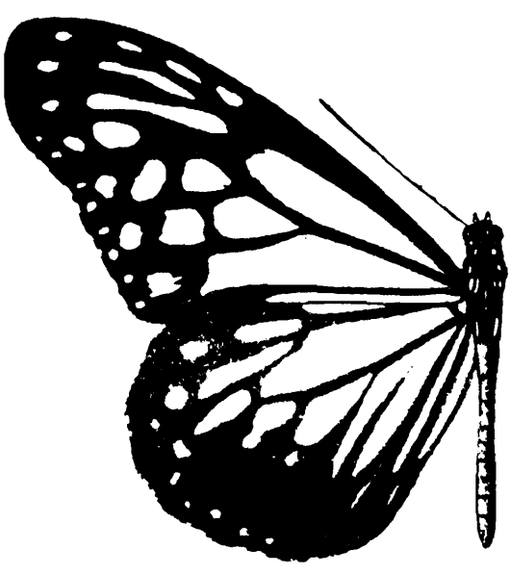


Fig. 14.—*Danaus melaneus plataniston* (Fruhst.), ♂.

Underside of fore wing black, the apex broadly suffused with bright chestnut-brown. Hind wing bright chestnut-brown, with a costal patch, and a portion of the disc and outer margin, very much darker in most specimens. For the rest, exactly resembles *D. sita* (Koll.) in form and disposition of the subhyaline markings, but these are more clearly defined and proportionately smaller, the submarginal and marginal spots on the hind wing generally very distinct.

Antennæ black; head and thorax black, spotted with white; abdomen bright ochraceous.

This subspecies is very slightly differentiated, and is distinguished chiefly by the hind wing *underside* having less red-brown scaling over the cell and post-cellular spots, this area being whiter.

Expanse: ♂♀, 85–95 mm.

The type of *neopatra* Fruhst. is in the British Museum; it cannot be distinguished except for its smaller size.

Habitat.—Afghanistan to SIKKIM, ASSAM, BURMA (to Tavoy), extending into Western Yunnan, Hainan, Siam and Indo-China.

Specimens of the nominotypical race occur with *plataniston* on the borders of Burma.

Danaus sita (Kollar).

♂♀. A large and striking species with a pattern similar to that of *melaneus* (Cram.). The patches of androconia on the male hind wing are usually of greater extent than in other Indian *Danaus*. Fore wing with the patches in areas 2 and 3 larger than in *melaneus*, those in 2 sometimes united. Hind wing *upperside* with distal area dark or light chestnut, bearing few spots; cell usually with a forked brown streak, faintly marked in the nominotypical race.

Underside of hind wing strongly chestnut-brown. Abdomen ferruginous, with white markings below.

Distribution.—Japan, the Island of Askold, Loo-Choo Islands, Formosa, Hainan, China to the HIMALAYAS, UPPER BURMA, Tong-king, Siam, Malaya and Sumatra. Only the nominotypical subspecies occurs in the Indian area.

217. **Danaus sita sita** (Kollar).

Danais sita, Kollar, 1844, p. 424, t. vi (Kashmir).
Danais (*Caduga*) *sita*, MacKinnon & de Nicéville, 1897, p. 213, pl. U, figs. 1*a*, 1*b* (larva), 1*c*, 1*d* (pupa) (Mussooree and Dehra Dun).
Danaida sita sita, Fruhstorfer, 1910, p. 210 (Western Himalayas); Evans, 1923, p. 520; *id.*, 1927, p. 56.
Danais tytia sita, Evans, 1932 *a*, p. 87; Peile, 1937, p. 77.
Danaus sita sita, Talbot, 1943 *b*, p. 141.
Danais tytia, Gray, 1846, p. 9, pl. ix, fig. 2 (♂) (Nepal); Doubleday, 1847 *a*, p. 93, pl. xii, fig. 4 (♀); Moore, 1865 *a*, p. 761 (Sikkim); *id.*, 1879 *a*, p. 822 (Upper Tenasserim).
Caduga tytia, Moore, 1882 *b*, p. 235.
Danais (*Caduga*) *tytia*, de Nicéville, 1882, p. 55 (Sikkim).
Caduga tytia, Moore, 1883 *a*, p. 249.
Danais (*Chittira*) *tytia*, Marshall & de Nicéville, 1883, p. 42.
Danais tytia, Doherty, 1886 *a*, p. 113 (Kumaon, 3,000–6,000 feet).
Caduga tytia, Moore, 1890, p. 61, pl. 15, figs. 1, 1*a*, *b*, *c* (♂♀).
Danais (*Caduga*) *tytia*, de Nicéville, 1894 *a*, p. 118 (Sikkim); Watson, 1897, p. 637 (Chin Hills, 5,000 feet).

Danais tytia, Bingham, 1905, p. 13; Adamson, 1905, p. 158 (Burma); Seitz, 1907, p. 77; Hannyngton, 1910, p. 133 (Kumaon, 3.000–5,000 feet); Tytler, 1911, p. 49 (Naga Hills).
Danaida sita tytia, Fruhstorfer, 1910, p. 210.
Danais tytia tytia, Evans, 1923, p. 520; *id.*, 1927, p. 56.
Danaida tytia tytia, Hulstaert, 1931, p. 61, pl. i, fig. 8 (♂); Evans, 1932 *a*, p. 87, pl. x, fig. C 2. 5 (♂); Peile, 1937, p. 77 pl. ix, fig. 74 (♀).
Chittria tytia f. *tira*, Fruhstorfer, 1899 *a*, pp. 67, 76.
Danaida sita tytia f. *tira*, Fruhstorfer, 1910, p. 211.
Danaida tytia tytia f. *tira*, Hulstaert, 1931, pp. 61–62.
Danaus sita sita f. *pedonga*, Talbot, 1943 *b*, p. 141 (♂♀, Sikkim).

♂♀. Wings elongate, almost as in *Idea*. *Upperside* of fore wing black or fuliginous black, with the following bluish-white subhyaline markings. A streak from the base in area 1 *a*, very broad streaks filling the basal three-fourths of area 1 *b*, and the whole of the cell; five very large quadrate discal spots; two long subapical streaks; three shorter streaks above them; a submarginal series of more or less rounded spots, decreasing in size anteriorly, and curved inwards opposite the apex; an incomplete submarginal series of smaller spots. Hind wing chestnut-red, with subhyaline streaks and spots as follows:—Streaks from the base, in areas 1 *a*, 1 *b*, not reaching the margin; in area 1 *c* two broad streaks, united to near their apex; a stripe filling the cell; a discal series of large, inwardly pointed elongate spots; incomplete and ill-defined submarginal spots.

Underside similar, the markings clearer and more complete. Fore wing with apical area chestnut-brown.

Antennæ black; head and thorax black, spotted with white; abdomen from brown to bright ochraceous, beneath whitish.

Expanse: ♂♀, 85–105 mm.

Form **sita** (Kollar).—Fore wing with the discal patches in areas 2 and 3 united. Hind wing usually without a dark streak in the cell.

Form **tytia** (Gray).—Fore wing with discal patches in areas 2 and 3 not united. Hind wing with a dark streak in the cell.

Form **tira** (Fruhst.).—Hind wing without submarginal spots. In the ♂ type from Agra, in the British Museum, the cell of the hind wing is without a dark stripe.

Form **pedonga**, Talbot.

♂. The patch of androconia on the hind wing is reduced, and does not reach beyond the fold in area 1 *c*. Ground-colour of hind wing more ruddy than in the nominotypical form.

Underside of hind wing over the inner area, less scaled with white, especially the stripe in 1*a*. Ground-colour as on upperside.

♀. *Underside* of hind wing as in the male; in area 1 *a* only vestiges of white scaling or none at all.

Habitat.—SIKKIM, 6,000 to 8,000 feet.—Holotype from Pedong ; allotype from Singlah ; BHUTAN ; MISHMI HILLS ; south-east Tibet.

The nominotypical form occurs in the same places, but whether on the same ground or not is uncertain, though apparently at the same elevations.

Early stages. (From *MacKinnon*, 1897).

Egg.—White, longitudinally ribbed, and about three times as long as broad. Laid singly on the young leaves of *Marsdenia roylei* Wight, family Asclepiadaceæ.

Larva.—On emergence, a dirty white colour with transverse lines on each segment.. two somewhat long and thin tentacles or processes on the third, and two shorter ones on the twelfth segment. When full-fed the larva is about an inch and a half long, the ground-colour is of a pale yellowish-green, with two rows of dorsal, and a row on each side of lateral yellow spots ; head black, with grey spots on the face ; legs black.

Pupa.—Pale emerald-green, with golden-yellow spots. From eggs laid in September, the imagos emerged in the following April.

In the Western Himalayas the species has four broods ; the first in April, and the fourth in late October. The butterfly frequents wooded glens, and has a high and soaring flight. In Kumaon it is fairly common at 3,000 to 5,000 feet. It is not common in the Mussooree district. In Sikkim it ascends to 9,000 feet, and is quite common in some places, less so in others.

Habitat.—Afghanistan to KASHMIR, SIKKIM, BHUTAN, ASSAM, UPPER BURMA, Mishmi Hills, Yunnan, South-East Tibet, China, Hainan, Tong-king and Siam ; not rare.

218. **Danaus taprobana** (C. & R. Felder). (Fig 15, ♂).

Danais taprobana, C. & R. Felder, 1865, p. 349, t. xiii, fig. 4 (♂).
Danais (Chittira) taprobana, Marshall & de Nicéville, 1883, p. 44.
Danais fumata, Butler, 1866 *b*, p. 53 (Ceylon).
Chittira fumata, Moore, 1880 *a*, p. 9, pl. iv, figs. 1, 1 *a* (♂♀) ; *id.*, 1883 *a*, p. 252 ; *id.*, 1890, p. 67, pl. 16, figs. 2, 2 *a*, *b* (♂♀).
Danais fumata, Bingham, 1905, p. 21, fig. 8 (♂).
Danaida fumata, Fruhstorfer, 1910, p. 208, t. 77 *a* (♂).
Chittira fumata, Mackwood, 1914, p. 79 (larva) ; Ormiston, 1918, p. 6.
Danais fumata, Evans, 1923, p. 520 ; *id.*, 1927, p. 56.
Danaida fumata, Ormiston, 1924, p. 4 ; Hulstaert, 1931, p. 58, pl. ii, fig. 4 (♂).
Danais fumata, Evans, 1932 *a*, p. 87, pl. x, fig. C 2. 6 (♂) ; Woodhouse & Henry, 1941, p. 37, pl. ii, fig. 5 (♂).
Danais fumata, Peile, 1937, p. 77.

♂♀. *Upperside* fuliginous black with sullied white markings and spots as follows.—Fore wing, in area 1 *b*, with an elongate,

broad, inwardly attenuate, outwardly truncate stripe; a narrow cell-stripe, with indications of two other stripes above it; an oblique subapical series of three large rectangular spots and two short streaks; a submarginal series of seven or eight small spots. Hind wing with a stripe almost filling the cell; a short narrow streak at the base of area 5; three or four submarginal spots, and a series of minute, obscure marginal dots.

Underside browner, the white markings and spots more distinct, but shaded more or less with fuliginous brown, the disc beyond the cell very dark brown; a marginal powdering of white scales in the subapical area.

Antennæ, head and thorax black, the latter two spotted with white beneath; abdomen dark brown above, whitish below.

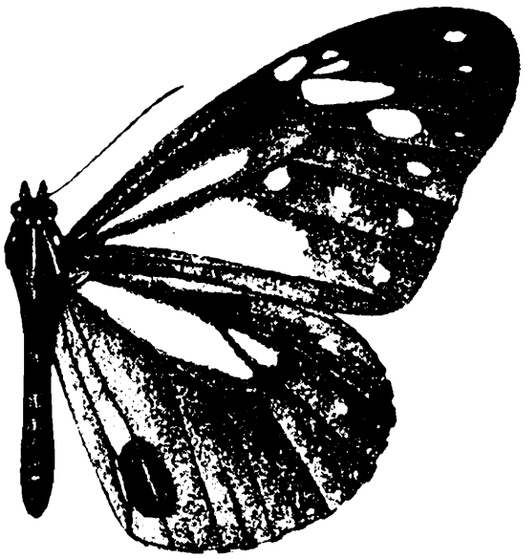


Fig. 15.—*Danaus taprobana* (C. & R. Feld.), ♂.

Expanse: ♂♀, 85-95 mm.

Habitat.—CEYLON. Not rare, and common in some places. Occurs in the hills at from 3,000 to 6,000 feet. Has a slow and heavy flight, and settles frequently on flowers. The larva feeds on *Allæophania decipiens* Thw.

219. **Danaus nilgiriensis** (Moore). (Fig. 16, ♂).

Danais nilgiriensis, Moore, 1877 *a*, p. 44 (♀, Coonoor).
Parantica nilgiriensis, Butler, 1881, p. 603 (♀, *Nilgiris*).
Caduga nilgiriensis, Moore, 1883 *a*, p. 251 (Nilgiris).
Danais (*Chittira*) *nilgiriensis*, Marshall & de Nicéville, 1883, p. 43, pl. vi, fig. 9 (♂).
Caduga nilgiriensis, Hampson, 1889, p. 347 (Nilgiris).
Badacara nilgiriensis, Moore, 1890, p. 65, pl. 16, figs. 1, 1 *a*, *b* (♂♀).
Danais nilgiriensis, Bingham, 1905, p. 20, fig. 7 (♂); Evans, 1910, p. 381 (Palni Hills).
Danaida nilgiriensis, Fruhstorfer, 1910, p. 209, t. 77 *b* (♂).

Danais nilgiriensis, Evans, 1923, p. 320; 1927, p. 56.
Danaida nilgiriensis, Hulstaert, 1931, p. 60.
Danais nilgiriensis, Evans, 1932 *a*, p. 87.
Danaus nilgiriensis, Peile, 1937, p. 77.

♂♀. *Upperside* fuliginous black, with bluish-white markings and spots. Fore wing, in area 1 *b*, with two streaks, coalescent at the base and generally at their apices; cell with a narrow streak, and two faintly indicated streaks above it; five discal spots, and above them a long streak in area 5; a shorter streak in area 6, and some costal spots; a series of submarginal

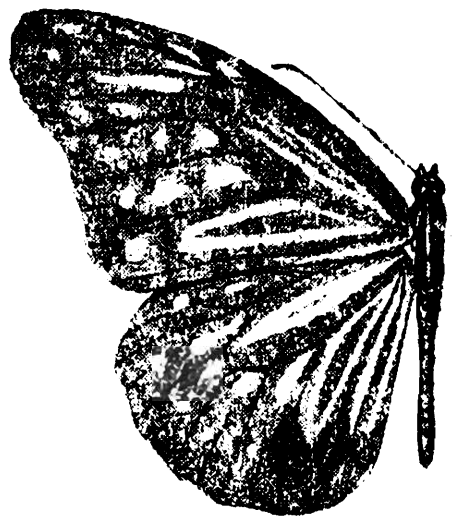


Fig. 16.—*Danaus nilgiriensis* (Moore), ♂.

spots, parallel to the margin, the four lower spots conspicuously larger than the others; an incomplete marginal series of dots. Hind wing, in areas 1 *a* and 1 *b* with a narrow streak, and in 1 *c* with a double streak; a much broader, outwardly bluntly pointed streak in the cell; a post-cellular series of elongate spots; a submarginal series of smaller spots; an incomplete marginal series of dots.

Underside similar, the ground-colour browner, and spots more clearly defined.

Antennæ black; head and thorax black, spotted with white; abdomen brownish above, dusky white below.

Expanse: ♂♀, 80–90 mm.

Habitat.—Peninsular India; peculiar to the hills in the southern part at from 2,000 feet upwards. Not rare; common in parts of the Nilgiri and Palni Hills.

Similis Group. (*Radena* Moore). (Fig. 17, venation).

♂♀. Fore wing with vein 11 anastomosed with 12. Two small spots or streaks outside the end of the cell. Hind wing with *ldc* oblique and long. Male without visible patch of androconia, but vein 1 *b* bears a minute streak of such scales. Areas 1 *a* and 1 *b*, in most species, grey, the two veins conspicuously black. Antennæ longer than in other groups of *Danaus*.

Uncus short, rounded distally. Valve broad, the apex beak-like. Saccus well developed. Anal hair-pencils shorter than is

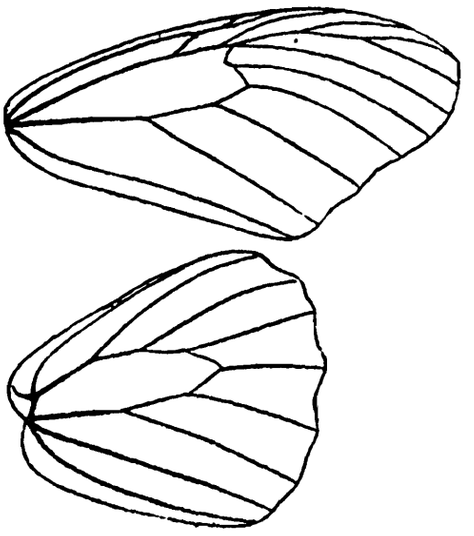


Fig. 17.—*Danaus similis persimilis* (Moore), ♂.
Venation of male.

usual in the family, the hairs whitish at the base, grey distally.

Larva with two pairs of filaments. Pupa green, with black points.

Danaus similis (Linnæus).

The name *similis* has, in some recent publications, been transferred to *limniace* (Cram.) and *aventina* (Cram.) substituted. The work of Corbet (1941 *a*) on the *Linnæan* names has shown that *similis* should be referred to the species now discussed, and that the name *aventina* (Cram.) should again take the place it has long held as a synonym.

D. similis and *D. vulgaris* (Butler) are closely allied species and have been frequently confused. They are revised by Talbot (1939) and the distinguishing characters are given in the Key on p. 19.

♂♀. Fore wing cell with a basal streak and a distal spot; area 1 *b* with two prominent, proximal, curved stripes, usually connected at both ends; two prominent discal spots in areas 2 and 3; two short streaks or spots beyond end of cell; three subapical streaks in areas 4, 5 and 6, the one in 5 placed more distad than the others; a post-discal series of spots, the three posterior ones larger than the others; a series of ante-marginal dots, not always complete. Hind wing cell with two narrow streaks, and a short distal streak usually connected to the lower one, forming a hook; rarely are the cell-streaks merged together, filling the cell; short discal streaks or patches; a post-discal irregular series of small spots, and an antemarginal series of dots.

Distribution.—South China, Loo-Choo Islands, CEYLON, and BURMA to Sumbawa. Two subspecies occur in the Indian area.

The species is common (females to a less degree), especially near dwellings. It flutters heavily over flowers and grasses, and the body emits a repulsive mouse-like odour.

220 *a*. **Danaus similis exprompta** (Butler).

Danais exprompta, Butler, 1874 *a*, p. 164 (♂, Ceylon).
Radena exprompta, Moore, 1880 *a*, p. 4, pl. i, fig. 1 ; *id.*,1883 *a*, p. 224.
Danais (*Radena*) *exprompta*, Marshall & de Nicéville, 1883, p. 33.
Radena exprompta, Moore, 1890, p. 28, pl. 5, figs, 3, 3*a* (♂♀).
Danais vulgaris exprompta, Bingham, 1905, p. 14.
Danaida similis exprompta, Fruhstorfer, 1910, p. 211, t. 78 *b* (♂).
Radena exprompta, Ormiston, 1918, p. 4 (S.W. Ceylon).
Danaida exprompta, Ormiston, 1924, p. 1.
Danaida similis exprompta, Hulstaert, 1931, p. 64.
Danais similis exprompta, Evans, 1932 *a*, p. 87 ; Woodhouse & Henry, 1942, p. 37, pl. i, fig. 1 (♂).
Danaus aventina exprompta, Talbot, 1939, pp. 288, 289.

♂♀. Closely resembles the nominotypical race, but has all the markings much broader. Fore wing with the distal cell-spot outwardly less emarginate. Hind wing with areas 1 *a* and 1 *b* entirely filled with the white streak ; in the cell the short slender distal streak is united with the lower one.

Habitat.—CEYLON ; not rare.

220 *b*. **Danaus similis persimilis** (Moore). (Fig. 18, ♂).

Danais persimilis, Moore, 1879 *b*, p. 136 (Siam).
Danaus aventina persimilis, Talbot, 1939, pp. 288, 289 (genit. and distribution).
Danais vulgaris, Moore (*non* Butler), 1879 *a*, p. 822 (Upper Tenasserim).
Radena vulgaris, Moore, 1883 *a*, p. 223 (Tenasserim).
Danais (*Radena*) *vulgaris*, Marshall & de Nicéville, 1883, p. 32 (text only).
Radena vulgaris, Moore, 1890, p. 27, pl. 5, figs. 1, 1*a* (♂♀).
Danais vulgaris, Adamson, 1905, p. 157 (Burma) ; Bingham, 1905, p. 14, fig. 4 (venation).
Danais similis vulgaris, Evans, 1932 *a*, p. 87, pl. x, fig. C 2. 8 (♂).
Radena similis, Moore (*non* Linn.), 1883 *a*, p. 223.
Danais similis, de Nicéville, 1902 *a*, p. 3.
Danaida similis similis, Fruhstorfer, 1910, p. 211 (part.).
Danais similis, Evans, 1923, p. 520 ; *id.*, 1927, p. 56.
Danaida similis similis, Hulstaert, 1931, p. 64 (part).
Danaida similis ab. *aventina*, Fruhstorfer (*non* Cramer), 1910, p. 211 ; Hulstaert, 1931, p. 64.
Danaus aventina purpurascens, Tytler, 1939 *a*, p. 243 (♂♀, North-east Burma : Hukong Valley, Jade Mines ; ♀, North Burma, Chindwin River).

♂♀. *Upperside* black, the inner margin of hind wing broadly cinereous ; both wings with the following subhyaline bluish-white streaks and spots :—Fore wing with a short streak along

the inner margin ; in area 1 *b* two broad streaks united at the base, the upper one curved ; cell with a broad streak, and an outwardly indented, detached, distal spot ; a slender costal streak ; two large discal spots, inwardly pointed, outwardly truncate ; three elongate spots beyond apex of cell ; four or five elongate subapical spots ; a submarginal and marginal series of spots, decreasing in size towards the apex. Hind wing with elongate streaks in areas 1 *a* and 1 *b*, two in area 1 *c* ; two cell-streaks, with a short slender streak obliquely

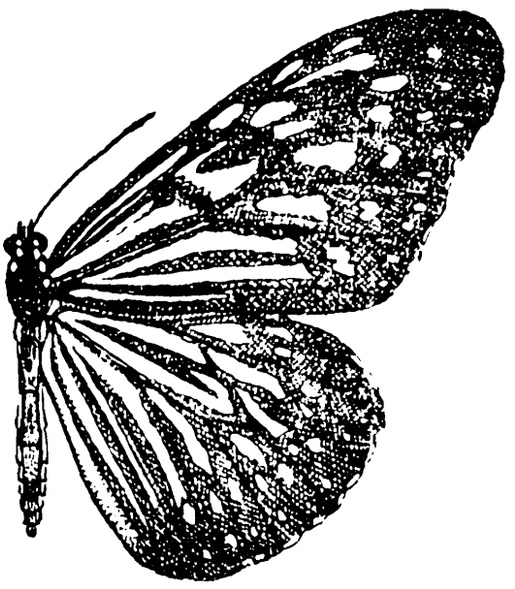


Fig. 18.—*Danaus similis persimilis* (Moore), ♂.

between their distal ends ; short discal streaks in areas 2 to 6 ; a submarginal series of small spots, and a marginal row of dots.

Underside similar, the markings better defined.

Antennæ black ; palpi black above, bluish-white below ; head and thorax black, spotted with bluish-white ; abdomen brown above, sullied white below.

The name *persimilis* was founded upon a small specimen from Siam, apparently of the dry season. The subspecies is distinguished from the nominotypical one chiefly by its usually smaller size, the whiter markings with less blue tinge, and the underside of the fore wing pale brown like the hind wing.

Expanse : ♂♀, 75–85 mm.

Habitat.—Burma, Siam, Malaya and Sumatra. Occurs in Burma only as far north as Bassein ; common.

Danaus vulgaris (Butler).

The oldest name for a species formerly confused with *similis* (L.). Distinguished in all forms of male by hind wing underside having stripe in area 1 *b* much narrower than in *similis* and, at least distally, not broader than the dark stripes

of ground-colour on either side. Fore wing with post-cellular spots in areas 2 and 3 not rounded, but wedge-shaped or narrow and proximally produced and pointed; cell-spot strongly excavated on its distal edge, more or less reduced anteriorly. Female with narrower stripes and smaller spots.

Distribution.—Hainan, Tong-king, Annam, Siam, LOWER BURMA, Peninsular Siam, Malaya to Sumbawa, Borneo and Palawan.

Eleven subspecies are distinguished, but only one is found in the Indian area.

221. **Danaus vulgaris macrina** (Fruhstorfer).

Radena similis macrina, Fruhstorfer, 1904 *b*, p. 183 (N.E. Sumatra).
Danaida similis macrina, Fruhstorfer, 1910, p. 211, t. 78 *b* (West Sumatra).
Danaus aventina macrina, Corbet, 1938, p. 245 (S. Burma, Malaya, Siam).
Danaus vulgaris macrina, Talbot, 1939, pp. 288, 299.

♂♀. Differs from *vulgaris vulgaris* (Butler), from Java, in having the stripes somewhat broader, and the spots somewhat larger.

Habitat.—LOWER BURMA (Bassein, Tenasserim, Ataram, Victoria Point), Peninsular Siam, Malaya, Sumatra, Batu Islands, Banka and Billiton.

Danaus juventa (Cramer).

Distinguished from *similis* (L.) and *vulgaris* (Butl.) by the enlarged white markings. Fore wing post-cellular spots very large; inner or posterior two stripes usually connected distally, enclosing a narrow streak of dark ground-colour. Hind wing cell white, bearing usually only thin streaks of ground-colour; the stripes of androconia which, in the male, border veins 1 *a* and 1 *b*, narrow; the pale stripe in area 1 *c*, bordering the dark androconial stripe, is distinctly broader.

The species is very variable geographically and the description given above will not apply to all forms in the more eastern parts of its range.

Distribution.—NICOBAR ISLANDS, eastern Malaya (Tioman Island), the Philippines to New Guinea and the Bismarck Islands.

222. **Danaus juventa nicobarica** (Wood-Mason & de Nicéville).

Danais similis var. *nicobarica*, Wood-Mason & de Nicéville, 1881 *a*, p. 225, fig. (♀) (♂♀, Great Nicobar).
Radena similis var. *nicobarica*, Wood-Mason & de Nicéville, 1882, p. 14, figs. (♂♀) (Great Nicobar).
Radena nicobarica, Moore, 1883 *a*, p. 224.

Danais (*Radena*) *nicobarica*, Marshall & de Nicéville, 1883, p. 34, fig. (♀).
Radena nicobarica, Moore, 1890, p. 28, pl. 5, figs. 2, 2 *a*, (♂♀).
Danais vulgaris nicobarica, Bingham, 1905, p. 15.
Danaida similis nicobarica, Fruhstorfer, 1910, p. 211.
Danais similis nicobarica, Evans, 1923, p. 520 ; *id.*, 1927, p. 56.
Danaida similis nicobarica, Hulstaert, 1931, p. 65.
Danais similis nicobarica, Evans, 1932 *a*, p. 87.
Danaus juventa nicobarica, Talbot, 1943 *b*, p. 142.

♂♀. Similar to *exprompta*, but the subhyaline markings still broader, and somewhat blurred.

Upperside of fore wing with the whole basal two-thirds of area 1*b* bluish-white, enclosing a fine longitudinal black line ; cell-stripe very broad, occasionally produced to the distal spot. Hind wing, in area 1 *c* with the black ground-colour reduced to a mere streak ; cell entirely bluish-white, traversed longitudinally by a faint black forked line which, however, may be absent.

Habitat.—SOUTH NICOBAR ISLANDS ; not rare.

The identity of *nicobarica* with *juventa* is shown by the vesica of the aedeagus bearing a small dentate plate. The subspecies most allied to *nicobarica* is *robinsoni* (Rothschild) from western Sumatra, and this possesses the same aedeagus structure.

Genus **EUPLŒA** Fabricius.

Euplœa, Fabricius, 1807, pp. x, 69 ; Butler, 1866 *a*, p. 268 ; *id.*, 1878, p. 291 (type, *P. core* Linn.) ; Moore, 1880 *a*, p. 11 ; *id.*, 1883 *a*, p. 288 (type, *E. corus* Fabr.) ; Marshall & de Nicéville, 1883, pp. 58, 79 (= group) ; Moore, 1890, p. 106 (type, *E. corus* Fabr.) ; Bingham, 1905, p. 22, p. 27 (group) ; Seitz, 1907, pp. 77, 78 ; Fruhstorfer, 1910, pp. 225, 226 ; Evans, 1923, pp. 519, 521–523 ; *id.*, 1927, pp. 57–59 ; Hulstaert, 1931, pp. 97–99, Evans, 1932 *a*, p. 85 ; Hemming, 1934, p. 23 (type, *Papilio corus* Fabr., 1773) ; Corbet, 1942, p. 253 (revisional notes) ; *id.*, 1943, p. 17 (key to species) ; Talbot, 1943 *a*, p. 6 (notes on many species).

Trepsichrois, Hübner 1816, p. 16 (*mulcibra*, Hübn.) ; Scudder, 1875, p. 286 (type, *Papilio midamus* Linn.) ; Moore, 1883 *a*, p. 286 (type, *Papilio claudia* Fabr.) ; Marshall & de Nicéville, 1883, pp. 58, 74 ; Moore, 1890, p. 99 ; Bingham, 1905, pp. 24, 45 (= subgenus) ; Seitz, 1907, p. 78 ; Fruhstorfer, 1910, p. 250 (= group) ; Hulstaert, 1931, p. 145 (type, *Euploea basilissa* Cram) (= subgenus) ; Hemming, 1934, p. 25 (type, *Papilio mulcibra* Hübn., 1816 = *Papilio mulciber* Cram., 1777).

Crastia, Hübner, 1816, p. 16 ; Scudder, 1875, p. 148 (type, *P. core* Cram.) ; Butler, 1878, p. 297 ; Moore, 1883 *a*, p. 276 ; Marshall & de Nicéville, 1883, pp. 58, 76 ; Moore, 1890, p. 80 (type, *C. core* Cram.) ; Bingham, 1905, pp. 23, 31 (subgenus) ; Fruhstorfer, 1910, p. 226 (group) ; Hulstaert, 1931, p. 118 (subgenus) ; Hemming, 1934, p. 26 (type, *Papilio core* Cramer, 1780).

Salpinx, Hübner, 1816, p. 17 ; Scudder, 1875, p. 265 (type, *S. leucostictos* Gmel.) ; Butler, 1878, p. 249 ; Moore, 1883 *a*, p. 300 (type, *S. nemertes* Hübn.) ; Marshall & de Nicéville, 1883, pp. 58, 59 ; Moore, 1890, p. 114 ; Bingham, 1905, pp. 23, 37 (subgenus) ;

Fruhstorfer, 1910, p. 261 (group); Hulstaert, 1931, p. 163 (subgenus); Hemming, 1934, p. 26 (type, *Limnas nemertes* Hübn.).

Calliplœa, Butler, 1875, p. 1 (type, *Danais darchia* McLeay, 1827); *id.*, 1878, p. 290; Moore, 1883 *a*, p. 292; Marshall & de Nicéville, 1883, pp. 58, 73 (= group); Moore, 1890, pp. 70, 105; Fruhstorfer, 1910, p. 252 (= subgroup); Hulstaert, 1931, p. 149 A (= group).

Stictoplœa, Butler, 1878, p. 14 (type, *Euplœa gloriosa* Butl., 1866); Moore, 1883 *a*, p. 319; Marshall & de Nicéville, 1883, pp. 58, 90; Moore, 1890, p. 136; Bingham, 1905, pp. 23, 28 (subgenus); Fruhstorfer, 1910, p. 245 (group); Hulstaert, 1931, p. 98 (subgenus).

Macroplœa, Butler, 1878, p. 292 (type, *Euplœa phœnareta* Schall.); Moore, 1880 *a*, p. 9; Marshall & de Nicéville, 1883, pp. 58, 71 (group).

Isamia, Moore, 1880 *a*, p. 10 (type, *Euplœa sinhala* Moore); *id.*, 1883 *a*, p. 311 (type, *I. superba* Herbst); *id.*, 1890, p. 127.

Narmada, Moore, 1880 *a*, p. 13 (type, *Euplœa coreoïdes* Moore); *id.*, 1883 *a*, p. 318; *id.*, 1890, p. 133.

Adigama, Distant, 1882 *a*, p. 22 (type, *A. malayica*, Butler); Moore, 1883 *a*, p. 269 (type, *A. ochsenheimeri* Moore).

Danisepa, Distant, 1882 *a*, p. 28; Moore, 1883 *a*, p. 296 (type, *D. rhadamanthus* Fabr.); *id.*, 1890, p. 110.

Tronga, Distant, 1882 *a*, p. 23 (type, *T. bremeri* Feld.); Moore, 1883 *a*, p. 266 (type, *T. crameri* Lucas); *id.*, 1890, p. 76.

Vadebra, Moore, 1883 *a*, p. 260 (type, *V. climena* Cram.).

Menama, Moore, 1883 *a*, p. 264 (type, *M. camaralzeman* Butler); *id.*, 1890, p. 72; Bingham, 1905, pp. 23, 24 (subgenus).

Penoa, Moore, 1883 *a*, p. 274 (type, *P. alcathoe* Godt.); *id.*, 1890, p. 93.

Mahintha, Moore, 1883 *a*, p. 280 (type, *M. subdita* Moore); *id.*, 1890, p. 91.

Karadira, Moore, 1883 *a*, p. 281 (type, *K. andamanensis* Atks.); *id.*, 1890, p. 92.

Pademma, Moore, 1883 *a*, p. 305 (type, *P. klugii* Moore); *id.*, 1890, p. 116.

Tiruna, Moore, 1883 *a*, p. 316 (type, *T. roepstorffi* Moore); *id.*, 1890, p. 132.

Type of the genus, *Euplœa phœnareta corus* (Fabricius).

♂♀. Antennæ longer than half the costal edge of fore wing; club thickened gradually. Palpi short, fairly large, third segment conical. Fore tarsi of male with two segments, of the female with four segments; tarsal claws of mid and hind legs, with paronychia and pulvilli.

Fore wing of male of variable shape, the outer edge more or less rounded, or straight; inner margin more or less rounded or even strongly lobed; less variable in the female.

Venation, very constant. Fore wing with veins 11 and 12 free, rarely anastomosed; discocellulars incurved, the curve round or angulate, and often with a fine recurrent vein; *udc* short, often much reduced; *mdc* long. inwardly oblique and curved; *ldc* longer, straight, outwardly oblique; vein 10 from angle of cell. Hind wing with the cell broad, long, more than half the length of the wing; discocellulars of about equal length, *udc* a little shorter; precostal spur from beyond the

origin of vein 8. Inner margin of fore wing underside, and costal margin of hind wing upperside more or less pearly, especially in the male. Secondary sexual characters in the male usually very diverse, sometimes absent on the wings. The androconia are usually elongate and thick, but filiform in the *Mulciber* group. The anal hair-pencils of the male are of variable structure. In one group there is a double rosette of hairs, all the other groups having only a single rosette.

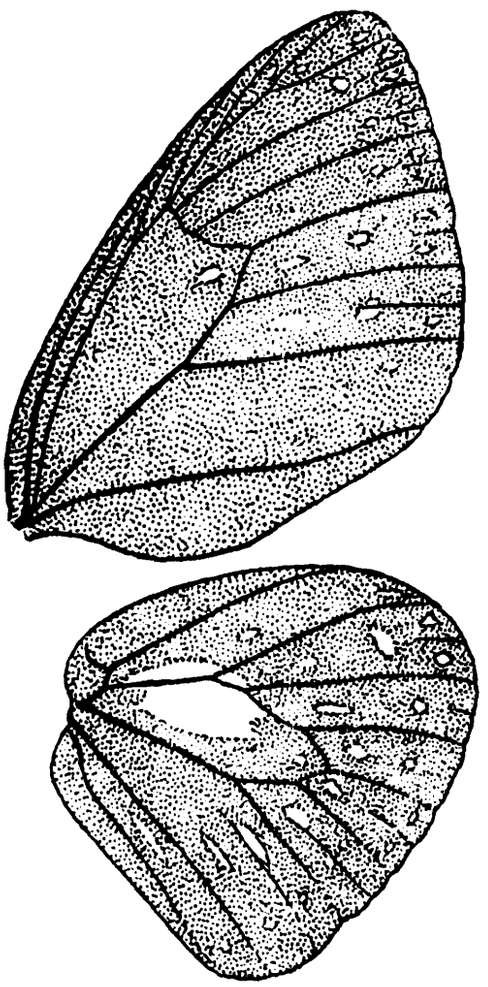


Fig. 19.—*Euplœa phænareta corus* (Fabr.).
Venation of male.

Genitalia.—Valve broad, distal part shaped more or less like a bird's head, its extremity covered with long hair and sometimes dentate. Uncus absent. Ædeagus long but rather short in the nominotypical *Phænareta* group, not sclerotized.

Larva.—Furnished with three or four pairs of tentacles. Food-plants: *Ficus*, Apocynaceæ, and other plants with a milky juice.

Pupa.—Broad, somewhat bell-shaped, brightly coloured, often with gold or silver markings.

The forms of *Euplœa* are much more diverse than those of *Danaus*, but the number of species is probably much less than was formerly supposed. Many genera were formerly defined

on the secondary sexual characters, but it is now generally recognized that such characters are rarely, if ever, of generic value by themselves. Since the treatment of *Euplœa* by Fruhstorfer in Seitz (1910), by Hulstaert in 'Genera Insectorum' (1931), and by Evans (1932), no additional information has been obtained by which we should be justified in regarding any of the groups as constituting a separate genus. In 1905 Bingham recognized six " subgenera." In 1910, Fruhstorfer recognized five "Groups." In 1931, Hulstaert divided the genus into six " subgenera ", and in 1932, Evans reduced it to four " Groups ". In the present volume the genus is divided

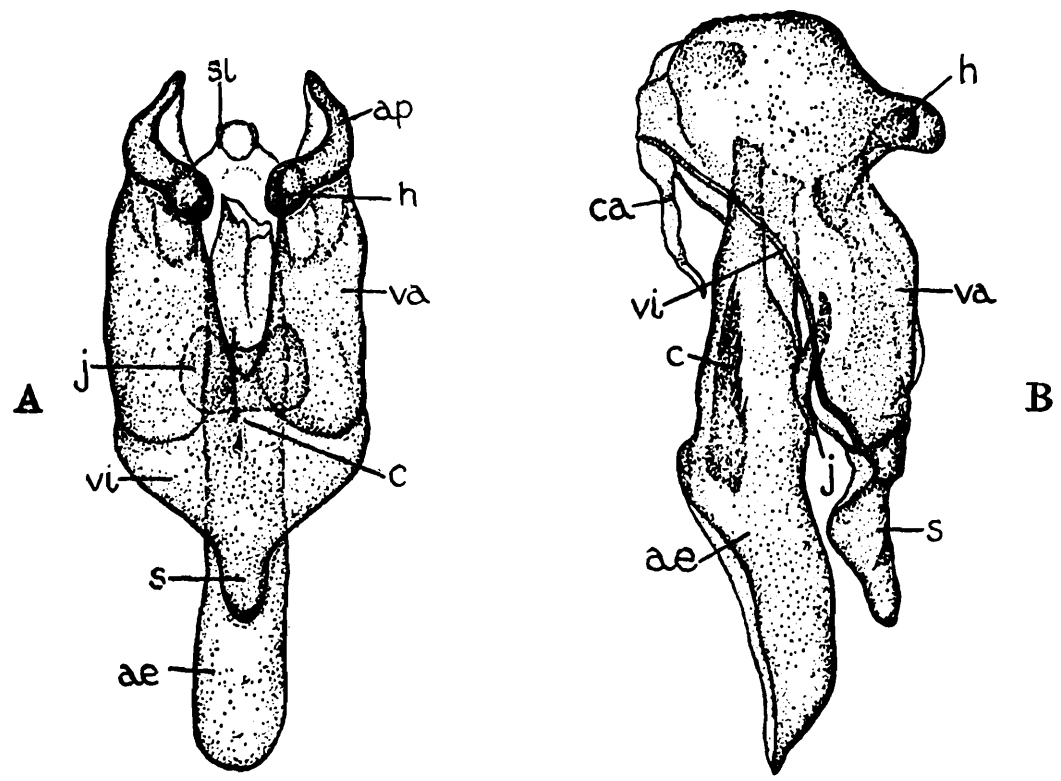


Fig. 20.—*Euplœa phœnareta corus* (Fabr.).

Male genitalia. A, ventral view. *ae*, ædeagus ; *c*, cornuti ; *h*, harpe ; *j*, *juxta* ; *s*, saccus ; *sl*, side lobes ; *va*, valve (*ap*, apex) ; *vi*, vinculum. B. lateral view. *ca*, caudula. Other lettering as for A.

into seven Groups represented by the species *climena* (Stoll), *core* (Cramer), *sylvester* (Fabricius), *mulciber* (Hübner), *tulliolus* (Fabricius), *phœnareta* (Schaller), *midamus* (Linnæus). Four other groups comprise species found outside the Indian area.

Changes have been made recently in the status of some forms whereby fewer species are now recognized in the genus. These new conceptions, enunciated by Corbet in his ' Revisional Notes ' (1942), are embodied in the present work.

The keys to the groups and species are modified from those published by Corbet (1943), whilst the classification adopted by this author is followed in the present volume.

Key to Groups (male).

1. Fore wing with a recurrent vein in the cell.	2.
Fore wing without a recurrent vein in the cell.	5.
2. Hind wing upperside without a pale raised patch in the cell area	3.
Hind wing upperside with a small pale yellow or buff raised patch in the cell area..	*Mulciber*, p. 32.
3. Fore wing upperside without a brand.. .	*Climena*, p. 58.
Fore wing upperside with one or two brands in area 1 *b*.	4.
4. Fore wing upperside with a single brand (absent in *E. core simulatrix* W.-M. & de Nicév., from the Nicobars)	*Core*, p. 63.
Fore wing upperside with two brands..	*Sylvester*, p. 77.
5. Hind wing upperside with a prominent pale yellow (white in *diocletianus*) raised patch extending into the cell. Fore wing upperside without a brand	6.
Hind wing as above, but fore wing with a single brand in area 1 *b*	*Midamus*, p. 90.
6. Hind wing upperside with a pale yellow raised patch not extending below middle of cell. Fore wing inner margin strongly bowed.	*Tulliolus*, p. 86.
Hind wing upperside with a pale yellow raised patch extending to within 1 or 2 mm. of the median vein. Fore wing inner margin bowed.	*Phænareta*, p. 87

Climena Group.

(*Vonana* Moore, *Tronga* Distant).

The species of this group, in which the male is without a brand on the fore wing, were formerly placed as a section of the *Core* Group. The group is sufficiently characterized in the key on page 58. The larva has four pairs of tentacles. Three species are found in the Indian area.

Key to Species of the Climena *Group* (*males*).

1. Hind wing upperside with a pale greyish speculum extending to middle of cell. Fore wing underside with posterior half of area 1 *b* pale and nacreous. Fore wing strongly bowed..	2.
Hind wing upperside with area 7 not more strongly whitened than contiguous spaces; a pale greyish speculum not extending to beyond anterior portion of cell.	[C. & R. Feld., p. 63. *redtenbacheri*
2. Fore wing underside with a pale, narrow, elongate stripe in anterior half of area 1 *b*; posterior half of area 1 *b* with a prominent pale yellow specialized area. Hind wing upperside with a pale yellow raised streak above the cell. Hind wing underside with a thick dark patch visible by transmitted light . . .	*modesta* Butl., p. 59.
Fore wing underside with two moderately long and broad blackish stripes in area 1 *b*, the two arranged to form a parallelogram, with the anterior distal edge nearer outer margin; otherwise posterior half of area 1 *b* and whole of area 1 *a* greyish-white.	*crameri* Luc., p. 60

Euplœa modesta Butler.

♂♀. *Upperside* of fore wing without a brand and more or less glossed with blue. Hind wing with a submarginal row of white bars or spots, and an antemarginal row of small spots.

Distribution.—LOWER BURMA, Siam, Hainan, Malaya, Cambodia, North Borneo, Sumatra and Java. Only the nominotypical subspecies occurs in the Indian area.

223. Euplœa modesta modesta Butler. (Fig. 21, ♂).

Euplœa modesta, Butler, 1866 *a*, p. 273 (♂, Siam).
Crastia modesta, Butler, 1878, p. 298.
Menama modesta, Moore, 1883 *a*, p. 264.
Euplœa (*Crastia*) *modesta*, Marshall & de Nicéville, 1883, p. 77.
Menama modesta, Moore, 1890, p. 73, pl. 17, figs. 2, 2 *a*, *b* (♂♀).
Euplœa modesta, Adamson, 1905, p. 158 (Burma); Bingham, 1905, p. 24.
Euplœa modesta modesta, Fruhstorfer, 1910, p. 231; Corbet, 1942, p. 259, p. 261, fig. 2 (♂ fore wing underside); *id.*, 1943, p. 19 (key characters).
Euplœa modesta, Evans, 1923, p. 523; *id.*, 1927, p. 58.
Euplœa modesta modesta, Hulstaert, 1931, p. 109.
Euplœa modesta, Evans, 1932 *a*, p. 89.
Crastia cupreipennis, Moore, 1879 *a*, p. 823 (♂, Upper Tenasserim).
Menama cupreipennis, Moore, 1883 *a*, p. 264.
Euplœa (*Crastia*) *cupreipennis*, Marshall & de Nicéville, 1883, p. 77.
Menama tavoyana, Moore, 1883 *a*, p. 265, pl. xxx, fig. 6 (♂) (Tavoy, ♂♀).
Euplœa tavoyana, Elwes & de Nicéville, 1887, p. 416.
Menama mouhotii, Moore, 1883 *a*, p. 265, pl. xxxi, fig. 6 (♂) (Siam.)

♂♀. Upperside dark velvety brown. Fore wing with the basal two-thirds brilliantly glossed with blue, sometimes more

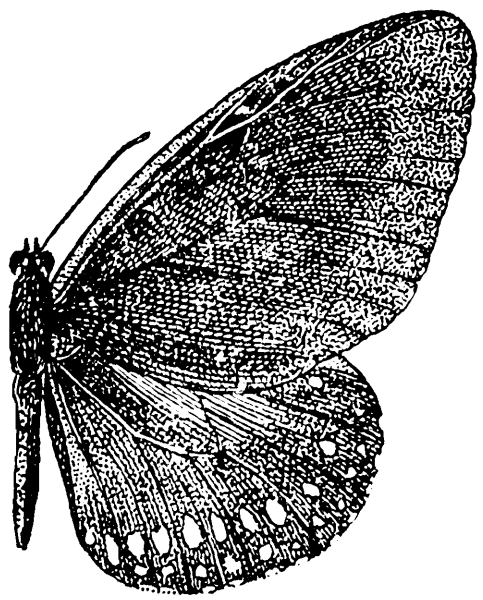


Fig. 21.—*Euplœa modesta modesta* Butl., ♂.

extended, and leaving a narrower outer dark border; a few white discal spots, and occasionally a submarginal row of white specks, but these markings sometimes absent. Hind

wing rarely with a suffusion of blue at the base; submarginal and antemarginal series of white spots, generally not extending beyond area 5, submarginal spots oval, larger than the others, the latter sometimes absent.

Underside silky brown. Fore wing with a white spot in the apex of the cell, a more or less complete series of discal white spots, and similar spots in areas 8 and 9. Hind wing with white spots : one in the apex of the cell, a series of five or six small post-cellular spots, submarginal and antemarginal series of spots, more complete than on the upperside, the submarginal ones elongate.

Antennæ, head, thorax and abdomen dark brown; beneath, except the antennæ, speckled with white.

Expanse : ♂♀, 80–95 mm.

♂ Form **mouhotii** (Moore).—Fore wing without blue, only a purplish sheen. Described from Cambodia.

Habitat.—BURMA : Dawna Range southwards, King Island ; also in Siam, Indo-China and Malaya; common.

Euplœa crameri Lucas,1853.

♂♀. *Upperside* dark brown, without blue gloss. Both wings usually with prominent submarginal and antemarginal series of white spots. Fore wing with the two subapical spots in areas 5 and 6 large, the one in 6 always prominent.

Distribution.—BURMA and NICOBAR ISLANDS to Malaya, Sumatra, Borneo and Java. Four subspecies in the Indian area.

224 *a*. Euplœa crameri nicévillei (Moore).

Tronga nicévillei, Moore, 1890, p. 77, pl. 20, figs. 1, 1 *a*, *b*, *c* (♂♀) (Sunderbunds).
Euplœa nicévillei, Bingham, 1905, p. 26.
Euplœa crameri nicévillei, Fruhstorfer, 1910, p. 229 ; Hulstaert, 1931, p. 105 ; Evans, 1932 *a*, p. 90.

♂♀. *Upperside* dark brownish-black. Fore wing with an antemarginal series of small spots from the tornus to area 6 ; a submarginal series of large spots, the anterior three close together, the posterior five well separated ; these spots are proximally produced and narrowed, especially the anterior ones, and the spot in 6 is much larger than any of the others ; a small spot in the base of area 3, and a similar costal spot ; in the female the subapical spots, in areas 5 and 6, are larger than in the male, and there is a small spot in the lower angle of the cell. Hind wing with a series of antemarginal spots which are short and thick ; the submarginal spots are very large and form a prominent post-discal band, the spots only separated by the dark veins, those in areas 1 *b* and 1 *c* extended to the margin.

Underside paler brown. Fore wing markings as above, and in addition a small elongate discal spot in area 2, and a discal

stripe in 1 *b*. Hind wing as above, and in addition a small spot in apex of cell, and four or five small post-cellular spots.

Expanse : ♂♀, 85–95 mm.

Habitat.—LOWER BENGAL : Sunderbunds ; very rare.

The British Museum possesses only the type specimens. I have seen no others.

224 *b*. **Euplœa crameri olivacea** (Moore). (Fig. 22, ♂).

Tronga olivacea, Moore, 1883 *a*, p. 267 (♀, Tenasserim).
Crastia bremeri, Butler (*non* Felder), 1878, p. 298.
Tronga bremeri, Moore, 1883 *a*, p. 267, pl. xxix, fig. 5 (♂).
Euplœa (*Crastia*) *bremeri*, Marshall & de Nicéville, 1883, p. 78 (Mergui Islands).
Tronga bremeri, Moore, 1886, p. 30 ; *id.*, 1890, p. 76, pl. 19, figs. 1, 1 *a*, *b* (♂), 1 *c*, *d* (♀).
Euplœa bremeri, Adamson, 1905, p. 158 (Burma) ; Bingham, 1905, p. 26.
Euplœa crameri bremeri, Fruhstorfer, 1910, p. 230 ; Evans, 1923, p. 523 ; *id.*, 1927, p. 59 ; Hulstaert, 1931, p. 106 ; Evans, 1932 *a*, p. 90.

This insect is well known as *bremeri* Felder, but Corbet (1937 *b*, p. 51) has shown that the type of Felder came from the Malay Peninsula and differs from Burmese examples.

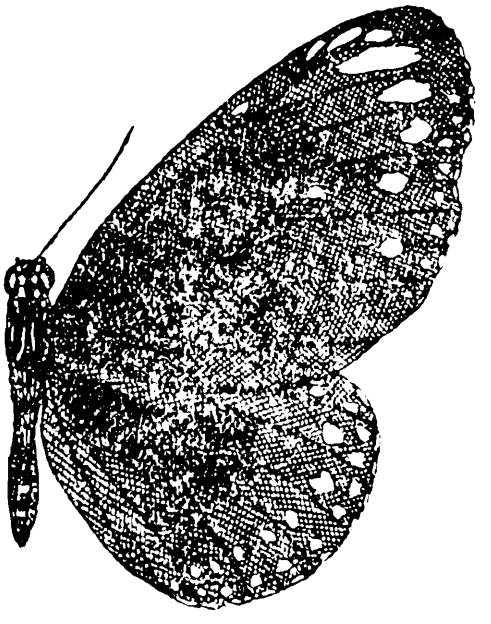


Fig. 22.—*Euplœa crameri olivacea* (Moore), ♂.

♂. *Upperside* of fore wing with markings as in *nicévillei*, but the posterior four submarginal spots are smaller. Hind wing with smaller submarginal and antemarginal spots of about equal size, the series not always complete.

Underside of fore wing very much as in *nicévillei*, the posterior submarginal spots smaller. Hind wing as on upperside, and in addition, a small spot in apex of cell and five or six post-cellular spots ; submarginal and antemarginal spots very prominent.

♀. Ground-colour on both sides pale brown. *Upperside* spots all larger and more prominent than in the male, the fore wing sometimes with five or six small post-cellular spots, and a small cell-spot.

Habitat.—BURMA : Akyab, southwards, and King Island ; also in Peninsular Siam ; common.

224 *c.* **Euplœa crameri esperi** C. Felder.

Euplœa esperi, C. Felder, 1862, p. 481, ♀ (Nicobar Islands) ; Moore, 1877 *b*, p. 582 (Car Nicobar) ; Wood-Mason & de Nicéville, 1881 *a*, p. 227, ♂♀ (Pulo Kondul, Camorta) ; *id.*, 1882, p. 15 (Camorta, Katchall, Pulo Kondul).
Crastia esperi, Moore, 1883 *a*, p. 278.
Euplœa esperi, Marshall & de Nicéville, 1883, p. 83.
Crastia esperi, Moore, 1890, p. 88, pl. 27, figs. 2, 2 *a*, *b* (♂♀).
Euplœa esperi, Bingham, 1905, p. 33 ; Hulstaert, 1931, p. 106.
Euplœa crameri esperi, Evans, 1932 *a*, p. 90, pl. x, fig. C 3.6 (♂) (Car and Central Nicobars) ; Talbot, 1943 *a*, pp. 10, 11.

♂♀. *Upperside* of fore wing with a small brand in area 1*b* in the ♂. Both wings with brownish-black ground-colour and submarginal and antemarginal series of white spots, much as in *olivacea* but purer white and more sharply defined ; a spot in the apex of the cell, often obsolete, and a discal series of four or five very small spots, of which one or two may be obsolete. Hind wing spots as in *olivacea*.

Underside chocolate-brown, the markings very much as in *olivacea*.

Habitat.—CAR NICOBAR and CENTRAL NICOBAR ISLANDS ; common.

The type-specimen is a female from Car Nicobar.

224 *d.* **Euplœa crameri frauenfeldii** C. Felder.

Euplœa frauenfeldii, C. Felder, 1862, p. 479 (♂, " Ceylon ", err.) ; C. & R. Felder, 1865, p. 342, t. iv, fig. 4 (♂) (*E. crameri*, local form).
Crastia frauenfeldii, Moore, 1883 *a*, p. 279.
Euplœa frauenfeldii, Marshall & de Nicéville, 1883, p. 83.
Crastia frauenfeldii, Moore, 1890, p. 87, pl. 27, figs. 1, 1*a* (♂).
Euplœa crameri frauenfeldi (sic), Fruhstorfer, 1910, p. 229 (part.).
Euplœa crameri frauenfeldii, Hulstaert, 1931, p. 106 ; Evans, 1932 *a*, p. 90 (South Nicobars) ; Talbot, 1943 *a*, pp. 8, 9 (♂ type from S. Nicobars).
Tronga biseriata, Moore, 1883 *a*, p. 266 (♂, Trinkat, Great Nicobar) ; *id.*, 1890, p. 78, pl. 21, figs. 1, 1 *a*, 1 *b* (♂), 1 *c*, 1 *d* (♀).
Euplœa bremeri biseriata, Bingham, 1905, p. 26 (part.).
Euplœa crameri biseriata, Hulstaert, 1931, p. 106.

♂♀. Slightly differentiated from *esperi*. *Upperside* with all spots smaller. Fore wing with or without a small brand in male.

Underside of hind wing with post-cellular spots usually absent.

Habitat.—SOUTH NICOBAR ISLANDS ; common.

Euplœa redtenbacheri C. & R. Felder, 1865.

This species has, till recently, been known as *leachii* C. & R. Felder. The two names denote sexes of one species (*cf.* Talbot, 1943, pp. 9, 11).

Distribution.—BURMA to Celebes and Moluccas; not common. One subspecies in Burma.

225. Euplœa redtenbacheri camaralzeman Butler.

Euplœa camaralzeman, Butler, 1866 *a*, p. 271, pl. xxix, fig. 1 (♂) (Siam).
Crastia çamaralzeman, Butler, 1878, p. 298.
Menama camaralzeman, Moore, 1883 *a*, p. 264.
Euplœa camaralzeman, Marshall & de Nicéville, 1883, p. 77; Elwes & de Nicéville, 1887, p. 416 (Tavoy).
Menama camaralzeman, Moore, 1890, p. 72, pl. 17. figs. 1, 1*a* (♂).
Euplœa camaralzaman (sic), Bingham, 1905, pp. 24, 25; Fruhstorfer, 1910, p. 231, t. 79 *c* (♂); Evans, 1923, p. 523; *id.*, 1927, p. 59; Hulstaert, 1931, p. 110; Evans, 1932 *a*, p. 89.
Isamia carpenteri, Moore, 1890, p. 131, pl. 50, figs. 1, 1*a* (♀) (Mergui Islands).
Euplœa camaralzaman (sic) f. *carpenteri*, Fruhstorfer, 1910, p. 231.
Euplœa leachii camaralzeman, Corbet, 1942, p. 260.

♂. Fore wing with inner margin strongly convex. *Upperside* dark velvety brown; basal two-thirds of both wings glossed with blue. Fore wing with a few antemarginal white dots near the tornus. Hind wing with an incomplete submarginal and antemarginal series of white subquadrate spots.

Underside with spots and markings more distinct and with one or two additional spots.

Antennæ, head, thorax and abdomen dark brown; beneath, antennæ excepted, spotted and marked with white.

♀. (=*carpenteri* Moore). *Upperside* with the blue gloss more restricted. Fore wing with white spots; one in the apex of cell, two or three discal ones, a costal spot, and some submarginal and antemarginal ones. Hind wing with a white spot in the apex of cell and six or seven discal ones; submarginal and antemarginal spots as in the male but larger.

Underside as in the male.

Expanse: ♂♀, 110–130 mm.

Habitat.—BURMA: Ataran, to King Island; rare. Also in Siam.

Core Group.

(*Crastia* Hübner, *Vadebra* Moore, *Menama* Moore, *Penoa* Moore, *Mahintha* Moore, *Karadira* Moore).

The species of this group possess a brand on the male fore wing, but this is absent in *core simulatrix* W.-M. and de Nicév. The group is sufficiently characterized in the key on page 58. Larva with four pairs of tentacles. Four species are found in the Indian area.

Key to Species of the Core *Group.*

1. ♂.	Fore wing underside with whole of area 1 *a* and at least the posterior portion of area 1 *b* pale and nacreous	2.
♂.	Fore wing underside with whole of area 1 *b* darkened.	3.
2. ♂.	Fore wing upperside with a brand not extending to below the origin of vein 2. ..	*core* (Cram.), p. 66.
♂.	Fore wing upperside with a brand extending to below the origin of vein 2.	[p. 74. *algea* (Godt.).
3. ♂.	Fore wing upperside longer than 47 mm.; brand narrow and about 10 mm. long. Hind wing upperside with whole or almost whole of cell blackened; white streaks very long. ♀. Fore wing upperside with discal white spots	[Feld., p. 64. *doubledayi* C. & R.
♂.	As above, but fore wing not longer than 47 mm., hind wing streaks short, dusky in ♂. ♀. Fore wing upperside unmarked. .	[Feld., p. 66. *eyndhovii* C. & R.

Euplœa doubledayi C. & R. Felder.

♂♀. *Upperside* of fore wing of male with a brand in area 1 *b*, about 10 mm., in length. Both wings deep brown or black without a blue gloss, the fore wing without markings or only faint submarginal ones in the male, the female with a few

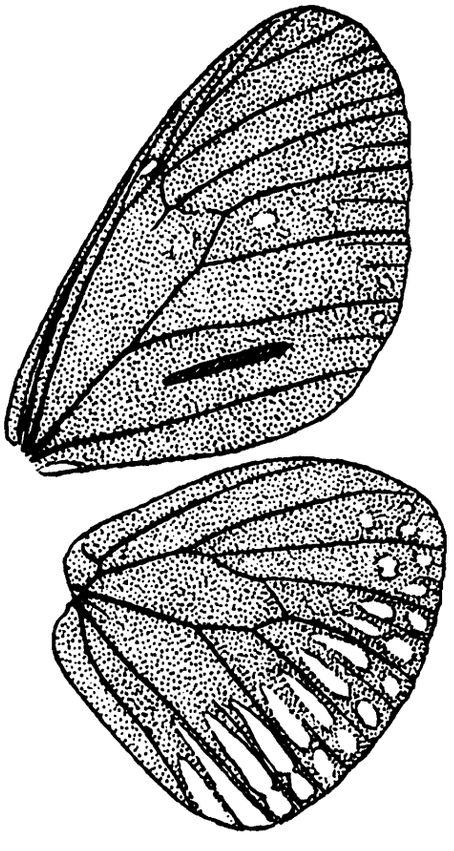


Fig. 23.—*Euplœa doubledayi doubledayi* C. & R. Feld.
Venation of male.

additional discal and post-discal spots. Hind wing with extensive anterior area of modified scales as in *mulciber*; post-discal streaks and submarginal spots present.

Underside with more or less prominent discal, post-discal, and submarginal spots on both wings, those on the hind wing more prominent than on the upperside.

Distribution.—SIKKIM to SOUTHERN BURMA and northern half of Malaya. One subspecies in the Indian area.

226. Euplœa doubledayi doubledayi C. & R. Felder. (Fig. 24, ♂).

Euplœa doubledayi, C. & R. Felder, 1865, p. 337, ♂♀ (Sylhet); Moore, 1865 *a*, p. 761 (Bengal).
Euplœa (*Penoa*) *doubledayi*, de Nicéville, 1894 *a*, p. 118 (Sikkim).
Euplœa doubledayi, Adamson, 1905, p. 159 (Burma).
Euplœa alcathoë doubledayi, Fruhstorfer, 1910, p. 237, t. 85 *b* (♂); Evans, 1923, p. 321; *id.*, 1927, p. 57; Hulstaert, 1931, p. 122; Evans, 1932 *a*, p. 89.
Euplœa doubledayi doubledayi, Corbet, 1942, pp. 261, fig. 7 (♂ fore wing underside), fig. 9 (♂ genitalia), 262, 263; *id.*, 1943, p. 20 (key characters); Talbot, 1943 *a*, p. 9.
Euplœa alcathoë, Butler (*non* Godart), 1866 *a*, p. 275; Moore, 1879 *a*, p. 823 (Upper Tenasserim).
Penoa alcathoe (sic), Moore, 1883 *a*, p. 274.
Euplœa alcathoë, Marshall & de Nicéville, 1883, p. 86, pl. ix, fig. 17 (♂♀, Sylhet).
Penoa alcathoë, Butler, 1885 *a*, p. 300 (near Assam).
Euplœa (*Penoa*) *alcathoë*, Wood-Mason & de Nicéville, 1887, p. 345 (Cachar).
Penoa alcathoë, Moore, 1890, p. 94, pl. 31, figs. 1, 1 *a*, *b*, *c* (♂♀).
Euplœa alcathoe (sic), Bingham, 1905, p. 36; Tytler, 1911, p. 49 (Naga Hills).

♂. *Upperside* very dark velvety brown, without any blue



Fig. 24.—*Euplœa doubledayi doubledayi* C. & R. Feld., ♂.

gloss. Fore wing without spots or with two or three white dots near the tornus. Hind wing with a fuscous scent-patch from

base nearly to margin, including part of the cell; a post-discal series of white streaks placed in pairs between the veins, and becoming shorter anteriorly, in areas 1 *b* and 1 *c* often joined to the submarginal spots; a series of conspicuous white submarginal spots.

Underside with similar but more prominent markings; both wings with a spot in apex of cell and a few discal spots.

♀. *Upperside* resembles the male, but is paler. Fore wing usually with a cell-spot, two or three discal spots, a costal spot, and a submarginal and antemarginal series of white spots, the former series often, the latter always, incomplete. Hind wing as in the male, but no scent-patch, the white markings heavier and broader.

Underside with the white spots very large.

Antennæ black; head, thorax and abdomen dark velvety brown, thickly spotted with white beneath.

Expanse: ♂♀, 85–100 mm.

Habitat.—SIKKIM to the SOUTHERN SHAN STATES; not rare, but less frequent in SIKKIM.

Euploea eyndhovii C. & R. Felder, 1865.

This species is smaller than *doubledayi*, with the fore wing upperside paler and unmarked in both sexes.

Distribution.—BURMA to Malaya, Sumatra, Borneo and Java. One subspecies in the Indian area.

227. **Euploea eyndhovii æsatia** Fruhstorfer.

Euploea alcathoë æsatia, Fruhstorfer, 1910, p. 237 (Siam); Ellis, 1917, p. 105 (Pegu Yoma); Evans, 1923, p. 521; *id.*, 1927, p. 57; *id.*, 1932 *a*, p. 89; Hulstaert, 1931, p. 122.
Euploea eyndhovii æsatia, Corbet, 1942, p. 263.

♂♀. *Upperside* of fore wing usually without white spots in the female. Hind wing with the white streaks shorter than in *doubledayi* and in the male dusky.

Habitat.—KAREN HILLS to SOUTHERN BURMA and KING ISLAND; not rare. Also extending to Siam.

Euploea core (Cramer).

♂♀. *Upperside* dark brown with a submarginal and an antemarginal series of white spots on both wings. Fore wing with a short narrow brand in area 1 *b*. Submarginal spots in areas 4 and 5 smaller than the others; anterior spots of both series sometimes absent. Hind wing with the submarginal spots below vein 5, consisting of short stripes.

Underside of both wings usually with a few discal spots, and a spot in apex of cell.

Early stages (from *Bell*, 1909) :—

Egg.—Nearly cylindrical for two-thirds its height and anteriorly rather pointed, dome-shaped. Surface shiny, covered with many longitudinal ribs, rounded in section, and broad, the interspaces crossed at right angles by numerous minor ridges, the two sets covering the surface with many square, round-bottomed cells. Colour at first white, turning yellow, then orange, becoming greyish just before emergence of larva. Length, 1·4 mm. ; breadth, 1 mm.

Larva.—Body dark brown, sometimes nearly violet, sometimes with a tinge of claret, transversely banded with white ; or bluish-white, banded with brown. Each segment with five bands running into an irregularly bordered, broad white spiracular band, which is more or less strongly suffused with orange. A shiny black patch dorsally, near extremity ; a dorsal black shield, posteriorly on segment 2 ; four pairs of subdorsal dark brown tentacles on segments 3, 4, 6 and 12, one pair to each, the pair on segment 3 the longest, reaching beyond the head, and movable ; the last pair shorter, about as long as the larva is high, and fixed. Head black, with a marginal white band ; a similar band down each side of clypeus ; labrum white; spiracles oval, shiny black and situated in the orange band. The larva turns rose-red before pupating. Length, 47 mm. ; breadth, 6·5 mm. ; height, 6 mm. ; length of tentacles on segment 3, 10 mm.

Pupa.—Silvery-golden, marked with dirty light brownish ; cremaster and last segment black ; abdomen with two rows of black spots.

Distribution.—CEYLON, PENINSULAR and NORTHERN INDIA, Indo-China, Sumatra, Java and eastwards.

The species is a very common one and ten subspecies are distinguished in the Indian area.

228 *a*. **Euplœa core core** (Cramer). (Fig. 25, ♂).

Papilio core, Cramer, 1780 *a*, p. 133, pl. cclxvii, figs. E, F.

Euplœa core, Horsfield & Moore, 1857, p. 131, pl. iv, figs. 9, 9 *a* (larva, pupa) ; Moore, 1865 *a*, p. 761 (Bengal, plains) ; Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♀, Andaman Islands) ; *id.*, 1881 *b*, p. 244 (Andaman Islands) ; de Nicéville, 1881, p. 49 (Sikkim) ; *id.*, 1882, p. 55 (Sikkim).

Crastia core, Moore, 1883 *a*, p. 277, pl. ix, fig. 8 (♂).

Euplœa core, Marshall & de Nicéville, 1883, p. 80, pl. ix, fig. 16 (♂♀, Calcutta) ; de Nicéville, 1885 *a*, p. 41 (Calcutta) ; Doherty, 1886 *a*, p. 114 (Kumaon, to 7,000 feet) ; Elwes & Möller, 1888, p. 302 (Sikkim) ; Taylor & de Nicéville, 1888, no. 10 (Orissa) ; Hart, 1889, p. 281 (early stages).

Crastia core, Hampson, 1889, p. 348 (Nilgiris) ; Moore, 1890, p. 81, pl. 23, figs. 1, 1 *a* (larva, pupa, S. India), 1 *b*, *c*, *d* (♂♀) ; Davidson & Aitken, 1891, p. 266.

Euplœa (*Crastia*) *core*, de Nicéville, 1894 *a*, p. 118 (Sikkim).

Euplœa core, Davidson, Bell, & Aitken, 1896, p. 241 (North Kanara).

Euplœa (*Crastia*) *core*, MacKinnon & de Nicéville, 1897, p. 214 (Mussooree); de Nicéville, 1898, p. 131, pl. x, figs. 1, 2 (♂ aberr., Sikkim).
Euplœa core, de Rhé-Philipe, 1902, p. 483 (Lucknow); Adamson, 1905, p. 158 (Arakan coast); Bingham, 1905, p. 32, fig. 11 (♂); Bell, 1909, p. 56, pl. E, fig. 35 (♂); Hannyngton, 1910, p. 133 (Kumaon, 2,000–5,000 feet); Evans, 1910, p. 381 (Palni Hills).
Euplœa core core, Fruhstorfer, 1910, p. 235.
Euplœa core, de Rhé-Philipe, 1917, p. 137 (Lahore).
Euplœa core core, Evans, 1923, p. 523; *id.*, 1927, p. 59; Williams, 1927, pp. 9, 15 (migration); *id.*, 1930, p. 363 (migration); Hulstaert, 1931, p. 118; Evans, 1932 *a*, p. 90; Sevastopulo, 1935, p. 18 (early stages, Calcutta); Gough, 1935, p. 261 (Nepal, 500–4,500 feet); Peile, 1937, p. 81, pl. xv, fig. 125 (♂); Corbet, 1942, pp. 260, 262.
Euplœa coreta, Kollar (*non* Godart), 1844, p. 425 ("Massuri").
Euplœa vermiculata, Butler, 1866 *a*, p. 276 (♂, North India); *id.*, 1881, p. 603 (Mussooree).
Crastia vermiculata, Moore, 1883 *a*, p. 277.
Euplœa vermiculata, Marshall & de Nicéville, 1883, p. 81 (North India).
Crastia vermiculata, Moore, 1890, p. 80, pl. 22, figs. 1, 1 *a*, *b*, *c* (♂♀).
Euplœa core var. *vermiculata*, Bingham, 1905, p. 32.
Euplœa core f. *vermiculata*, Fruhstorfer, 1910, p. 235.
Euplœa core vermiculata, Evans, 1923, p. 523; *id.*, 1927, p. 59; Hulstaert, 1931, p. 119; Evans, 1932 *a*, p. 90; Gough, 1935, p. 261 (Nepal, 3,500 feet); Peile, 1937, p. 82.

♂♀. *Upperside* broadly paler over the outer areas; fore wing with the series of submarginal spots curved inwards



Fig. 25.—*Euplœa core core* (Cram.), ♂.

opposite the apex; antemarginal series often incomplete, not reaching the apex; often there is a small costal spot, and very rarely a spot in apex of cell and one or more discal spots. Hind wing with inner series of spots elongate, the outer conical.

Underside similar, but ground-colour more uniform; a cell-spot, costal and discal spots nearly always present on both wings.

Expanse: ♂♀, 85–95 mm.

Form **vermiculata** Butler.—The submarginal spots of fore wing much larger, especially in the apical area, and triangular or somewhat quadrate. A ♂ from Sikkim, figured by de Nicéville (1898), shows the left fore wing smaller and representing *core*, whilst the right fore wing represents *vermiculata*.

Habits (from *Bell*, 1909) :—

" This is the commonest species of *Euplœa* and may be seen everywhere throughout continental India at all times of the year, in the plains, in the hills, in grass-lands, jungles, on bare rocky slopes and in dark shady nullas, generally a few yards above the ground, sailing along lazily in the characteristic danaine style, or busily, if somewhat weakly, flying about in search of a suitable leaf or bud, or twig, whereon to deposit its egg."

" The larva has been found upon *Streblus asper* Lour., *Ficus bengalensis* Linn., *Ficus religiosa* Linn., *Ficus glomerata* Roxb. (Moraceæ) ; *Holarrhena antidysenterica* Wall., *Nerium odorum* Soland., *N oleander* Linn., *Ichnocarpus frutescens* Br. (Apocynaceæ) ; *Hemidesmus indicus* Br. (Asclepiadaceæ)."

Habitat.—Throughout INDIA and the HIMALAYAS, up to about 5,000 feet ; common.

The insect is mimicked by *Chilasa* Linn., and by the female of *Hypolimnas bolina* Linn.

The form *vermiculata* Butl. is confined to the Himalayas where, however, both forms appear to occur together. Therefore *vermiculata* is not considered here as representing a subspecies.

228 *b*. **Euplœa core asela** Moore.

Euplœa asela, Moore 1877 *a*, p. 45 (♂♀, Ceylon) ; *id.*, 1880 *a*, p. 11, pl. vi, figs. 2 (♀), 2 *a* (larva, pupa).
Crastia asela, Moore, 1883 *a*, p. 277.
Euplœa asela, Marshall & de Nicéville, 1883, p. 81.
Crastia asela, Moore, 1890, p. 84, pl. 24, fig. 1, 1 *a* (larva, pupa), 1 *b*, *c*, *d* (♂♀).
Euplœa core asela, Bingham, 1905, p. 32 ; Fruhstorfer, 1910, p. 235.
Euplœa asela, Ormiston, 1918, p. 7.
Euplœa core asela, Evans, 1923, p. 523 ; Ormiston, 1924, p. 5 ; Evans, 1927, p. 59 ; Williams, 1927, pp. 13, 14, 15, 19 (migration) ; *id.*, 1930, p. 162 (migration) ; Hulstaert, 1931, p. 119 ; Evans, 1932 *a*, p. 90 ; Peile, 1937, p. 81 ; Woodhouse & Henry, 1942, p. 39, pl. iii, figs. 1 (♂), 2 (♀), pl. xxxviii, fig. 1 (larva, pupa), pl. xlix, fig. 1 (egg).

♂♀. A slightly differentiated subspecies. *Upperside* of fore wing with the submarginal spots anteriorly obsolete, the antemarginal ones nearly obsolete anteriorly.

Habits :—

" Settles readily at certain flowers, particularly *Gynura zeylanica* Trimen and a species of wild heliotrope ; and I have frequently seen it in clusters, apparently feeding, at an exposed root or dead stick " (*Ormiston*, 1918).

Two other Euplœids with very similar pattern are found flying with *asela*. These are *E. sylvester montana* C. & R. Feld. and *E. klugii sinhala* Moore. The females may be identified by the following key by A. C. Hayley, quoted by Ormiston (1918, p. 8).—

Fore wing underside in area 1.

A long milky-white streak, about 10 mm. long (*asela*).

Two milky-white streaks (*montana*).

One minute white streak or narrow spot, seldom over 2 mm. in length (*sinhala*).

Habitat.—CEYLON ; common all the year round.

228 *c*. **Euplœa core distans** Talbot.

Euplœa core distans, Talbot, 1940, p. 247 (♂♀, Northern Burma).

♂. *Upperside* with distal areas distinctly pale, markings white. Fore wing spots all smaller than in *core core*, the submarginal ones in areas 1 *b*, 2, 3 and 4 minute. Hind wing as in *core core*.

Underside of fore wing with spots as on upperside ; also a costal dot, minute cell-dot and similar spot in area 3 ; spot in area 2 about 2 mm. long. Hind wing as on upperside ; also a cell-dot and post-discal dots in 2, 3, and 6 ; ground-colour of both wings paler than in *core core*.

♀. *Upperside* similar to the male. Fore wing with distal pale area more extended above vein 4, somewhat as in *godartii* Luc., but without the lilac tinge of that form ; submarginal and antemarginal spots small, the posterior three submarginal ones somewhat larger than in the male and all somewhat dusky ; a post-discal small rounded white spot in area 3, and white dot in 2 ; a small white cell-spot. Hind wing markings as in male but dusky

Underside similar to male, but spots mostly larger.

Habitat.—NORTHERN BURMA : ♂ type from Younghwa ; BENGAL : ♀ allotype from Chittagong.

228 *d*. **Euplœa core godartii** Lucas. (Fig. 26, ♂).

Euplœa godartii, Lucas, 1853, p. 319 (♂, "Java") ; Moore, 1879 *a*, p. 824 (Upper Tenasserim) ; Distant, 1882 *a*, p. 34, pl. iii, fig. 8 (♂).

Crastia godarti, Moore, 1883 *a*, p. 278.

Euplœa godartii, Marshall & de Nicéville, 1883, p. 84 (Burma and Mergui Islands).

Crastia godartii, Moore, 1886, p. 31.

Euplœa godartii, Elwes & de Nicéville, 1887, p. 416 (Tavoy).

Crastia godartii, Moore, 1890, p. 85, pl. 25, figs. 1, 1 *a*, *b*, *c*, *d* (♂♀).

Euplœa (*Crastia*) *godartii*, Watson, 1897, p. 637 (Upper Chindwin ; Manipur).

Euplœa godartii, Adamson, 1905, p. 159 (Burma).

Euplœa godarti, Bingham, 1905, pp. 33, 34, fig. 12 (♂) ; Fruhstorfer, 1910, p. 236, t. 81 *d* (♂) ; Ellis, 1917, p. 105 (Pegu Yoma) ; Evans, 1923, p. 153 ; *id.*, 1927, p. 59.

Euplœa amymone godartii, Hulstaert, 1931, p. 120.
Euplœa godarti, Evans, 1932 *a*, p. 90.
Euplœa core godartii, Corbet, 1942, p. 262, p. 261, fig. 5 (♂ fore wing underside).
Euplœa layardi, Druce, 1874, p. 103, pl. xvi, fig. 1 (♀, Siam).
Crastia layardi, Moore, 1890, p. 57, pl. 26, figs. 1, 1 *a*, *b*, *c* (♂♀).
Euplœa (*Crastia*) *godartii* var. *layardi*, Watson, 1897, p. 637 (♂, Upper Chindwin).
Euplœa layardi, Adamson, 1905, p. 159 (Arracan); Bingham, 1905, p. 34.
Euplœa godarti f. *layardi*, Fruhstorfer, 1910, p. 236.
Euplœa amymone godartii f. *layardi*, Hulstaert, 1931, p. 120.
Euplœa core layardi, Evans, 1932 *a*, p. 90; Peile, 1937, p. 82.
Euplœa subdita, Moore, 1879 *a*, p. 823 (♂, Akyab).
Mahintha subdita, Moore, 1883 *a*, p. 281 (Tenasserim).
Euplœa subdita, Marshall & de Nicéville, 1883, p. 82.
Mahintha subdita, Moore, 1890, p. 91, pl. 29, figs. 1, 1 *a*, *b*, *c* (♂♀).
Crastia binghami, Moore, 1883 *a*, p. 278 (♂♀, Upper Tenasserim).
Euplœa godarti f. *dominans*, Fruhstorfer, 1910, p. 236 (= *Crastia godartii*, Moore, 1890, pl. 25, fig. 1 *c*, ♀).
Euplœa godarti f. *recussa*, Fruhstorfer, 1910, p. 236, ♂♀.
Euplœa godarti f. *defigurata*, Fruhstorfer, 1910, p. 236 (Upper Burma).

♂♀. *Upperside* dark brown, broadly paler along the outer margins, especially on the fore wing. Fore wing with more

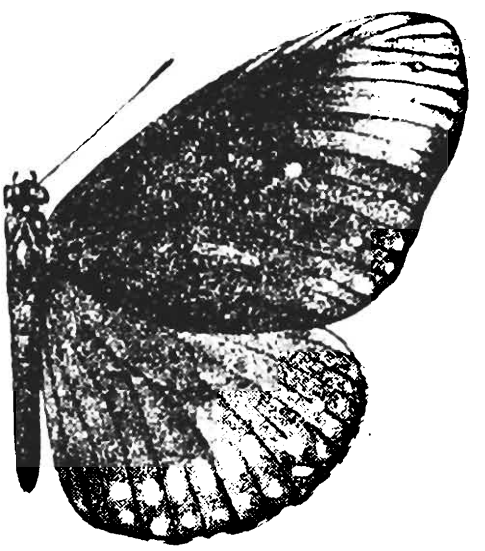


Fig. 26.—*Euplœa core godartii* Lucas, ♂.

or less incomplete and obsolescent series of submarginal and antemarginal small white spots; apical area dusted with violaceous-white, varying very considerably in extent from a mere trace of violaceous between the veins, to a large and very conspicuous patch occupying the whole of the apex. Hind wing with a submarginal series of oval, or inwardly conical, spots, and an antemarginal series of more rounded ones.

Underside paler brown, the white spots larger, more clearly defined. Fore wing not violaceous at apex; a spot (sometimes absent) in apex of cell and two or three discal spots. Hind wing with a spot (sometimes absent) in apex of cell, and a discal series of five small spots and other spots as on upperside.

Antennæ, head, thorax and abdomen very dark brown and, excepting the antennæ, sparsely spotted with white.

Expanse : ♂♀, 85–95 mm.

Form **layardi** Druce.—*Upperside* of fore wing without violaceous dusting over the apex. Hind wing spots sometimes obscure. The names *subdita* Moore, and *binghami* Moore, are synonyms of this form.

Form **dominans** Fruhstorfer.—*Upperside* of fore wing with apical area chiefly white, forming patches.

Form **recussa** Fruhstorfer.—*Upperside* of fore wing with greyish-white apical area.

Form **defigurata** Fruhstorfer.—Hind wing on both sides with the antemarginal dots absent.

Habitat.—Manipur to Southern Burma, the Mergui Islands, Siam, Tong-king and Annam.

Very common in Burma and Siam ; the form *layardi* not frequent, but recorded by Adamson (1905) as common in Arakan. Adamson also notes that *godartii* is the commonest *Euplœa* in Burma and is most plentiful in September and October, when a fresh brood appears. The larva was found on orange.

228 *e*. **Euplœa core andamanensis** Atkinson.

Euplœa andamanensis, Atkinson, 1873, p. 736, pl. lxiii, fig. 2 (♂, Port Blair) ; Moore, 1877 *b*, p. 582 ; Wood-Mason & de Nicéville, 1880 *a*, p. 226, ♂♀ ; *id*., 1881 *b*, p. 244 ; Marshall & de Niceville, 1883, p. 84.

Karadira andamanensis, Moore, 1883 *a* p. 284 ; *id*., 1890, p. 93, pl. 30, figs. 1, 1 *a*, *b*, *c* (♂♀).

Euplœa andamanensis, Bingham, 1905, p. 35 ; Fruhstorfer, 1910, p. 236 ; Evans, 1923, p. 523 ; *id*., 1927, p. 59 ; Hulstaert, 1931, p. 121.

Euplœa andamanensis andamanensis, Evans, 1932 *a*, p. 90 (South Andamans).

Euplœa core andamanensis, Corbet, 1942, p. 262.

♂♀. Fore wing subtriangular ; outer margin slightly incurved at the middle. Hind wing broadly ovate. *Upperside* very pale vandyke-brown, darkening outwardly. Both wings with post-discal and submarginal white spots. Fore wing with large, somewhat diamond-shaped post-discal spots in areas 2 and 3, placed close to the two, and usually smaller, discal spots in the same areas ; a spot in the lower angle of the cell and one or two smaller costal spots, usually present. Hind wing spots elongate, more especially the post-discal ones ; a spot in the lower angle of the cell and three or four small discal spots are usually present in the female.

Underside very similar, the white spots larger, the discal series on fore wing often complete. Hind wing with some additional spots near the base, an apical cell spot and a discal series of five or six small spots.

Antennæ dark brown ; head, thorax and abdomen pale silky brown, spotted, chiefly beneath, with white.

Expanse : ♂♀, 85–95 mm.

Habitat.—SOUTH ANDAMAN ISLAND ; common.

228 *f*. **Euplœa core ferrari** Tytler.

Euplœa andamanensis ferrari, Tytler, 1939 *b* (♂, North Sentinel Island).

♂. *Upperside* very similar to *bumila* Evans, but rather paler. Fore wing post-discal white spots much smaller ; submarginal spots slightly smaller. Hind wing post-discal and submarginal spots slightly smaller.

Underside very similar to upperside, all spots similarly smaller.

Habitat.—SOUTH ANDAMAN ISLANDS : North Sentinel Island. Described from three males, in the Ferrar Collection, taken in March, 1927.

228 *g*. **Euplœa core bumila** Evans.

Euplœa andamanensis bumila, Evans, 1932 *a*, p. 90 (Little Andaman and North Sentinel Islands).

♂♀. Ground-colour much darker than in *andamanensis*. *Upperside* of fore wing with the discal spots smaller, the post-discal and submarginal spots larger, than in the nominotypical form.

Habitat.—LITTLE ANDAMAN ISLAND ; common.

228 *h*. **Euplœa core scherzeri** C. Felder.

Euplœa scherzeri, C. Felder, 1862, p. 479 (♂, " Ceylon ", err.).
Betanga scherzeri, Moore, 1883 *a*, p. 273,
Euplœa scherzeri, Marshall & de Nicéville, 1883, p. 85.
Crastia scherzeri, Moore, 1890, p. 87, pl. 28, figs. 1, 1*a* (type ♂).
Euplœa scherzeri, Fruhstorfer, 1910, p. 236; Evans, 1923, p. 523; *id.*, 1927, p. 58 ; Hulstaert, 1931, p. 121.
Euplœa climena scherzeri, Evans, 1932 *a*, p. 89 (Car Nicobar).
Euplœa core scherzeri, Corbet, 1942, p. 262 ; Talbot, 1943 *a*, p. 10 (♂ type from Car Nicobar).

♂♀. *Upperside* of wings at the base, warm dark sepia-brown, fading to bright burnt-umber-brown on the outer third ; without markings, or rarely with one or two small discal spots and a costal spot on the fore wing. Fore wing of male with a small brand in area 1*b*.

Underside similar, somewhat paler. Fore wing with a spot in the apex of the cell, a large and a small discal, and an outwardly conical costal spot, white. Hind wing with a white spot in apex of cell, and a discal series of five or six small spots ; these spots often tinged with blue. Antennæ, head, thorax and abdomen dark brown and, the antennæ excepted, sparsely spotted with minute violaceous-white dots.

Expanse : ♂♀, 95–100 mm.

Habitat.—CAR NICOBAR ; common.

228 *i*. **Euplœa core camorta** Moore.

Euplœa camorta, Moore, 1877 *b*, p. 582, ♂ ; Wood-Mason & de Nicéville, 1881 *a*, p. 228, ♂♀ ; *id.*, 1882, p. 15.
Crastia camorta, Moore, 1883 *a*, p. 279, pl. xxxi, fig. 7 (♂).
Euplœa camorta, Marshall & de Nicéville, 1883, p. 86.
Crastia camorta, Moore, 1890, p. 90, pl. 28 figs. 2, 2*a*, *b*, *c* (♂♀).
Euplœa camorta, Bingham, 1905, p. 34.
Euplœa climena camorta, Evans, 1932 *a*, p. 89 (Central Nicobars).

♂♀. Very similar to *scherzeri*, but the outer borders are very much paler, especially so in the female. Fore wing of male with a small brand.

Habitat.—CENTRAL NICOBAR ISLANDS ; common.

288 *j*. **Euplœa core simulatrix** Wood-Mason and de Nicéville.

Euplœa simulatrix, Wood Mason & de Nicéville, 1881 *a*, p. 229 (♂, Great Nicobar) ; *id.*, 1882, p. 15, pl. iii, figs. 1 (♂), 2 (♀).
Vadebra simulatrix, Moore, 1883 *a*, p. 261.
Euplœa (*Crastia*) *simulatrix*, Marshall & de Nicéville, 1883, p. 76.
Menama simulatrix, Moore, 1890, p. 74, pl. 18, figs. 1, 1*a*, *b*, *c* (♂♀).
Euplœa simulatrix, Bingham, 1905, p. 25.
Euplœa climena simulatrix, Fruhstorfer, 1910, p. 226 ; Hulstaert, 1931, p. 100 ; Evans, 1932 *a*, p. 89.
Euplœa core simulatrix, Corbet, 1942, p. 262.

♂. *Upperside* dark brown, the margins broadly paler ; both wings immaculate. Fore wing without a brand.

Underside with similar ground-colour. Fore wing with a spot at apex of cell, a small costal spot and three discal spots, all bluish-white. Hind wing with a bluish-white spot at apex of cell and five or six bluish-white discal spots.

Antennæ, head, thorax and abdomen very dark brown, almost black ; head, thorax and abdomen spotted with white.

♀. *Upperside* with the borders of both wings very much paler than in the male, forming a broad dirty white border. Fore wing with a small pinkish-white costal spot.

Habitat.—SOUTH NICOBAR ISLANDS. The male is common ; the female rare, at least in collections.

Euplœa algea (Godart), 1819.

This species differs from other Indian species of the group in the male brand being broader and longer. The Indian representative of *algea* was, prior to Corbet's paper (1942), considered as a species distinct from others ; in this paper the name *eleutho* (Godart) was used for the species but this was rectified in the 1943 paper, following Talbot (1943, p. 13).

Distribution.—SIKKIM to Oceania, excluding Formosa and Philippines.

A number of distinct subspecies are found of which three occur within the Indian area.

229 *a*. Euplœa algea deione Westwood. (Fig. 27, ♂).

Euplœa deione, Westwood, 1848, p. 76, pl. xxxvii, fig. 3 (♂, Assam); Moore, 1865 *a*, p. 761 (Bengal).
Penoa deione, Moore, 1883 *a*, p. 275, pl. xxx, fig. 2 (♂).
Euplœa deione, Marshall & de Nicéville, 1883, p. 88 (Sikkim; Assam); de Nicéville, 1883 *a*, p. 93 (♂♀, Sikkim).
Penoa deione, Butler, 1885 *a*, p. 300 (near Assam).
Euplœa deione, Elwes & Möller, 1888, p. 302 (Sikkim).
Penoa deione, Moore, 1890, p. 98, pl. 34, figs. 1, 1 *a*, *b*, c (♂♀).
Euplœa (*Penoa*) *deione*, de Nicéville, 1894 *a*, p. 118 (Sikkim, rather rare); Watson, 1897, p. 638 (Upper Chindwin, very common; Manipur).
Euplœa deione, Adamson, 1905, p. 159 (Burma); Bingham, 1905, p. 35.
Euplœa deione deione, Fruhstorfer, 1910, p. 238.
Euplœa deione, Tytler, 1911, p. 49 (Naga Hills).
Euplœa deione deione, Evans, 1923, p. 524; *id.*, 1927, p. 60; Hulstaert, 1931, p. 124, pl. v, fig. 3 (♂); Evans, 1932 *a*, p. 91.
Euplœa eleutho deione, Corbet, 1942, p. 262.
Euplœa poeyi, C. & R. Felder, 1865, p. 340 (♀, Assam); Talbot, 1943 *a*, p. 9 (= *deione* ♀).
Euplœa magnifica, Butler, 1874 *b*, p. 423 (♀, Tibet).
Euplœa deione deione f. *arida*, Fruhstorfer, 1910, p. 238 (dry-season form, Upper Burma).
Euplœa deione deione f. *suffusa*, Tytler, 1936, p. 243 (♂, Khasi Hills; ♀, Sikkim, Manipur).

♂♀. Wings more elongate than in *E. core godartii*, the tornus of the fore wing in the ♂ more rounded; hind wing somewhat

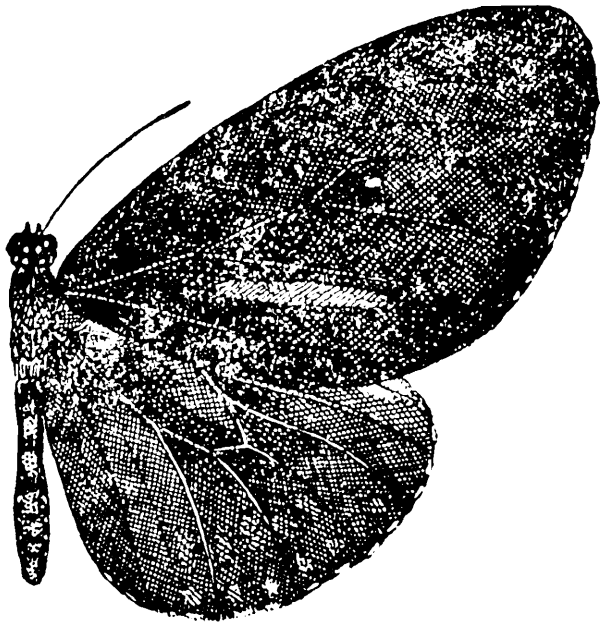


Fig. 27.—*Euplœa algea deione* Westw., ♂.

pear-shaped in both sexes. *Upperside* very dark brown. Fore wing, except a narrow apical margin, entirely suffused with a brilliant iridescent blue; a spot at the apex of cell, a discal and a costal spot white; these spots rarely absent. Hind wing uniform brown, without or with only a faint blue iridescence

over the disc, and subobsolete, somewhat incomplete post-discal and submarginal series of dusky white spots.

Underside chocolate-brown, the spots as on the upperside, but more distinct. Fore wing with an additional large spot in area 2. Hind wing with a small white spot in apex of cell and five or six discal spots ; the post-discal spots sometimes wanting.

Expanse : ♂♀, 95–105 mm.

Form **arida** Fruhst.—♂♀. Smaller. *Upperside* with small white dots. *Underside* entirely without spots, except for the violet discal dots, which are also much reduced. Described from the Ruby Mines, Upper Burma, and supposed to represent a dry-season form.

Form **suffusa** Tytler.—♂♀. Fore wing upperside with apical area suffused with bluish streaks.

Habitat.—SIKKIM to the SOUTHERN SHAN STATES ; not rare but less frequent in Sikkim.

229 *b*. **Euplœa algea limborgii** Moore.

Euplœa limborgii, Moore, 1879 *a*, p. 823, pl. li, fig. 2 (♂, Upper Tenasserim).
Penoa limborgii, Moore, 1883 *a*, p. 30, fig. 7 (♂).
Euplœa limborgii, Marshall & de Nicéville, 1883, p. 89 ; Elwes & de Nicéville, 1887, p. 416 (Tavoy).
Penoa limborgii, Moore, 1890, p. 97, pl. 33, figs. 1, 1 *a*, *b*, *c* (♂♀).
Euplœa limborgii, Adamson, 1905, p. 159 (Tenasserim and Moulmein).
Euplœa deione limborgii, Bingham, 1905, p. 35 ; Fruhstorfer, 1910, p. 238 ; Evans, 1923, p. 524 ; *id.*, 1927, p. 59 ; Hulstaert, 1931, p. 124 ; Evans, 1932 *a*, p. 91.

♂♀. *Upperside* of fore wing usually without spots. Hind wing somewhat paler than in *deione* ; post-discal and submarginal spots pure white, the series complete; post-discal spots elongate ; submarginal spots with distal edges more or less truncate, inner edges rounded.

Habitat.—BURMA : Karen Hills to the Mergui Islands ; male not rare. Also in Siam.

229 *c*. **Euplœa algea ménétrièsii** C. & R. Felder.

Euplœa ménétrièsii, C. & R. Felder, 1860, p. 398 (Malaya) ; Marshall & de Nicéville, 1883, p. 87.
Penoa menetriesi, Moore, 1890, p. 95, pl. 32, figs. 1, 1 *a*, *b*, *c* (♂♀).
Euplœa deione menetriesi, Fruhstorfer, 1910, p. 238.
Euplœa deione menetriesii, Evans, 1932 *a*, p. 91.
Euplœa algea ménétrièsii, Talbot, 1943 *a*, p. 10 (♂, type from Malaya).

♂♀. *Upperside* much darker than in the two preceding subspecies and with only a weak blue sheen on the wings. Hind wing spots obscure, narrow, and elongate.

Habitat.—BURMA : The extreme south, extending to Malaya. Rare in Burma. There is a male in the British Museum from the Dawna Range.

Sylvester Group.

(*Stictoplœa* Butler, *Narmada* Moore).

♂♀. *Upperside* of fore wing in male with two prominent sex-brands in area 1*b*. Hind wing without a patch of androconia.

Underside of fore wing in the base of area 6, with a spot which is always more prominent than the spots in areas 5 and 4, when these are present.

The pattern of some species is very like that of species in the *Core* Group and females of these are not always easy to separate.

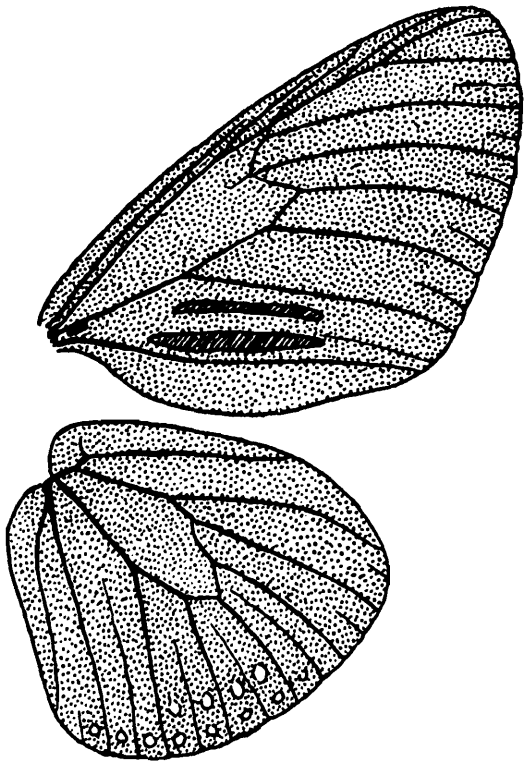


Fig. 28.—*Euplœa sylvester hopei* C. & R. Feld.
Venation of male.

Larva with three pairs of tentacles, those on segments 2 and 5 much the longer.

The group comprises only one species. Nominotypical *sylvester* (Fab.) comes from Northern Australia.

Four subspecies are found in the Indian area.

230 *a*. **Euplœa sylvester montana** C. & R. Felder.

Euplœa consimilis var. *montana*, C. & R. Felder, 1865, p. 330 (♂♀, Ceylon).

Narmada montana, Moore, 1880 *a*, p. 13, pl. vi, fig. 1 (♂); *id.*, 1883 *a*, p. 318.

Euplœa (*Stictoplœa*) *montana*, Marshall & de Nicéville, 1883, p. 91.

Narmada montana, Moore, 1890, p. 135, pl. 51, figs. 2, 2 *a* (♂♀).

Euplœa coreta montana, Bingham, 1905, p. 29; Fruhstorfer, 1910, p. 246.

Stictoplœa montana, Ormiston, 1918, p. 8.

Euplœa coreta montana, Evans, 1923, p. 524; Ormiston, 1924, p. 6; Williams, 1927, pp. 13, 14, 19 (migration); Evans,

1927, p. 59; Williams, 1930, pp. 164, 365, 366 (migration); Hulstaert, 1931, p. 138; Evans, 1932 *a*, p. 91; Peile, 1937, p. 82; Woodhouse & Henry, 1942, p. 39, pl. iii, figs. 5 (♂), 6 (♀).

Euplœa sylvester montana, Talbot, 1943 *a*, p. 9.

Euplœa lankana, Moore, 1877 *a*, p. 44 (♂, Ceylon).

♂♀. Darker than *coreta*. *Upperside* of fore wing with submarginal spots obsolete in the male, much darkened in the female.

Underside markings smaller than in *coreta*, closely resembles *E. core asela* Moore (p. 69). The recognizable points of difference between *asela* and *montana* are in both sexes the same as between *core* and *coreta*.

Habitat.—CEYLON, up to about 6,000 feet; common, especially in migratory flights.

230 *b*. **Euplœa sylvester coreta** (Godart). (Fig. 29, ♂).

Danais coreta, Godart, 1819, p. 178 (♂♀, East Indies).

Euplœa coreta, Davidson, Bell & Aitken, 1896, p. 241, pl. i, figs. 1, 1 *a* (larva, pupa) (North Kanara); Bingham, 1905, p. 29, fig. 10 (♂); Bell, 1909, pp. 55–6 (early stages); Evans, 1910, p. 381 (Palni Hills).

Euplœa coreta coreta, Fruhstorfer, 1910, p. 245; Evans, 1923, p. 524; *id.*, 1927, p. 59; Hulstaert, 1931, p. 138; Evans, 1932 *a*, p. 91; Peile, 1937, p. 82.

Euplœa sylvester coreta, Corbet, 1942, p. 263.

Euplœa coreoïdes, Moore, 1877 *a*, p. 44 (♂, Nilgiris).

Narmada coreoïdes, Moore, 1880 *a*, p. 13; *id.*, 1883 *a*, p. 318, pl. xxix, fig. 10 (♂).

Euplœa (*Stictoplœa*) *coreoïdes*, Marshall & de Nicéville, 1883, p. 90.

Euplœa (*Narmada*) *coreoïdes*, Taylor & de Nicéville, 1888, no. 11 (Orissa, rare).

Narmada coreoïdes, Hampson, 1889, p. 348 (Nilgiri Hills); Moore, 1890, p. 134, pl. 51, figs. 1, 1 *a* (♂♀).

♂♀. *Upperside* dark brown, paler over the distal areas. Fore wing with a submarginal series of yellowish-white spots in areas 1*b* to 7, and a series of similarly coloured antemarginal dots, in pairs in each area. Hind wing with two rows of yellowish-white spots as on the fore wing, those of the submarginal row elongate and paired in areas 1*b* to 3.

Underside markings as above. Fore wing with a spot in apex of cell and a series of six post-cellular spots.

♂. A pair of broad, parallel, silky brands on fore wing, in area 1*b*. In the female these brands are represented by faint markings on the *upperside* and by two white streaks on the *underside*.

Expanse: ♂♀, 85–95 mm.

This insect and the allied subspecies from Ceylon, closely resemble the forms of *core* (Cram.) inhabiting the same areas. The *core* forms are distinguished by the absence of post-cellular spots in areas 5 and 6 of fore wing underside and by the

female possessing only one white streak in area 1*b* of fore wing underside.

Habits and early stages (from *Bell*, 1909) :—

The egg is laid on the underside of a leaf ; the larva first eats the egg-shell, then takes to the leaf, living always on the underside. The larva is much attacked by hymenopterous parasites. It feeds on the Apocynaceous creeper, *Ichnocarpus frutescens* Br.

The butterfly is not common, even in its limited habitat in the hills of Southern India along the west coast, and is hardly seen at all in the dry months. It is fond of damp places and does not join in migrations.

Larva.—A pair of tentacles on segments 3, 4, and 12, those on segment 3 the longest and those on 12 the shortest ; these tentacles are dull indigo, straight, and much longer than in *E. core* (Cram.). Body smooth, with a greasy appearance,

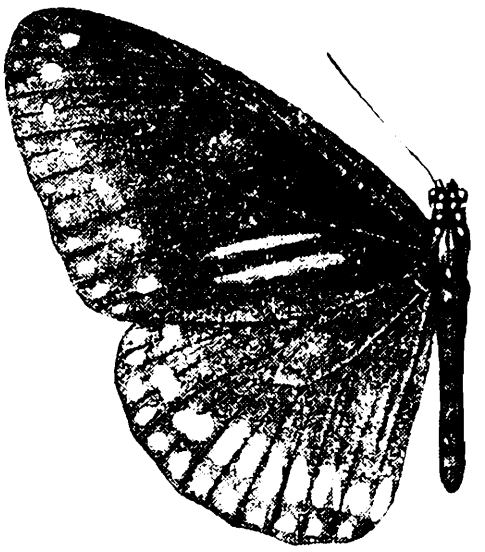


Fig. 29.—*Euplœa sylvester coreta* (Godt.), ♂.

ordinarily a light violet-green above, chocolate-green on the venter ; spiracles oval, black, shiny ; segments 3 and 4 always slightly yellowish dorsally ; a yellow spiracular line divides the venter from the dorsum, with a slight yellow shade around the spiracles ; segment 2 light yellow, with a shiny black subdorsal spot ; anal flap light yellow, with a large dorsal shiny black patch covering three-fourths of the segment ; extreme base of tentacles yellow ; legs shiny black. Length 39 mm. ; breadth, 6 mm. ; length of tentacles on segment 3, 14 mm., on segment 4, 9 mm., on segment 12, 6 mm.

Pupa.—Whole surface shiny and smooth, the colour of silver, with pale brown markings ; cremaster shiny black, with a small knob at the extremity and a lateral round tubercle at the base ; anal clasper-scars black. Length, 18·5 mm. ; breadth, at segment 7, 8·5 mm.

Habitat.—PENINSULAR INDIA ; not rare.

230 *c*. Euplœa sylvester hopei C. & R. Felder. (Fig. 28, venation).

Euplœa hopei, C. & R. Felder, 1865, p. 328 (♂, Assam).
Euplœa (*Stictoplœa*) *hopei*, de Nicéville, 1882, p. 55 (♀, Sikkim).
Stictoplœa hopei, Moore, 1883 *a*, p. 319.
Euplœa (*Stictoplœa*) *hopei*, Marshall & de Nicéville, 1883, p. 92, pl. ix, fig. 18 (♂♀, Sikkim).
Euplœa hopei, Elwes & Möller, 1888, pp. 302–3.
Stictoplœa hopei, Moore, 1890, p. 138, pl. 53, figs. 1, 1*a* (♂♀).
Euplœa harrisi hopei, Bingham, 1905, p. 30; Fruhstorfer, 1910, p. 246.
Euplœa hopei, Tytler, 1911, p. 49 (Naga Hills, common).
Euplœa harrisi hopei, Evans, 1923, p. 524; *id.*, 1927, p. 59; Tytler, 1939 *a*, p. 243 (intermediate forms).
Euplœa dufresne hopei, Hulstaert, 1931, p. 138.
Euplœa harrisi hopei, Evans, 1932 *a*, p. 91.
Stictoplœa binotata, Butler, 1878, p. 302 (♂, Silhet; ♀, Darjeeling); Moore, 1883 *a*, p. 319, pl. xxx, fig. 4 (♂).
Euplœa (*Stictoplœa*) *binotata*, Marshall & de Nicéville, 1883, p. 93; Wood-Mason & de Nicéville, 1887, p. 347 (Cachar).
Stictoplœa binotata, Moore, 1890, p. 138, pl. 53, figs. 2, 2*a* (♂♀).
Euplœa (*Stictoplœa*) *harrisii* f. *binotata*, Watson, 1897, p. 639 (Chindwin River).
Euplœa binotata, Adamson, 1905, p. 162 (Burma).
Euplœa harrisi hopei var. *binotata*, Bingham, 1905, p. 30; Fruhstorfer, 1910, p. 244, t. 82 *a* (♂).
Euplœa dufresne hopei f. *binotata*, Hulstaert, 1931, p. 139.
Stictoplœa microsticta, Butler, 1878, p. 302 (♂); Moore, 1883 *a*, p. 320.
Euplœa microsticta, Marshall & de Nicéville, 1883, p. 94 (Cachar).
Euplœa harrisi hopei var. *microsticta*, Bingham, 1905, p. 30; Fruhstorfer, 1910, p. 246 (♂, wet-season form).
Euplœa dufresne hopei f. *microsticta*, Hulstaert, 1931, p. 139.
Stictoplœa regina, Moore, 1883 *a*, p. 319 (♂, Cachar); *id.*, 1890, p. 140, pl. 53, fig. 3 (♂, Cachar).
Stictoplœa pygmæa, Moore, 1883 *a*, p. 320 (♂♀, Cachar); *id.*, 1890, p. 139, pl. 52, figs. 3, 3*a* (♂♀).
Euplœa pygmæa, Adamson, 1905, p. 162 (♀, Bhamo).
Euplœa harrisi hopei f. *pygmæa*, Fruhstorfer, 1910, p. 246 (dry-season form.)
Euplœa (*Stictoplœa*) *harrisi*, de Nicéville (*non* Felder), 1894 *a*, p. 119 (Sikkim).

♂♀. *Upperside* of fore wing, in addition to the submarginal and antemarginal spots as in *harrisii*, a spot in apex of cell, and a row of from two to seven discal spots. Hind wing with the submarginal and antemarginal spots reduced to two or three apical ones.

Underside of both wings with the submarginal and antemarginal spots reduced to dots, the former commencing below the apex and not reaching the tornus, the latter commencing at the tornus and not reaching the apex.

Various forms have been described, based on the number of discal spots on the fore wing and of spots on the hind wing. A name has been given also to small specimens. Whether any of these forms constitute seasonal broods is not certain, but if this is not the case, the names cannot be sustained.

Habitat.—SIKKIM and ASSAM, to the SOUTHERN SHAN STATES ; not rare. Specimens intermediate between *hopei* and *harrisii* are found in the Karen Hills where the two subspecies overlap.

230 *d.* **Euplœa sylvester harrisii** C. & R. Felder.

Euplœa harrisii, C. & R. Felder, 1865, p. 328 (♂, Cochin China).
Stictoplœa harrisi, Moore, 1883 *a*, p. 320, pl. xxx, fig 8 (♂).
Euplœa harrisii, Elwes & de Nicéville, 1887, p. 416.
Stictoplœa harrisi, Moore, 1890, p. 136, pl. 52, fig. 1 (♂ type), 1 *a* (♀).
Euplœa (*Stictoplœa*) *harrisii*, de Nicéville, 1892 *b*, p. 160 (part.).
Euplœa harrisii, Adamson, 1905, p. 161 (Moulmein and Tavoy).
Euplœa harrisi, Bingham, 1905, p. 30, pl. i, fig. 4 (♂).
Euplœa harrisi harrisi, Fruhstorfer, 1910, p. 246, t. 84 *b* (♂); Evans, 1923, p. 524 ; *id.*, 1927, p. 59.
Euplœa dufresne harrisii, Hulstaert, 1931, p. 139, pl. v, fig. 4 (♂).
Euplœa harrisi harrisi, Evans, 1932 *a*, p. 91.
Euplœa sylvester harrisii, Corbet, 1942, p. 263 ; Talbot, 1943 *a*, p. 9.
Euplœa grotei, C. & R. Felder, 1865, p. 339, pl. xli, fig. 7 (♀).
Stictoplœa grotei, Moore, 1879 *a*, p. 824 (Upper Tenasserim).
Euplœa (*Stictoplœa*) *grotei*, Marshall & de Nicéville, 1883, p. 91 (Mergui ; Upper Tenasserim).
Stictoplœa crowleyi, Moore, 1890, p. 138, pl. 52, fig. 2 (♂, Tenasserim).
Euplœa crowleyi, Adamson, 1905, p. 161 (Moulmein).
Euplœa harrisi var. *crowleyi*, Bingham, 1905, p. 30.
Euplœa harrisi harrisi ab. *crowleyi*, Fruhstorfer, 1910, p. 246.
Euplœa dufresne harrisii ab. *crowleyi*, Hulstaert, 1931, p. 139.

♂♀. *Upperside* dark velvety brown. Fore wing glossed with blue from base to outer margin ; a submarginal series of bright blue spots ; an antemarginal series of dots, not extending above veins 4 or 5. Hind wing only glossed with blue over the disc ; submarginal and antemarginal series of white spots, the latter smaller, and the series generally incomplete.

Underside dark umber-brown. Fore wing slightly glossed with blue over the disc ; markings as on upperside, but with the following additional spots on both wings :—A spot at apex of cell ; five to seven bluish-white discal spots, one or more being minute or absent.

Antennæ black ; head, thorax and abdomen dark brown, the head and thorax slightly and minutely spotted with white.

Expanse : ♂♀, 95–105 mm.

Form **crowleyi** (Moore).—*Upperside* of hind wing with only three anterior submarginal spots ; antemarginal spots absent.

Habitat.—BURMA : Dawna Range to Southern Burma ; Malaya, Siam and Annam ; not rare.

According to Tytler (1939, p. 243) two intermediate forms fly together equally commonly in the Karen Hills. One form resembles *harrisii* on the fore wing, the hind wing with smaller and less distinct post-discal spots. The second form resembles *hopei* C. and R. Felder on the fore wing, but the hind wing has the spots much more developed.

Mulciber Group (Trepsichrois *Hübn.*).

Wings narrow. Fore wing with blue gloss over the distal area. Female always with a Danaine-like pattern of white stripes on the hind wing, including the cell. Male with very characteristic scent patch on hind wings. This forms a large

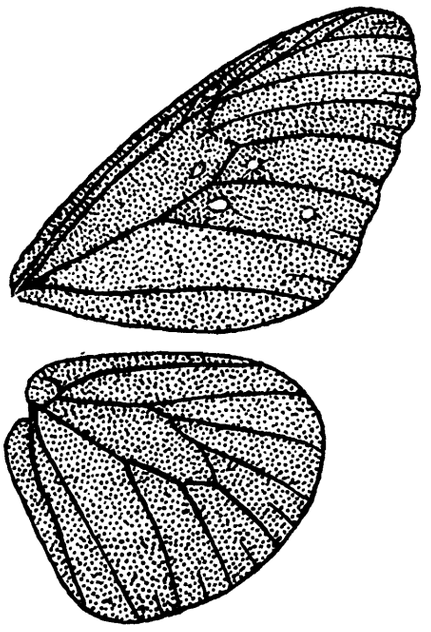


Fig. 30.—*Euplœa mulciber mulciber* (Cram.).
Venation of male.

dark area, including part of the cell and distal area from costa to vein 4, with a small yellow cell-spot. The androconia are filiform, with the apex clubbed and hairy. The hair-pencil is pale yellow and the odour of this organ is very repulsive to Man. Larva with four pairs of very long tentacles, on segments 2, 3, 5, and 11.

A single species, comprising several distinct subspecies, represents the group.

Euplœa mulciber (Cramer).

♂. *Upperside* dark brown. Fore wing with blue gloss, and usually marked with white spots. Hind wing unmarked.

♀. *Upperside* of fore wing with reduced blue, the white spots more prominent. Hind wing with linear white stripes in the cell and areas beyond the cell; a submarginal row of white spots or dots.

Larva.—"Cylindrical, with four pairs of long, fleshy, subdorsal filaments which have pink bases and black tips. Body pinkish-white with lateral yellowish blotches, the segments each divided by a black line, and anteriorly bordered by a narrow transverse pink band and purple-brown stripes; spiracles black; head with a dark red stripe in front and one on each side; fore legs black, middle and hind legs black, ringed with pink." (*Moore*, 1890, from the Javan subspecies).

Pupa.—" Short, thick across the middle; thorax concave behind; abdominal segments dorsally convex, metallic golden-brown with a darker brown anterior stripe." (*Moore*, 1890).

Habits.—Very fond of flowers, where they sit with the wings closed. Various Papilios and other butterflies are associated with *E. mulciber* as mimics. Fruhstorfer (1910) writes.—" Even specimens of the Nymphalid genus *Penthema* and some Papilios of the *paradoxus* group, which are much larger than the model, resemble *mulciber* on the wing to such a degree that they deceived me over and over again, and my Annamites and Japanese could not distinguish them at all."

The early stages do not appear to have been properly described, which is surprising considering the abundance of the species in India.

Distribution.—INDIA to Malaya, Tong-king, China, Formosa, Philippine Islands, Borneo, Sumatra and Java. A number of subspecies are known, and two occur in the Indian area.

231 *a*. **Euplœa mulciber mulciber** (Cramer). (Fig. 30, venation; fig. 31, ♀).

Papilio mulciber, Cramer, 1777, p. 45, pl. cxxvii, figs. C, D (East Indies).
Trepsichrois mulciber, Butler, 1878, p. 296.
Euplœa mulciber, Bingham, 1905, pp. 45, 46, pl. i, fig. 6 (♂); Kershaw, 1907, pp. 11, 12, pl. ii, figs. 4 (♀), 5 (♂), pl. 1 *a*, fig. 4 (larva).
Euplœa mulciber mulciber, Fruhstorfer, 1910, p. 249.
Euplœa mulciber, Hannyngton, 1910, p. 133 (Kumaon, 3,000–4,000 feet); Tytler, 1911, p. 50 (Naga Hills, up to 6,000 feet).
Trepsichrois mulciber, South, 1913, p. 353 (Mishmi Hills, 3,000–4,000 feet).
Euplœa mulciber, Eltringham, 1915, pp. 170–173, pl. xx, figs. 30–34 *b* (scent-organs); Ellis, 1917, p. 105 (Pegu Yoma).
Euplœa mulciber mulciber, Evans, 1923, p. 521; *id.*, 1927, p. 57; Hulstaert, 1931, pp. 145–146; Evans, 1932 *a*, p. 89, pl. x, fig. C 3.1 (♀); Gough, 1935, p. 261 (Nepal); Peile, 1937, p. 81; Corbet, 1942, pp. 261, 264, fig. 14 (♂ androconial scale).
Papilio midamus, Linnæus (*non* Linn., 1758), 1764, p. 251.
Euplœa midamus, Moore, 1865 *a*, p. 761 (Bengal).
Trepsichrois midamus, Moore, 1879 *a*, p. 823 (Upper Tenasserim).
Euplœa (*Trepsichrois*) *midamus*, de Nicéville, 1881, p. 49 (Sikkim); *id.*, 1882, p. 55 (Sikkim); Marshall & de Nicéville, 1883, p. 74, pl. viii, fig. 13 (♂♀, Assam).
Euplœa midamus, Doherty, 1886 *a*, p. 114 (Kumaon); *id.*, 1886 *b*, p. 256 (♀, Nicobars); Elwes & Möller, 1888, p. 301.
Trepsichrois mulcibra, Hübner, 1816, p. 16.
Trepsichrois linnæi, Moore, 1883 *a*, p. 286, pl. xxix, fig. 4 (♀), pl. xxx, fig. 1 (♂).
Euplœa linnæi, Elwes & de Nicéville, 1887, p. 416 (Tavoy).
Euplœa (*Trepsichrois*) *linnæi*, Wood-Mason & de Nicéville, 1887, p. 345 (Cachar).
Trepsichrois linnæi, Moore, 1890, p. 100, pl. 35, fig. 1 (larva, pupa, Java), 1 *a*, *b* (♂♀).

Euplœa (*Trepsichrois*) *linnæi*, de Nicéville, 1894 *a*, p. 118 (Sikkim); MacKinnon & de Nicéville, 1897, p. 214 (Mussoorie); Watson, 1897, p. 638 (Upper Chindwin & Chin Hills); de Nicéville, 1898, p. 131, pl. x, figs. 3, 4 (♂, aberr. Sikkim); Adamson, 1905, p. 160 (Burma).

Trepsichrois vandeventeri, Butler (*non* Forbes), 1885 *a*, p. 300 (near Assam).

Euplœa mulciber var. *duarseri*, de Rhé-Philipe, 1910, p. 754 (Sikkim).

♂. *Upperside* dark brown, entirely glossed with brilliant blue and marked with violescent white spots; a spot in the apex of cell; a much curved series of five or six post-discal spots; a submarginal sinuous row of larger spots, and an incomplete antemarginal series of dots. Hind wing unmarked except for the light brown scent-patch.

♀ *Upperside* lighter brown than the ♂, the fore wing only glossed with blue on the disc; spots white and more or less

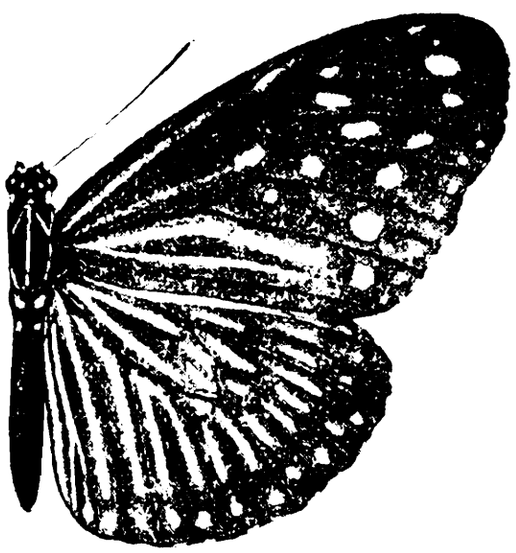


Fig. 31.—*Euplœa mulciber mulciber* (Cram.), ♀.

similar to those on the fore wing of the ♂, but larger and pure white; in addition a streak in the cell and another curved streak in area 1*b* showing through faintly from the underside. Hind wing with narrow white streaks in the cell and in the areas beyond; a submarginal row of slightly elongate white spots.

♂♀. *Underside* similar to the upperside, but the markings broader, larger and more distinct; male also with a small white spot in apex of cell, two or three discal spots, and incomplete submarginal and antemarginal series of white dots.

Antennæ, head, thorax and abdomen dark velvety brown, the abdomen glossed with greenish-blue above; beneath, the head and thorax spotted, the abdomen transversely banded with white.

Expanse: ♂♀, 90–100 mm.

Habitat.—SIMLA to BURMA; common. According to Mac-Kinnon and de Nicéville (1897), the insect is rare at Mussooree. Peile (1937) notes taking a few in a garden at Fatehgarh, United Provinces. Common in Kumaon up to 4,000 feet and in Nepal from August to October, to about 4,500 feet; in the Naga Hills to 6,000 feet, in the Mishmi Hills to 4,000 feet, in the Chin Hills to over 5,000 feet. Doherty (1886 *b*) records a female from Bompoka Island in the Nicobars, and stragglers have been noted from the Andaman Islands. An aberration, with abnormal venation and pattern, is figured by de Nicéville (1898).

The subspecies extends to China, Tong-king and Malaya.

231 *b*. **Euplœa mulciber kalinga** Doherty.

Euplœa (*Trepsichrois*) *kalinga*, Doherty, 1886 *b*, p. 256 (Ganjam District, Madras).
Trepsichrois kalinga, Moore, 1890, p. 104.
Euplœa mulciber var. *kalinga*, Bingham, 1905, p. 46.
Euplœa mulciber kalinga, Fruhstorfer, 1910, p. 250; Evans, 1923, p. 521; *id.*, 1927, p. 57; *id.*, 1932 *a*, p. 89; Hulstaert, 1931, p. 146; Peile, 1937, p. 81.

♂. *Upperside* of fore wing less blue than in the nomino-typical race, the spots larger and whiter. Hind wing with smaller scent-patch.

♀. Similar to the male. Hind wing with a series of obscure antemarginal whitish dots; a few pale streaks faintly visible in the anterior areas, but the cell quite immaculate.

Habitat.—MADRAS PRESIDENCY: Eastern Ghats. Doherty (1886 *b*) says, "I found this butterfly common on Mahendragiri and other mountains of the Ganjam District and in the Potinga Pass and the neighbouring country in the Vizagapatan District, Madras Presidency, and in the adjoining native State of Jaipur. I also saw a specimen flying in Orissa, near the southern boundary of that Province."

The insect is rare in collections. Bingham (1905) speaks of examining a "single female in Mr. Elwes's Collection, now in the British Museum." Neither this specimen nor any others are at present in the Museum General Collection. When the mass of material in the Oberthür Collection can be sorted, perhaps the insect will be found, as Doherty sent many things to the late Charles Oberthür. So far, the author has never seen an example of this subspecies. The same remark applies to a subspecies of *Delias* described by Doherty from the same locality.

A male and female of *kalinga*, not examined by the author, are in the Hope Dept. of Entomology, Oxford. These bear a label: "E. Ghats, Godavari Malialis, above Godavari River, May, 1908 (Hearsey)."

Tulliolus Group. (*Calliplœa* Butl.).

This group is sufficiently characterized in the key on page 58. According to Corbet (1942, pp. 255–6) four species may be recognized, all closely allied and forming a single species-complex. Only one species is found within Indian limits.

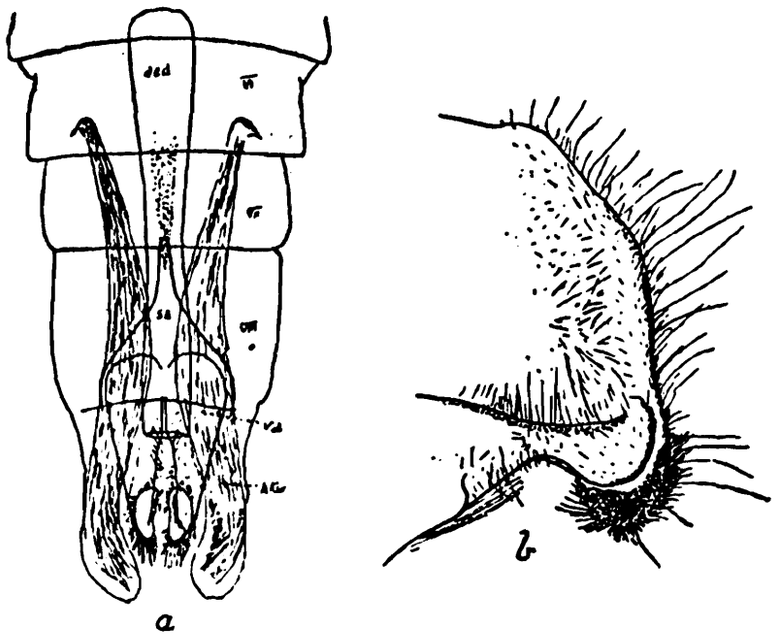


Fig. 32.—*Euplœa tulliobus mazares* (Moore), ♂.
a, abdomen, ventral view, showing position of scent-brushes; *b*, valve. (After *Roepke*, 1936).

Euplœa tulliolus (Fabricius, 1793).

A very variable species with a wide distribution, and comprising a variety of forms some of which, as *mazares* Moore for example, were thought to represent distinct species. It seems best to unite these forms in one geographical series, and future research will show whether more than one species is included.

♂♀. *Upperside* of fore wing glossed with blue, more strongly in the male; a submarginal series of bluish-white spots, the anterior ones usually larger. Hind wing with or without submarginal spots and usually three rounded anterior ones.

Underside with the spots purer white. Both wings with a row of antemarginal dots, and a curved series of submarginal spots.

Distribution.—Formosa and China to the Philippines, Australia, New Guinea, and the Pacific. One subspecies in the Indian area.

232. Euplœa tulliolus ledereri C. & R. Felder. (Fig. 33, venation).

Euplœa ledereri, C. & R. Felder, 1860, p. 397 (♂, Malacca); *id.*, 1865, p. 317, t. xl, figs. 5, 6 (♂); Moore, 1883 *a*, pp. 292, 302.

Euplœa (*Calliplœa*) *ledereri*, Marshall & de Nicéville, 1883, p. 73.
Calliplœa ledereri, Moore, 1890, p. 105, pl. 36, figs. 1, 1 *a*, *b*, *c* (♂♀).
Euplœa ledereri, Bingham, 1905, p. 28.
Euplœa mazares ledereri, Fruhstorfer, 1910, p. 252; Evans, 1923, p. 152; *id.*, 1927, p. 58.
Euplœa tulliolus ledereri, Hulstaert, 1931, p. 159.
Euplœa mazares ledereri, Evans, 1932 *a*, p. 91.
Euplœa tulliolus ledereri, Talbot, 1943 *a*, p. 9.
Euplœa inquinăta, Butler, 1866 *a*, pp. 288, 291, fig. 2 (♂).

♂♀. Hind wing in both sexes with costa strongly arched. *Upperside* of fore wing silky brown, in male glossed with blue, in female with dull purple on the anterior half; a spot in the lower angle of cell; post-discal spots in areas 4, 6, and 10; a submarginal series of six or seven spots, the anterior two generally large, coalescent and blurred. Hind wing olive-brown, darker over the disc in the male.

Underside silky brown, the spots as on upperside, but white; male with submarginal series on fore wing incomplete, with

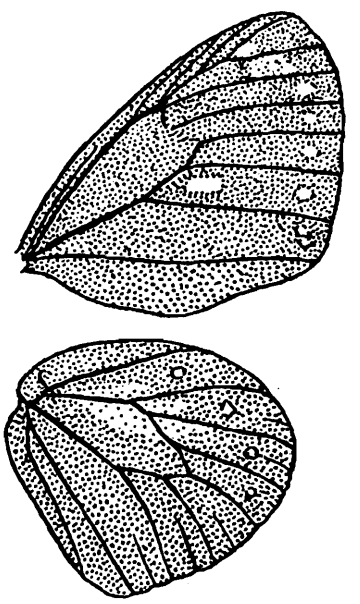


Fig. 33.—*Euplœa tulliolus ledereri* C. & R. Feld. Venation of male.

two or three antemarginal dots; female with both series complete. Hind wing with usually complete series of submarginal and antemarginal spots.

Antennæ, head, thorax, and abdomen dark brown; underside of head, thorax, and abdomen barred with white.

Expanse: ♂♀, 70–80 mm.

Habitat.—Southern Burma and Mergui Islands, extending to Malaya; rare in Burma.

Phænareta Group.

(*Euplœa* Fabr., *Macroplœa* Butl.).

Species of larger size than those of the preceding group. Fore wing without a sex-patch; cell without a recurrent vein,

or this vestigal ; *udc* well marked. Hind wing of male, on upperside, with a large, dull, patch of androconia, more or less extended, in and over the anterior edge of the cell ; costal area greyish-white. The venation is shown in fig 19.

Larva with three pairs of tentacles.

The group comprises a single species *phænareta* (Schaller) of which three subspecies occur in the Indian area.

233 *a*. **Euplœa phænareta corus** (Fabricius). (Figs. 19, venation ; 20, genitalia ; 34, larva and pupa).

Papilio corus, Fabricius, 1793, p. 41 (♀, Ceylon).
Euplœa corus, Moore, 1883 *a*, p. 289 ; *id.*, 1890, p. 107, pl, 37. figs. 1 (larva and pupa), 1*a*, *b* (♂♀) ; Bingham, 1905, p. 27.
Euplœa corus corus, Fruhstorfer, 1910, p. 258.
Euplœa corus, Ormiston, 1918, p. 7 (South-west Ceylon).
Euplœa corus corus, Evans, 1923, p. 152 ; Ormiston, 1924, p. 5 ; Evans, 1927, p. 57 ; Hulstaert, 1931, p. 158 ; Evans, 1932 *a*, p. 91, pl. xi, fig. C3.13 (♀) ; Woodhouse & Henry, 1942, p. 40. pl. ii, figs. 6 (♂), 7 (♀).
Euplœa phænareta corus, Corbet, 1942, p. 265.
Euplœa elisa, Butler, 1866 *a*, p. 270 (♂♀, Ceylon) ; Moore, 1880 *a*, p. 9, pl. v, figs. 2 (♂), 2*a* (♀) ; Marshall & de Nicéville, 1883, p. 72, pl viii, fig. 14 (♂).

♂♀. *Upperside* golden olive-brown, the lower portion of both wings shaded with fuscescent purple. Fore wing with a spot



Fig. 34.—*Euplœa phænareta corus* (Fabr.). Larva and pupa. (After *Moore*, 1890).

in apex of cell ; two post-discal spots ; a more or less incomplete submarginal and antemarginal series of white spots. Hind wing with a faintly marked spot in apex of cell ; a very incomplete submarginal and antemarginal series of white spots, varying from two or three in the submarginal and none in the antemarginal, to six or seven in each series. ♀, in addition, with some faintly defined discal spots.

Underside similar, the spots better defined. Antennæ, head and abdomen dark brown, the abdomen glossed with blue above ; palpi, thorax beneath, and legs spotted with white.

Expanse : ♂♀, 110–130 mm.

♂ *genitalia* (fig. 20).—Uncus vestigial. Side lobes minute. Tegumen (ixth tergite), on its dorsal side, with a weakly sclerotized, irregularly shaped, flexible process of moderate length,

here termed the *caudula*; this process tapers gently, and its free end lies close to the ædeagus. Valve large and slipper-shaped, its apex forming a rounded prominence, the ventral edge here being widely thickened. Harpe long and narrow, anteriorly more strongly sclerotized where, at apex of valve, it is rounded with its dorsal edge dentate. Ædeagus with a prominent patch of cornuti on its ventral side.

Larva.—Cylindrical; light brown, with slight purplish sheen, and a paler supraspiracular region; segments with dark brown stripes; head and legs dark brown; three pairs of tentacles, reddish with black tips.

Pupa.—Broad; thorax uneven, silvery grey, with golden-brown bands; abdominal segments dorsally convex, spotted with brown.

Habitat.—CEYLON; not rare. According to Ormiston (1918) it does not appear to occur far inland and is scarce at Colombo and Galle.

233 *b*. **Euplœa phænareta vitrina** Fruhstorfer.

Macroplœa corus vitrina, Fruhstorfer, 1898, p. 190 (♂♀, Lower Burma); *id.*, 1910, p. 258, t. 79 *a* (♂); Evans, 1932 *a*, p. 91 (Bassein).

♂♀. *Upperside* of fore wing with a pale violet suffusion over the apical area above vein 4, sometimes extending into the cell. The violet area is paler in the female, and on the *underside* it is almost white.

There is some variation in the extent and density of the violet suffusion, and in the female the extent of this suffusion over the cell and below vein 5 is also variable.

Habitat.—BURMA: only at Bassein; rare. The British Museum contains 10 ♂ and 15 ♀, including the types; of these 4 ♂ and 11♀ were collected at Bassein, chiefly by Archbald. One of these males agrees with *phœbus* Butl., and another is transitional between *phœbus* and *vitrina*. Hulstaert (1931, p. 159, note) refers to *vitrina* having been taken in Cochin China, with *phœbus* and a transitional specimen.

233 *c*. **Euplœa phænareta phœbus** Butler.

Euplœa phœbus, Butler, 1866 *a*, p. 270 (♂, Moulmein; ♀, Penang).

Euplœa (*Macroplœa*) *phœbus*, Wood-Mason & de Nicéville, 1881 *a*, p. 226 (♂, Car Nicobar).

Euplœa phœbus, Moore, 1883 *a*, p. 289; *id.*, 1890, p. 109, pl. 38, figs. 1, 1*a* (♂♀); Bingham, 1905, p. 27.

Euplœa corus phœbus, Fruhstorfer, 1910, p. 258; Evans, 1932 *a*, p. 91.

Euplœa castelnaui, C. & R. Felder, 1865, p. 315 (♀, Malacca); Distant, 1882 *a*, p. 24, pl. ii, fig. 6 (♀); Wood-Mason & de Nicéville, 1882, p. 15 (Car Nicobar; Mergui); Marshall & de Nicéville, 1883, p. 72; Adamson, 1905, p. 160.

♂♀. Differs from *corus* in the spots on both wings being

larger, more blurred and dusky-white, the centres of these often purer white. Fore wing with the series of post-discal and submarginal spots more complete; the anterior submarginal spots much larger, especially the one in area 6. Hind wing with inner area darker and without spots.

Underside with the white spots larger and better defined. Hind wing with complete series of post-discal and submarginal spots.

Habitat.—BURMA: Moulmein to Southern Burma; NICOBAR ISLANDS, Siam, and Malaya. Rare, the female more plentiful than the male.

Midamus Group.

(*Salpinx* Hübn., *Isamia* Moore, *Danisepa* Dist., *Pademma* Moore).

♂♀. Fore wing cell with or without a recurrent vein; *udc* developed; ♂ with a patch of androconia below vein 2. Hind wing cell relatively short; ♂ with a large, dull, yellow patch

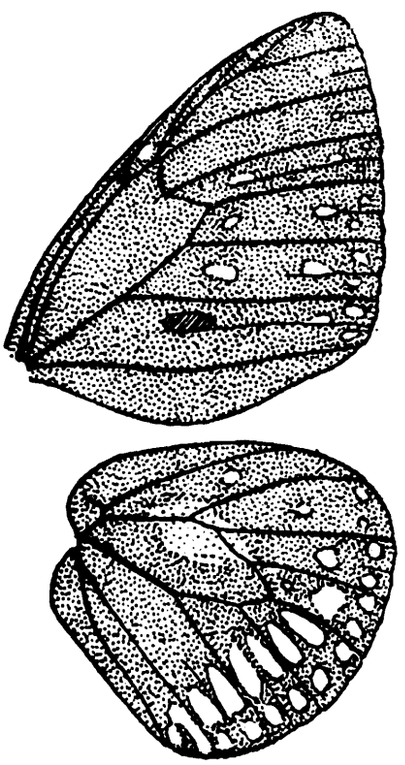


Fig. 35.—*Euplœa klugii sinhala* Moore.
Venation of male.

of androconia in the cell and over its upper edge; costal area smoothly scaled and grey-white.

Anal stylus with two hair-pencils or rosettes, grey or light yellow.

Larva with four pairs of tentacles.

Key to Indian Species and some Subspecies.

1.	Fore wing upperside, with the brand pale blue, the wing glossed with blue	2.
	Fore wing upperside with the brand brown . .	3.
2.	Fore wing upperside, with large white cell-patch which reaches the costa.	[(Fabr.), p. 103. *diocletianus.*
	Fore wing upperside, without a white cell-patch; blue post-discal spots	[Gmel., p. 102. *leucostictos*
3.	Fore wing upperside, with brand short, about 5 mm., long.	4.
	Fore wing upperside, with brand about 10 mm. long	[(Linn.), p. 91. *midamus*
4.	Upperside with a blue gloss	*klugii klugii* [Moore, p. 95.
	Upperside without a blue gloss	5.
5.	Upperside dark brown. Fore wing without a cell-spot or post-cellular spots	6. [p. 94.
	Upperside pale brown. Fore wing with a cell-spot and post-cellular spots . .	[*storffi* (Moore, *midamus roep-*
6.	Forewing upperside, with the antemarginal spots obsolete; submarginal spots small and regular.	[Moore, p. 99. *klugii sinnala* [p. 99.
	Fore wing upperside, with antemarginal spots well marked; submarginal spots larger and regular.	[C. & R. Feld., *klugii kollari*
	Fore wing upperside, with the antemarginal spots obsolete posteriorly; submarginal spots enlarged anteriorly, and coalescent; discal spots often present	[p 101. [C. & R. Feld., *klugii erichsonii*

Euplœa midamus (Linnæus), 1758.

A very variable species. It is distinguished from the others in this group by the male brand on the fore wing being longer, about 10 mm., in length. In most forms the fore wing is suffused with brilliant blue, the markings variable and similar to those of allied species. Hind wing with usually only a discal blue sheen, and with the usual markings of the group.

The nominotypical subspecies comes from Hong Kong and Southern China. This has little blue on the wings and more resembles the southern subspecies.

The anal hair-pencils of the male consist of two rosettes, one with a long stalk and several long radiating hairs, the other small and delicate.

The larva feeds on *Strophanthus divergens* R. Graham, a climbing plant of the family Apocynaceæ. It is occasionally also found on imported oleander. Pupa golden.

The butterfly is very abundant in Hong Kong, where it may be observed in swarms round the tops of flowering trees.

Distribution.—NEPAL to ASSAM, BURMA, Malaya and Indo-China, Hainan and Hong Kong. Three subspecies in the Indian area.

234*a*. Euplœa midamus rogenhoferi C. & R. Felder. (Fig. 36, ♂).

Euplœa rogenhoferi, C. & R. Felder, 1865, pp. 325–6 (♂, "India sept.", *recte* Assam).
Euplœa (*Salpinx*) *rogenhoferi*, de Nicéville, 1882, p. 55 (♂, Sikkim); Marshall & de Nicéville, 1883, p. 60.
Euplœa (*Isamia*) *rogenhoferi*, Wood-Mason & de Nicéville, 1887, p. 347 (Cachar).
Euplœa rogenhoferi, Elwes & Möller, 1888, p. 300 (Sikkim).
Euplœa (*Isamia*) *rogenhoferi*, de Nicéville, 1894 *a*, p. 119 (Sikkim, very rare); Watson, 1897, p. 639 (♂, Chin Hills).
Euplœa rogenhoferi, Adamson, 1905, p. 161 ("Arracan Hill Tracts").
Euplœa midamus rogenhoferi, Talbot, 1943 *a*, p. 9 (♂ type from Assam).
Euplœa splendens, Butler, 1866, p. 272 (♂, Nepal).
Isamia splendens, Moore, 1883 *a*, p. 311, pl. xxx, fig. 3 (♂); *id.*, 1890, p. 128, pl. 48, figs. 1 (♂, Darjeeling), 1*a*, (♂, type of *irawada*), 1*b* (♀, Bassein), 1c (♂ var., Rangoon).
Euplœa splendens, Bingham, 1905, p. 43; Hannyngton, 1910, p. 133.
Euplœa midamus splendens, Fruhstorfer, 1910, p. 270.
Euplœa splendens, Tytler, 1911, p. 49 (Naga Hills).
Euplœa midamus splendens, Evans, 1923, p. 252; *id.*, 1927, p. 58; Hulstaert, 1931, p. 182; Evans, 1932 *a*, p. 93; Tytler, 1939 *a*, p. 243.
Euplœa irawada, Moore, 1877 *a*, p. 45 (♂, Rangoon).
Isamia irawada, Moore, 1883 *a*, p. 311.
Euplœa (*Salpinx*) *irawada*, Marshall & de Nicéville, 1883, p. 61.
Isamia irawada, Butler, 1885 *a*, p. 300 ("near Assam").
Euplœa midamus splendens ♂ f. *irawada*, Fruhstorfer, 1910, p. 270.
Isamia noblei, Swinhoe, 1916, p. 480 (♂, Rangoon).
Euplœa midamus brahma ab. *noblei*, Hulstaert, 1931, p. 182.
Isamia splendens. Butl., var., Moore, 1890, pl. 48, fig. 1c (♂) (= *noblei* Swinh.).

♂♀. *Upperside* dark velvety brown. Fore wing glossed entirely with brilliant blue; a cell-spot; a post-cellular series of violaceous spots in areas 2 to 6, 9 and 10, these sometimes centred with white; a submarginal curved row of six white spots; an antemarginal series, sometimes obsolescent, of six or seven white dots. Hind wing with paler ground-colour; a submarginal and an antemarginal series of white spots, nearly complete, but often faint and obsolescent, not reaching the tornus.

Underside rich umber-brown. Fore wing with discal area darker; discal spots reduced to a violaceous spot in area 2, and a small costal spot; antemarginal dots more numerous than on upperside. Hind wing darker in the proximal area; markings as on upperside with, in addition, five post-cellular spots.

Antennæ, head, thorax and abdomen dark velvety brown; a few white spots on the head and thorax.

Expanse: ♂♀, 95–105 mm.

Variation.—The blue on the fore wing varies in intensity from a bright to a dark blue. The spots vary in number and

size and are sometimes almost all absent. The hind wing has the submarginal spots sometimes absent. Specimens with the fore wing very dark blue, and spots more rounded, are called form **irawada** Moore. Those in which the fore wing markings are absent or vestigial are called form **noblei** (Swinh.).

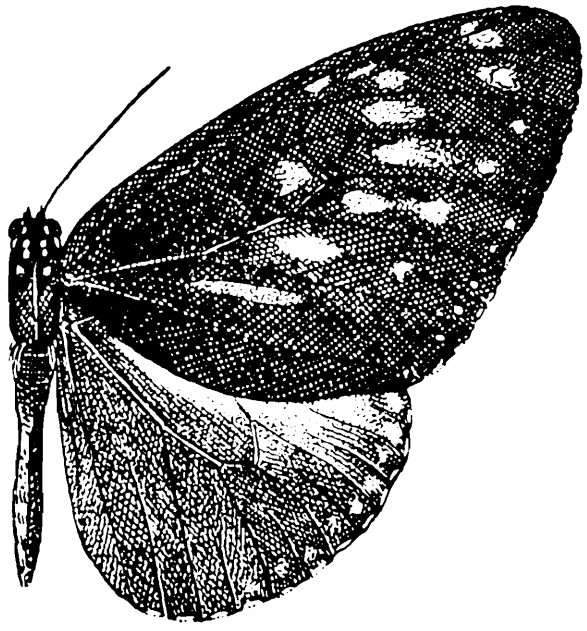


Fig. 36.—*Euplœa midamus rogenhoferi* C. & R. Feld., ♂.

Habitat.—SIKKIM to BURMA (Karen Hills). Not common and rare in Sikkim and Assam. It is doubtful if it occurs in Nepal.

234 *b*. **Euplœa midamus chloë** (Guérin).

Danais chloë, Guérin, 1843, p. 71 (Indo-China).
Isamia chloë, Moore, 1883 *a*, p. 315, pl. xxix, fig. 7 (♂).
Euplœa chloë, Marshall & de Nicéville, 1883, p. 66.
Euplœa midamus chloë, Fruhstorfer, 1910, p. 270, t. 84 *a*; Hulstaert, 1931, p. 181.
Euplœa margarita, Butler, 1866, p. 279 (♂, Moulmein).
Salpinx margarita, Moore, 1879 *a*, p. 823 (Upper Tenasserim).
Isamia margarita, Moore, 1883 *a*, p. 313, pl. xxx, fig. 5 (♂).
Euplœa margarita, Marshall & de Nicéville, 1883, p. 62.
Isamia margarita, Moore, 1890, p. 129, pl. 49, figs. 1, 1 *a*, *b* (♂), 1 *c*, *d* (♀).
Euplœa margarita, Adamson, 1905, p. 161 (Moulmein).
Euplœa midamus margarita, Tytler, 1939 *a*, p. 244 (Moulmein and Dawna Hills).
Euplœa adamsoni, Marshall, in Marshall & de Nicéville, 1880, p. 245 (♂, Moulmein).
Isamia brahma, Moore, 1883 *a*, p. 314 (♂, "Hatsiega, Tenasserim"); *id.*, 1890, p. 131, pl. 50, fig. 2 (♂).
Euplœa chloë chloë f. *brahma*, Fruhstorfer, 1910, p. 270 (dry-season form).
Euplœa midamus brahma, Evans, 1923, p. 523; Hulstaert, 1931, p. 131; Evans, 1932 *a*, p. 93.
Isamia eclecta, Swinhoe, 1917, pp. 331–2 (♂, "Palone, Burma").
Euplœa midamus brahma ab. *eclecta*, Hulstaert, 1931, p. 182.

♂♀. Differs from *rogenhoferi* C. and R. Feld., in having

the fore wing only suffused with blue for its proximal two-thirds ; a spot in apex of cell ; post-cellular spots in areas 2, 3, and 10 ; posterior antemarginal dots ; these markings sometimes entirely absent or obsolescent. Hind wing with complete series of antemarginal and submarginal spots.

Underside with the spots more numerous than above.

Variation.—The names *brahma* Moore and *adamsoni* Moore, relate to insignificant variations. The name **eclecta** (Swinh.) can be used to denote a form in which the spots on the hind wing are obscured or dusky.

Habitat.—KAREN HILLS to SOUTHERN BURMA, Malaya, Tong-king and Siam. Not rare, except in Karen Hills. Also occurs as a straggler on the CENTRAL NICOBAR ISLANDS.

234 *c*. **Euplœa midamus roepstorffi** Moore).

Tiruna roepstorffi, Moore, 1883 *a*, p. 316, pl. xxxii, fig. 8 (♂, Andamans) ; *id*., 1890, p. 133, pl. 50, fig. 3 (♂).
Euplœa roepstorfi (sic), Bingham, 1905, p. 44.
Euplœa roepstorffi, Fruhstorfer, 1910, p. 268.
Euplœa klugii roepstorfii (sic), Evans, 1923, p. 522 ; *id*., 1927, p. 58.
Euplœa roepstorffi, Hulstaert, 1931, p. 177.
Euplœa roepstorfii (sic), Evans, 1932 *a*, p. 92.
Euplœa midamus roepstorffi, Corbet, 1942, p. 265.

♂. Closely resembles *E. andamanensis* Atks., in ground-colour and pattern of markings, but the former is of a more bronze-brown and slightly darker. The brand is short and very thin. *Upperside* of fore wing with a cell-spot ; a row of five post-discal spots, the lower three, in areas 2 to 4, placed in an oblique line, the two anterior ones, with a small costal spot, forming a line at right angles to the costa ; a submarginal row of six spots, the anterior three in a subapical position, the spot in area 3 placed close to the post-discal one, the spot in area 2 larger, and the one below this linear and placed more distad ; an antemarginal row of very small spots in areas 1*b* to 6. Hind wing with a small cell-spot ; two small post-discal spots in areas 4 and 5 ; a submarginal row of larger spots, the anterior three single in areas 4 to 6, the posterior ones elongate, in pairs ; an antemarginal row of small spots.

Underside ground-colour paler and markings much as on the upperside, all spots being sharply defined.

Antennæ, head, thorax, and abdomen darker brown, the head, thorax, and abdomen spotted and marked with white.

♀. Upperside colouring and markings as in male, but fore wing spots usually more prominent.

Expanse : ♂♀, 95–100 mm.

Habitat.—SOUTH ANDAMAN ISLANDS ; very rare, occurs chiefly in April and May.

The type male is in the Calcutta Museum. The collection of Colonel Ferrar contains 8 males and 4 females of this rare species.

Euplœa klugii Horsfield & Moore.

A very variable species with a number of named forms which at one time were thought to be distinct species.

Allied to *leucostictos* Butl., but the brand on the fore wing is not scaled with blue, and antemarginal dots are usually present. The fore wing upperside is usually brown, but sometimes entirely blue; submarginal spots prominent; often two or more post-discal streaks and sometimes a cell-spot. Hind wing with submarginal and antemarginal spots, the former sometimes elongate or placed in a post-discal position.

Early stages (see *kollari* C. & R. Feld.).

Distribution.—CEYLON, PENINSULAR INDIA, SIKKIM and Eastern BENGAL to BURMA, Malaya, Siam, and Indo-China. Four subspecies in the Indian area.

235 *a*. **Euplœa klugii klugii** Horsfield & Moore. (Figs. 37–39, ♂; 40, ♀).

Euplœa klugii, Horsfield & Moore, 1857, p. 130 (♂, Bengal; ♀, Cherrapunji).
Salpinx klugii, Butler, 1878, p. 294.
Pademma klugi, Moore, 1883 *a*, p. 305, pl. xxxii, fig. 1 (♂).
Euplœa (*Salpinx*) *klugii*, Marshall & de Nicéville, 1883, p. 64.
Euplœa (*Pademma*) *klugii*, Wood-Mason & de Nicéville, 1887, p. 346 (Cachar).
Euplœa klugii, Elwes & Möller, 1888, p. 301.
Pademma klugii, Moore, 1890, p. 117, pl. 42, figs. 1, 1*a* (♂♀, types).
Euplœa klugii, de Nicéville, 1892 *a*, pp. 240–244.
Euplœa (*Pademma*) *klugii*, de Nicéville, 1894 *a*, p. 119 (Sikkim, very rare); Watson, 1897, p. 638 (Upper Chindwin).
Euplœa klugii, Bingham, 1905, pp. 39–41, figs. 13, 14 (fore wing variations) (part.).
Euplœa klugii klugii, Fruhstorfer, 1910, p. 270.
Euplœa klugii, Tytler, 1911, p. 49 (Naga Hills).
Euplœa klugii klugii, Evans, 1923, p. 522; *id.*, 1927, p. 58.
Euplœa leucostictos klugii, Hulstaert, 1931, p. 166.
Euplœa klugii klugii, Evans, 1932 *a*, p. 92; Corbet, 1942, p. 265.
Salpinx illustris, Butler, 1878, p. 294 (♂, Sylhet).
Pademma illustris, Moore, 1883 *a*, p. 307.
Euplœa (*Salpinx*) *illustris*, Marshall & de Nicéville, 1883, p. 66 (Sylhet).
Pademma klugii var. *illustris*, Moore, 1890, p. 119, pl. 43, fig. 1 (♂, type), 1 *a* (♀, Burma); Bingham, 1905, p. 41; Fruhstorfer, 1910, p. 270.
Euplœa leucostictos klugii f. *illustris*, Hulstaert, 1931, p. 166.
Salpinx grantii, Butler, 1879 *a*, p. 2 (♀, Cachar).
Pademma granti, Moore, 1883, p. 306.
Euplœa (*Salpinx*) *grantii*, Marshall & de Nicéville, 1883, p. 65.
Pademma klugii (part.), Moore, 1890, pl. 42, fig. 1 *b* (♀, type of *grantii*).
Euplœa leucostictos klugii f. *grantii*, Hulstaert, 1931, p. 166.
Pademma augusta, Moore, 1883 *a*, p. 306 (♂, Assam).
Pademma klugii var. *augusta*, Moore, 1890, p. 118, pl. 42, fig. 2 (type ♂), fig. 2 *a* (♀, type of *dharma*).
Euplœa klugii var. *augusta*, Bingham, 1905, p. 41.
Euplœa klugi f. *augusta*, Fruhstorfer, 1910, p. 271.
Euplœa leocostictos klugii f. *augusta*, Hulstaert, 1931, p. 166.
Pademma dharma, Moore, 1883 *a*, p. 306, pl. 32, fig. 2 (♀, Assam).

Pademma indigofera, Moore, 1883 *a*, p. 306, pl. xxii, fig 3 (♂ Assam); *id.*, 1890, p. 120, pl. 44, fig. 3 (♂).
Euplœa klugii var. *indigofera*, Bingham, 1905, p. 41.
Euplœa klugi f. *indigofera*, Fruhstorfer, 1910, p. 271.
Euplœa leucostictos klugii f. *indigofera*, Hulstaert, 1931, p. 166.
Pademma imperialis, Moore, 1883 *a*, p. 307 (♂, "India"; ♀, "N. India").
Pademma klugii var. *imperialis*, Moore, 1890, p. 119, pl. 43, figs. 2, 2 *a* (♂♀, types).
Euplœa klugii var. *imperialis*, Bingham, 1905, p. 41.
Euplœa klugi f. *imperialis*, Fruhstorfer, 1910, p. 270.
Euplœa leucostictos klugii f. *imperialis*, Hulstaert, 1931, p. 166.
Pademma regalis, Moore, 1883 *a*, p. 307 (♂, "N.E. Bengal"; ♀, "E. Bengal").
Pademma klugii var. *regalis*, Moore, 1890, p. 119, pl. 44, figs. 1, 1 *a* (♂♀, types).
Euplœa klugii var. *regalis*, Bingham, 1905, p. 41.
Euplœa klugi f. *regalis*, Fruhstorfer, 1910, p. 271.
Euplœa leucostictos klugii f. *regalis*, Hulstaert, 1931, p. 166.
Euplœa klugii regalis, Evans, 1932 *a*, p. 92 (Sikkim).
Pademma macclellandi, Moore, 1883 *a*, p. 308, pl. xxxii, fig. 4 (♀, Assam); *id.*, 1890, p. 120, pl. 44. figs. 2, 2 *a* (♂♀).
Euplœa crassa var. *macclellandi*, Bingham, 1905, p. 43.
Euplœa klugi f. *macclellandi*, Fruhstorfer, 1910, p. 271.
Euplœa crassa f. *macclellandi*, Hulstaert, 1931, p. 182.
Pademma uniformis, Moore, 1883 *a*, p. 308 ("E. Bengal"); *id.*, 1890, p. 124, pl. 47, fig. 1 (♂, Shillong).
Euplœa crassa var. *uniformis*, Bingham, 1905, p. 43.
Euplœa klugi f. *uniformis*, Fruhstorfer, 1910, p. 271.
Euplœa crassa macclellandi f. *uniformis*, Hulstaert, 1931, p. 183.
Pademma sherwillii, Moore, 1890, p. 120, pl. 45 fig. 1 (♂, type, Assam).
Euplœa klugi f. *sherwilli*, Fruhstorfer, 1910, p. 271.
Euplœa crassa macclellandi f. *sherwillii*, Hulstaert, 1931, p. 183.
Pademma klugi var. *hamiltoni*, Swinhoe, 1893, p. 269 (♂, Khasi Hills).
Euplœa klugii var. *hamiltoni*, Bingham, 1905, p. 41.
Euplœa klugi f. *hamiltoni*, Fruhstorfer, 1910, p. 271.
Euplœa leucostictos klugii f. *hamiltoni*, Hulstaert, 1931, p. 166.

♂. Fore wing very variable in shape, especially in the outline of outer and inner margins.

♂♀. *Upperside* of fore wing dark brown, suffused from base to outer margin with a brilliant blue gloss; a spot in the apex of the cell; a small costal spot; short post-discal streaks; submarginal and antemarginal series of spots, the former wedge-shaped; all the spots bluish-white. Hind wing umber-brown, glossed with blue over the discal area; submarginal rows of spots incomplete or obsolescent, the former reduced to two or three spots below the apex, the latter in the male mere dots, and in the female absent.

Underside paler, without blue gloss. Fore wing with darker discal area, spots more clearly defined, submarginal and antemarginal series more or less complete.

Antennæ black; head, thorax and abdomen velvety brown; head and thorax speckled with bluish-white.

Expanse: ♂♀, 85–100 mm.

Variation.—The names given to this subspecies may be resolved to represent six forms as follows :—

1. Form **klugii** Horsf. and Moore (fig. 37).—*Upperside* of fore wing with strong blue gloss, a cell-spot, post-discal streaks, large submarginal spots, and well-marked ante-

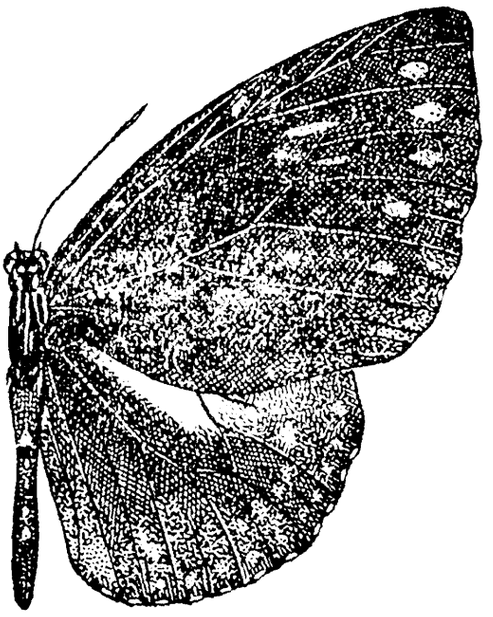


Fig. 37.—*Euplœa klugii klugii* f. *klugii*, Horsf. & Moore, ♂(Khasi Hills).

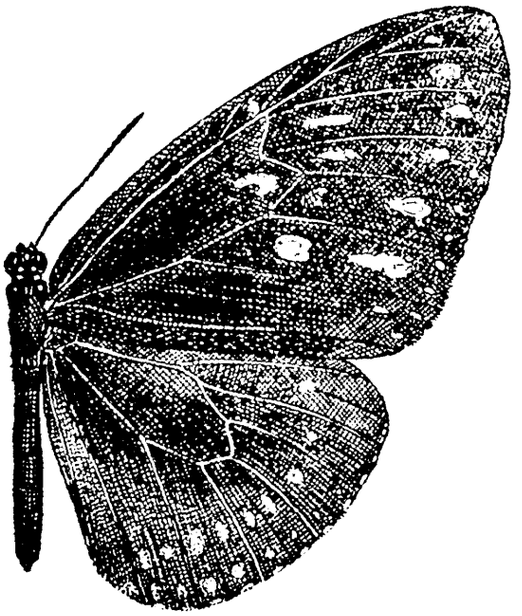


Fig. 38.—*Euplœa klugii klugii f. grantii* (Butl.), ♀ holotype.

marginal spots. Hind wing with blue discal gloss, spots not all developed.

2. Form **grantii** (Butl.) (fig. 38).—*Upperside* of fore wing with a blue cell-spot, and a post-discal spot in area 2. Hind wing without antemarginal spots, the others vestigial.

The names *augusta* Moore, and *dharma* Moore, are synonyms.

3. Form **illustris** (Butl.) (fig. 39).—*Upperside* ground-colour blackish, with a deep blue sheen. Hind wing with prominent white submarginal spots.

The names *indigofera* Moore, *sherwillii* Moore, and *hamiltoni* Swinh., are synonyms.

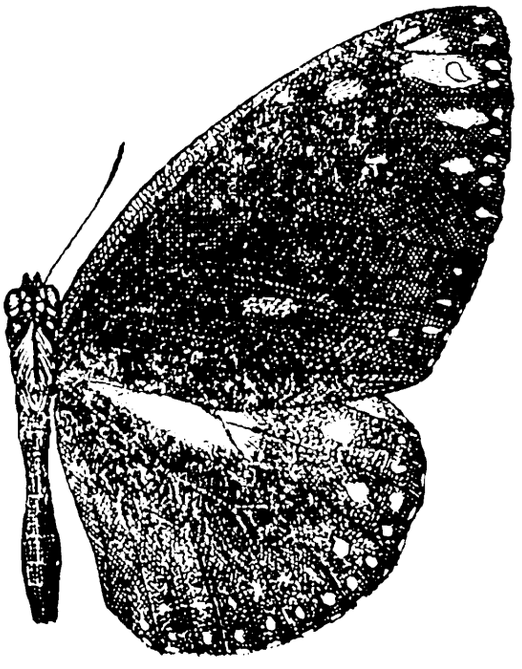


Fig. 39.—*Euplœa klugii klugii* f. *illustris* (Butl.), ♂ holotype.

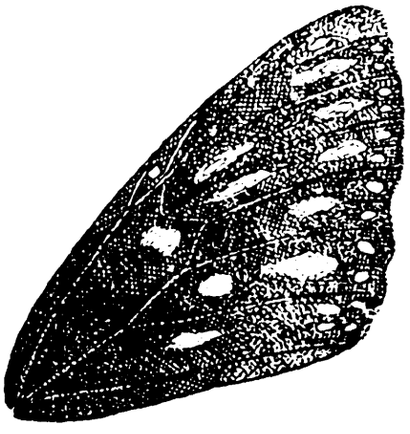


Fig. 40.—*Euplœa klugii klugii* ♀ f. *macclellandi* (Moore), ♀ holotype.

4. Form **regalis** (Moore).—*Upperside* similar to *illustris*. Fore wing without discal markings, the blue sheen stronger. Hind wing with submarginal spots less well-defined.

The name *imperialis* Moore is a synonym.

5. Form **uniformis** (Moore).—*Upperside* of fore wing without a blue gloss, no discal markings, and small submarginal spots.

6. ♀ form **macclellandi** (Moore) (fig 40).—*Upperside* of fore wing with only a slight sheen, and with prominent antemarginal spots.

Habitat.—SIKKIM to ASSAM and NORTHERN BURMA. ; not rare, but less common in Sikkim.

Owing to the extreme variability of the individuals from the above areas, as shown by the names applied and by the material in the British Museum, it does not seem safe to assume that more than one subspecies occurs within the known area. As is the case with some other species of *Euplœa*, much more material and more study are needed in order to define the boundaries of the subspecies at all approximately.

235 *b*. **Euplœa klugii sinhala** Moore. (Fig. 35, venation).

Euplœa sinhala, Moore, 1877 *a*, p. 45 (♂, Ceylon).
Isamia sinhala, Moore, 1880 *a*, p. 10, pl. v, fig. 1 (♂).
Pademma sinhala, Moore, 1883 *a*, p. 309.
Euplœa (*Salpinx*) *sinhala*, Marshall & de Nicéville, 1883, p. 66, pl. vii, fig. 12 (♂♀, " Calcutta ").
Pademma sinhala, Moore, 1890, p. 126, pl. 47, figs. 3, 3 *a* (♂♀).
Euplœa sinhala, de Nicéville, 1892 *a*, p. 240.
Euplœa kollari sinhala, Bingham, 1905, pp. 41, 42.
Euplœa klugi sinhala, Fruhstorfer, 1910, p. 271.
Salpinx sinhala, Ormiston, 1918, p. 7.
Euplœa klugi sinhala, Evans, 1923, p. 152 ; *id.*, 1927, p. 58.
Euplœa kollari sinhala, Ormiston, 1924, p. 5.
Euplœa crassa sinhala, Hulstaert, 1931, p. 182 ; Evans, 1932 *a*, p. 92 ; Woodhouse & Henry, 1942, p. 40, pl. iii, figs. 3 (♂), 4 (♀).
Euplœa kollari, Williams (*non* Feld.), 1927, pp. 14, 15, 19 (migration).

♂♀. Very similar to *kollari* C. and R. Feld. *Upperside* of fore wing without blue sheen except at the base ; neither cell-spot nor discal spots ; submarginal and antemarginal spots smaller than in *kollari* and anteriorly obsolete.

The female closely resembles *E. core asela* Moore and *E. sylvester montana* C. and R. Feld. It can be distinguished by the short, minute, white streak, in area 1*b* on the underside of the fore wing.

Habitat.—CEYLON. Common in the drier low country and taking part in migratory flights.

235 *c*. **Euplœa klugii kollari** C. & R. Felder.

Euplœa kollari, C. & R. Felder, 1865, p. 325 (♂, India, sept.).
Pademma kollari, Moore, 1883 *a*, p. 306, pl. xxix, fig. 9 (♂).
Euplœa (*Pademma*) *kollari*, de Nicéville, 1885 *a*, p. 41(Calcutta) ; Taylor & de Nicéville, 1888, no. 8 (Orissa).
Pademma kollari, Hampson, 1889, p. 348 (Nilgiri Hills) ; Moore, 1890, p. 124, pl. 47, figs. 2, 2 *a*, (♂♀).
Euplœa klugii kollari, de Nicéville, 1892 *a*, pp. 242–3 (S. India, Orissa, Bengal, Lower slopes of Sikkim Hills).
Euplœa kollari, Davidson, Bell & Aitken, 1896, p. 241 (North Kanara) ; Bingham, 1905, p. 41 ; Bell, 1909, pp. 48–57, 59 ; Evans, 1910, p. 381 (Palni Hills).
Euplœa klugii kollari, Fruhstorfer, 1910, p. 271 ; Evans, 1923, p. 152 ; *id.*, 1927, p. 58.
Euplœa crassa kollari, Hulstaert, 1931, p. 182 ; Evans, 1932 *a*, p. 92.

Euplœa klugii kollari, Talbot, 1943 *a*, p. 9 (♂ type from Burma).
Isamia rothneyi, Moore, in Rothney, 1882 *a*, p. 34 (♂, Barrackpore).

♂♀. *Upperside* very dark olive-brown, paling to lighter brown distally. Both wings with complete or nearly complete series of submarginal and antemarginal white spots, the former larger than the latter ; on the fore wing these spots decrease in size anteriorly and curve inwards opposite the apex. Hind wing submarginal spots elongate-oval, much larger than the antemarginal ones.

Underside paler. Fore wing with from two to four discal spots, the largest being in area 2, and a small costal spot. Hind wing with one or two discal specks.

Antennæ very dark brown; head, thorax and abdomen dark brown, the former two sparsely speckled with white.

Expanse : ♂♀, 85–100 mm.

Early stages and *habits* (from *Bell*, 1909) :—

Larva.—Very similar to that of *E. core*, except that the anterior pair of tentacles are generally held curled, which is never the case in the other species (where, however, the posterior pairs may be slightly curled at the tips) ; tentacles flesh-coloured, often light pink, more or less deeply tipped black. Spiracles oval, shiny black, placed in the spiracular band ; this band white, touched with yellow-orange ; venter a watery olive-brown-green of varying shades in different specimens, marked with some white spots ; band on base of prolegs 7 to 10, and on base of true legs, pure white; a dark dorsal line. Before pupation the larva changes to light green. Length, 44 mm. ; breadth, 6 mm. ; length of tentacles on segment 3, 10 mm., if not curled, and 6 mm., if curled.

Pupa.—Generally larger than that of *E. core* but is of the same shape, except that the constriction is less behind the thorax because the abdomen is not so swollen at segment 7. Bright green, suffused with gold through which the green is plainly visible ; a small lateral black spot on the thorax and on segments 4, 6, and 11 ; a black subdorsal streak on hind margin of thorax ; cremaster black and shiny ; no other markings. Length, 20 mm. ; breadth at segment 7, 9·75 mm. (?) (not 97·5 mm. as in Bell, an obvious misprint).

Habits.—The larva has been found on *Ficus hispida* Linn. in Kanara. The imago is particularly fond of damp places, affecting much the banks of nullahs in the monsoon months. It is, indeed, almost entirely a monsoon species, as there are very few about in the dry months. It does not seem to wander, even in the districts where it occurs.

Habitat.—PENINSULAR INDIA to BENGAL ; not rare ; recorded by Taylor (1888) as being rather common in Orissa; by Davidson, Bell and Aitken (1896) as common in Kanara, and by Evans (1910) as common in the Palni Hills.

235 *d*. **Euplœa klugii erichsonii** C. & R. Felder.

Euplœa erichsonii, C. & R. Felder, 1865, pp. 324–5 (♂♀, " India sept " *recte* Burma).
Pademma erichsonii, Moore, 1883 *a*, p. 307.
Euplœa (*Salpinx*) *erichsonii*, Marshall & de Nicéville, 1883, p. 63.
Euplœa erichsonii, Elwes & de Nicéville, 1887, p. 415 (Tavoy).
Euplœa klugii erichsonii, de Nicéville, 1892 *a*, pp. 244–5 ; Corbet, 1942, p. 266 ; Talbot, 1943 *a*, p. 9 (♂, type from Burma).
Euplœa crassa, Butler, 1866, p. 278 (♂♀, Siam).
Salpinx crassa, Moore, 1879 *a*, p. 822 (Upper Tenasserim).
Pademma crassa, Moore, 1883 *a*, pp. 307, 308.
Euplœa (*Salpinx*) *crassa*, Marshall & de Nicéville, 1883, p. 63 (Burma).
Pademma crassa, Moore, 1890, p. 121, pl. 45, figs. 2, 2 *a* (♂♀).
Euplœa crassa, Bingham, 1905, p. 42.
Euplœa klugi crassa, Fruhstorfer, 1910, p. 271. t. 79 *c* (♂); Evans, 1923, p. 152 ; *id.*, 1927, p. 58.
Euplœa crassa crassa, Hulstaert, 1931, pp. 182, 183 ; Evans, 1932 *a*, p. 92.
Salpinx masoni, Moore, 1879 *a*, p. 823 (♂, " Tavo " (? Tavoy), Upper Tenasserim).
Pademma masoni, Moore, 1883 *a*, p. 309.
Euplœa (*Salpinx*) *masoni*, Marshall & de Nicéville, 1883, p. 64.
Pademma crassa var. *masoni*, Moore, 1890, p.123, pl. 46, fig. 1 (♂).
Euplœa crassa var. *masoni*, Bingham, 1905, p. 43.
Euplœa klugi crassa f. *masoni*, Fruhstorfer, 1910, p. 271.
Euplœa crassa f. *masoni*, Hulstaert, 1931, p. 183.
Pademma apicalis, Moore, 1883 *a*, p. 308 (♂, Burma).
Pademma crassa var. *apicalis*, Moore, 1890, p. 123, pl. 46, figs. 2, 2*a* (♂♀).
Euplœa crassa var. *apicalis*, Bingham, 1905, p. 43.
Euplœa klugi crassa f. *apicalis*, Fruhstorfer, 1910, p. 271.
Euplœa crassa crassa f. *apicalis*, Hulstaert, 1931, p. 183.
Pademma pembertoni, Moore, 1883 *a*, p. 308, pl. xxxii, fig. 6 (♂) (♂, Magaree, Pegu).
Pademma crassa var. *pembertoni*, Moore, 1890, p. 124, pl. 46, figs. 3, 3 *a* (♂♀).
Euplœa crassa var. *pembertoni*, Bingham, 1905, p. 43.
Euplœa klugi crassa f. *pembertoni*, Fruhstorfer, 1910, p. 271.
Euplœa crassa crassa f. *pembertoni*, Hulstaert, 1931, p. 183.
Pademma burmeisteri, Moore, 1883 *a*, p. 309 (♂, Saigon ; ♀, Upper Tenasserim).
Pademma crassa var. *burmeisteri*, Moore, 1890, p. 123, pl. 45, figs. 3, 3 *a* (♂♀).
Euplœa crassa var. *burmeisteri*, Bingham, 1905, p. 43.
Euplœa klugi crassa f. *burmeisteri*, Fruhstorfer, 1910, p. 271 (? dry-season form).
Euplœa crassa crassa f. *burmeisteri*, Hulstaert, 1931, p. 183.
Euplœa klugii, Adamson, (*non* Horsf. & Moore), 1905, p. 160 (Burma).

♂♀. *Upperside* of fore wing with a blue sheen only at the base, except in one form ; submarginal spots rarely extending below vein 3, and usually forming subapical patches ; post-cellular spots sometimes present. Hind wing submarginal spots smaller than in *kollari* and sometimes not forming a complete series.

Expanse : ♂♀, 85–100 mm.

Variation.—Less variable than the nominotypical subspecies, and transitional to *kollari*. Five forms may be recognized :—

1. Form **erichsonii** C. and R. Felder (=*crassa* Butl.).—*Upperside* of fore wing without post-cellular spots ; subapical spots relatively small.

2. Form **apicalis** (Moore).—*Upperside* ground-colour more greenish than in the nominotypical form. Fore wing with five subapical spots, the anterior ones relatively large ; no post-cellular spots.

3. Form **pembertoni** (Moore).—Similar to *apicalis*. *Upperside* of fore wing with relatively small subapical spots ; two short post-cellular streaks. Hind wing with both rows of spots becoming obsolete posteriorly.

4. Form **masoni** (Moore).—*Upperside* markings as in the nominotypical form, but ground-colour darker, and fore wing with a blue gloss over the proximal area.

5. Form **burmeisteri** (Moore).—*Upperside* of fore wing with antemarginal spots rather small, the posterior one placed at the tornus ; minute submarginal spots below vein 4, extending into area 2 or 1*b* ; subapical spots small in the male, in the female the spot in area 6 much larger.

Habitat.—Eastern Bengal to Southern Burma, extending to Siam, Tong-king, Cochin China, and Malaya ; not rare.

Euplœa leucostictos (Gmelin, 1788).

♂♀. *Upperside* of fore wing glossed with blue ; the brand in area 1*b* scaled with blue ; usually a submarginal series of blue or bluish-white spots and an antemarginal series of white dots. Hind wing dark brown, with submarginal white spots and antemarginal dots, both series often incomplete or absent.

Distribution.—Burma and the Nicobar Islands, Malaya, Tong-king, Hainan and Formosa, east and south to the Marianne Islands and Sumba. Two subspecies in the Indian area.

236 *a*. **Euplœa leucostictos leucogonis** (Butler).

Salpinx leucogonis, Butler, 1879 *b*, p. 536, pl. lxix, fig. 5 (♀, Malacca) ; Moore, 1883 *a*, p. 301, ♀.

Euplœa (*Salpinx*) *leucogonys* (sic), Marshall & de Nicéville, 1883, p. 69.

Salpinx leucogonis, (sic), Moore, 1890, p. 115, pl. 41, figs. 1, 1 *a*, *b*, c (♂♀, Burma).

Euplœa leucogonys (sic), Adamson, 1905, p. 160 (Burma).

Euplœa klugii var. *leucogonys* (sic), Bingham), 1905, p. 41.

Euplœa leucostictos leucogonys (sic), Fruhstorfer, 1910, p. 263; Evans, 1923, p. 522 ; *id.*, 1927, p. 58.

Euplœa leucostictos leucogonis, Hulstaert, 1931, p. 167.

Euplœa leucostictos leucogonys (sic), Evans, 1932 *a*, p. 92.

Euplœa (*Salpinx*) *vestigiata*, Marshall & de Nicéville (*non* Butler), 1883, p. 67 (Upper Tenasserim).
Salpinx lazulina, Moore, 1883 *a*, p. 300.

♂♀. *Upperside* of fore wing glossed with blue; a row of submarginal bluish-white spots, and a few antemarginal dots; a blue, short, linear, post-discal spot in area 5 and one in 4; usually a small blue post-discal spot in area 2, and a similar subcostal spot above the upper angle of cell. Hind wing hair-brown; a submarginal row of small white spots, the posterior ones often absent; an antemarginal row of similar spots, the anterior ones often absent.

The type ♀ is a specimen in which, on the fore wing, the submarginal spot in area 3 is absent. Specimens with few spots on both wings may be treated as typical, whilst those, as described above, with complete series of spots, besides post-discal ones, may be called form **lazulina** (Moore).

Expanse: ♂♀, 96–100 mm.

Habitat.—Burma: Moulmein to Southern Burma; also in Malaya and Siam. Rare in Burma, but usually common elsewhere.

236 *b*. **Euplœa leucostictos novaræ** C. Felder.

Euplœa novaræ, C. Felder, 1862, p. 482 (♂, Car Nicobar).
Euplœa eunice var. *novaræ*, C. & R. Felder, 1865, p. 317, pl. xxxix, fig. 7 (♂).
Euplœa novara (sic), Moore, 1877 *b*, p. 582 (Car Nicobar).
Euplœa (*Salpinx*) *novaræ*, Wood-Mason & de Nicéville, 1881 *a*, p. 227 (Car Nicobar); *id.*, 1882, p. 15 (Car Nicobar): Marshall & de Nicéville, 1883, p. 68.
Salpinx novaræ, Moore, 1883 *a*, p. 300; *id.*, 1890, p. 114, pl. 40, figs. 1, 1*a*, *b* (♂).
Euplœa klugii var. *novaræ*, Bingham, 1905, p. 41.
Euplœa leucostictos novaræ Fruhstorfer, 1910, p. 263; Evans, 1923, p. 522; 1927, p. 58; *id.*, 1932 *a*, p. 92; Talbot, 1943 *a*, p. 9.

♂♀. Larger than the mainland form. Fore wing glossed with deeper blue; spots reduced to a small costal and a submarginal series. Hind wing with two or three small spots below the apex.

Expanse: ♂♀, 106–119 mm.

Habitat.—Car Nicobar and Central Nicobar Islands; not rare

Euplœa diocletianus (Fabricius).

♂♀. *Upperside* with a blue gloss, chiefly over the distal areas and weaker in the female. Fore wing with a large white patch filling outer part of cell and reaching the costa; submarginal spots white or blue, the spot in area 2 much larger than the others. Hind wing with white stripes in areas 1*a*, *b* and *c*, the female with similar stripes in the cell. Anal hair-pencils grey.

Distribution.—NEPAL to ASSAM, Malaya, Indo-China, Sumatra, Java, and Borneo. Three subspecies in the Indian area.

237 *a*. **Euplœa diocletianus diocletianus** (Fabricius).

Papilio diocletianus, Fabricius, 1793, p. 40 (♀, " India orientalis ").
Salpinx diocletianus, Butler, 1878, p. 294.
Danisepa diocletianus, Moore, 1883 *a*, p. 298.
Euplœa (*Salpinx*) *diocletianus*, Marshall & de Nicéville, 1883, p. 71.
Euplœa diocletianus, Elwes & de Nicéville, 1887, p. 415 (Tavoy).
Euplœa (*Danisepa*) *diocletianus*, Watson, 1897, p. 638 (Upper Chindwin).
Euplœa diocletianus, Adamson, 1905, p. 160 (Burma).
Euplœa diocletiana, Bingham, 1905, p. 38 pl. 1, fig. 5 (♂); Tytler, 1911, p. 49 (Naga Hills).
Euplœa diocletianus diocletianus, Fruhstorfer, 1910, p. 271.
Euplœa diocletianus, Ellis, 1917, p. 105 (Pegu Yoma).
Euplœa diocletiana diocletiana, Evans, 1923, p. 522; *id.*, 1927, p. 57.
Euplœa diocletianus diocletianus, Hulstaert, 1931, p. 184, pl. v, fig. 7 (♂); Corbet, 1942, p. 266 (type from Peninsular Siam or Malaya).
Euplœa diocletiana diocletiana, Evans, 1932 *a*, p. 92, pl. x, fig. C 3.15 (♂).
Papilio rhadamanthus, Fabricius, 1793, p. 42, ♂.
Euplœa rhadamanthus, Fabricius, 1807, p. 76.
Salpinx rhadamanthus, Butler, 1878, p. 294; Moore, 1879 *a*, p. 822 (Upper Tenasserim).
Danisepa rhadamanthus, Moore, 1883 *a*, p. 296; Butler, 1885 *a*, p. 300 (near Assam).
Euplœa (*Danisepa*) *rhadamanthus*, Wood-Mason & de Nicéville, 1887, p. 346 (Cachar).
Danisepa rhadamanthus, Moore, 1890, p. 112, pl. 39, figs. 2, 2 *a*, *b*, (♂♀).

♂♀. Fore wing with inner and outer margins very convex, costa arched; female wing narrower, the inner margin sinuous. Hind wing in both sexes with costa and outer margin strongly curved.

♂. *Upperside* black. Fore wing brilliantly glossed with blue, the base brown. Hind wing anteriorly silky hair-brown, the discal and outer areas shot with blue. Fore wing with a large, irregular, white spot, filling the apex of cell and reaching the costa where it is divided by the veins; a white post-cellular spot in the base of area 3, and usually a more elongate one in area 2; a large submarginal blue spot in area 2, and smaller similar spots in areas 4 to 7; a row of three or four antemarginal blue spots near the tornus; all these blue spots occasionally white-centred. Hind wing with broad white streaks in areas 1 *a* to 2, a spot (sometimes absent) at the base of area 3, another sometimes present in the

base of area 4 ; one or two discal blue spots and very incomplete submarginal and antemarginal series of similar spots.

Underside hair-brown, the markings as above, but more complete and larger. Hind wing also with one or two spots or streaks in the cell and on the disc beyond it.

♀. *Upperside* pale umber-brown. Fore wing with or without blue gloss over the apical half ; markings similar to those of the male, but all of them white and somewhat larger, especially the two post-cellular spots. Hind wing, in addition, three white streaks in the cell, two or three post-cellular spots, the submarginal and antemarginal series white, and generally complete.

Underside similar, the markings broader.

Antennæ black ; head, thorax and abdomen in male bluish-black, in female cinereous ; palpi and thorax beneath spotted with white, abdomen transversely barred with white.

Expanse : ♂♀, 80–90 mm.

Habitat.—ASSAM to BURMA, extending to Indo-China, Malaya, and Sumatra ; common.

Wood-Mason (1887) notes that "the eversible caudal rosettes of the males are finely vanilla-scented."

237 *b*. Euplœa diocletianus ramsayi (Moore).

Danisepa ramsayi, Moore, 1890, pp. 111–112, pl. 39, figs. 1, 1*a* (♂), 1*b* (♀), (Nepal).
Euplœa diocletiana ramsayi, Bingham, 1905, pp. 38, 39.
Euplœa diocletianus ramsayi, Fruhstorfer, 1910, p. 271, t. 81 *a* (♀).
Euplœa diocletiana ramsayi, Evans, 1923, p. 522 ; *id.*, 1927, p. 57.
Euplœa diocletianus ramsayi, Hulstaert, 1931, p. 184.
Euplœa diocletiana ramsayi, Evans, 1932 *a*, p. 92.
Euplœa rhadamanthus, Moore (*non* Fabr.), 1865 *a*, p. 761 ("Bengal").
Euplœa (*Salpinx*) *rhadamanthus*, de Nicéville, 1882, p. 55 (♂, Sikkim, 2,000 feet) ; Marshall & de Nicéville, 1883, p. 69, pl. vii, fig. 11 (♂♀, Sikkim).
Danisepa rhadamanthus, Elwes & Möller, 1888, p. 301.
Euplœa (*Danisepa*) *diocletianus*, de Nicéville (*non* Fabr.), 1894 *a*, p. 118 (Sikkim, rare).

♂♀. Larger, with the white markings much wider than in the nominotypical form, in the female almost entirely filling the cell of the hind wing. Fore wing of female with a decided blue gloss over the apical area. Hind wing in both sexes with streaks in areas 3 and 4 ; submarginal series of spots usually complete.

Habitat.—SIKKIM to ASSAM. Not rare, but less frequent in Sikkim. The type is in the British Museum, from Nepal.

237 *c*. Euplœa diocletianus despoliata Fruhstorfer.

Euplœa diocletianus diocletianus f. *despoliata*, Fruhstorfer, 1910, p. 271 ; Hulstaert, 1931, p. 184.

Euplœa diocletiana talboti, Tytler, 1939 *a*, p. 243 (Assam ; Naga Hills).

♂. *Upperside* of hind wing with white markings slightly broader than in the nominotypical subspecies ; spot in area 3 larger.

♀. *Upperside* much darker than the nominotypical female ; blue colouring much more developed, and on apex of fore wing nearly as vivid as on apex of fore wing of male. Both wings with discal and submarginal spots smaller than in the nominotypical female.

Both sexes larger than the nominotypical subspecies.

Habitat.—ASSAM to CACHAR and NORTH-WESTERN BURMA.

The name *despoliata* was founded upon specimens in which the cell-patch on fore wing is absent. The types, in the British Museum, are from Assam.

The name **talboti** Tytler can be used for normal specimens with cell-patch present.

Family SATYRIDÆ Swainson.

Satyridæ, Swainson, 1840, pp. 86, 93 ; Seitz, 1907, p. 79 ; Fruhstorfer, 1911, p. 285 ; Evans, 1932 *a*, p. 94.

Satyrinæ, Bates, 1861, p. 220 ; Moore, 1880 *a*, p. 13 ; Marshall and de Nicéville, 1883, p. 95 ; Moore, 1890, p. 141 ; Bingham, 1905, p. 47.

This family agrees with the Danaidæ, Acræidæ, Amathusiidæ, and Nymphalidæ, in having the fore legs imperfect in both sexes. Chiefly for this reason, the family was long regarded as only a subfamily of Nymphalidæ. in common with the Danaids and others. It is now seen that the true Nymphalids can themselves be divided into subfamilies, and these are all obviously more closely related to one another than is any one of them to the Satyridæ. The Satyridæ comprise numerous genera, many of which are very distinct and may possibly represent more than one subfamily.

Egg.—Domed, about as high as wide ; typically translucent and smooth, or with obscure polygonal facets, or with broadly scalloped anastomosing ribs.

Larva.—Fusiform or subfusiform, the segments of the body divided into annulets ; head bifid, often with a pair of long straight processes or horns ; anal segment (suranal plate) also with a pair of long, posteriorly directed, processes. Colour generally green, pink, or yellow, the body marked with longitudinal lines. Body pubescent, the hairs or setæ springing from numerous small papillæ.

Pupa.—Elongate and somewhat fusiform, or short and thick, with abdomen broadly rounded ; generally without tubercles

or angles. Usually suspended by the cremaster, but sometimes lies free on or in the ground ; no girdle present.

Imago.—Wings short and broad, rarely elongate, often with outer margin scalloped, sinuous, dentate or, in the hind wing, caudate ; cell closed. Fore wing with one or more veins dilated at the base in the majority of forms. Sex brands and hair pencils are present in the males of many species on one or on both wings. Eyes often hairy. Palpi (vol. i, p. 10, fig. 4 *b*) more or less flattened laterally, densely covered with bristly hairs. Antennæ (vol. i, p. 9, fig. 3 *b*) delicate, of medium length, and gradually incrassate at the apex, sometimes ending in a broad club. Anterior legs (vol. i, p. 11, fig. 5 II.) imperfect, brush-like in both sexes ; ♂ tarsus with one long segment ; ♀ tarsus longer, less hairy, with five segments, the end segment very short, truncate, and furnished with small bristles.

Genitalia (fig. 45) (from *Mehta*, 1933*b*).—Valvæ simple, usually elongate or broad. Tegumen broad. Uncus long, pointed at the apex or curved. A pair of long processes from the tegumen, placed ventral to anal lobe ; in some forms (as in *Mycalesis anapita* Moore), besides similarly placed processes, another pair, called the *side lobes*, arise dorsally to the anal tube. Saccus usually long. Penis long, slightly bent.

The genera *Maniola* and *Hipparchia* possess an organ known as the " Jullien Organ." This was discovered by W Petersen in 1904 in *Maniola jurtina* (L.). The organ is a tubular process arising from the inner distal part of the 8th segment ; it is furnished at its distal end with a sort of brush composed of a number of sclerotized rods. It is probably a scent-organ. It is well figured, in several subspecies of *Hipparchia fagi* Scop., by Fruhstorfer (1908*a*, p. 94).

Bionomics.—The larvæ feed on Monocotyledons, such as Graminaceæ and Palmaceæ, and come out at night to feed. No disagreeable odours or juices are present in any stage. The imago is usually of sombre colouring, but the sexes are often strongly dimorphic, the ♀ sometimes mimetic (*Elymnias*). Seasonal dimorphism is strongly developed. The wing pattern nearly always includes one or more ocelli, this character being a feature of the family. In wet-season forms these ocelli are larger and more fully developed. In dry-season forms the ocelli are frequently absent, but many transitional forms occur.

The Satyridæ are shade-loving insects, and some fly at night. They appear for only a few weeks at most, the males being on the wing first. Their flight is tumbling and irregular. They frequent the undergrowth, long grass, or dense evergreen forests. Many are cryptically coloured on the underside, and their method of suddenly dropping after a short flight, and resting all askew, heightens their likeness to dead or decaying leaves casually blown down.

The species are usually of local occurrence, and many are restricted to small areas of a mountain side.

Distribution.—In all regions wherever butterflies are found. India is rich in species, especially in the North-Eastern Himalayas.

Key to Indian genera of Satyridæ.

1. Eyes hairy — 2.
   Eyes glabrous. . . . — 7.
2. Palpi with appressed hairs. Fore wing without swollen veins. . — *Mandarinia* Leech, [p. 110.
   Palpi with porrect hairs. Fore wing with vein 12 swollen . . . — 3.
3. Fore wing with veins 1 *b* and median swollen; upper angle of cell strongly acute; *dc* veins angled. . . — *Mycalesis* Hübn., [p. 110.
   Fore wing with vein 1 *b* not swollen; median more or less swollen. . — 4.
4. Hind wing with veins 6 and 7 well separated at their origin. . — 5.
   Hind wing with veins 6 and 7 close together at their origin. — *Orinoma* Gray, p. 251.
5. Hind wing never symmetrical about a central axis from the base to middle of outer margin; outer margin not excurved between veins 4 and 6; may be caudate at vein 4, and tornus incurved before vein 2 . . — *Lethe* Hübn., p. 166.
   Hind wing symmetrical about a central axis; outer margin evenly rounded from apex to tornus . — 6.
6. Fore wing with veins 5 and 6 arising near together at their origin; *udc* and *mdc* about equal. Hind wing with vein 3 arising before the *ldc* and never close to the angle. . — *Rhaphicera* Moore, [p. 247.
   Fore wing with veins 5 and 6 not arising near together; *udc* shorter than *mdc*. Hind wing with vein 3 arising at or almost at the angle of *ldc* — *Pararge* Hübn., p. 239.
7. Hind wing without a precostal cell — 8.
   Hind wing with a precostal cell. . — *Elymnias* Hübn., [p. 379.
8. Fore wing with median vein swollen. — 9.
   Fore wing without swollen veins. — 20.
9. Palpi with hairs porrect, Hind wing with veins 3 and 4 not stalked (except in *Ragadia*) . . — 10.
   Palpi with hairs appressed. Hind wing with veins 3 and 4 stalked . — *Cœlites* Westw., p. 357.
10. Fore wing with anterior margin of cell not longer than the lower margin (median). — 11.
    Fore wing with upper angle of cell strongly acute and the margin markedly longer than the lower margin. . . — 18.
11. Hind wing with vein 8 strongly angled at its origin, meeting vein 7 more or less at right angles — 12.
    Hind wing with vein 8 nearly straight at its origin, meeting vein 7 at an acute angle. Fore wing without a brand. — *Zipœtis* Hew., p. 345.

12. Fore wing with veins 1 *b*, median, and 12 prominently swollen . . [p. 252. *Cœnonympha* Hübn.,
Fore wing with vein 1 *b* not prominently swollen .. . . 13.
13. Fore wing with median vein prominently swollen ; *ldc* excurved. 14.
Fore wing with median vein not swollen (except in some *Ypthima*, which have *ldc* straight or incurved). . . . . 15.
14. Fore wing with upper angle of cell acute. *Maniola* Schr., p. 254.
Fore wing with upper angle of cell a right-angle .. [p. 266. *Hipparchia* Fabr.,
15. Hind wing with outer margin more or less crenulate. Cilia prominently chequered, at least on fore wing . . 16.
Hind wing with outer margin not crenulate. Cilia not chequered, except slightly in some *Erebia* .. 17.
16. Upperside tawny ; no male brand. . . *Oeneis* Hübn., p. 284.
Upperside black. Fore wing of male with a brand. Wings crossed by a discal white or pale yellow band. . . *Aulocera* Butl., p. 287.
Fore wing with a subapical white band. Hind wing pattern largely white . *Agapetes* Billb., p. 296.
17. Fore wing with *ldc* excurved ; vein 10 from the cell (except in some Palæarctic species) .... *Erebia* Dalm., p. 298.
Fore wing with *ldc* straight or incurved ; vein 10 always from vein 7. . [p. 315. *Ypthima* Hübn.,
18. Fore wing with vein 10 from the cell. 19.
Fore wing with vein 10 from 7 *Ragadia* Westw., [p. 355.
19. Fore wing with *ldc* strongly incurved. Hind wing with veins 3 and 4 approximate at their origin . . . . . [p. 347. *Orsotriœna* Wllgr.,
Fore wing with *ldc* straight, no male brand. Hind wing with veins 3 and 4 well separated at their origin .. *Erites* Westw., p. 351.
20. Palpi with hairs porrect. Fore wing with upper angle of cell a right-angle. Hind wing with vein 3 from end of cell. ... [p. 359. *Neorina* Westw.,
Palpi with hairs appressed. .. .. .. 21.
21. Fore wing with upper angle of cell a right-angle ; *ldc* straight ; vein 10 from the cell ; no male brand. Hind wing with vein 3 from just before end of cell *Ethope* Moore, p. 362.
Fore wing with upper angle of cell rather acute ; *ldc* incurved. Hind wing with vein 3 from well before end of cell . 22.
22. Fore wing with vein 10 from the cell. . 23.
Fore wing with vein 10 from the stem of veins 7, 8 and 9 .. .. [p. 378. *Parantirrhœa* W.-M.,
23. Fore wing with vein 1 *b* terminating on the outer margin ; vein 5 nearer than usual to vein 6 ; no male brand... . [p. 364. *Melanitis* Fabr.,
Fore wing of male with vein 1 *b* terminating at about the middle of inner margin, and vein 2 at the tornus ; a large black brand. Female normal. [p. 376. *Cyllogenes* Butl.,

Genus **MANDARINIA** Leech.

Mandarinia, Leech, 1892, p. 9; Fruhstorfer, 1911, p. 359; Evans, 1932, pp. 94, 96.

♂♀. Eyes hairy; palpi with appressed hairs. Fore wing without swollen veins; outer margin straight; apex rectangular; costa convex; inner margin incurved; vein 10 from the cell; upper angle of cell obtusely rounded. Hind wing with cell narrowed at the end; vein 3 arising well before end of cell; male with a large hair-pencil.

Type of genus, *regalis* Leech.

Mandarinia regalis Leech.

♂♀. Blackish-brown, upperside with a violet gloss. Fore wing upperside with a subapical glossy blue band, broad in the male, narrow in the female.

Distribution.—Central and Western China, Tong-king, BURMA, and Siam.

238. **Mandarinia regalis baronesa** Fruhstorfer.

Mandarinia regalis baronesa, Fruhstorfer, 1906 *a*, p. 83 (Tong-king); *id.*, 1911, p. 359.

Mandarinia regalis, Evans (*non* Leech), 1914 *b*, p. 303 (Northern Shan States); *id.*, 1932 *a*, p. 96, pl. xi, fig. D.1 (♂).

♂. Fore wing upperside, with the blue transverse band much narrower than in the nominotypical race, the spots more separated, and their distal edges more indented, the band itself placed posteriorly farther from the tornus, and of a deeper blue.

♀. Wings more rounded, the blue band paler and narrower than in the male.

Expanse: ♂♀, 45–50 mm.

Habitat.—NORTHERN SHAN STATES, Tong-king, and North-Western Siam; very rare.

The British Museum possesses 4 ♂ and 2 ♀ from the first mentioned area, taken on the Namtu River in April, 1914, by G. E. V Ellis. There is also a ♂ from Siam.

Genus **MYCALESIS** Hübner.

(Figs. 41, venation; 42, 43, genitalia).

Mycalesis, Hübner, 1818, p. 17; Butler, 1868, p. 196 (type, *evadne* Cramer); Moore, 1880 *b*, p. 176; Marshall & de Nicéville, 1883, pp. 96, 102, pl. xvi; Bingham, 1905, p. 49; Fruhstorfer, 1908 *c* (revision); *id.*, 1911, p. 330; Evans, 1920, p. 355; *id.*, 1932 *a*, pp. 94, 96; Hemming, 1934 *a*, p. 29 (type, *Papilio evadne* Cramer); *id.*, 1937, p. 149 (type, *Papilio francisca*, Stoll, 1780); Talbot & Corbet, 1939, p. 406 (*Mineus* Group).

Culapa, Moore, 1879 *a*, p. 825 (*C. mnasicles* Hewitson); *id.*, 1880 *b*, p. 165; Marshall & de Nicéville, 1883, pp. 104, 126 (=*Mycalesis*

group); Moore, 1891, pp. 153, 198; Fruhstorfer, 1911, p. 332 (=*Mycalesis* group).

Calysisme, Moore, 1880 *a*, p. 20; *id.*, 1880 *b*, p. 161 (type, *C. drusia* Cramer); Marshall & de Nicéville, 1883, pp. 104, 114 (=*Mycalesis* group); Moore, 1891, pp. 153, 172.

Nissanga, Moore, 1880 *a*, p. 23; *id.*, 1880 *b*, p. 169 (type, *N. patnia* Moore); Marshall & de Nicéville, 1883, pp. 104, 131 (=*Mycalesis* group); Moore, 1891, pp. 153, 214.

Virapa, Moore, 1880 *b*, p. 155 (type, *V anaxias* Hew.); Marshall & de Nicéville, 1883, pp. 103, 105 (=*Mycalesis* group); Moore, 1891, pp. 153, 158.

Gareris, Moore, 1880 *b*, p. 156; Marshall & de Nicéville, 1883, pp. 103, 107 (=*Mycalesis* group); Moore, 1891, pp. 153, 163 (type, *sanatana* Moore).

Satoa, Moore, 1880 *b*, p. 157 (*maianeas* Hew.).

Sadarga, Moore, 1880 *b*, p. 157; Marshall & de Nicéville, 1883, pp. 103, 109 (=*Mycalesis* group); Moore, 1891, pp. 153, 166 (type, *gotama* Moore).

Suralaya, Moore, 1880 *b*, p. 159; *id.*, 1891, pp. 153, 217 (type, *orseis* Hew.).

Pachama, Moore, 1880 *b*, p, 165 (type, *mestra* Hew.); Marshall & de Nicéville, 1883, pp. 104, 124 (=*Mycalesis* group); Moore, 1891, pp. 153, 200.

Samanta, Moore, 1880 *b*, p. 166 (type, *malsara* Moore); Marshall & de Nicéville, 1883, pp. 104, 128 (=*Mycalesis* group); Moore, 1891, pp. 153, 202.

Telinga, Moore, 1880 *b*, p. 167 (type, *adolphei* Guér.); Marshall & de Nicéville, 1883, pp. 104, 123 (=*Mycalesis* group.); Moore, 1891, pp. 153,209.

Kabanda, Moore, 1880 *b*, p. 168 (type, *malsarida* Butler); Marshall & de Nicéville, 1883, pp. 104, 127 (=*Mycalesis* group); Moore, 1891, pp. 153, 212.

Mydosama, Moore, 1880 *b*, p. 170 (type, *fuscum* Feld.).

Loesa, Moore, 1880 *b*, p. 177; Marshall & de Nicéville, 1883, pp. 104, 133 (=*Mycalesis* group); Moore, 1891, pp. 153, 219.

Samundra, Moore, 1891, p. 162 (type, *anaxioides* Marsh. & de Nicév.).

Myrtilus, de Nicéville, 1891, pp. 341–43 (=*Mycalesis* subgenus, type, *mystes* de Nicé.).

Type of genus *M. francisca* (Stoll).

♂♀. Fore wing with costa more or less arched, apex generally rounded, somewhat acute or subacute, rarely slightly produced; outer margin convex, straight or even slightly concave; tornus generally well marked; inner margin straight in males, sometimes slightly concave towards base; cell short, about half length of wing; discocellulars somewhat variable, *udc* short, *ldc* usually strongly incurved; vein 11 from before apex of cell; vein 10 (except in one group) from before apex of cell; veins 1 *b*, median, and vein 12 greatly swollen at the base. Hind wing ovate, varying in the length of the inner margin and the lesser or greater prominence of the tornus; costa and outer margin more or less arched, the latter generally slightly scalloped; cell short, less than half length of wing; vein 3 variable, sometimes emitted from a little before, or from apex

of cell, sometimes stalked with 4 ; origin of vein 7, and consequent length of *udc*, variable.

Antennæ short, slender, not half length of fore wing, club slight, gradual ; eyes hairy ; palpi moderately long, slender, obliquely porrect, fringed anteriorly, tufted in the middle posteriorly, hairs porrect ; mid and hind femora scaled, not hairy.

Males of all the Indian forms furnished with secondary sexual characters. These are thus classified by Evans (1920):—

A. Fore wing underside, with a nacreous patch, of variable size, above the inner margin, usually containing an oval cavity,

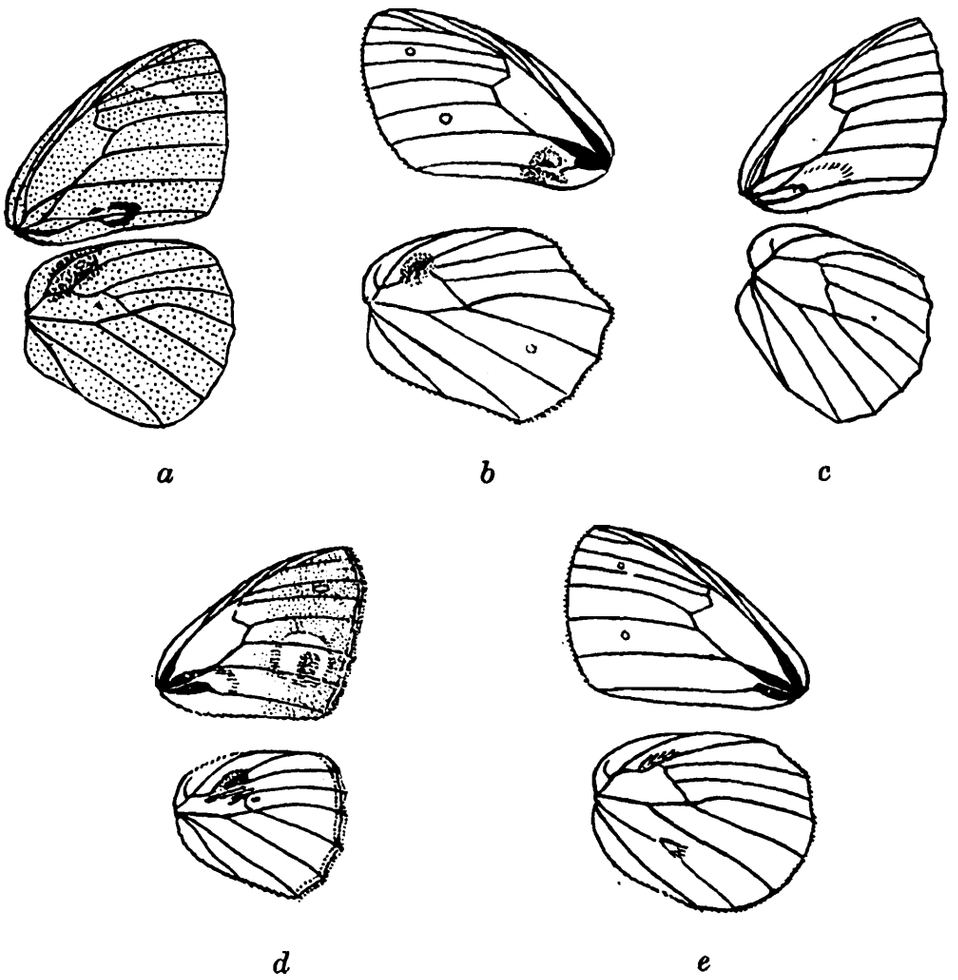


Fig. 41.—Venation of *Mycalesis*. *a*, *anaxias* Hew. ; *b*, *oculus* Marsh. ; *c*, *mystes* de Nicév. ; *d*, *patnia* Moore ; *e*, *oroatis surkha* Marsh.

lying along vein 1 *b*, filled with androconia ; this feature is correlated with an exactly similar one on upperside of hind wing, situated above vein 7 at its origin ; over the androconial patch on the hind wing there is an erectile tuft of fine, long, hairs springing from within the cell. The actual androconial patches or brands may be missing in certain species, but the nacreous areas on both wings, and the hair-pencil on the hind wing are present in all species of the genus.

B. Fore wing upperside, with an elongate cavity along the middle of vein 1 *b*, filled with androconia, and covered by a hair-pencil springing from nearer the base; this pencil is movable in the plane of the wings, but is not erectile; it lies usually in a narrow slit along the centre of the androconial patch; on the underside of wings the patch appears as a raised lump. Correlated with this feature are certain distortions and swellings of the veins of the hind wing.

C. A few species have developed additional features which are referred to in the key.

Genitalia.—(Figs. 42, 43). The genitalia have been examined by Evans, who has published (1920) two plates showing the form of the valve in all the Indian species with the exception of three rare ones. The forms of valve, as depicted, appear to fall into four groups as follows :—

(1) Very narrow to moderately broad; the ventral edge more or less incurved; apex obtuse rounded, or slightly incurved.

(2) Broad, narrowed at the middle, and strongly incurved ventrally; apex very broad, and more or less incurved.

(3) Very broad, ovate to quadrate; ventral edge strongly excurved at the middle, anteriorly more or less excavated, with one or more processes below the apex; apex usually narrow and curved ventrad.

(4) Anteriorly very narrow, curving strongly ventrad, the anterior half being hook-like.

The six species-groups defined by Evans (1932 *a*) appear to be fairly natural ones, yet only one—the *Francisca* Group—possesses a similarity of valve structure.

The different types of valve in each group are shown by figs. 42, 43 and 45, illustrating thirteen species.

Distribution.—The whole Indo-Australian Region, China, Japan, and the Æthiopian Region.

The African species possessing glabrous eyes should, perhaps, be referred to another genus.

Key to Groups of Mycalesis.

1.	Fore wing upperside in male with an elongate cavity, covered by a hair-pencil, along the middle of vein 1 *b*.	[p. 116. *Francisca* Group,
	Fore wing upperside in male without a cavity or hair-pencil . . .	2.
2.	Fore wing with vein 10 at or near end of cell	3.
	Fore wing with vein 10 well beyond end of cell	*Oroatis* Group, p. 165.
3.	Hind wing with vein 3 at or just beyond end of cell, usually arising from the same point as 4	4.
	Hind wing with vein 3 arising before end of cell	*Nicotia* Group, p. 150.

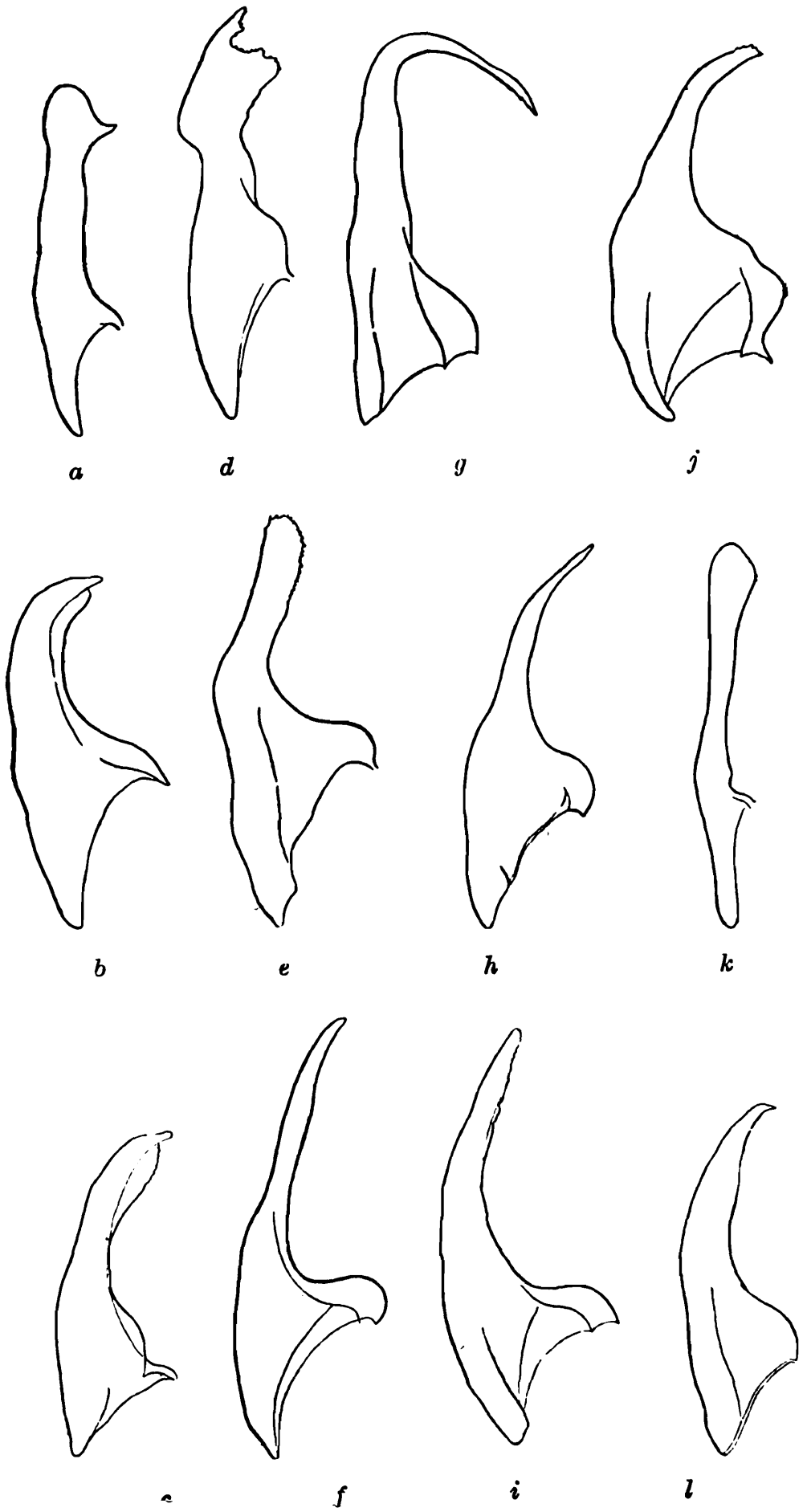


Fig. 42.—Genitalia of *Mycalesis*. Lateral view of valve. *a*, *maianeas maianeas* Hew (Mergui); *b*, *fuscum* (C. and R. Feld.) (Burma); *c*, *anapita anapita* Moore; *d*, *mineus mineus* (L.) (Burma); *e*, *oculus* Marsh.; *f*, *mystes* de Nicév. (Chindwin); *g*, *mnasicles perna* Fruhst. (Karen Hills); *h*, *mestra mestra* Hew. (Cherrapunji); *i*, *nicotia* Westw. (Naga Hills); *j*, *malsarida* Butl. (Naga Hills); *k*, *patnia patnia*, Moore; *l*, *oroatis surkha* Marsh.

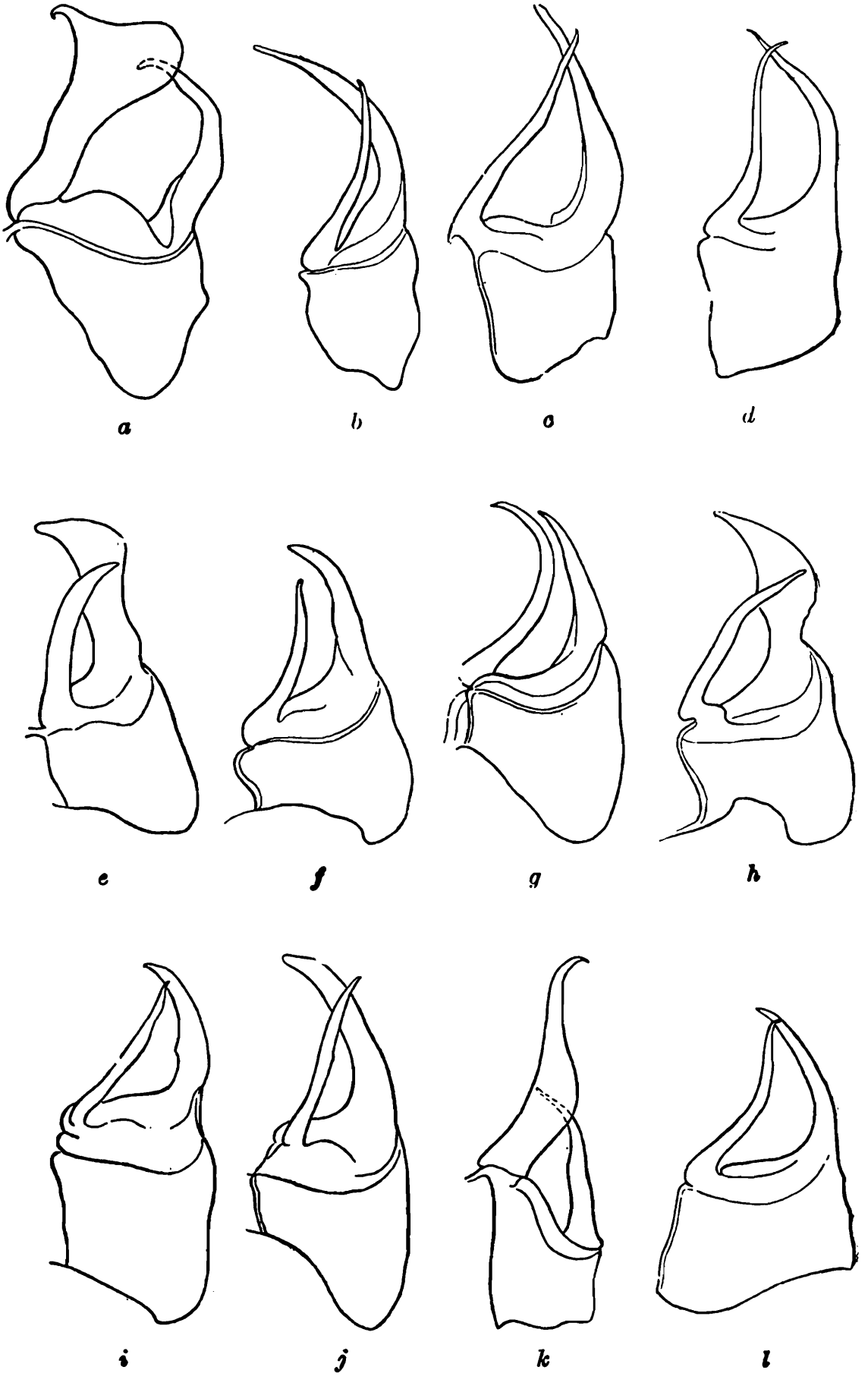


Fig. 43.—Genitalia of *Mycalesis*. Tegumen, with uncus and side lobe, lateral view. Lettering as for fig. 42.

	Hind wing with vein 3 arising far beyond end of cell	*Patnia* Group, p. 162.
4.	Fore wing with *ldc* nearly straight	*Fuscum* Group, p. 126.
	Fore wing with *ldc* distinctly incurved or angled	5.
5.	Hind wing with a hair-pencil on vein 1 *b*	*Mystes* Group, p. 129.
	Hind wing without a hair-pencil on vein 1 *b*	*Mineus* Group, p. 129.

Francisca Group.

(*Virapa* Moore, *Gareris* Moore, *Satoa* Moore, *Sadarga* Moore, *Suralaya* Moore, *Samundra* Moore).

♂. Fore wing *upperside*, along the middle of vein 1 *b*, with an elongate cavity covered by a hair-pencil more or less well developed. Some of the veins are swollen or distorted.

Key to Species.

1.	Underside of both wings without a straight discal line	*maianeas* Hew., p. 116.
	Underside of both wings with a well-defined discal band.	2.
2.	Upperside of male not glossed with blue	3.
	Upperside of male glossed with purplish-blue	*orseis* Hew., p. 125.
3.	Upperside without markings. Hind wing upperside in male, with the brand white, hair-pencil pale yellow	[p. 117. *adamsoni* Wats.,
	Upperside with markings.	4.
4.	Fore wing upperside, with a subapical white band	5.
	Fore wing upperside, without a subapical white band, but with a prominent ocellus.	6.
5.	Hind wing upperside in male, with a prominent black patch between the bases of veins 5 and 7	[p. 120. *anaxioides* Marsh.,
	Hind wing upperside in male, without a large black discal patch	*anaxias* Hew., p. 118.
6.	Hind wing with vein 3 from end of cell. Fore wing upperside in male, with a prominent brand	[p. 121. *francisca* (Stoll),
	Hind wing with vein 3 arising before end of cell. Fore wing upperside in male, with brand obsolete, and hair-pencil obscure.	*gotama* Moore, p. 124.

Mycalesis maianeas Hewitson.

♂. Hind wing *upperside* with the nacreous area rather large, the brand narrow, and scaled with white; hair-pencil whitish; costal edge strongly excurved. Fore wing *underside* with a large nacreous patch bearing a sprinkling of yellowish-white androconia.

Distribution.—Southern Burma to Malaya, Borneo, Sumatra and Banka. Two subspecies known.

239. **Mycalesis maianeas maianeas** Hewitson. (Figs. 42 *a*, 43 *a*, genitalia).

Mycalesis maianeas, Hewitson, 1864 *b*, p. 87, *Mycalesis*, pl. v, figs. 27, 28 (♀).

Satoa maianeas, Moore, 1880 *b*, p. 157.

Mycalesis maianeas, Marshall & de Nicéville, 1883, p. 108.
Mycalesis maianeas maianeas, Fruhstorfer, 1911, p. 355 (Malay Pen., and Borneo).
Mycalesis maianeas, Evans, 1932 *a*, p. 97 (Mergui).

♂. *Upperside* of fore wing deep cinnamon-brown; an obscure and large ocellus in the lower distal area; an equally obscure and small subapical ocellus; between the two ocelli a broad diffuse area slightly paler than the ground-colour. Hind wing ground-colour more blackish than the fore wing, the margins narrowly paler, the outer margin with a submarginal sinuate line of the ground-colour, costal area to vein 7 and apex pale brown; nacreous area ovate, extending to middle of cell and well outside it; hair-pencil arises from about the middle of upper margin of cell.

Underside with paler ground-colour. Fore wing with two ocelli, placed as on upperside, but very distinct; a broad discal band of darker brown, its inner edge incurved from origin of vein 2 to costa, its outer edge even, but angled inwards at vein 4; two submarginal sinuate dark brown lines; nacreous area reaches median, and narrows distally to the pale tornal area; a small black patch of androconia close to vein 1 *b*, and a slightly larger patch of yellow androconia below it. Hind wing with similar ground-colour and dark discal band as on fore wing; the discal band narrows posteriorly, and its outer edge is somewhat irregular below vein 5; a post-discal dark band, produced distally between veins 3 and 5 where it is much broader; five ocelli, in areas 2 to 6, the posterior one as large as the similar one on fore wing, and those in areas 4 and 5 the smaller; two small ocelli in area 1 *c*; two submarginal lines as on fore wing.

Antennæ, head, thorax and abdomen dark brown above, greyish-brown below; palpi and legs greyish-brown; antennæ tipped with yellowish-brown.

♀. Resembles the male, but is paler. Fore wing upperside with the pale distal area much more distinct and reddish-brown.

Expanse: ♂♀, 24–30 mm.

Habitat.—MERGUI ISLANDS to Malaya and Borneo; very rare in Burma.

Mycalesis adamsoni Watson.

♂. *Upperside* deep brown. Fore wing with paler apical area.

Underside of both wings with basal darker area. Fore wing with three distinct ocelli. Hind wing with seven ocelli.

♀. *Upperside* of fore wing with a short, subapical, white band which is sometimes absent.

The seasonal broods of this species are not very distinct.

Distribution.—MANIPUR, NORTHERN BURMA, and Tongking. Two subspecies known.

240. **Mycalesis adamsoni adamsoni** Watson.

Mycalesis (*Virapa*) *adamsoni*, Watson, 1897, p. 640, pl. A, fig. 1 (♀) (Upper Burma: ♂, Katha; ♀, Chindwin); Adamson, 1905, p. 162 (Bhamo district).
Mycalesis adamsoni, Bingham, 1905, p. 54.
Mycalesis adamsoni adamsoni, Fruhstorfer, 1911, p. 353.
Mycalesis adamsoni, Tytler, 1914, p. 223 (Manipur); Evans, 1920, p. 358, pl. iii, fig. K8 (♂ genit.); *id.*, 1932 *a*, p. 97.

♂. *Upperside* very dark brown; both wings with submarginal and marginal pale lines. Fore wing with outer margin anteriorly broadly, but very obscurely, paler, the colour extended obliquely to the costa above the apex, the ocelli of the underside showing very faintly through. Hind wing uniform.

Underside of both wings with basal two-thirds very dark brown; the outer edge of this area is sharply defined, on fore wing slightly oblique from costa to vein 4, thence vertical and sinuous to inner margin; a post-discal, obscure, broad lilac band, bearing, on the fore wing, a white-centred, fulvous-ringed, small, black, median ocellus, and four smaller anterior ocelli, the anterior and posterior of these being mere dots. Hind wing with a curved series of seven similar ocelli, the third from the tornus the largest, the rest subequal. Outer margin of both wings, beyond the line of ocelli, slightly ochraceous, with submarginal and marginal dark lines.

Antennæ, head, thorax and abdomen dark brown.

♀. Similar to the male. *Upperside* of fore wing with a distinctly paler apical and marginal area; a short, subapical, white band, curving downwards vertically. This band is absent in one form of female.

Expanse: ♂♀, 45–50 mm.

Habitat.—Manipur and Northern Burma; rare, but according to Tytler (1914) is common in the Manipur Valley where the wet brood appears from June to November, and the dry brood in March, April, and November.

Mycalesis anaxias Hewitson.

♂♀. *Upperside* of fore wing with a subapical, narrow, white band. Hair-pencil on fore wing, blackish-brown; on hind wing, pale yellowish-brown. Nacreous area on hind wing not extending into the cell, and bearing a large grey or black patch of androconia.

Underside of both wings with a broad, pale brown outer marginal border, the rest of wing deep brown without markings.

The seasonal broods are not very marked in this species.

Distribution.—Peninsular India, Sikkim to Burma, Malaya, and the Nicobar Islands. Four subspecies are distinguished in the Indian area.

241 *a*. Mycalesis anaxias anaxias Hewitson. (Fig. 41*a*, venation).

Mycalesis anaxias, Hewitson, 1862, p. 86, *Mycalesis*, pl. iv, figs. 25, 26.
Mycalesis (*Virapa*) *anaxias*, Hampson, 1889, p. 348 (Nilgiri Hills, 3,000–5,000 feet).
Virapa anaxias, Moore, 1891, p. 159, pl. 55, figs. 1, 1 *a*, *b* (♂♀, wet-season brood), figs. 1, 1 *c* (♂, dry-season brood).
Mycalesis anaxias, Bingham, 1905, p. 52 (part.).
Mycalesis anaxias anaxias, Fruhstorfer, 1911, p. 353.
Mycalesis anaxias, Evans, 1920, pp. 355, 356, 358 pl. i (venation, ♂♀), pl. iii, figs. K1–6 (♂ genit.).
Mycalesis anaxias anaxias, Evans, 1932 *a*, p. 97.

♂♀. *Upperside* deep brown, paler in the female ; a marginal and a submarginal pale line. Fore wing with a subapical oblique white band, not reaching costa, and extending a little below vein 4, near the margin. Hind wing with the brand black.

Underside of both wings with a broad, pale, outer marginal border, sharply defined on its inner edge ; on fore wing the edge of this border is limited by the white band which, however, is diffuse on its outer edge, the inner apical area being pale ; the pale border bears three ocelli, a large one in area 2, and two small subapical ones in 5 and 6; a sinuous dark submarginal line, and a similar dark, but straighter, antemarginal line. Hind wing pale border wider, bearing seven ocelli ; a large ocellus in area 2, in areas 1 *c*, 3, 5 and 6, smaller ones, and a minute one in area 4, and at the tornus in 1 *c* ; submarginal and antemarginal lines as on fore wing. In the female the pale marginal border is more or less dusted with greyish-white, and its inner edge is white.

Expanse : ♂♀, 48–55 mm.

Habitat.—Peninsular India ; not rare.

241 *b*. Mycalesis anaxias æmate Fruhstorfer.

Mycalesis anaxias æmate, Fruhstorfer, 1911, p. 353 (Tenasserim) ; Evans, 1920, p. 358 ; *id.*, 1932 *a*, p. 97, pl. xi, fig. D 2. 3 (♀).
Mycalesis anaxias miranda, Evans, 1920, pp. 355, 358 (Sikkim to Manipur).
Mycalesis anaxias, Moore (*non* Hew.), 1865 *a*, p. 770 (" Bengal ") ; *id.*, 1879 *a*, p. 825 (Upper Tenasserim).
Mycalesis (*Virapa*) *anaxias*, de Nicéville, 1882, p. 55 (Sikkim) ; Marshall & de Nicéville, 1883, p. 106, pl. xvi, fig. 54 (♂, Sikkim) ; Wood-Mason & de Nicéville, 1887 (♂, Cachar).
Mycalesis anaxias, Elwes, 1891, p. 259 (E. Pegu).
Mycalesis (*Virapa*) *anaxias*, de Nicéville, 1894 *a*, p. 119 (Sikkim) ; Adamson, 1905, p. 162 (Tenasserim).
Mycalesis anaxias, Tytler, 1911, p. 50 (Naga Hills).

♂♀. Differs chiefly from the nominotypical form in that the brand on hind wing *upperside* is ashy-grey instead of black.

Underside of both wings with a narrower pale distal border, more or less dusted with lilac, and with the marginal border, bounded by the submarginal line, more or less

ochraceous. In dry-season specimens the submarginal line is closer to the edge of the proximal brown area, and the ochraceous border is wider, the ocelli are reduced, and the one in area 2 of fore wing is represented by a small round ochraceous spot.

Habitat.—SIKKIM to BURMA ; not rare.

241 *c*. **Mycalesis anaxias radza** Moore.

Mycalesis radza, Moore, 1877 *b*, p. 583, pl. lviii, fig. 1 (♂, Port Blair) ; Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♂♀, Andaman Islands) ; *id.*, 1881 *b*, p. 244 ; Marshall & de Nicéville, 1883, p. 105.

Virapa radza, Moore, 1891, p. 160, pl. 55, figs. 2, 2 *a* (♂♀).

Mycalesis anaxias radza, Bingham, 1905, p. 53 ; Fruhstorfer, 1911, p. 353 ; Evans, 1920, p. 358, pl. iii, fig. K7 (♂ genit.) ; *id.*, 1932 *a*, p. 97.

♂♀. Resembles the wet-season form of the nominotypical subspecies. *Upperside* of fore wing with a large, white-pupilled fulvous-ringed black ocellus in area 2, and a smaller, similar ocellus placed just beyond the white subapical bar. Hind wing with a similar large ocellus in area 2.

Underside uniform brown ; the broad, pale, marginal area on fore wing barely indicated ; anterior ocellus much larger than the lower one.

Habitat.—ANDAMAN ISLANDS ; rare.

241 *d*. **Mycalesis anaxias manii** Doherty.

Mycalesis (*Virapa*) *manii*, Doherty, 1886 *b*, p. 257 (♀, Great Nicobar ; ♀, Little Nicobar).

Virapa manii, Moore, 1891, p. 161, ♀.

Mycalesis anaxias mani, Fruhstorfer, 1911, p. 353.

Mycalesis anaxias manii (sic), Evans, 1920, p. 358.

Mycalesis anaxias manii, Evans, 1932 *a*, p. 97 (South Nicobar Islands).

♂♀. Distinguished from other subspecies by the broader and longer subapical white band ; this nearly touches the costa and outer margin, and its inner edge comes near the cell.

Underside ground-colour paler than in allied forms. Fore with with the two subapical ocelli enclosed in the same fulvescent ring. Hind wing with a discal broad violaceous band, its inner edge nearly straight.

Habitat.—SOUTH NICOBAR ISLANDS ; rare.

242. **Mycalesis anaxioides** Marshall.

Mycalesis (*Virapa*) *anaxioides*, Marshall, 1883, p. 107 (♂♀, Upper Tenasserim).

Mycalesis anaxioides, Elwes & de Nicéville, 1887, p. 418 (Tavoy).

Samundra anaxioides, Moore, 1891, p. 162, pl. 55, figs. 3, 3 *a*, *b* (♂♀).

Mycalesis anaxioides, Elwes, 1891, p. 259 (E. Pegu, 1,500 feet).

Mycalesis (*Samundra*) *anaxioides*, Adamson, 1905, p. 163 (Upper Tenasserim).

Mycalesis anaxioides, Bingham, 1905, p. 54 ; Fruhstorfer, 1911, p. 354 ; Ellis, 1917, p. 106 (Pegu Yoma) ; Evans, 1920, p. 358, pl. i (♂ venation), pl. iii, figs. K9–10 (♂ genit.) ; *id.*, 1932 *a*, p. 97.

♂♀. *Upperside* deep brown. Fore wing with a broad, slightly arched, subapical white band as in *anaxias* ; a marginal dark line ; an ocellus in area 2, more or less defined, but prominent in the female. Hind wing with vein 7 closer to 6 than to 8, the basal half of vein 6 swollen ; a prominent discal black patch between the bases of veins 5 and 7.

Underside ground-colour as in *anaxias*, with a similar dark proximal and paler distal area. In the wet-season form the pale area bears four ocelli on the fore wing, and seven on the hind wing. In the dry-season form the ocelli are nearly obsolete, represented by mere black dots ; outer pale border more clearly defined, of a lilacine white, suffused with brown ; subapical white band with its outer edge diffuse.

Antennæ, head, thorax and abdomen dull brown, paler beneath ; antennæ somewhat ochraceous.

Expanse : ♂♀, 52–62 mm.

Habitat.—KAREN HILLS to SOUTHERN BURMA and Malaya ; rare.

Mycalesis francisca (Stoll), 1780.

♂♀. *Upperside* of fore wing with a prominent pupilled ocellus in area 2. Hind wing, in the male, with the brand and hair-pencil pale brown.

Underside of fore wing without an ocellus in area 3 ; male brand very small, brown.

Distribution.—Japan, Formosa, and China, to the HIMALAYAS, BURMA and Annam. Two subspecies in the Indian area.

243 *a*. **Mycalesis francisca sanatana** Moore. (Figs. 44, ♂ ; 45, ♂ genitalia).

Mycalesis sanatana, Moore, 1857, p. 231.

Mycalesis (*Gareris*) *sanatana*, Marshall & de Nicéville, 1883, pp. 107, 108.

Gareris sanatana, Butler, 1885 *a*, p. 302 (" near Assam ").

Mycalesis (*Gareris*) *sanatana*, Doherty, 1886 *a*, p. 114 (Kumaon, 5,000–6,000 feet).

Mycalesis sanatana, Elwes, 1891, p. 260 (E. Pegu, 4,000–5,000 feet).

Gareris sanatana, Moore, 1891, p. 164, pl. 56, figs. 1, 1 *a*, *b* (♂♀, wet-season brood), 2, 2 *a*, *b* (♂♀, dry-season brood).

Mycalesis (*Gareris*) *sanatana*, de Nicéville, 1894 *a*, p. 119 (Sikkim) ; Watson, 1897, p. 641 (Upper Chindwin, 3,500–5,000 feet) ; Adamson, 1905, p. 163 (Tenasserim).

Mycalesis sanatana, Bingham, 1905, p. 55, pl, ii, fig. 7 (♂) ; Hannyngton, 1910, p. 134 (Kumaon, 6,000–8,000 feet) ; Tytler, 1911, p. 50 (Naga Hills, 5,000 feet).

Mycalesis francisca sanatana, Fruhstorfer, 1911, p. 355 ; Evans, 1920, pp. 355, 358, pl. i (♂ venation), pl. iii, figs. L4–7 (♂ genit.) ; *id.*, 1932 *a*, p. 97, pl. xi, fig. D 2.5 (♂).
Mycalesis gopa, C. & R. Felder, 1867, p. 501 ; de Nicéville, 1881, p. 53 (Sikkim).
Mycalesis (*Gareris*) *gopa*, de Nicéville, 1882, p. 55 (Sikkim) ; Marshall & de Nicéville, 1883, p. 107.
Mycalesis gopa, Elwes, 1891, p. 260 (Naga Hills).
Mycalesis francisca sanatana f. *gopa*, Fruhstorfer, 1911, p. 354 (wet-season form).
Mycalesis francisca gomia, Fruhstorfer, 1908 *c*, p. 146 (♀, Annam) ; *id.*, 1911, p. 354, t. 92 *c* (♂) ; Evans, 1920, p. 358.

Dry-season form **sanatana** Moore.—♂♀. *Upperside* deep brown, with paler outer borders. Fore wing with a large white-centred fulvous-ringed black ocellus in area 2 ; a similar, but smaller, ocellus in area 5. Hind wing unmarked.

Underside with proximal two-thirds of both wings dark brown, distal third light umber-brown ; basal portion crossed by two darker brown lines, and bounded by a slightly arched line of the same colour, followed by an outwardly diffuse pinkish band ; ocelli minute or nearly obsolete.

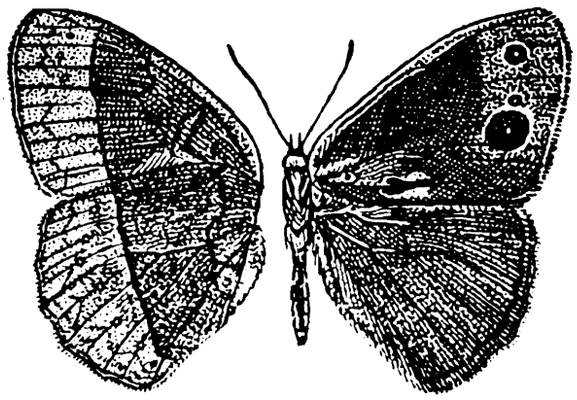


Fig. 44.—*Mycalesis francisca sanatana* Moore, ♂.

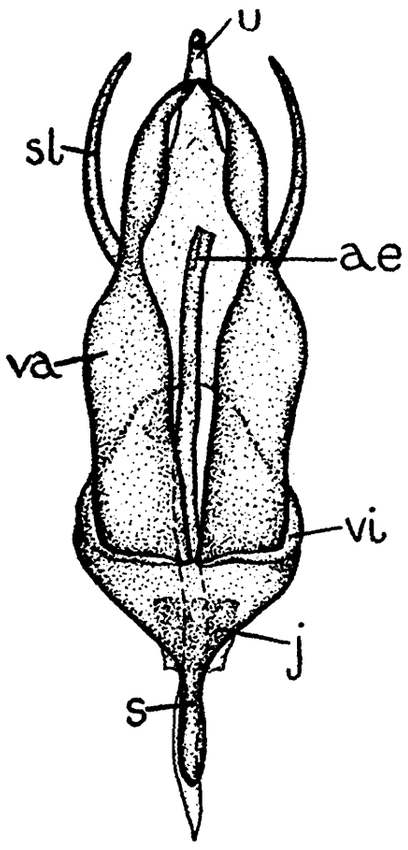
Wet-season form **gopa** C. and R. Feld.—♂♀. *Upperside* as in the dry form, but outer paler borders narrower, and with a submarginal, dark slender line.

Underside with proximal two-thirds of both wings dark brown, sharply defined, and bordered by an outwardly diffuse pinkish band ; distal third paler brown, bearing, on the fore wing, five ocelli, and on the hind wing, seven ocelli, all similar to those on upperside of fore wing ; a sinuous, submarginal dark brown line, and two finer antemarginal dark brown lines.

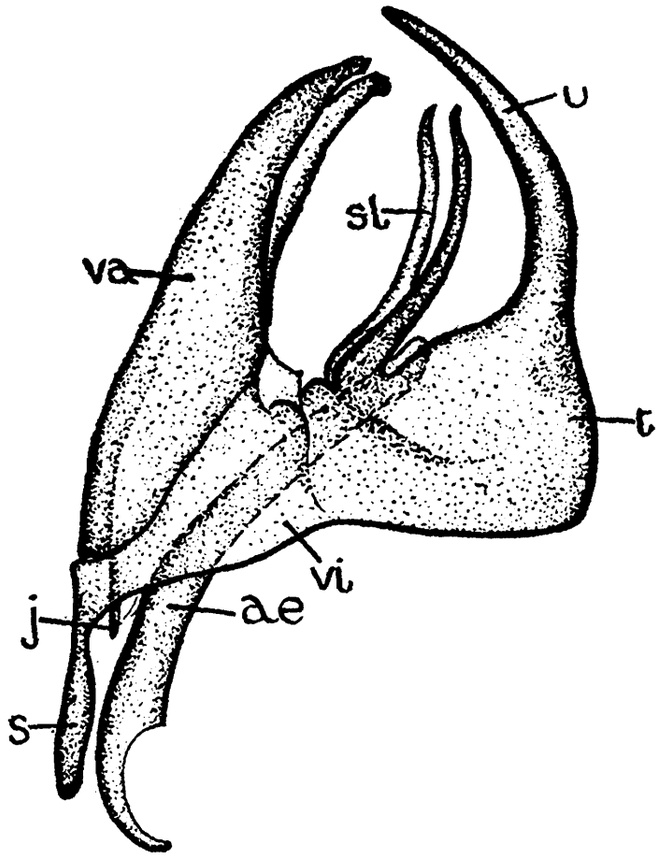
Antennæ, head, thorax and abdomen dark brown ; antennæ ochraceous at apex.

Expanse : ♂♀, 48–55 mm.

♂ *genitalia*.—Uncus long and curved, tapering to apex, but not pointed. Side lobes long, dorsally excurved, very gently



A



B

Fig. 45.—*Mycalesis francisca sanatana* Moore, ♂ genitalia.

A. Ventral view. *ae*, aedeagus; *j*, juxta; *s*, saccus; *sl*, side lobes; *u*, uncus; *va*, valve; *vi*, vinculum. B. Lateral view. *t*, tegumen. Other lettering as for A.

tapering for most of their length, and more rapidly near apex. Valve long and narrow, strongly narrowing from above the middle ; apex dentate.

Habitat.—KULU TO BURMA ; not rare.

243 *b*. **Mycalesis francisca albofasciata** Tytler.

Mycalesis albofasciata, Tytler, 1914, p. 224, pl. ii, fig. 14 (♂) (♂♀, Naga Hills, 6,000–8,000 feet).
Mycalesis francisca albofasciata, Evans, 1920, pp. 355, 358 ; *id.*, 1932 *a*, p. 97.

♂♀. *Upperside* of fore wing with subapical ocellus prominent. Hind wing often with a small ocellus in area 2, and one in 3.

Underside pale ochraceous-brown. Fore wing with two sub-basal dark lines, slightly outcurved, placed near together, and crossing the cell to median in the male, and to vein 1 *b* in the female ; a post-discal narrow band, slightly angled at vein 4, yellowish-white in the male, in the female wider, and violet-white ; the inner edge of this band is sharply defined, and bordered by dark brown, outer edge diffuse ; a submarginal, very sinuous, dark brown line, a finer and straighter ante-marginal line ; ocelli as on upperside. Hind wing with a sub-basal, irregular, dark line, from costa to vein 1 *a* ; a post-discal narrower band as on fore wing, but not angled anteriorly ; submarginal, antemarginal, and marginal lines as on fore wing ; seven rather small ocelli, the one in area 2 the largest, those in 5 and 6 minute.

In the dry-season form, the underside has the proximal two-thirds rather darker ; all ocelli much smaller and indistinct.

Habitat.—ASSAM : Manipur, from 6,000–8,000 feet ; common from July to October.

Mycalesis gotama Moore, 1857.

♂♀. *Upperside* of fore wing in male, with the band obsolete and hair-pencil much reduced ; both sexes with a large ocellus in area 2 and one in 5. Hind wing with vein 7 closer to 6 than to 8 ; vein 3 from before end of cell ; *udc* swollen.

Distribution.—Japan, China, Formosa, the HIMALAYAS to BURMA, Tong-king, and Annam. One Indian subspecies.

244. **Mycalesis gotama charaka** Moore.

Mycalesis charaka, Moore, 1874 *b*, p. 566.
Sadarga charaka, Moore, 1880 *b*, p. 158.
Mycalesis (*Sadarga*) *charaka*, Marshall & de Nicéville, 1883, p. 109.
Sadarga charaka, Moore, 1891, p. 167, pl. 57, figs. 1, 1 *a*, *b*, *c* (♂♀, wet-season brood), 2, 2 *a* (♂, dry-season brood).
Mycalesis (*Sadarga*) *charaka*, Watson, 1897, p. 641 (Manipur) ; Adamson, 1905, p. 163 (Bhamo and Upper Chindwin).
Mycalesis charaka, Bingham, 1905, p. 55 ; Tytler, 1911, p. 50 (Naga Hills).

Mycalesis gotama charaka, Fruhstorfer, 1911, p. 349 (=wet-season form); Evans, 1920, pp. 355, 358, pl. i (♂ venation), pl. iii, figs. L1, 2 (♂ genit.); *id.*, 1932 *a*, p. 97.
Sadarga oculata, Moore, 1880 *b*, p. 158 (♂♀, Silhet).
Mycalesis (*Sadarga*) *oculata*, Marshall & de Nicéville, 1883, p. 109.
Mycalesis gotama charaka f. *oculata*, Fruhstorfer, 1911, p. 349 (=dry-season form).
Calysisme peribœa, Butler, 1885 *a*, p. 301.

Wet-season form **charaka** Moore.—♂♀. *Upperside* dark brown, the outer margins narrowly paler; both wings with a marginal dark brown line. Fore wing with a very large ocellus in area 2, and a much smaller one in 5. Hind wing unmarked.

Underside paler brown; distal half ochraceous-brown, paler than the proximal half; the two areas separated by a straight dark line which is distally bordered by an ochraceous-white band, diffuse on its outer edge. Fore wing with two ocelli as on upperside, and a third ocellus in area 6. Hind wing normally with seven similar ocelli, of which the third from tornus is the largest, and the fourth very small or absent. Both wings with sinuous dark brown submarginal and marginal lines.

Antennæ, head, thorax and abdomen brown; antennæ annulated with white, club dark brown, ochraceous at apex.

Dry-season form **oculata** (Moore).—♂♀. The ocelli are all reduced to mere white-centred black specks; submarginal and marginal lines more evenly curved, and forming slender lunules between the veins.

Underside with paler ground-colour and darker proximal area than in the wet form; the discal line is white.

Expanse: ♂♀, 45–50 mm.

Habitat.—Assam to Burma, Tong-king, and Annam; rare in the Indian area.

Mycalesis orseis Hewitson, 1864.

♂. *Upperside* purplish-brown, with a purple gloss. Fore wing brand obsolete, hair-pencil much reduced; inner margin excurved. Hind wing brand long, brown; hair-pencil brown; a large black patch between the bases of veins 2 to 4.

Underside of fore wing with brand brown. Female larger, the *upperside* dull brown.

♂♀. *Underside* of both wings with a post-discal purplish band, bearing ocelli. Hind wing with vein 7 originating more proximad than in the other species of the group.

Distribution.—Assam to Burma, Malaya, Sumatra, Borneo, and Palawan. One Indian subspecies. The type of *orseis* Hew. came from Sumatra.

245. **Mycalesis orseis nautilus** Butler.

Mycalesis nautilus, Butler, 1867 *i*, p. 402, pl. ix, fig. 7 (♂♀, Malacca).
Calysisme nautilus, Moore, 1880 *b*, p. 162.
Mycalesis (*Calysisme*) *nautilus*, Marshall & de Nicéville, 1883, p. 120.

Mycalesis orseis nautilus, Fruhstorfer, 1911, p. 353 ; Evans, 1920, pp. 355, 358, pl. i (♂ venation) ; *id.*, 1932 *a*, p. 98.
Suralaya orseis, Moore (*non* Hew.) 1891, p. 217 (part.), pl. 73, figs. 2 *a*, *b* (♀).
Mycalesis orseis, Bingham, 1905, p. 56 ; Tytler, 1911, p. 50 (Naga Hills).

♂. *Upperside* with a purple gloss. Both wings with pale marginal and submarginal lines. Fore wing with ocelli showing through, but without pupils. Hind wing unmarked.

Underside with proximal two-thirds of both wings deep brown, crossed by a sinuous, darker line ; distal third much paler ; a post-discal purplish band, outwardly diffuse, and bearing a series of five ocelli, the posterior one the largest ; submarginal zigzag, and marginal slightly sinuous, slender dark lines.

♀. *Upperside* dull brown ; all ocelli show through, and are obscurely pupilled.

Underside pale ochreous ; discal lines dark brown ; post-discal band broader. Fore wing with six ocelli.

Antennæ, head, thorax and abdomen brown ; antennal club ochraceous at apex, dark brown below.

Expanse : ♂♀, 45–52 mm.

Habitat.—Naga Hills to Burma, Malaya, and Sumatra. Very rare in the Indian area.

Fuscum Group. (*Dasyomma* C & R. Felder).

Fore wing *upperside*, in male, without a brand ; vein 10 at or near end of cell ; *ldc* nearly straight. Hind wing without a brand, only a cavity, hair-pencil white ; vein 3 arising at or just beyond end of cell ; vein 6 swollen at the base.

Key to Species.

1. ♂♀. Upperside dark brown ; ocelli show through, unpupilled. ♀ upperside pale brown ; ocelli show through with complete pupils and rings. Underside ochreous, with two prominent fulvous bands . . . . . [p. 126. *fuscum* (C. & R. Feld.),
2. ♂♀. Upperside tawny yellow. Fore wing with broad dark border, and a small, pupilled, ocellus in area 2. Hind wing with very narrow border, and small, pupilled ocelli in areas 1 *c* to 3. Underside bright ochreous, with two prominent fulvous bands . . . . . *anapita* Moore, p. 128.

Mycalesis fuscum (C. & R. Felder).

♂. *Upperside* dark brown, ocelli showing through, unpupilled. Fore wing with indistinct darker curved discal band.

Underside ground-colour dark ochraceous ; a sub-basal

reddish-brown line, and a similar but heavier discal line, on both wings ; ocelli small.

♀. *Upperside* paler brown ; all ocelli showing through, with pupils.

Underside as in the male, the ground-colour much paler.

Distribution.—BURMA to Java and Borneo. One subspecies in the Indian area.

246. **Mycalesis fuscum fuscum** (C. & R. Felder). (Figs. 42 *b*, 43 *b*, ♂ genitalia).

Dasyomma fuscum, C. & R. Felder, 1860, p. 401.
Mycalesis fuscum fuscum, Fruhstorfer, 1911, p. 350 ; Evans, 1914 *a*, p. 761 (♀, Tavoy) ; *id.*, 1920, p. 359, pl. ii (♂ venation) ; *id.*, 1932 *a*, p. 98, pl. xi, fig. D 2.8 (♂).

♂. *Upperside* deep brown. Fore wing with ocelli, showing through indistinctly, in areas 2, 4 and 5 ; indistinct discal band, darker brown, narrow, and incurved, from costal area to vein 1 *b*, this band dividing a darker proximal area from a paler distal area ; a submarginal, indistinct, sinuous line ; a more distinct, darker, and straighter antemarginal line. Hind wing with ocelli showing through indistinctly.

Underside ground-colour dark ochraceous-brown ; reddish-brown sub-basal band, on fore wing passing through middle of cell to origin of vein 2, and on hind wing from costa to middle of area 1 *b* ; the reddish-brown discal band is straight, and on the hind wing crosses the point of origin of veins 3 and 4 ; the distal marginal area on both wings more or less broadly dusted with reddish-brown, and bearing the ocelli ; fore wing with a small ocellus in area 2, and three smaller ones in areas 4 to 6 ; hind wing with seven ocelli, all with the outer ring grey ; both wings with a submarginal sinuous line, and a blacker ante-marginal and marginal line ; on hind wing these lines are closer together, and more sinuous.

Antennæ, head, thorax and abdomen dark brown ; antennal club reddish-brown, tipped with ochraceous.

♀. *Upperside* much paler than in male. Fore wing discal dark line more distinct, the distal pale area much lighter than in male ; submarginal line heavy and diffuse ; antemarginal and marginal lines sharply defined. Hind wing with distal third paler, more or less dusted with ochreous-grey ; all seven ocelli distinct.

Underside ground-colour ochraceous-grey, with markings as in male. Hind wing *ldc* more strongly lined with reddish-brown.

Expanse : ♂♀, 40–50 mm.

Habitat.—The DAWNA RANGE to SOUTHERN BURMA, Malaya, and Sumatra ; rare in Burma.

Mycalesis anapita Moore.

♂♀. *Upperside* tawny-brown. Fore wing with broad outer black border, the apical area especially broad ; a small ocellus in area 2. Hind wing with six small ocelli.

Underside bright ochraceous, and two reddish-brown lines as in *fuscum* ; ocelli as in *fuscum*.

Early stages (from *Martin*, quoted by Fruhstorfer, 1911) :—

Egg.—Yellowish-white ; laid singly.

Larva.—When first hatched, entirely white, except for a black head. Third instar greyish rose-colour. When full-grown, the larva is 32 mm. long, and has a black head with very fine, dense hairs, and some dark yellow spots ; head and anal points short and obtuse ; a fine, blackish, white margined dorsal line ; above the legs a lighter lateral line, and between the two lines, some more or less distinct black spots. Before pupation, the greyish rose-colour changes to grass-green.

Pupa.—Green ; a pointed elevation on thorax ; a fine, white-bordered line above inner margin of wings ; some fine, whitish, undulate lines run transversely over the wings ; the pupa is further adorned with symmetrical brown-red spots ; more slender and pointed than the pupa of *M. mineus*.

Habits.—The larvæ feed also by day, the food-plant being certain rare grasses. At first they rest on the leaves, but after the third moult, they seek the stalks. They pupate on green stalks or leaves, and prefer horizontal ones. After 9 or 10 days the butterfly emerges between 9 and 10 a.m.

The butterfly is found in the plains, and frequents grassy places in the woods and also river-banks. Usually rare, but sometimes common locally.

Distribution.—BURMA to Sumatra, Banka, Billiton, and Borneo. Two subspecies, one in Burma.

247. **Mycalesis anapita anapita** Moore. (Figs. 46, ♂ ; 42 *c*, 43 *c*, ♂ genitalia).

Mycalesis anapita, Moore, 1857, p. 232.
Mycalesis anapita anapita, Fruhstorfer, 1911, p. 334.
Mycalesis anapita, Evans, 1932 *a*, p. 98 ; Tytler, 1939 *a*, p. 244 (♂♀, Mergui).

♂♀. *Upperside* tawny-brown. Fore wing tawny area somewhat ovate, and distally narrowed between veins 2 and 3, its outer edge curved and sharply defined, costal edge diffuse and dusted with black ; apical area broadly black, entering upper angle of cell ; marginal black narrow between veins 2 and 3, extending more widely round the tornus, and narrowing to a point a little before the middle of inner margin ; a small, black, white-pupilled ocellus in area 2. Hind wing darker over the basal and median areas ; a series of six small ocelli, each with a black outer ring, the posterior two in area 1 *c*, the others in

2, 3, 4, and 5; prominent submarginal, antemarginal, and marginal black lines, slightly sinuous.

Underside bright ochraceous, both wings traversed by two reddish-brown lines, one, sub-basal, passing through the middle of cell, the other a discal line which on the hind wing crosses the base of area 3. Fore wing discal line anteriorly curved slightly distad; ocellus in area 2 as on upperside; two smaller ocelli in areas 4 and 5, all with pale outer rings; a fine, black, even submarginal line; similar, but heavier, antemarginal and marginal black lines. Hind wing distal border more or less reddish-brown, and bearing seven ocelli, all with pale outer rings; submarginal, antemarginal, and marginal black lines as on fore wing, but more sinuous.

Head, thorax and abdomen dark brown; palpi, thorax and abdomen grey below; antennæ black, club more or less reddish-brown.

Expanse: ♂♀, 40–50 mm.

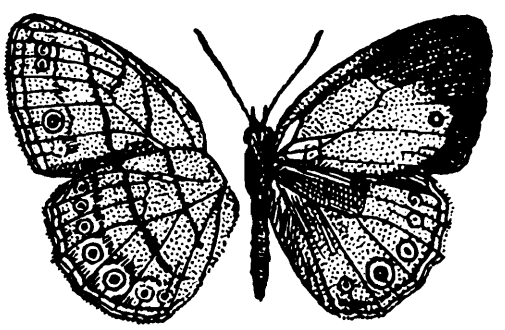


Fig. 46.—*Mycalesis anapita anapita* Moore, ♂.

Habitat.—TENASSERIM to Sumatra, Banka, and Billiton. Very rare in Burma.

Mineus Group. (*Calysisme* Moore, *Talinga* Moore).

♂ with normal brands. Fore wing with *ldc* incurved or angled. Hind wing with *ldc* at an angle to vein 3; veins 6 and 7 well separated at the base. Hind wing upperside with a brand upon which lies a hair-pencil which, in most species, is yellowish-brown. Fore wing underside usually with a brand in the inner area.

Genitalia.—The valve exhibits specific differentiation. It is furnished with apical and dorsal projections; these are usually set at an angle to one another, and for this reason it is not always possible to examine these two processes in the same relative position. The contour of the dorsal edge of the valve often shows important specific differences.

A revision of the group was published by Talbot and Corbet (1939). The arrangement given there is followed here.

Key to Males of Indian species.

1.	Fore wing without a brand	2.
	Fore wing with a brand	3.
2.	Fore wing upperside in area 2 with a large ocellus having a prominent fulvous ring. Hind wing upperside with from two to four ocelli.	*adolphei* (Guér.), p. 147.
	Fore wing upperside with a yellow-ringed ocellus in area 2. Hind wing upperside without ocelli	*evansii* Tytler, p. 146.
3.	Fore wing brand silvery white, indistinct in the nacreous area. . . .	*rama* (Moore), p. 146.
	Fore wing brand not silvery, distinctly marked	4.
4.	Fore wing brand small, short, not elongate.	5.
	Fore wing brand elongate, yellow or brown.	7.
5.	Fore wing brand very small, narrow, blackish brown, placed midway below origin of vein 2	6.
	Fore wing brand small and black. Hind wing brand black, hair-pencil brown. Fore wing upperside a large ocellus in area 2 placed in a wide fulvous area	*oculus* Marsh., p. 148.
6.	Hind wing brand small, blackish-brown. Hind wing underside with ocellus in area 2 moved inwards, out of line with those in 1 *b* and 3	*perseus* (Fabr.), p. 130.
	Hind wing brand small, oval, usually salmon-pink, rarely brown. Fore wing ocellus with outer ring more or less diffuse and never sharply defined. Hind wing underside with the pale thin line, anteriorly bounding ocelli in areas 4 and 5, deeply indented	*mineus* (L.), p. 133.
7.	Fore wing brand long, extended, in *igilia igilia*, to beyond outer edge of post-discal line; pale yellowish-buff, proximally brown. Hind wing brand pale buff. Cilia of both wings distinctly paler than in *visala*	*igilia* Fruhst., p. 137.
	Fore wing brand elongate oval, usually reaching post-discal line	8.
8.	Fore wing brand dark brown. Hind wing brand large, pale yellow. Fore wing ocellus large, its outer ring sharply defined	*intermedia* (Moore), [p. 139.
	Fore wing brand dark brown. Hind wing brand a narrow, blackish-brown streak. Fore wing ocellar ring brighter yellow and more sharply defined than in *mineus*.	*perseoides* (Moore), [p. 145.
	Fore wing brand pale yellow. Hind wing brand as in *intermedia*	*visala* Moore, p. 140.

Mycalesis perseus (Fabricius), 1775.

♂. *Upperside* of hind wing with the brand black; hair-pencil pale ochraceous.

Underside of fore wing with a small, black, brand on vein 1 *b*, placed at a point lying directly below the origin of vein 2.

♂♀. *Underside* of hind wing with the ocellus in area 3 placed more proximad than the others. Wet-season form with both wings bearing a dark discal line edged outwardly with white or

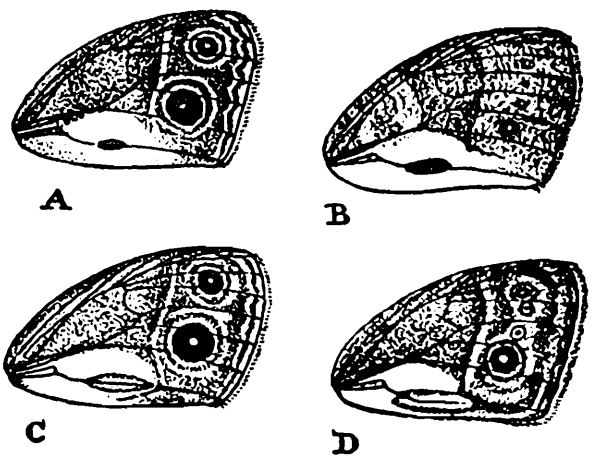


Fig. 47.—*Mycalesis*, fore wings of male, showing brand of specialized scales. A, *perseus* (Fabr.); B, *mineus* (L.); C, *visala subdita* (Moore); D, *visala visala* Moore.

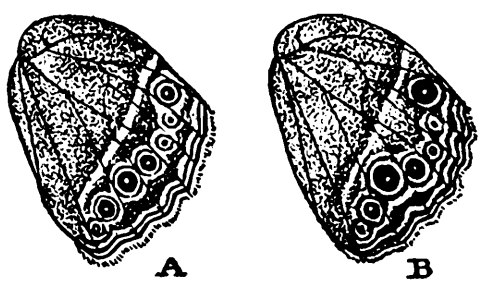


Fig. 48.—*Mycalesis*, hind wing, underside, showing arrangement of ocelli. A, *mineus mineus* (Linn.); B, *perseus tabitha* (Fabr.).

bluish-white. Dry-season form without light edging to the discal line, and this line often obscure.

Distribution.—The whole Indo-Australian Region. The type came from Australia.

Three subspecies known, of which two occur in the Indian area.

248 *a*. **Mycalesis perseus tabitha** (Fabricius).

Papilio tabitha, Fabricius, 1793, p. 243; Aurivillius, 1898, pp. 139–74.

Mycalesis perseus typhlus, Fruhstorfer, 1908 *c*, p. 152 (nom. nov. pro *blasius* auct., *perseus* auct. (Malabar, Ceylon); *id.*, 1911, p. 342 (South India, Ceylon); Evans, 1920, p. 359, pl. ii (♂ wing characters); *id.*, 1932 *a*, p. 98; Peile, 1937, p. 83; Talbot & Corbet, 1939, p. 408 (type, w.s.f., Malabar); Woodhouse & Henry, 1942, p. 42, pl. iv, figs. 2 (♂), 3 (♀) Ceylon).

Mycalesis (*Calysisme*) *perseus*, Marshall & de Nicéville (*non* Fabr.) (part.), 1883, pp. 114, 120; de Nicéville, 1885 *a*, p. 42 (Calcutta); Taylor & de Nicéville, 1888, no. 15 (Orissa); Hampson, 1889, p. 348 (Nilgiri Hills).

Calysisme perseus, Moore, 1891, pp. 134–76 (part.), pl. lix, figs. 1, 1 *a* (♂, Calcutta), 1 *b* (♂, f. *samba*, Moore), 1 *c*, *d* (♀) (wet-season brood), figs. 2, 2 *a* (♂, Calcutta), 2 *b*, *c* (♀, Nilgiris), 2 *d*, *e* (♀, Calcutta) (dry-season brood).

Mycalesis perseus, de Rhé-Philipe, 1902, p. 483 (Lucknow); Bingham, 1905, p. 57 (part.), figs. 16 A (fore wing), 17 B (hind wing); Evans, 1910, p. 381 (Palni Hills, 3,000 ft.).

Calysisme perseus, Ormiston, 1918, p. 9 (Ceylon).

Mycalesis (*Calysisme*) *blasius*, Marshall & de Nicéville, 1883 (part.), pp. 114, 115, pl. xvi, fig. 55 (♂, Calcutta); de Nicéville, 1885 *a*, p. 42 (Calcutta).

Mycalesis samba, Moore, 1857, p. 233 (♂, "North India"); *id.*, 1865 *b*, p. 770 (Bengal); *id.*, 1877 *b*, p. 583 ("Port Blair").

Mycalesis (*Calysisme*) *blasius* var. *samba*, Marshall & de Nicéville, 1883, p. 115.

Mycalesis blasius, de Rhé-Philipe, 1902, p. 483 (Lucknow); *id.*, 1905, p. 720 (Lucknow).

♂♀. Only slightly differentiated from the more widely distributed *blasius* (Fabr.).

Upperside of fore wing usually without an ocellus in area 2. Size, smaller on the whole.

Expanse: ♂♀, 38–50 mm.

The name **samba** Moore applies to the wet-season form.

Habitat. — CEYLON, PENINSULAR INDIA, CENTRAL and UNITED PROVINCES; very common. According to Ormiston (1928), the insect is very common in Ceylon, except in the northern province. The two seasonal forms are found flying together. The butterfly comes to sugar occasionally.

248 *b*. **Mycalesis perseus blasius** (Fabricius).

Papilio blasius, Fabricius, 1798, p. 426.

Mycalesis blasius, Moore, 1879 *a*, p. 825 (Upper Tenasserim); Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♂♀, Andamans).

Calysisme blasius, Moore, 1882 *b*, p. 237 (Kangra).

Mycalesis (*Calysisme*) *blasius*, de Nicéville, 1885 *b*, p. 1 (♂, Sikkim); Wood-Mason & de Nicéville, 1887, p. 348 (Cachar).

Mycalesis perseus blasius, Evans, 1932 *a*, p. 98 (Kangra to Burma); Peile, 1937, p. 83 (Kumaon); Talbot & Corbet, 1939, p. 408.

Mycalesis lurida, Butler, 1879, p. 3 (♂, Cachar).

Mycalesis (*Calysisme*) *blasius* var. *lurida*, Marshall & de Nicéville, 1883, p. 115.

Mycalesis perseus, Butler (*non* Fabr.), 1867 *c*, p. 719, fig. 2 (p. 718); Moore, 1879 *a*, p. 825 (Upper Tenasserim); Wood-Mason & de Nicéville, 1881 *b*, p. 244 (Andamans).

Mycalesis (*Calysisme*) *perseus*, de Nicéville, 1882, p. 56 (♂, Sikkim).

Calysisme perseus, Moore, 1882 *b*, p. 237 (Kangra); *id.*, 1886, p. 32 (Mergui); Butler, 1886 *b*, p. 183 (Upper Burma).

Mycalesis (*Calysisme*) *perseus*, Doherty, 1886 *a*, p. 114 (Kumaon).

Mycalesis perseus, Elwes & de Nicéville, 1887, p. 418 (=dry-season form).
Mycalesis (*Calysisme*) *perseus*, Wood-Mason & de Nicéville, 1887, p. 348 (Cachar); de Nicéville, 1894 *a*, p. 120 (Sikkim).
Mycalesis (*Orsotriæna*) *perseus*, Mackinnon & de Nicéville, 1897, p. 214 (Mussooree).
Mycalesis (*Calysisme*) *perseus*, Watson, 1897, p. 641 (Upper Chindwin); Adamson, 1905, p. 163 (Burma).
Mycalesis perseus, Hannyngton, 1910, p. 134 (Kumaon, 1,000–6,000 feet).
Mycalesis perseus perseus, Fruhstorfer, 1911, p. 342, t. 92 *a*.
Mycalesis perseus, Ellis, 1917, p. 106 (Pegu Yoma).
Mycalesis perseus perseus, Evans, 1920, pp. 356, 359, pl. i (♂ wing characters), pl. iv, figs. A 1–6 (♂ genit.).

Wet-season form.—♂♀. *Upperside* of fore wing always with an ocellus in area 2; hind wing usually without ocelli. Ground-colour of both wings dark to pale brown. Both wings with a pale submarginal and marginal line, placed close together, and obscure on fore wing.

Underside of both wings with ground-colour as on upperside and crossed by a narrow, discal, white or bluish-white line, its inner side edged with darker brown. Fore wing with an ocellus in the middle of area 2, a much smaller one in 3, placed more distad, one above the latter in 4, and a fourth in 5, slightly more proximad; the two middle ocelli may be much reduced, and the whole group is enclosed by a pale line, sinuous, and on the proximal side, at vein 4, strongly curved inwards; submarginal and marginal pale lines, much more distinct than on upperside. Hind wing with seven ocelli, all similarly enclosed by a pale line, as on fore wing; the ocellus in area 2 a trifle larger than the anterior one, and placed slightly more proximad than those in areas 1 *c*, 3, 4, and 5; ocelli in 1 *c*, 3, and 4, in a straight line; submarginal and marginal pale lines as on fore wing.

Dry-season form.—♂♀. *Underside* ground-colour brown, more or less speckled with darker brown, and more or less dusted with grey; ocelli reduced, often only the white centres distinct.

Antennæ brown above, greyish-white below, anteriorly more or less ochraceous, the club tipped with ochraceous; head, thorax and abdomen brown, paler beneath.

Expanse: ♂♀, 45–55 mm.

The name *blasius* (Fabr) applies to the wet-season form.

Habitat.—KANGRA to BURMA.

Mycalesis mineus (Linnæus).

♂. *Upperside* of hind wing with the brand salmon-pink or brown.

Underside of fore wing with the brand as in *perseus*, but brown.

♂♀. *Upperside* of fore wing with a median pale area, defined by a dark line, and bearing an ocellus in area 2.

Underside of hind wing with the ocelli placed in a nearly straight line.

Early stages and *habits* (from *Bell*, 1909) :—

Egg.—Green, shiny, faintly pitted ; dome-shaped, narrowed at the base.

Larva.—Surface of body densely covered with small, semi-hyaline, tubercles, each bearing a short black hair ; these tubercles arranged in transverse ridges. Head very dark brown. Body brown-green, with a dark dorsal line ; a diagonal, lateral, blackish mark on each segment, more distinct on the middle segments ; some darkish mottling below the diagonal lines, towards the dorso-ventral margin, slightly tinged with reddish-yellow ; venter watery green-brown ; spiracles roundly oval, shiny, black. Length, 30 mm. ; breadth, slightly over 3 mm.

Pupa.—Surface minutely and irregularly rugose, with a yellow subdorsal, rounded tubercle on segments 5 to 9 ; a black spot above spiracle, on segments 9 to 11 ; colour grass-green. Cremaster red, truncate, triangular, longer than broad, with a central dorsal and ventral depressed line. Length, 13 mm. ; breadth, 6 mm.

Habits.—The egg is laid either on the underside or upperside of a blade of grass, on a stalk, on a dried root, on the ground close by ; very often four or five eggs are laid together. The young larva is at first green, with a reddish dorsal line, red tail-points, and black head ; it lives on the blade or on the stalk. At a later stage the larva rests on a stalk with its head turned round on its side, holding on by the prolegs. The larva pupates low down near the ground, on a leaf, stalk, dead twig, etc., the pupa hanging free, though firmly fixed by the tail.

Distribution.—The whole of INDIA and BURMA, CEYLON, ANDAMAN and NICOBAR ISLANDS, to Malaya and Sumatra, China, Formosa, and Hainan. Three subspecies in the Indian area, one in Malaysia.

249 *a*. **Mycalesis mineus mineus** (Linnæus). (Figs. 42 *d*, 43 *d*, ♂ genitalia).

Papilio mineus, Linnæus, 1767, p. 768.

Mycalesis mineus, Moore, 1879 *a*, p. 825 (Upper Tenasserim) ; Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♂♀, Andamans) ; de Nicéville, 1886 *b*, p. 235, pl. xii, fig. 3 (larva and pupa) (Calcutta).

Mycalesis (*Calysisme*) *mineus*, Marshall & de Nicéville, 1883, pp. 114, 117 ; Doherty, 1886 *a*, p. 114 (Kumaon, to 5,000 feet) ; Wood-Mason & de Nicéville, 1887, p. 348 (Cachar).

Mycalesis mineus, Elwes & de Nicéville, 1887, p. 417 (Tavoy).

Calysisme mineus, Moore, 1891, p. 183, pl. lx, figs. 1, 1 *a*, *b*, *c*, *d* (♂♀, wet-season brood), figs. 1 *e*, *f* (♂♀, dry-season brood).

Mycalesis (*Calysisme*) *mineus*, de Nicéville, 1894 *a*, p. 120 (Sikkim) ; Mackinnon & de Nicéville, 1897, p. 214 (Mussooree, rare) ; Watson, 1897, p. 642 (Upper Chindwin).

Mycalesis mineus, Bingham, 1905, p. 58, figs. 16 B (♂ fore wing), 17 A (hind wing), pl. ii, fig. 8 (wet-season form); Hannyngton, 1910, p. 134 (Kumaon, 1,000–6,000 feet); Tytler, 1911, p. 50 (Naga Hills, common).
Mycalesis mineus mineus, Fruhstorfer, 1911, p. 343, t. 91 *f* (wet-season form).
Mycalesis mineus, Ellis, 1917, p. 106 (Pegu Yoma, not common).
Mycalesis mineus mineus, Evans, 1920, pp. 356, 359, pl. ii (wing characters), pl. iv, figs. A 7–10, B 1–10 (♂ genit.); *id.*, 1932 *a*, p. 98; Gough, 1935, p. 261 (Nepal, not common); Peile, 1937, p. 84, pl. xii, fig. 104 (♂); Talbot & Corbet, 1939, p. 409.
Papilio drusia, Cramer, 1775, p. 132, pl. lxxxiv, figs. C, D (♀).
Mycalesis drusia, Moore, 1865 *a*, p. 770 ("Bengal"); Wood-Mason & de Nicéville, 1880 *a*, p. 226 (Andamans); *id.*, 1881 *b*, p. 244 (Andamans).
Papilio otrea, Stoll, 1780, p. 50, pl. ccxiv, figs. A, B (China).
Mycalesis otrea, Moore, 1865 *a*, p. 770 ("Bengal"); Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♀, Andamans).
Mycalesis mineus mineus f. *otrea*, Fruhstorfer, 1911, p. 343 (=dry-season form).
Calysisme subfasciata, Moore, 1882 *b*, p. 237, pl. xii, fig. 8 (♂) (♂♀, Dharmsala).
Mycalesis (*Calysisme*) *perseus* var. *subfasciata*, Marshall & de Nicéville, 1883, p. 122.
Calysisme subfasciata, Moore, 1891, pl. lx, fig. *f* (type, Kangra).
Mycalesis mineus mineus f. *subfasciata*, Fruhstorfer, 1911, p. 344.
Calysisme carpenteri, Butler, 1886 *b*, p. 183 (♀, Upper Burma); Talbot & Corbet, 1939, p. 409 (=*mineus* dry-season form).
Mycalesis (*Calysisme*) *polydecta*, Adamson (*non* Cram.), 1905, p. 164 (Burma).

Wet-season form **mineus** (Linn.).—♂♀. *Upperside* dark brown; both wings with submarginal and marginal, slender, pale lines. Fore wing with a single, white-centred, fulvous-ringed, black ocellus in area 2, generally set in a square pale area; occasionally a similar smaller ocellus in area 5, without any pale surrounding area. Hind wing unmarked, rarely with one or two obscure ocelli.

Underside deep brown; both wings with a discal, dusky white band, well-defined inwardly, diffuse outwardly; a post discal series of ocelli, surrounded by a dusky yellowish, sometimes purplish-white, line; these ocelli vary from two to four on the fore wing, and from five to seven on the hind wing; the posterior four ocelli on hind wing are in a straight line; submarginal and marginal, pale or purplish-white, sinuous lines.

Dry-season form **otrea** (Stoll).—♂♀. *Upperside* paler than in the wet form.

Underside ground-colour ochraceous-brown to darker dusky brown; basal half of wings conspicuously darker than the outer area; the whole surface speckled finely with brown; a distinct dark discal band is sometimes present; ocelli nearly obsolete, indicated by minute white specks, and arranged as in the wet form.

Antennæ, head, thorax and abdomen brown ; antennal club with black and ochraceous marks.

Expanse : ♂♀, 45–50 mm.

The name **subfasciata** (Moore) may be used to indicate an extreme dry-season form in which the outer borders of both wings *upperside* are broadly pale ; ground-colour of *underside* more grey than brown.

The name *drusia* Cramer is a synomym of *mineus* (Linn.). The name *carpenteri* Butler is a synonym of *subfasciata* (Moore).

Habitat.—KULU to BURMA the ANDAMAN ISLANDS and China ; common.

249 *b*. **Mycalesis mineus polydecta** (Cramer).

Papilio polydecta, Cramer, 1777, p. 76, pl. cxliv, figs. E, F (♀) (Coromandel Coast and Tranquebar).

Mycalesis (*Calysisme*) *polydecta*, Marshall & de Nicéville, 1883, pp. 114, 119.

Mycalesis polydecta, de Nicéville, 1884, p. 87, pl. iii, fig. 1 (after Cramer), 2 (♂, Ceylon) ; Bell, 1909, p. 449, pl. F, fig. 37 (♀, wet-season), fig. 37 *a* (♀, dry-season) (early stages).

Calysisme polydecta, Moore, 1891, p. 180, pl. lxi, figs. 1, 1 *a*, *b*, *d* (♂♀, Travancore), 1 *c*, *e*, *f*, *g*, *h* (♂♀, Ceylon) (wet-season brood), pl. lxii, figs. 1, 1 *a*, *b*, *c* (♂♀, South India), *id.*, *e*, *i* (♂♀, Ceylon), 1 *f*, *g*, *h* (♀, Bombay) (dry-season brood).

Mycalesis mineus polydecta, Bingham, 1905, p. 59, pl. ii, fig. 9 (dry-season form) ; Fruhstorfer, 1911, p. 344, t. 92 *a* (=dry-season form).

Calysisme polydecta, Ormiston, 1918, p. 10 (Ceylon).

Mycalesis mineus polydecta, Evans, 1920, p. 359, pl. ii (wing characters) ; *id.*, 1932 *a*, p. 98, pl. xi, figs. D 2. 10 (♂, wet and dry forms) ; Peile, 1937, p. 83 ; Talbot & Corbet, 1939, p. 409 ; Woodhouse & Henry, 1942, p. 42 (Ceylon).

Papilio justina, Stoll, 1780, p. 75, pl. cccxxvi, fig. C (♀) (Coromandel Coast).

Mycalesis mineus polydecta f. *justina*, Fruhstorfer, 1911, p. 344.

Mycalesis (*Calysisme*) *mineus*, de Nicéville (*non* Linn.), 1885 *a*, p. 42 (Calcutta) ; Taylor & de Nicéville, 1888, no. 14 (Orissa) ; Hampson, 1889, p. 348 (Nilgiri Hills).

Mycalesis mineus, Evans, 1910, p. 382 (Palni Hills).

♂♀. This subspecies is only slightly differentiated, but is, on the whole, smaller than the nominotypical form. Wet-season form usually darker on underside, with smaller ocelli. Dry-season form with the pale area on fore wing upperside often very extensive. The outer yellow ring of the ocellus on the fore wing upperside is sometimes very broad ; discal band on underside, especially in females, sometimes broader, and purer white.

Expanse : ♂♀, 40–48 mm.

The name **justina** Stoll applies to the wet-season form.

Habitat.—CEYLON and PENSINSULAR INDIA to BENGAL ; very common.

249 *c*. Mycalesis mineus nicobarica (Moore).

Calysisme nicobarica, Moore, 1891, p. 187 (♂♀, Nicobars, wet-season brood).
Mycalesis mineus nicobarica, Fruhstorfer, 1911, p. 344 ; Evans, 1920, p. 359 ; *id.*, 1932 *a*, p. 98.
Mycalesis (*Calysisme*) *drusia*, Wood-Mason & de Nicéville (*non* Cram.), 1881 *a*, p. 230 (Nancowry, Katchall, Car Nicobar, Gt. Nicobar, Camorta) ; *id.*, 1882, p. 16 (Nicobars).

♂♀. Darker than the nominotypical form, the ocelli larger, and the discal band on underside more brownish-white.

Habitat.—NICOBAR ISLANDS ; common.

Mycalesis igilia Fruhstorfer.

This peculiar species is apparently a branch of the *visala-intermedia* complex. It strongly resembles *M. visala orcha* Evans, with which it occurs, but the cilia of both wings are distinctly paler.

The brand on fore wing underside of male is elongate, extending in the nominotypical subspecies to beyond outer edge of post-discal line ; it is brown in its proximal half, yellowish in its distal half. Hind wing brand pale buff, the hair-pencil of similar colour ; nacreous area extends into upper margin of cell.

Distribution.—PENINSULAR INDIA and CENTRAL PROVINCES.

250 *a*. Mycalesis igilia igilia Fruhstorfer. (Fig. 49, ♂ genitalia).

Mycalesis perseoides igilia, Fruhstorfer, 1911, p. 346 (Mysore).
Mycalesis igilia, Evans, 1920, pp. 356, 359, pl. ii (wing characters), pl. iv, figs. C 1–3 (♂ genit.) (Travancore, Coorg, Mysore) ; *id.*, 1932 *a*, p. 99.
Mycalesis igilia igilia, Talbot & Corbet, 1939, p. 409.

Wet-season form.—♂♀. *Upperside* dark brown, darker over apical and costal areas. Fore wing in area 2, with a prominent ocellus, its outer ring diffuse and pale ochreous ; this ocellus is set in a more or less pale area, limited on its inner side by a blackish line, edged with pale ochreous distally ; a marginal, pale, indistinct line ; cilia pale brown. Hind wing unmarked, or with traces of an ocellus in area 2 ; a pale submarginal and marginal line, separated by a sinuous black line.

Underside ground-colour slightly paler than on upperside ; both wings with a discal, narrow, creamy-white band, its inner edge sharply defined, its outer edge diffuse. Fore wing discal band placed farther from the cell than in hind wing, extending from vein 9 to vein 1 *b*, anteriorly ending in a point, posteriorly curved distad in area 1 *b* ; in the male this band is cut off by the nacreous area and brand ; four ocelli, similar to the one on upperside, in areas 2 to 5, the one in 2 the larger, and placed near the discal band, those in 3 and 4 often minute ; a submarginal and antemarginal black line, the former sinuous,

and posteriorly approaching the latter. Hind wing discal band from costa to tornus, crossing the base of area 2, and anteriorly curved slightly distad ; seven small ocelli, the posterior four in a straight line, and all enclosed by a heavy, grey-white line ; a submarginal and marginal pale sinuous line.

Antennæ, head, thorax and abdomen brown, paler below ; antennal club reddish-brown.

Dry-season form.—♂♀. *Upperside* of fore wing with conspicuous pale buff ocellar ring. *Underside* dark ochraceous. ♂ with darker proximal area, sharply defined by a pale discal line ; ocelli reduced to white dots ; on fore wing, the dark proximal area is produced on vein 1 *b* to a tooth to which, in the male, the nacreous area extends.

Expanse : ♂♀, 40–48 mm.

Habitat.—PENINSULAR INDIA : Coorg and Mysore ; not rare.



Fig. 49.—*Mycalesis igilia igilia* Fruhst.
Male genitalia, valve (Coorg).

250 *b*. **Mycalesis igilia mercea** Evans.

Mycalesis mercea, Evans, 1920, pp. 356, 360, pl. ii (wing characters), pl. iv, figs. C 4–6 (♂ genit.) (Pachmarhi) ; *id.*, 1932 *a*, p. 99.

Mycalesis igilia mercea, Talbot & Corbet, 1939, p. 409.

♂. *Upperside* of hind wing with the brand brown ; hair-pencil pale ochreous

Underside of fore wing with brand brown, shorter than in *M visala subdita* (Moore), and not reaching the discal line.

♂♀. Fore wing with rounded apex. *Upperside* similar to *subdita*. Fore wing with pale submarginal line obscure ; ocellus with the outer pale ochreous ring not dusky. Hind wing scalloped, being produced at the tornus, and at veins 2, 3, and 4 ; a submarginal pale line, more or less distinct. *Underside* similar to *subdita* but much paler.

In the dry-season form the underside is not distinguishable from *visala* Moore, which flies with it, and similar sub-basal lines are present.

Expanse : ♂♀, 40–48 mm.

Habitat.—PACHMARHI, Central Provinces ; not rare.

251. Mycalesis intermedia (Moore). (Fig. 50; ♂ genitalia).

Calysisme intermedia, Moore, 1891, p. 187 (♂♀, Sylhet, Tenasserim, wet and dry broods).

Mycalesis (*Calysisme*) *intermedia*, Watson, 1897, p. 642 (Chin Hills, 3,500 feet) ; Adamson, 1905, p. 164 (Upper Burma).

Mycalesis intermedia intermedia, Talbot & Corbet, 1939, p. 410, figs. 6 (♂ valve, Perak), 12 (♂ valve, Assam, type of *khasia*, Evans).

Mycalesis visala neovisala, Fruhstorfer, 1908 *c*, p. 158 (♂♀, Tong-king) ; *id.*, 1911, p. 346, t. 91 *f* (Tenasserim, Mergui, Tong-king) ; Evans, 1920, p. 359, pl. iv, fig. G 9 (♂ genit.) ; *id.*, 1932 *a*, p. 99 ; Peile, 1937, p. 84.

Mycalesis (*Calysisme*) *perseoides khasia*, Evans, 1912, p. 568 (♂, Khasi Hills).

Mycalesis khasia, Evans, 1920, pp. 356, 360, pl. ii (wing characters), pl. iv, figs. D 9, 10, E 1–9 (♂ genitalia).

Mycalesis khasia khasia, Evans, 1932 *a*, p. 99 (Assam to Burma).

Mycalesis visala khasia, Corbet, 1937 *a*, p. 96 (♂♀, Malaya).

Calysisme distanti, Moore, 1891, p. 198 (♂, Malay Pen., Selangor).

Mycalesis intermedia distanti, Talbot & Corbet, 1939, p. 410 ; Corbet, 1944, p. 39.

♂. Fore wing brand long, oval and dark brown, its centre distad to origin of vein 2. Hind wing brand large, oval and pale yellow ; hair-pencil yellowish-white.

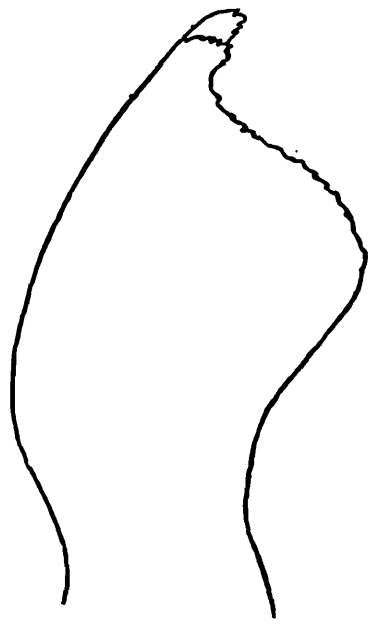


Fig. 50.—*Mycalesis intermedia intermedia* (Moore). Male genitalia, valve (Assam).

Genitalia (fig. 50) with valve strongly excurved on ventra side as in *visala* (Moore), but rarely with a small tooth below the apex ; in *visala* (figs. 52, 53) a tooth always present and strongly developed.

♂♀. *Upperside* of fore wing with ocellus in area 2 large, central white dot larger than in *mineus*, yellow ring broad, uniform and clearly defined. Hind wing of female usually with an ocellus in area 2.

Underside of hind wing resembles *mineus* (L.), but the thin pale line anteriorly bounding the submarginal ocelli in areas 4 and 5 angled, whereas in *mineus* it is deeply indented.

The names given to this species were all based upon the wet-season form.

Habitat.—ASSAM to BURMA, Siam, Tong-king and Langkawi Islands. Common in Burma.

The name *distanti* (Moore) was founded upon a single male supposed to have come from Selangor, but which was apparently of Burmese origin.

Mycalesis visala Moore.

♂. *Upperside* of hind wing with the brand large and pale ochreous, the hair-pencil of same colour.

Underside of fore wing with brand large, elongate, oval and pale yellow (may appear brownish in a side light), usually reaching the post-discal line.

♂♀. Fore wing usually acute at apex, especially in the dry-season form. *Upperside* of fore wing with a large ocellus in area 2, extending into areas 1 *b* and 3; a discal, short, dark line, more or less distinct; a minute ocellus sometimes present in area 5.

Underside pale brown; both wings with a discal, dull grey-white line, which in the dry-season form is obscure or is replaced by a blackish line. Both wings with the usual ocelli; the ocellus in area 2 of hind wing placed slightly proximal of the one above it.

Distribution.—INDIA to BURMA, the ANDAMAN ISLANDS, Tong-king and Malaya. Four Indian subspecies are distinguished.

252 *a*. **Mycalesis visala visala** Moore. (Fig. 51, ♂).

Mycalesis visala, Moore, 1857, p. 230; *id.*, 1865 *a*, p. 770 ("Bengal").

Mycalesis perseus var. *visala*, de Nicéville, 1881, p. 50 (Sikkim); *id.*, 1882, p. 56 (Sikkim).

Mycalesis visala, Elwes, 1882, p. 406 (♂♀, Sikkim).

Mycalesis (*Calysisme*) *perseus* var. *visala*, Marshal & de Nicéville, 1883, p. 121, pl. xvi, fig. 52 (♂, Sikkim).

Calysisme visala, Moore, 1891, p. 189, pl. lxiii, figs. 1 (♂, Sikkim), 1 *a* (♂, showing glandular patches), 1 *b*, *c*, *d*, *e* (♂♀, Calcutta) (wet-season brood), pl. lxiv, figs. 1, 1 *a*, *b* (♂♀ types, Sikkim), *c*, *d* (*indistans*, Moore, ♂♀ types, Calcutta), *e* (larva and pupa, from de Nicéville, 1886 *a*), *f*, *g*, *h* (♂♀, Calcutta) (dry-season form).

Mycalesis (*Calysisme*) *visala*, de Nicéville, 1894 *a*, p. 120 (Sikkim, up to 5,000 feet).

Mycalesis visala, Bingham, 1905, p. 60 (part.), fig. 16 D (♂ fore wing); Hannyngton, 1910, p. 134 (Kumaon); Tytler, 1911, p. 50 (Naga Hills, to 5,000 feet); Sevastopulo, 1941 *a*, p. 283 (early stages).

Mycalesis visala visala, Fruhstorfer, 1911, p. 346; Evans, 1920, pp. 356, 359, pl. ii (fore wing characters), pl. iv, figs. F 10, G 1–10, H 1, 2 (♂ genit.); *id.*, 1932 *a*, p. 99; Peile, 1937, p. 84, pl. xii, fig. 105 (♂) (Mussooree); Talbot & Corbet, 1939, p. 411.

Calysisme indistans, Moore, 1880 *b*, p. 164 (♂♀, Calcutta).

Mycalesis (*Calysisme*) *perseus* var. *indistans*, Marshall & de Nicéville, 1883, p. 122.

Mycalesis (*Calysisme*) *indistans*, de Nicéville, 1885 *a*, p. 42 (Calcutta).

Wet-season form.—♂♀. Fore wing with apex acute, outer margin straight. *Upperside* of fore wing with prominent median ocellus, its outer ring pale ochreous or dusky; discal dark line curved distad below vein 2; a submarginal, pale line, and a marginal, narrower one, both indistinct. Hind wing with sometimes an ocellus in area 2; distinct submarginal, and marginal pale lines.

Underside paler. Fore wing discal line not angled below vein 2; ocellus in area 2 large; a smaller ocellus in area 5; small ocelli normally present in areas 3, 4, and 6, but they may

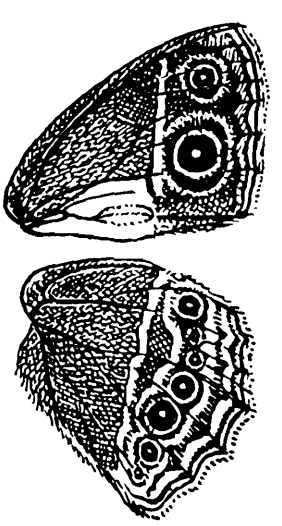


Fig. 51.—*Mycalesis visala visala* Moore, ♂ (wet form).

be reduced, and one or the other absent; the group of ocelli is enclosed by a heavy, grey-white line; submarginal and marginal grey-white lines distinct, the former sinuous, and narrowing posteriorly. Hind wing discal line crossing base of area 3, but not touching origin of veins 3 and 4; ocelli enclosed by a heavy grey-white line, as on fore wing; prominent submarginal and marginal grey-white sinuous lines.

Antennæ, head, thorax and abdomen brown, paler below; antennal club more or less reddish-brown.

Dry-season form, **indistans** (Moore)..—♂♀. Fore wing with apex more strongly acute.

Underside pale ochraceous to dark brown, more or less speckled with darker brown, the proximal half sometimes much darker ; a dark discal line, sometimes edged on the outer side with yellowish-brown and sometimes diffuse ; all ocelli obsolete, or represented by white points.

Expanse : ♂♀, 45–55 mm.

Early stages (Sevastopulo, 1941 *a*, p. 283).

Egg.—Spherical, base slightly flattened ; pearly white, minutely punctate.

Larva, 1st instar.—White, head black. Head with a short tooth projecting subdorsally. Anal somite ending in two short processes. After feeding the body becomes green and later a dark crimson dorsal stripe appears on the posterior third of the body ; this stripe broadens considerably on the anal somite and extends along the anal processes.

2nd instar.—Similar to the 1st. Cephalic and anal processes proportionately rather larger. Under a lens there is a faint yellowish-white subdorsal line ; dorsum sprinkled with minute yellow dots.

3rd instar.—Similar to the 2nd.

4th instar.—Head blackish-brown, backs of processes dull greenish. Body dull green, shagreened with minute yellowish-white dots ; a dark dorsal stripe, becoming dull crimson on the 10th somite and continuing up the anal processes ; a pale subdorsal and sublateral line. Legs and prolegs green. Head and body finely pubescent.

5th or final instar.—Head blackish-brown, backs of processes dull pinkish-buff ; four brownish spots frontally forming a semicircle. Body pinkish-buff, granular and finely pubescent ; a dorsal dark stripe without any trace of crimson ; a subdorsal yellowish stripe, edged below with darker colour ; a sublateral yellowish stripe ; a series of oblique dark stripes arising subdorsally and ending in the lateral area. Anterior legs blackish-brown, other legs and prolegs pinkish-buff. Anal processes and venter pinkish-buff. As the larva ages the colour darkens to purplish-brown, the markings remaining unchanged. Immediately before pupation the markings fade and the larva becomes a bright green.

Pupa.—Bright apple green. 2nd to 5th abdominal somites with paired subdorsal yellow dots. Wing case with a subtornal yellow dot. Abdomen with very minute yellow speckling. Head straight in front. Thorax slightly keeled. Wing cases slightly dilated across dorsum. Cremaster long, pinkish.

Food-plants.—Grasses.

All stages were gone through in August. An egg was deposited on 6th, hatched on 9th. First moult, 12th ; second moult, 14th ; third moult, 16th ; fourth moult 19th ; pupated 24th ; emergence (♀) 30th.

Described from larvæ bred from eggs from a Calcutta female.

Habitat.—KUMAON to ASSAM; CENTRAL PROVINCES (Pachmarhi); BURMA. Scarce in Burma; common elsewhere.

252 *b*. **Mycalesis visala orcha** Evans. (Fig. 52, ♂ genitalia).

Mycalesis (*Calysisme*) *visala orcha*, Evans, 1912, p. 59 *a* (Palni and Anamalai Hills).
Mycalesis visala orcha, Talbot & Corbet, 1939, p. 411.
Mycalesis khasia orcha, Evans, 1920, pp. 356, 360, pl. ii (wing characters), pl. iv, figs. D 2–8 (♂ genit); *id.*, 1932 *a*, p. 99.
Calysisme visala, Moore (*non* Moore, 1857), 1891, pl. lxiii, figs. 1 *f*, *g*, *h* (♂, Nilgiris), pl. lxiv, fig. *i* (♂, Nilgiris).

♂♀. Distinguished from the nominotypical form by having a wet-season form, an intermediate form, and a dry-season form.

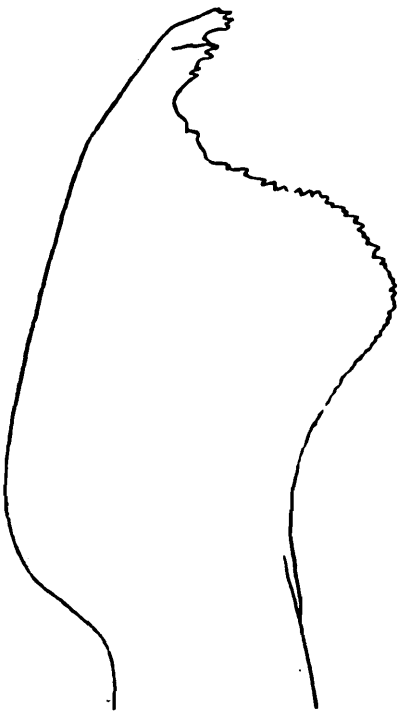


Fig. 52.—*Mycalesis visala orcha* Evans.
Male genitalia, valve (Palni Hills).

Valve of ♂ strongly incurved below the apex, and ventral edge less rounded than in the nominotypical form.

Habitat.—PENINSULAR INDIA: Palni Hills, Coorg, Nilgiri Hills, Anamalai Hills, Travancore; common.

252 *c*. **Mycalesis visala subdita** (Moore). (Fig. 53, ♂ genitalia).

Calysisme subdita, Moore, 1891, p. 194, pl. lxv, figs. 1, 1 *a*, *b*, *c*, *d* (♂♀, wet-season brood), 1 *e*, *f*, *g*, *h* (♂♀, dry-season brood).
Mycalesis subdita, Bingham, 1905, p. 60, fig. 16 C (♂, fore wing); Evans, 1910, p. 382 (Palni Hills); Fruhstorfer, 1911, p. 346.
Calysisme subdita, Ormiston, 1918, p. 10 (Ceylon).
Mycalesis subdita, Evans, 1920, pp. 356, 360, pl. ii (wing characters), pl. iv, figs. C 7–10, D 1 (♂ genit.); *id.*, 1932 *a*, p. 99; Woodhouse & Henry, 1942, p. 43, pl. iv, figs. 4 (♂), 5 (♀) (Ceylon).
Mycalesis visala subdita, Talbot & Corbet, 1939, p. 411.

♂♀. *Upperside* of fore wing with a discal, obscure, pale line; area proximal of discal line a shade darker than distal area; in area 2 an ocellus, with its outer ring dusky; both wings with a submarginal pale line, and a thinner marginal one, separated by a black line; cilia pale brown, the outer half usually darker. Female paler, and markings more distinct.

Underside very dark brown, paler in the female, the grey-white distal markings prominent. A discal white line, sharply defined on its inner edge, and slightly diffuse on its outer edge; this line is fairly straight, as thick as in *igilia*, and, on the fore wing, not narrower at vein 6, nor curved distad below vein 2. Fore wing with normally two ocelli, in areas 2 and 5, each with an outer dusky grey ring; male with a small ocellus in area 1 *b*; sometimes a small ocellus in area 4;

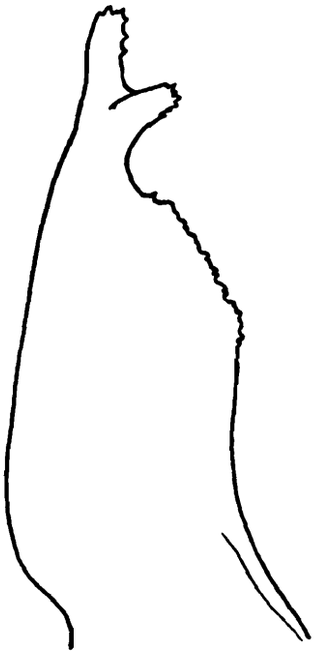


Fig. 53.—*Mycalesis visala subdita* (Moore).
Male genitalia, valve (Ceylon).

the outer ring of these ocelli is dusky on the proximal side, but on the distal side is grey, and very broad; this latter line is separated from the similarly coloured submarginal line by a strongly sinuous, black, thread-like line. In the female the outer ring of the ocelli is dusky grey, and is not widened distally. A marginal pale line, as on upperside. Hind wing with the two posterior ocelli placed more distad than those in areas 2 and 3; the greyish-white line enclosing the group of ocelli, is thin and dusky on the proximal side, but much heavier, and purer grey-white, on the distal side; submarginal and marginal pale lines more prominent than on upperside.

Antennæ, head, thorax and abdomen brown above, paler below; antennal club more or less reddish-brown.

Expanse: ♂♀, 43–50 mm.

Habitat.—CEYLON ; PENINSULAR INDIA (Nilgiri Hills. Madras, Bangalore, Berhampore and Orissa) ; not rare.

Ormiston (1918) says that the insect is common in Ceylon in some places. " It comes readily to sugar, and is very easy to breed."

The insect does not occur above 2,000 feet. Both *orcha* Evans and *subdita* were collected in the Nilgiris at 2,000 feet by Brigadier T. Delves Broughton, the latter subspecies on the eastern side.

252 *d.* **Mycalesis visala andamana** (Moore).

Calysisme andamana, Moore, 1891, p. 196, pl. lxvi, figs. 1, 1 *a*, *b* (♂♀, wet-season brood), 1 *c*, *d* (♂, dry-season brood).

Mycalesis visala andamana, Bingham, 1905, p. 60 ; Fruhstorfer, 1911, p. 346 ; Evans, 1920, p. 359, pl. ii (wing characters), pl. iv, fig. G 10 (♂ genit.) ; *id.*, 1932 *a*, p. 99.

♂♀. Fore wing with apex more rounded than in the mainland forms. Ground-colour darker, and ocelli proportionately larger. The type belongs to the dry-season form.

Habitat.—ANDAMAN ISLANDS ; common.

253. **Mycalesis perseoides** (Moore).

Calysisme perseoides, Moore, 1891, p. 179, pl. lx, figs. 2, 2 *a* (♂♀, ?. wet-season brood), 2 *b*, *c* (♂♀, dry-season brood) (Lower Burma).

Mycalesis (*Calysisme*) *perseoides*, Watson, 1897, p. 642 (Upper Chindwin) ; Adamson, 1905, p. 164 (Upper Burma).

Mycalesis perseoides, Bingham, 1905, p. 59 ; Fruhstorfer, 1911, p. 346, t. 92 *a* ; Ellis, 1917, p. 106 (Pegu Yoma) ; Evans, 1920, pp. 356, 360, pl. ii (wing characters), pl. iv, figs. E 10, figs. F 1–9 (♂ genit.) ; *id.*, 1932 *a*, p. 99 ; Peile, 1937, p. 84 ; Talbot & Corbet, 1939, p. 411, figs. 7, 8 (♂ valve).

♂. *Upperside* of hind wing with the brand black, forming a narrow streak ; hair-pencil pale ochreous.

Underside of fore wing with brand large, elongate and oval, deep brown, and not quite reaching the discal line , in the dry-season form shorter.

Wet-season form **perseoides** (Moore).—♂♀. *Upperside* markings resemble *mineus* (Linn.) in the fore wing ocellar ring being brighter yellow and more sharply defined.

Underside pale to dark ochreous or grey-brown, more or less speckled with blackish-brown ; ocelli obsolete, and usually represented by white dots, on fore wing by a dot in area 2, and another in 5. Fore wing with two sub-basal lines crossing base of cell, and two others crossing middle of cell. Hind wing with one sub-basal sinuous line, crossing middle of cell ; these lines may be indistinct. Both wings with a discal, straight, dark line, edged outwardly with ochreous ; the area proximal of this line usually darker than the distal area.

The pattern of some dry-season specimens cannot be distinguished from that of dry-season *mineus*.

Expanse : ♂♀, 45–50 mm.

Habitat.—KATHA to SOUTHERN BURMA, Siam, Tong-king and Malaya ; common.

254. **Mycalesis rama** (Moore).

Calysisme rama, Moore, 1891, p. 196, pl. lvii, figs. 3, 3 *a* (♂, Ceylon).
Mycalesis rama, Bingham, 1905, p. 61 ; Fruhstorfer, 1911, p. 346.
Calysisme rama, Ormiston, 1918, p. 11.
Mycalesis rama, Evans, 1920, pp. 356, 360, pl. iv, fig. 3 (♂ genit.) ; *id.*, 1932 *a*, p. 99 ; Woodhouse & Henry, 1942, p. 44, pl. iv, figs. 6 (♂), 7 (♀).

♂. *Upperside* of hind wing with the brand silvery-grey, and not easy to see against the nacreous background.

Underside of fore wing with the brand small, placed below vein 2, and silvery-grey.

Wet-season form.—♂♀. *Upperside* deep umber-brown ; submarginal and marginal lines very indistinct. Fore wing with two ocelli, the posterior one much the larger. Hind wing with a small, similar ocellus in area 2.

Underside paler and brighter, the proximal two-thirds darker, the outer edge of this area sharply defined by a fine dark brown line ; apical third somewhat ochraceous, with submarginal and marginal slender brown lines. Fore wing with two, hind wing with seven ocelli ; the latter are placed in a curve, the subtornal two and apical ocelli the largest, the tornal and subapical two very small, somewhat indistinct.

Antennæ, head, thorax and abdomen umber-brown ; antennæ bright ochraceous at the apex.

Expanse : ♂♀, 48–58 mm.

Habitat.—CEYLON ; rare.

255. **Mycalesis evansii** Tytler.

Mycalesis evansii, Tytler, 1914, p. 224, pl. i, fig. 8 (♂), 9 (♀) (Manipur Valleys) ; Evans, 1920, pp. 356, 360, pl. iv, figs. H 4–7 (♂ genit.) ; *id.*, 1932 *a*, p. 99.

♂. *Upperside* of hind wing with the brand blackish-brown ; hair-pencil small, pale ochraceous.

Underside of fore wing without a brand.

Valve rather distinct ; ventral edge rather deeply incurved, and with a short, rounded, prolongation at about the middle.

♂♀. *Upperside* dull brown, female paler ; apex of fore wing rounded. Fore wing with a fulvous-ringed ocellus in area 2, and sometimes a smaller one in area 5, much larger in the female ; a short, pale, discal line, rather distinct in the female ; a submarginal pale line, and a similar marginal thinner line more or less distinct Hind wing unmarked, except for the distinctly pale submarginal and marginal lines.

Underside pale brown. Both wings with a sub-basal, thin, dark discal line, more or less sinuous, and more distinct in the female; this line crosses the extreme base of area 2; a heavy discal, yellowish-white line or narrow band, paler in the female, and placed as in the allied species, its inner edge sharply defined by dark brown, its outer edge somewhat diffuse; a large ocellus in area 2, and a smaller one in 5, each with an ochreous ring, and an outer greyish ring; the outer ring is very broad on the distal side, but somewhat indistinct elsewhere; prominent submarginal and marginal pale lines, the former narrowing to a point posteriorly. Hind wing with seven small ocelli, the two posterior ones placed more distad than those in areas 2 and 3, and those in areas 4 and 5, as well as the posterior one, usually smaller than the others; the greyish-white line enclosing the group of ocelli is indistinct on the proximal side, but broad and prominent on the distal side; submarginal and marginal pale lines as on fore wing.

In the dry-season form the ocelli are all much smaller, and in the female the subapical ocellus is usually present on the upperside.

Head, thorax and abdomen dark brown, much paler below; antennæ dark brown above, greyish-white below, anteriorly more or less reddish-brown.

Expanse: ♂♀, 40–50 mm.

Habitat.—ASSAM: Manipur Valley; common. The wet-season form appears from June to October, the dry-season form in April.

256. **Mycalesis adolphei** (Guérin). (Fig. 54, ♂).

Satyrus adolphei, Guérin, 1843, p. 76.
Mycalesis (*Telinga*) *adolphei*, Marshall & de Nicéville, 1883, p. 123; Hampson, 1889, p. 348 (Nilgiri Hills, 5,000-6,000 feet).
Telinga adolphei, Moore, 1891, p. 210, pl. lxxi, figs. 1, 1 *a*, *b*, *c* (♂♀, Nilgiris).
Mycalesis adolphei, Bingham, 1905, p. 61, fig. 18 (♂); Fruhstorfer, 1911, p. 347, t. 92 *b*; Evans, 1920, p. 360, pl. iii, M 3 (♂ genit.); *id.*, 1932 *a*, p. 100.

♂. *Upperside* of hind wing with the brand small and black; hair-pencil brown, reduced.

Underside of fore wing without a brand.

♂♀. *Upperside* dark umber-brown. Fore wing ocellus, its outer ring prominently fulvous, in area 2, extending into areas 1 *b* and 3; in area 5 a very small ocellus, without a fulvous ring. Hind wing with a post-discal series of from two to four ocelli, of moderate size, and with fulvous rings, the anterior one, in area 5, smaller or absent.

Underside dark brown, speckled with deeper brown; distal borders of both wings very broadly paler; dark proximal area

sharply defined by a very dark brown line. Fore wing with a small, fulvous-ringed ocellus in area 2, and a similar one in 5. Hind wing with seven small, fulvous-ringed ocelli, placed in a slight curve.

Antennæ, head, thorax and abdomen dark umber-brown, paler beneath.

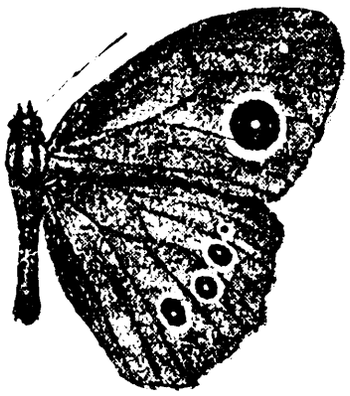


Fig. 54.—*Mycalesis adolphei* (Guér.), ♂.

Expanse : ♂♀, 50–55 mm.

Habitat.—Peninsular India : Coorg, and the Nilgiri Hills ; not rare. Occurs in the Nilgiris from 5,000 to 6,000 feet ; two wet-season broods, one in May and one in August.

257 **Mycalesis oculus** Marshall. (Figs. 41 *b*, venation ; 42 *e*, 43 *e*, genitalia).

Mycalesis oculus, Marshall, in Marshall & de Nicéville, 1880, p. 247 (♂♀, Travancore).

Mycalesis (*Telinga*) *oculus*, Marshall & de Nicéville, 1883, pp. 123, 124, pl. xvi, fig. 53 (♀, Trevandrum).

Telinga oculus, Moore, 1891, p. 211, pl. lxxi, figs. 2, 2 *a*, *b*, *c* (♂♀, Travancore).

Mycalesis oculus, Bingham, 1905, p. 62, pl. ii, fig. 10 ; Evans, 1910, p. 382 (Palni Hills, above 4,000 feet) ; Fruhstorfer, 1911, p. 346, t. 92 *b* ; Evans, 1920, p. 360, pl. i (♂ wing characters), pl. iii, figs. M 1, 2 (♂ genit.) ; *id.*, 1932 *a*, p. 100, pl. xi, fig. D 2. 21 (♀).

♂. *Upperside* of hind wing with the brand black ; hair-pencil brown, rather small.

Underside of fore wing with a very small black brand.

♂♀. Resembles *adolphei* (Guér.). *Upperside* of fore wing with the ocellus in area 2 much larger, its outer ring rich orange-red, conspicuously broad anteriorly, and produced towards the costa ; proximal area of wing paler than the distal area ; ocellus in area 5 obscure. Hind wing with ocelli as in *adolphei*.

Underside dark ochraceous-red or brown ; dark proximal area of both wings bordered outwardly by a yellowish band, sharply defined on its inner edge, diffuse on its outer edge ; the ocellus in area 2 of fore wing, and the subtornal ocellus on hind wing, proportionately larger than in *adolphei*.

Antennæ, head, thorax and abdomen as in *adolphei*.

Expanse : ♂♀, 45–60 mm.

Habitat.—PENINSULAR INDIA : Travancore, and Palni Hills ; common.

Mystes Group (*Myrtilus* Moore).

This group contains a single Indian species. It is distinguished from the *Mineus* group by having on the hind wing, in addition to the normal hair-pencil, another similar hair-pencil, placed near the base of vein 1 *b*.

258. **Mycalesis mystes** de Nicéville. (Figs. 41*c*, venation ; 42*f*, 43*f*, ♂ genitalia ; 55, ♂).

Mycalesis (*Myrtilus*) *mystes*, de Nicéville, 1891, p. 343, pl. F, fig. 1 (♂, dry-season form), 2 (♂, wet-season form) (Upper Burma : Telin Yaw and Yedu Yaw).

Myrtilus mystes, Moore, 1891, p. 221.

Mycalesis (*Myrtilus*) *mystes*, Watson, 1897, p. 643 (Upper Chindwin) ; Adamson, 1905, p. 165 (Upper Burma).

Mycalesis mystes, Bingham, 1905, p. 67 ; Fruhstorfer, 1911, p. 355, ♂♀ ; Tytler, 1914, p. 227 (♂♀, Manipur, very local) ; Ellis, 1917, p. 106 (Pegu Yoma, not uncommon) ; Evans, 1920, p. 360, pl. ii (♂ venation), pl. iv, figs. H 8–10 (♂ genit.) ; *id.*, 1932 *a*, p. 100.

♂. *Upperside* of hind wing with a white band, placed below origin of vein 6, and covered by a black hair-pencil ; no brand in the usual place, but hair-pencil present, white ; vein 1 *b* swollen near the base, and covered by a black hair-pencil.

Underside of fore wing without a brand.

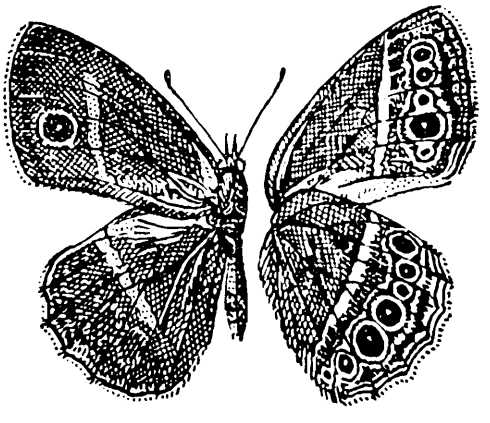


Fig. 55.—*Mycalesis mystes* de Nicév. ♂ (Karen Hills).

Wet-season form.—♂♀. *Upperside* brown, the outer margins broadly paler ; discal white band showing through faintly on both wings ; submarginal and marginal, pale yellow, slender lines, more distinct on hind wing. Fore wing, in area 2, with a pale-ringed ocellus.

Underside brown ; both wings with a discal, pure white, narrow band. Fore wing with four ocelli, the anterior three

small, all encircled by a single, slender, yellowish line. Hind wing with seven ocelli, also encircled by a yellowish line. Both wings with submarginal and marginal lines as on upperside.

Dry-season form.—♂♀. *Upperside* as in wet form.

Underside ochraceous; proximal area darker, with a sub-basal, darker brown, obscure line; a discal, narrow, white band; ocelli represented by silvery specks, encircled by a dark, sinuous, line.

Antennæ, head, thorax and abdomen brown.

Expanse: ♂♀, 45–50 mm.

Habitat.—MANIPUR to the KAREN HILLS; rare.

Nicotia Group (*Culapa* Moore, *Pachama* Moore, *Samanta* Moore, *Kabanda* Moore).

Fore wing *upperside*, in ♂, without a brand; vein 10 at or near end of cell. Hind wing with vein 3 arising from before end of cell.

Key to Species.

1. Fore wing upperside with pupilled ocelli in areas 2 and 5 (the latter rarely absent). Hind wing upperside with a pupilled ocellus in area 2 . . 2.
   Fore wing upperside with blind ocelli; underside mottled, a pale yellow or white discal line. . . 7.
   Upperside unmarked; a prominent, double, antemarginal line. Underside uniform; discal line lilacine. Hind wing underside with ocelli in areas 2 and 3 larger than the others *malsarida* Butl., p. 162.
2. Fore wing with apex produced; upperside, in area 2, with very large ocellus broadly yellow ringed; underside with dark discal line, no brand, but prominent square white patch in the nacreous area. Hind wing upperside with brand golden-brown, hair-pencil bright yellow . . *mnasicles* Hew., p. 151.
   Underside with a pale yellowish discal line. 3.
3. Underside not mottled, the ground-colour uniform . . . [de Nicév., p. 152. *suavolens* W.-M. &
   Underside with basal area mottled . . . . 4.
4. Cilia white. Upperside with small ocelli; those in area 2 of both wings equal, and that in area 5 of hind wing minute or absent. . . *mestra* Hew., p. 154.
   Cilia pale brown. Upperside with ocelli larger; those in area 5 of fore wing, and in 2 of hind wing, equal, that in area 2 of fore wing much larger . . . 5.
5. Fore wing upperside with very large ocellus in area 2, and always one in 3 on hind wing . *heri* Moore, p. 155.
   Hind wing upperside rarely more than the ocellus in area 2; if others present, these are very small 6.

6. Underside with distal area nearly black; mottling confined to the base. Fore wing underside with small salmon-coloured brand. Hind wing upperside with similarly coloured brand; hair-pencil yellow-brown. [p. 156. *misenus* de Nicév.,

Underside brown, mottled proximally as far as the discal line. Brands and hair-pencil black *nicotia* Westw., p. 156.

7. Upperside with clearly defined white discal line .. .. *malsara* Moore, p. 157.

Upperside with a white discal line not visible . . 8.

8. Fore wing upperside, in areas 3 and 5, usually with ocelli, as well as the usual ocellus in 2. Hind wing upperside always with an ocellus in areas 2 and 3 [p. 159. *annamitica* Fruhst.,

Fore wing upperside normally without an ocellus in area 3, but if present is smaller than the one in 5. Hind wing upperside, when fore wing is without ocellus in area 5 on upperside, ocelli absent from areas 2 and 3 *lepcha* (Moore), p. 160.

Mycalesis mnasicles Hewitson.

One of the largest species of the genus.

♂. *Underside* of fore wing without a brand, but the nacreous area bears a prominent square white patch.

Upperside of hind wing with the brand golden-brown; hair-pencil brown or yellow.

Valve rather distinct, its anterior part very narrow, and curved, forming a hook.

♂♀. Fore wing with apex produced; a very large median ocellus.

Distribution.—Burma to Malaya, Sumatra, and Borneo. One subspecies in Burma.

259. **Mycalesis mnasicles perna** Fruhstorfer. (Figs. 42 *g*, 43 *g*, ♂ genitalia).

Mycalesis mnasicles perna, Fruhstorfer, 1906, p. 83 (Tong-king); *id.*, 1908 *c*, p. 188; *id.*, 1911, p. 341, t. 91 *e*; Tytler, 1914, p. 226 (♂♀, Manipur); Ellis, 1917, p. 106 (Pegu Yoma); Evans, 1920, pp. 355, 360, pl. ii (♂ venation), pl. iii, figs. R 5, 6 (♂ genit.); *id.*, 1932 *a*, p. 100, pl. xi, fig. D 2. 22 (♂).
Culapa mnasicles, Moore (*non* Hew.), 1879 *a*, p. 825 (Upper Tenasserim).
Mycalesis (*Culapa*) *mnasicles*, Marshall & de Nicéville, 1883, p. 126.
Mycalesis mnasicles, Elwes & de Nicéville, 1887, p. 418 (Tavoy).
Culapa mnasicles, Moore, 1891, p. 199, pl. lxvii, figs. 1, 1 *a* (♂♀).
Mycalesis mnasicles, Elwes, 1891, p. 262 (Karen Hills).
Mycalesis (*Culapa*) *mnasicles*, Adamson, 1905, p. 164 (Burma).
Mycalesis mnasicles, Bingham, 1905, p. 62.

♂♀. *Upperside* pale vandyke-brown; fore wing with basal and discal areas, and hind wing, excepting costal and outer

margins, suffused with bright ochraceous. Fore wing with a very large ocellus in area 2, its outer ring broadly bright ochraceous ; a much smaller ocellus, without ochraceous ring, in area 5. Hind wing with a post-median fulvous-ringed non-pupilled black spot.

Underside pale pinkish-brown. Both wings crossed by a discal broad darker band, defined on both sides by a darker brown line. Fore wing with two or three subapical ocelli. Hind wing with a curved series of seven, minute white-centred, black ocelli ; outer margin slightly darker, bordered inwardly by a zigzag brown line.

Antennæ, head, thorax and abdomen dull ochraceous-brown ; antennal club dark brown, tipped with ochraceous.

Expanse : ♂♀, 60–70 mm.

Habitat.—SHAN STATES to SOUTHERN BURMA, Tong-king, and Malaya ; rare in Burma, but Adamson (1905) found it plentiful on the Salween River. It frequents heavy bamboo jungle.

Mycalesis suavolens Wood-Mason & de Nicéville.

♂. *Underside* of fore wing without a brand. *Upperside* of hind wing with brand and hair-pencil as in *mnasicles* Hew.

Valve anteriorly broad, the apical edge incurved.

♂♀. Rather large, the size of *mnasicles*. Fore wing with an ocellus in area 2, and a smaller subapical one. Hind wing with an ocellus in area 2. Cilia usually white.

Underside with a discal pale yellowish-white line.

Distribution.—SIKKIM to the SHAN STATES, and in Formosa. Four subspecies distinguished in the Indian area.

260 *a*. **Mycalesis suavolens suavolens** Wood-Mason & de Nicéville.

Mycalesis (*Pachama*) *suavolens*, Wood-Mason & de Nicéville, 1883, pp. 124, 125 (♂, Cachar) ; *id.*, 1887, p. 349, pl. xvi, fig. 1 (♂, Cachar).

Pachama suavolens, Moore, 1891, p. 201, pl. lxvii, figs. 3, 3 *a*, *b* (♂♀) (part.).

Mycalesis (*Pachama*) *suavolens*, Watson, 1897, p. 642 (Chin Hills, 3,500 ft.).

Mycalesis mestra suavolens, Bingham, 1905, p. 63.

Mycalesis suavolens, Evans, 1920, p. 361, pl. i (♂ venation), pl. iii, figs. 4, 5 (♂ genit.).

Mycalesis suavolens sebonga, Tytler, 1926, p. 259 (♂♀, Sebong, Manipur ; Naga Hills ; North Chin Hills) ; Evans, 1932 *a*, p. 100.

♂♀. *Upperside* very dark vandyke-brown ; cilia conspicuously white ; discal band of underside shows through on both wings, but very plainly on hind wing. Fore wing in area 2, with an ocellus of moderate size, its outer ring dusky fulvous ; a similar, but smaller, ocellus in area 5 ; pale submarginal and

marginal lines, not very distinct. Hind wing with a small ocellus in area 2 ; submarginal and marginal, slightly sinuous, pale lines, more distinct than on fore wing.

Underside ground-colour as above. Both wings with a post-discal, narrow, yellowish-white band, sharply defined. Fore wing band anteriorly slightly curved, reaching the origin of veins 7 and 8 and posteriorly somewhat diffuse below vein 2, ending on vein 1 *b* ; ocelli as on upperside ; distal area, limited by the band, dusted with ochraceous ; submarginal and marginal pale lines. Hind wing dusted with ochraceous, the outer border, as far as the ocelli, paler ; the three posterior ocelli in a straight line ; the three anterior ocelli, in areas 4 to 6, forming a curve ; no ocellus in area 3 ; distinct submarginal and marginal pale lines, the former thinner than the latter.

Antennæ, head, thorax and abdomen brown ; antennal club black, tipped with ochraceous.

Expanse : ♂♀, 60–70 mm.

Wood-Mason (1883) notes : " The scent-glands and fans emitted a powerful and delicious odour, resembling that of vanilla, for some hours after the death of the insect."

The name *sebonga* Tytler must sink as a synonym, as it covers the area of the nominotypical race described from Cachar.

The name *suavolens* has, inadvertently, been applied to the Sikkim form, so a new name must be given to this.

Habitat.—MANIPUR to the NORTHERN CHIN HILLS ; rare.

260 *b*. **Mycalesis suavolens tytleri,** subsp. nov.

Mycalesis (*Pachama*) *suavolens*, de Nicéville (*non* W.-M. & de Nicév.), 1894 *a*, p. 121 (Sikkim, 3,000 feet).

Mycalesis suavolens suavolens, Fruhstorfer, 1911, p. 348 (Sikkim and Bhutan) ; Evans, 1920, pl. iii, fig. M 6 (♂ genit.) ; *id.*, 1932 *a*, p. 100.

♂♀. Distinguished from the nominotypical form by the much larger ocelli on the *underside*. In the dry-season form the distal area of both wings is not, or but little, paler than the proximal area.

Habitat.—SIKKIM and BHUTAN ; rare. Occurs in thick forest at about 3,000 feet. Described from specimens in the British Museum.

260 *c*. **Mycalesis suavolens konglua** Tytler.

Mycalesis suavolens konglua, Tytler, 1939 *a*, p. 244 (♂, N.E. Burma).

♂. *Upperside* of hind wing with the two marginal narrow lines much whiter than in the nominotypical subspecies.

Underside of both wings with discal band much wider than in the nominotypical subspecies, the area between this band

and margin paler than rest of wing, and slightly washed with grey towards the tornal angle of hind wing ; ocelli rather larger.

Habitat.—NORTH-EASTERN BURMA : Konglu.

This subspecies was founded upon a single male taken in June.

260 *d*. **Mycalesis suavolens duguidi** Tytler.

Mycalesis suavolens duguidi, Tytler, 1926, p. 259 (♂♀, Loimwe, S. Shan States, 5,000 feet) ; Evans, 1932 *a*, p. 100.

♂♀. *Underside* paler brown than in the nominotypical form, the discal band tinged with brown ; cilia brown.

Habitat.—SOUTHERN SHAN STATES ; rare.

Mycalesis mestra Hewitson.

♂♀. ♂ brand and hair-pencil as in *suavolens* W.-M. & de Nicév Size and pattern also as in that species. Cilia always white.

Upperside with a small ocellus in area 2 on both wings.

Underside with the proximal area of both wings speckled, post-discal band very prominent.

In the male the valve is not greatly widened anteriorly, and the apical edge is not incurved.

Distribution.—SIKKIM to ASSAM and NORTH-EASTERN BURMA. Three Indian subspecies.

261 *a*. **Mycalesis mestra mestra** Hewitson. (Figs. 42*h*, 43*h*, ♂ genitalia).

Mycalesis mestra, Hewitson, 1862, p. 79, *Mycalesis*, pl. i, fig. 2.
Mycalesis (*Pachama*) *mestra*, Marshall & de Nicéville, 1883, p. 124.
Pachama mestra, Butler, 1885 *a*, p. 301 ("near Assam") ; Moore, 1891, p. 200, pl. lxvii, figs. 2, 2 *a* (♂).
Mycalesis mestra, Bingham, 1905, p. 63.
Mycalesis mestra mestra, Fruhstorfer, 1911, p. 348, t. 92 *c* ; Evans, 1920, p. 361, pl. i (♂ venation), pl. iii, fig. M 9 (♂ genit.) ; *id.*, 1932 *a*, p. 101, pl. xi, fig. D 2. 24 (♂, Assam).

♂♀. In addition to the characters already given for the species, the *upperside* of fore wing has the white post-discal band of the underside prominently marked. Hind wing in the female with the submarginal and marginal lines white, and prominent.

Underside with submarginal line on both wings white, and more prominent than the marginal one.

Expanse : ♂♀, 60–70 mm.

Habitat.—ASSAM ; rare.

261 *b*. **Mycalesis mestra vetus** Fruhstorfer.

Mycalesis mestra vetus, Fruhstorfer, 1911, p. 348 (♂, Bhutan ; Sikkim) ; Evans, 1920, p. 361, pl. iii, figs. M 7, 8 (♂ genit.) ; *id.*, 1932 *a*, p. 100.

Mycalesis (*Pachama*) *mestra*, de Nicéville (*non* Hew.), 1894 *a*, p. 121 (Sikkim, 5,000–7,000 feet).

♂♀. This only differs from the nominotypical form in having, on the *upperside* of fore wing, only an obscurely indicated post-discal band ; this band is placed more distad than in the nominotypical form.

Habitat.—SIKKIM and BHUTAN ; rare.

261 *c*. **Mycalesis mestra sadona** Tytler.

Mycalesis mestra sadona, Tytler, 1939 *a*, p. 244 (♂♀, N.E. Burma, Sadon).

♂♀. *Upperside* of both wings with all pale markings broader and more conspicuous than in the nominotypical subspecies, especially so in the female. Hind wing submarginal pale band pure white and not dusky white as in *m. mestra*.

Habitat.—NORTH-EASTERN BURMA : Sadon, Htawgaw.

Described from 3♂ 5♀ specimens taken in June, July, October and November. Tytler (1939) also records a female from the Naga Hills, taken in September.

262. **Mycalesis heri** Moore.

Mycalesis heri, Moore, 1857, p. 233.

Mycalesis (*Samanta*) *heri*, Marshall & de Nicéville, 1883, p. 128 ; Doherty, 1886 *a*, p. 115 (Kumaon, 2,000–5,000 feet).

Samanta heri, Moore, 1891, p. 208, pl. lxx, figs. 2, 2 *a* (♂, Bhutan), 2 *b* (♀, Naini Tal).

Mycalesis (*Samanta*) *heri*, de Nicéville, 1894 *a*, p. 121 (Sikkim, rare).

Mycalesis heri, Bingham, 1905, p. 66 ; Hannyngton, 1910, p. 134 (Kumaon) ; Fruhstorfer, 1911, p. 348 ; Evans, 1920, p. 361, pl. ii (♂ venation), pl. iii, figs. N 2, 3 (♂ genit.) ; *id.*, 1932 *a*, p. 101.

♂. *Underside* of fore wing without a brand. *Upperside* of hind wing with brand black, hair-pencil ochreous.

♂♀. *Upperside* ochreous-brown ; cilia pale brown ; submarginal and marginal lines pale brown. Fore wing with a very large ocellus in area 2, and a smaller one in 5. Hind wing usually with three ocelli, with always one in area 3.

Underside of both wings with proximal area pale ochreous-brown, speckled with darker brown ; a post-discal, narrow, yellowish line ; outer borders pale ; submarginal and marginal ochreous lines. Fore wing with ocelli as on upperside but somewhat smaller. Hind wing with seven ocelli.

Expanse : ♂♀, 60–70 mm.

Habitat.—KUMAON to BHUTAN ; rare.

263. Mycalesis misenus de Nicéville.

Mycalesis (*Samanta*) *misenus*, de Nicéville, 1889, p. 164. pl. A, fig. 8 (♂) (♂♀, Sikkim; Khasi Hills).
Samanta misenus, Moore, 1891, p. 208, figs. 1, 1 *a*, *b* (♂♀, Sikkim).
Mycalesis (*Samanta*) *misenus*, de Nicéville, 1894 *a*. p. 121 (Sikkim).
Mycalesis misenus, Bingham, 1905, p. 66; Fruhstorfer, 1911, p. 348; Tytler, 1914, p. 225 (♂♀, Manipur); Evans, 1920, p. 361. pl. i (♂ venation), pl. iii, figs. M 10, N 1 (♂ genit.); *id.*, 1932 *a*, p. 101 (no. 26, as *malsara*).

♂. *Underside* of fore wing with a small salmon-coloured brand on vein 1 *b*.

Upperside of hind wing with the brand small and salmon-coloured; hair-pencil ochreous.

♂♀. *Upperside* dark brown. Fore wing with an ocellus in area 2, and two or three smaller, subapical, ones. Hind wing with an ocellus in area 2, and if others are present they are minute.

Underside with a post-discal, narrow, pale yellow band; basal area speckled with darker brown; distal area nearly black, with pale outer border. Fore wing usually with four ocelli, the one in area 2 the largest; hind wing with seven ocelli.

Expanse: ♂♀, 40–50 mm.

Habitat.—SIKKIM to ASSAM; rare.

Both the wet-season form (as described above) and the slightly different dry-season form are recorded by Tytler (1915) from Assam. de Nicéville (1894 *a*) notes that the species is very rare in Sikkim, where it occurs at low elevations in April and May.

264. Mycalesis nicotia Westwood. (Figs. 42 *i*, 43 *i*, ♂ genitalia; 56, ♂).

Mycalesis nicotia, Westwood, 1850, pl. lxvi, fig. 4 (♀); *id.*, 1851, p. 394; Moore, 1865 *a*, p. 770 ("Bengal").
Mycalesis (*Samanta*) *nicotia*, Marshall & de Nicéville, 1883, pp. 128, 129.
Mycalesis nicotia, Elwes, 1891, p. 260 (Pegu, 4,000–5,000 feet; Naga Hills, 6,000 feet).
Samanta nicotia, Moore, 1891, p. 206, pl. lxix, figs. 1, 1 *a*, *b*, *c* (♂♀, Sikkim, wet-season brood), 1 *d*, *e* (♂, Sikkim), 1 *f* (♀, Mussooree) (dry-season brood).
Mycalesis (*Samanta*) *nicotia*, de Nicéville, 1894 *a*, p. 121 (Sikkim, 3,000–5,000 feet); Watson, 1897, p. 643 (Chin Hills, 3,500 feet; Manipur); Mackinnon & de Nicéville, 1897, p. 215 (Mussooree, rare).
Mycalesis nicotia, Bingham, 1905, p. 65; Hannyngton, 1910, p. 134 (Kumaon, 2,000–5,000 feet, sparingly); Tytler, 1911, p. 50 (Naga Hills).
Mycalesis nicotia nicotia, Fruhstorfer, 1911, p. 348; Evans, 1920, p. 361, pl. i (♂ venation), pl. iii, figs. N 4–9 (♂ genit.).
Mycalesis nicotia, Evans, 1932 *a*, p. 101; Peile, 1937, p. 85.
Mycalesis (*Samanta*) *langi* de Nicéville, 1883 *b*, pp. 128, 130 (♂♀, Naga and Khasi Hills; Sikkim; Mussooree); *id.*, 1884, pl. iii, fig. 3 (♂, Sikkim).
Mycalesis nicotia nicotia f. *langi*, Fruhstorfer, 1911, p. 348 (=dry-season form).

Mycalesis nicotia nudgara, Fruhstorfer, 1908 *c*, p. 148 (♂♀, Tandong, Tenasserim, 4,000 feet); *id.*, 1911, p. 347 (Tenasserim); Evans, 1920, p. 361.

♂. *Underside* of fore wing with a small black brand on vein 1 *b*. *Upperside* of hind wing with the brand and hair-pencil black.

Wet-season form **nicotia** Westw.—♂♀. *Upperside* vandyke-brown. Fore wing with a very large ocellus in area 2, and one, rarely two, subapical ocelli. Hind wing with an ocellus in area 2. Both wings with submarginal and marginal pale lines.

Underside pale brown, much paler in the female than in the male; a post-discal, sharply defined, band; proximal area entirely speckled with darker brown. Fore wing usually with four ocelli, the one in area 2 the largest. Hind wing with

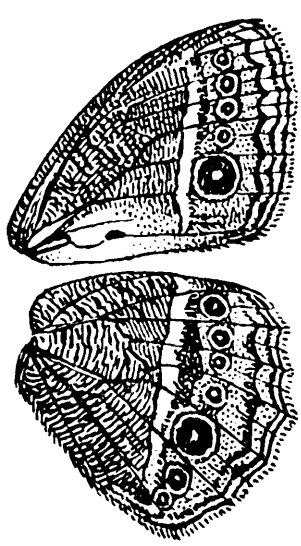


Fig. 56.—*Mycalesis nicotia* Westw., ♂ (Mongpo, Sikkim).

seven ocelli, the third posterior one and the apical ocellus being the largest. Both wings with distal borders slightly purpurescent; submarginal, antemarginal, and marginal slender dark brown lines, the former two sinuous; cilia pale brown.

Antennæ, head, thorax and abdomen brown; antennæ ochraceous at apex.

Dry-season form **langi** de Nicév.—♂♀. *Underside* ground-colour more ochraceous, the ocelli much reduced or obsolescent, discal band narrower and paler.

Expanse: ♂♀, 55–60 mm.

Habitat.—MUSSOOREE to the KAREN HILLS; not rare.

265. **Mycalesis malsara** Moore.

Mycalesis malsara, Moore, 1857, p. 231; *id.*, 1865 *a*, p. 770 ("Bengal"); de Nicéville, 1881, p. 50 (Sikkim).

Mycalesis (*Samanta*) *malsara*, de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 128, 129; Doherty, 1886 *a*, p. 115 (Kumaon, 2,000–4,000 feet).

Mycalesis malsara, Elwes, 1891, p. 260 (Karen Hills).

Samanta malsara, Moore, 1891, p. 202, pl. lxviii, figs. 1, 1 *a*, *b* (♂♀, wet-season brood), 1 *c* (♂, dry-season brood).

Mycalesis (*Samanta*) *malsara*, de Nicéville, 1894 *a*, p. 121 (Sikkim, low elevations); Watson, 1897, p. 642 (Upper Chindwin, 1,500–5,000 feet; Manipur); Adamson, 1905, p. 164 (Bhamo district).

Mycalesis malsara, Bingham, 1905, p. 64; Tytler, 1911, p. 50 (Naga Hills, 4,000 feet).

Mycalesis mamerta malsara, Fruhstorfer, 1911, p. 347 (=wet-season form).

Mycalesis malsara, Ellis, 1917, p. 106 (Pegu Yoma); Evans, 1920, p. 361, pl. ii (♂ venation), pl. iii, figs. N 10, O 1–9 (♂ genit.); *id.*, 1932 *a*, p. 101; Peile, 1937, p. 85.

Samanta rudis, Moore, 1880 *b*, p. 166 (♂, " North India ").

Mycalesis (*Samanta*) *rudis*, Marshall & de Nicéville, 1883, pp. 128, 130; Taylor & de Nicéville, 1888, no. 16 (Orissa, rare).

Mycalesis mamerta malsara f. *rudis*, Fruhstorfer, 1911, p. 347 (=dry-season form).

♂. *Underside* of fore wing, in area 1 *b*, a small square black brand, placed against the vein at a point below the origin of vein 2.

Upperside of hind wing with the brand and hair-pencil fuscous-brown.

Wet-season form **malsara** Moore.—♂♀. *Upperside* very dark vandyke-brown, paler in the female; cilia dusky white, darker at the veins. Fore wing with post-discal yellowish-white band clearly defined; ocelli without pupils, the outer ring pale or dusky ochraceous; an ocellus in area 2, usually a much smaller one in area 5, and often a still smaller one in area 3, all larger in the female; submarginal and marginal pale lines. Hind wing with a small ocellus in area 2, and usually a smaller one in 3, both these rarely with a white pupil; post-discal band showing through obscurely from underside; pale submarginal and marginal lines, more distinct than on fore wing.

Underside darker in the male, paler in the female; both wings crossed by a post-discal, yellowish-white band; proximal area obscurely speckled in the male, more distinctly so in the female. Fore wing with the post-discal band anteriorly ending in a point at the origin of veins 7 and 8, its inner edge sharply defined; ocelli as on upperside, but with white pupils, and usually an ocellus in areas 3 and 4; the group of ocelli encircled by a somewhat diffuse purplish ring; submarginal and marginal sinuous purplish or pale brown (♀) lines, much thinner below vein 3. Hind wing with post-discal band wider at the costa, its inner edge sharply defined; a series of seven white-pupilled ocelli, the two small posterior ones placed more distad than the others; the group of ocelli encircled by a diffuse line as on fore wing; submarginal and marginal lines as on fore wing.

Antennæ, head, thorax and abdomen brown; antennal club black, ochraceous at the tip and on the outer side.

Dry-season form **rudis** (Moore).—♂♀. *Upperside* paler, ocelli smaller.

Underside more strongly speckled than in the wet form, including also the distal area; ground-colour more or less

purplish, and dusted with grey-white over the distal borders, and over the inner area of hind wing ; ocelli reduced or absent.

Expanse : ♂♀, 40–50 mm.

Habitat.—SIKKIM to RANGOON ; common. Recorded by Doherty (1886 *a*) from Kumaon, at from 2,000 to 4,000 feet, but rare. Also recorded by Taylor (1888) from Orissa, but only the dry-season form observed, and rarely.

Mycalesis annamitica Fruhstorfer.

Mycalesis annamitica appears to be the oldest name for a species which Fruhstorfer and others associated with *mamerta* (Stoll). The name *mamerta* represents a dry-season form of a Chinese subspecies of *mineus* (Linn.).

♂. *Underside* of fore wing with the brand black. *Upperside* of hind wing with brand black.

Valve strongly resembles that of *lepcha* (Moore) and *malsara* Moore, to which species *annamitica* is closely allied.

♂♀. *Upperside* of fore wing with blind ocelli ; an ocellus in areas 3 and 5, as well as in 2. Hind wing always with an ocellus in areas 2 and 3. Cilia chequered black and white.

Underside with a post-discal yellow band ; proximal areas speckled ; distal borders dusted with light grey ; a submarginal, black, sinuous line.

Distribution.—ASSAM to BURMA, Tong-king, and Annam.

266 *a*. **Mycalesis annamitica annamitica** Fruhstorfer.

Mycalesis mamerta annamitica, Fruhstorfer, 1906 *a*, p. 82 (Annam) ; *id.*, 1908 *c*, p. 142 ; *id.*, 1911, p. 347 ; Evans, 1920, p. 361, pl. iii, fig. G 10 (♂ genit.) (Tenasserim) ; *id.*, 1932 *a*, p. 101.

Mycalesis mamerta var., Moore, 1886, p. 32 (Elphinstone Island).

♂♀. In addition to the characters already described, the hind wing has the outer margin strongly scalloped, and both wings elongate.

Expanse : ♂♀, 45–50 mm.

Habitat.—KAREN HILLS to SOUTHERN BURMA, and Annam ; rare in Burma.

266 *b*. **Mycalesis annamitica watsoni** Evans.

Mycalesis (*Samanta*) *lepcha watsoni*, Evans, 1912, p. 569 (Assam to Upper Burma).

Mycalesis mamerta mamerta, Evans (*non* Stoll), 1920, pp. 355, 361, pl. iii, figs. Q 2–9 (♂ genit.) ; *id.*, 1932 *a*, p. 101.

♂♀. Differs from the nominotypical form in having both wings rounded.

Habitat.—ASSAM to the SHAN STATES, and Tong-king ; not rare.

Mycalesis lepcha Moore.

♂. *Underside* of fore wing with brand black, and placed as in *malsara* Moore.

Upperside of hind wing with brand and hair-pencil black.

♂♀. *Upperside* with the post-discal band of underside only obscurely indicated. Fore wing with blind ocelli, one in area 2, rarely a small one in 3, and sometimes one in 5. Hind wing with ocelli absent or minute in forms which have no ocellus in area 5 of fore wing.

Underside with a post-discal yellow band as in *malsara*, and also, as in that species, the proximal areas are obscurely speckled in the male, more prominently speckled in the female. Fore wing usually with four ocelli, those in areas 3, 4, and 6 much smaller. Hind wing with seven ocelli, the two small posterior ones placed more distad than the others.

Distribution.—PENINSULAR and NORTHERN INDIA to the KAREN HILLS. Four subspecies in the Indian area.

267 *a*. **Mycalesis lepcha lepcha** (Moore).

Samanta lepcha, Moore, 1880 *b*, p. 167 (♂, Nepal).
Mycalesis (Samanta) lepcha, Marshall & de Nicéville, 1883, pp. 128, 130.
Samanta lepcha, Moore, 1891, p. 204, pl. lxviii, figs. 2, 2 *a* (♂, wet-season brood), 2 *b* (♀, dry-season brood).
Mycalesis (Samanta) lepcha, Mackinnon & de Nicéville, 1897, p. 215 (Mussooree, 3,000–7,000 feet).
Mycalesis malsara lepcha, Bingham, 1905, p. 65; Hannyngton, 1910, p. 134 (Kumaon, 3,000–5,000 feet).
Mycalesis mamerta lepcha, Fruhstorfer, 1911, p. 347.
Mycalesis lepcha lepcha, Evans, 1920, p. 361, pl. iii, figs. O 10, P 1–3 (♂ genit.) (Kulu to Kumaon); *id.*, 1932 *a*, p. 101; Gough, 1935, p. 261 (Nepal, rare); Peile, 1937, p. 85 (Mussooree).

♂♀. In addition to the characters already described, the

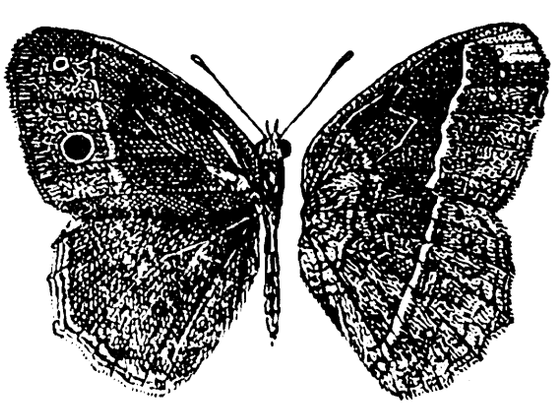


Fig. 57.—*Mycalesis lepcha lepcha* (Moore), ♂.

cilia are brown. *Underside* with post-discal line thread-like, becoming obsolete towards costa of fore wing.

Expanse : ♂♀, 45–50 mm.

Habitat.—KULU to KUMAON ; not rare. Wynter-Blyth (1940) records it from Simla at 7,000 feet, only the dry-season form being found.

267 *b*. **Mycalesis lepcha davisoni** (Moore).

Samanta davisoni, Moore, 1891, p. 206, pl. lxviii, fig. 3 (♂, " Anaymalai Hills," 3,000–4,000 feet).
Mycalesis mamerta davisoni, Fruhstorfer, 1911, p. 347.
Mycalesis lepcha davisonii, Evans, 1920, p. 361, pl. iii, figs. P 9, 10, Q 1 (♂ genit.) ; *id.*, 1932 *a*, p. 101 ; Peile, 1937, p. 85.
Mycalesis malsara lepcha, Evans (*non* Moore), 1910, p. 382 (Palni Hills, to 6,000 feet).

♂♀. Differs from the nominotypical form in the cilia being white, and prominently chequered brown at ends of veins.

Habitat.—PENINSULAR INDIA : Palni and Anamalai Hills ; not rare.

267 *c*. **Mycalesis lepcha bethami** (Moore).

Samanta bethami, Moore, 1891, p. 205, pl. lxviii, fig. 4 (♂, Pachmarhi, 3,500 feet).
Mycalesis mamerta bethami, Fruhstorfer, 1911, p. 347.
Mycalesis lepcha bethami, Evans, 1920, p. 361, pl. iii, fig. P 8 (♂ genit.) ; *id.*, 1932 *a*, p. 101 ; Peile, 1937, p. 85.

♂♀. Differs from the nominotypical form in the post-discal line being wider, and outwardly ill-defined.

Habitat.—CENTRAL PROVINCES : Pachmarhi ; ORISSA ; rare.

267 *d*. **Mycalesis lepcha kohimensis** Tytler.

Mycalesis lepcha kohimensis, Tytler, 1914, p. 226 (Manipur and Naga Hills, 4,500–7,000 feet) ; Evans, 1920, p. 361, pl. iii, figs. P 4–7 (♂ genit.) (Assam to Burma) ; *id.*, 1932 *a*, p. 101 ; Peile, 1937, p. 86.

♂♀. *Upperside* very dark, paler in the female ; cilia white, more or less chequered with brown. Fore wing with post-discal thread-like band less obscure than in the nominotypical form ; usually a small ocellus in area 5. Hind wing with a small ocellus in area 2, and usually a minute one in 3.

Underside very dark, paler in the female ; discal band broader than in the nominotypical form, and on the fore wing not narrowed at the costa.

Valve.—Narrow, and not widened at apex as in the other races of *lepcha* and in *malsara* Moore and *annamitica* Fruh.

Habitat.—ASSAM to the KAREN HILLS ; not rare. Originally taken in Manipur and Naga Hills, from 4,500 to 7,000 feet. In the same area occur the allied *malsara* Moore and *watsoni* Evans, but not above 3,000 feet.

268. **Mycalesis malsarida** Butler. (Figs. 42 *j*, 43 *j*, ♂ genitalia).

Mycalesis malsarida, Butler, 1868, p. 134, pl. iii, fig. 14.
Mycalesis (*Kabanda*) *malsarida*, Marshall & de Nicéville, 1883, p. 127 ; Wood-Mason & de Nicéville, 1887, p. 350 (♂, Cachar) ; de Nicéville, 1888 *b*, p. 273 (Sylhet).
Mycalesis malsarida, Elwes, 1891, p. 260 (Assam).
Kabanda malsarida, Moore, 1891, p. 212, pl. lxxii, figs. 1, 1 *a* (♂, wet-season brood), 1 *b* (♂, dry-season brood).
Mycalesis malsarida, Bingham, 1905, p. 63 ; Tytler, 1911, p. 50 (Naga Hills) ; Fruhstorfer, 1911, p. 348 ; Evans, 1920, p. 322, pl. ii (♂ venation), pl. iii, figs. R 1, 2 (♂ genit.) ; *id.*, 1932 *a*, p. 102.
Mycalesis khasiana, Moore, 1874 *b*, p. 566 (♂, Khasi Hills).
Mycalesis (*Kabanda*) *khasiana*, Marshall & de Nicéville, 1883, p. 127.
Mycalesis malsarida f. *khasiana*, Fruhstorfer, 1911, p. 348 (=dry-season form).

♂. *Underside* of fore wing with small black brand. Upperside of hind wing with brand and hair-pencil black.

Valve long and very narrow, slightly curved ; rather distinct from other species of the group.

Wet-season form **malsarida** Butl.—♂♀. *Upperside* without ocelli ; ground-colour dark vandyke-brown, slightly paler towards apex of fore wing ; submarginal pale lines somewhat obscure.

Underside with similar ground-colour, shading into purplish towards apex of fore wing, and outer margins of both wings ; a post-discal narrow, lilacine band. Fore wing with five ocelli, the series bordered on both sides by slender, irregular, sinuous, purple lines ; submarginal and marginal paler purple lines. Hind wing with seven ocelli, those in areas 2 and 3 larger than the others, the series with purple border-lines as on fore wing.

Antennæ, head, thorax and abdomen brown.

Dry-season form **khasiana** Moore.—♂♀. *Upperside* paler than in the wet form.

Underside more purplish over distal borders of wings ; post-discal band narrower, and more obscure ; ocelli reduced ; submarginal and marginal lines ochraceous.

Expanse : ♂♀, 45–50 mm.

Habitat.—Assam ; rare.

Patnia Group (*Nissanga* Moore).

♂. *Underside* of fore wing without a brand. *Upperside* of hind wing with a small black brand, and a fuscous hair-pencil.

♂♀. Hind wing with vein 3 arising far beyond end of cell, shortly stalked with 4. *Underside* with a post-discal silvery line, and ocelli groups bordered by a similar line.

This group appears to contain only a single species.

Distribution.—Ceylon and Peninsular India.

269 *a*. **Mycalesis patnia patnia** Moore. (Fig. 58, ♂; 41 *d*, ♂ venation; 42 *k*, 43 *k*, ♂ genitalia).

Mycalesis patnia, Moore, 1857, p. 232.
Mycalesis (*Nissanga*) *patnia*, Marshall & de Nicéville, 1883, p. 131.
Nissanga patnia, Moore, 1891, p. 215, pl. lxxii, figs. 2, 2 *a*, *b*, *c*, *d* (♂♀, Ceylon).
Mycalesis patnia, Bingham, 1905, p. 66, pl. ii, fig. 11.
Mycalesis patnia patnia, Fruhstorfer, 1911, p. 333.
Nissanga patnia, Ormiston, 1918, p. 12.
Mycalesis patnia patnia, Evans, 1920, p. 362, pl. iii, fig. R 7 (♂ genit.); *id.*, 1932 *a*, p. 102; Woodhouse & Henry, 1942, p. 44, pl. v, figs. 1 (♂), 2 (♀).

♂. *Upperside* dark umber-brown, suffused with ochraceous. Both wings with submarginal and marginal, slender, bright ochraceous-yellow, lines; cilia pale brown. Fore wing with a large median, and a much smaller subapical, white-centred black ocellus, each with an orange-yellow iris; upper portion of iris round median ocellus very broad, the lower portion incomplete; a discal patch, orange-yellow, and more or less triangular. Hind wing with two very small fulvous-ringed black ocelli.

Underside deep ochraceous-yellow; submarginal and marginal lines as on upperside. Both wings with a sub-basal darker

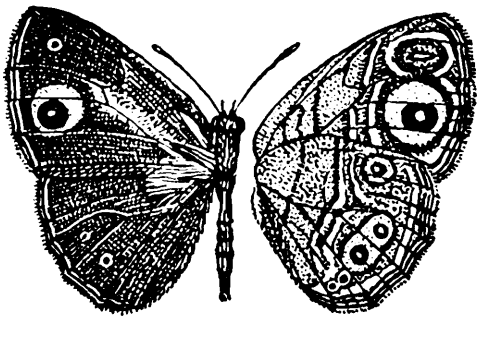


Fig. 58.—*Mycalesis patnia patnia* Moore, ♂

ochraceous-yellow line; a discal silvery band. Fore wing with two ocelli as on upperside, each encircled by an outer silvery ring. Hind wing with a curved series of seven similar ocelli, bordered on both sides by a silvery band; the third and fourth posterior ocelli, and the apical ocellus itself, placed on a brighter ochraceous patch encircled with black.

Antennæ, head, thorax and abdomen brown, somewhat ochraceous beneath.

♀. Similar to the male. *Upperside* more strongly suffused with ochraceous. Fore wing with larger orange-yellow patch extending to base. Hind wing without ocelli.

Underside as in male, but of a brighter ochraceous yellow.

Both wings with two sub-basal darker yellow bands, and cell of fore wing with a loop of the same colour.

Expanse : ♂♀, 40–45 mm.

Habitat.—CEYLON ; common.

269 *b*. **Mycalesis patnia junonia** Butler.

Mycalesis junonia, Butler, 1868, p. 146, pl. iii, fig. 4.
Mycalesis (*Nissanga*) *junonia*, Marshall & de Nicéville, 1883, pp. 131, 132, pl. xvi, fig. 57 (♂, Trevandrum) ; Hampson, 1889, p. 348 (Nilgiri Hills, 2,000–3,000 feet).
Nissanga junonia, Moore, 1891, p. 216, pl. lxxiii, figs. 1, 1 *a*, *b* (♂♀).
Mycalesis junonia, Davidson, Bell, & Aitken, 1896, p. 242, pl. i, figs. 2, 2 *a* (North Kanara) ; Bingham, 1905, p. 67, pl. ii, fig. 12 ; Evans, 1910, p. 382 (Palni Hills, not common).
Mycalesis patnia junonia, Fruhstorfer, 1911, p. 333 ; Evans, 1920, p. 362 ; *id.*, 1932 *a*, p. 102, pl. xi, fig. D 2. 32 (♂).

♂♀. *Upperside* of a duller brown than in the nominotypical form. Fore wing with median ocellus encircled with pure white ; no discal patch, or merely faint traces of one.

Underside rather pale brown. Fore wing with median ocellus broadly encircled with white. Hind wing in male with a large posterior bright ochraceous spot.

Early stages and *habits* (from *Bell*, 1909) :—

Larva.—Dull, dark brown, with a lateral row of about seven lighter brown diamond-shaped markings caused by diagonal lines ; on each of segments 5 to 13, a lateral, centrally placed, small white tubercle, bearing no hair. Surface of body covered with small tubercles, and finely hairy ; spiracles dull black ; anal processes short, conical, fleshy. Length, 28 mm. ; breadth, 3 mm.

Food-plants.—Grasses, including rice.

Pupa.—Dark bluish-green ; dorsal line of wings, cremaster, and front margin of head broadly red-brown. Cremaster short and square, with two large, lateral, round tubercles on each side of base, and is fixed so that the pupa hangs very much inclined towards the surface from which it is suspended. Length, 11·5 mm. ; breadth, 6 mm.

Habits.—The egg is laid on the underside of a blade of grass, generally a soft grass, in the jungles among the undergrowth, or on the edge of a path or clearing. The larva, emerging, keeps to the underside of the blade or low down on a stalk, lying often with its head turned back on its side, holding on only with the prolegs. Pupation takes place on the underside of a blade, from a perpendicular stalk, or sometimes even against the side of a rock, always close to the ground.

The butterfly is common in the Kanara District at all times of the year, always in jungles.

Habitat.—The hills of PENINSULAR INDIA ; not rare. In the Nilgiri Hills it is confined to the southern and western slopes, in heavy forest, at from 2,000 to 3,000 feet.

Oroatis Group (*Loesa* Moore).

♂. *Underside* of fore wing with a small brown brand in area 1 *b*, placed against the vein at a point below the origin of vein 2.

Upperside of hind wing with the brand pale brown, short and narrow; hair-pencil with the basal half fuscous, outer half pale ochraceous; vein 1 *b*, at the middle, bearing an elongate cavity filled with grey androconia, and covered by a hair-pencil; this hair-pencil arises from area 1 *c*, at a point just above the brand, and is fuscous, the part covering the brand being paler.

♂♀. Fore wing with vein 10 stalked with 7, 8, and 9.

This group appears to contain only one species.

Distribution.—BURMA to Java.

270. **Mycalesis oroatis surkha** Marshall. (Figs. 59, ♂; 42, *e*, ♂ venation; 42 *l*, 43 *l*, ♂ genitalia).

Mycalesis surkha, Marshall, 1882 *a*, p. 37, pl. iv, fig. 1.
Mycalesis (*Loesa*) *surkha*, Marshall & de Nicéville, 1883, p. 133, ♂.
Loesa surkha, Moore, 1891, p. 219, pl. lxxiii, figs. 3 (♂, wet-season brood), 3 *a* (♂, dry-season brood).
Mycalesis surkha, Bingham, 1905, p. 68, pl. ii, fig. 13.
Mycalesis oroatis surkha, Fruhstorfer, 1911, p. 358; Evans, 1920, pp. 355, 362, pl. ii (♂ venation), pl. iii, figs. R 3, 4 (♂ genit.); *id.*, 1932 *a*, p. 102.
Loesa fervida, Butler, 1882, p. 372.
Mycalesis fervida, Elwes & de Nicéville, 1887, p. 418 (Tavoy).

Wet-season form **surkha** Marsh.—♂. *Upperside* bright rufous-brown, outer margins narrowly dusky black. Both wings with submarginal and marginal lines; cilia brown. Fore wing with apical area dusky black; a small, black, pale-ringed median ocellus; rarely one or two smaller, similar, subapical ocelli. Hind wing unmarked.

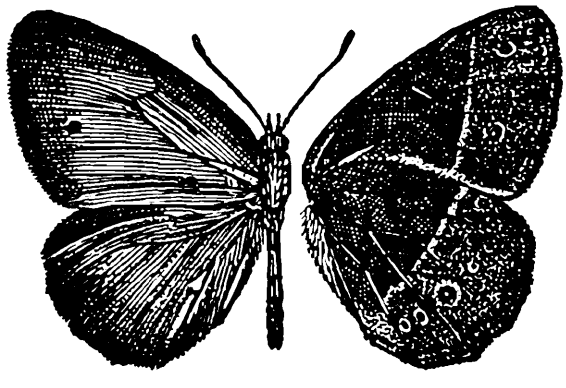


Fig. 59.—*Mycalesis oroatis surkha* Marsh., ♂.

Underside dark rich umber-brown; a post-discal narrow purplish-blue band; submarginal and marginal pale sinuous lines. Fore wing with a small ocellus in area 2, and a smaller one in 5, their white centres prominent. Hind wing with seven ocelli, the largest one, in area 2, placed slightly more proximal,

the series forming a strongly curved line, and encircled by an obscure purplish line.

Antennæ, head, thorax and abdomen bright rufous-brown, grey-brown below; antennal club ochraceous, with a blackish-brown patch below the apex.

♀. Paler on both sides. *Underside* with post-discal line more heavily marked; ocelli larger, and on fore wing usually also a minute ocellus in areas 3 and 4; the encircling lines of the ocelli on both wings more prominent.

Dry-season form **fervida** (Butler).—♂♀. Only differs in being slightly darker, with the ocelli more or less reduced.

Expanse: 50–55 mm.

Habitat.—Dawna Range to Southern Burma and Malaya; very rare.

Genus **LETHE** Hübner.

Lethe, Hübner, 1819, p. 56; Marshall & de Nicéville, 1883, pp. 96, 136, pls. x, xi; Moore, 1891, p. 154; *id.*, 1892 *a*, p. 253; Bingham, 1905, p. 72; Seitz, 1907, p. 82; Fruhstorfer, 1911, pp. 311, 315; Evans, 1932 *a*, pp. 94, 102; Hemming, 1924 *a*, p. 30 (type, *Papilio europa* Fabr., 1775).

Tanaoptera, Billberg, 1820, p. 79; Hemming, 1934 *a*, p. 31 (type, *europa* Fabr.).

Debis, Doubleday, 1851, p. 358, pl. lxi (*Debis samio* Doubl.); Moore, 1891, p. 154; *id.*, 1892 *a*, p. 240; Hemming, 1934 *a*, p. 31 (type, *Debis samio* Doubl.).

Zophoessa, Doubleday, 1851, p. 362, pl. lxi; Marshall & de Nicéville, 1883, pp. 96, 162, pl. x; Moore, 1891, p. 154; *id.*, 1892 *a*, p. 291; Fruhstorfer, 1911, p. 314 (=*Lethe* group); Hemming, 1934 *a*, p. 31 (type, *Zophoessa sura* Doubl.).

Enope, Moore, 1857, p. 228; *id.*, 1892 *a*, p. 229; Hemming, 1934 *a*, p. 32 (type, *Lasiommata ? bhadra* Moore, 1857) (præocc. *Enope* Walker, 1854).

Neope, Butler, 1867 *g*, p. 166; Marshall & de Nicéville, 1883, pp. 96, 169, pl. xi; Seitz, 1907, p. 89; Fruhstorfer, 1911, p. 324.

Blanaida, Kirby, 1877, p. 699 (nom. nov. pro *Enope* Moore); Moore, 1891, p. 154; *id.*, 1892 *a*, p. 299 (type, *bhadra* Moore).

Hanipha, Moore, 1880 *a*, p. 18; *id.*, 1891, p. 154; *id.*, 1892 *a*, p. 239 (type, *dynsate* Hew.).

Tanisma, Moore, 1881 *a*, p. 305 (type, *satyrina* Butl.); *id.*, 1891, p. 154; *id.*, 1892 *a*, p. 273.

Charma, Doherty, 1886 *a*, p. 117 (type, *baladeva* Moore); Moore, 1891, p. 154; *id.*, 1892 *a*, p. 287 (=nom. præocc.).

Rangbia, Moore, 1891, pp. 154, 232 (type, *scanda* Moore); Fruhstorfer, 1911, p. 322 (=*Lethe* group).

Nemetes, Moore, 1891, p. 154; *id.*, 1892 *a*, p. 237 (type, *minerva* Fabr.).

Dionana, Moore, 1891, p. 154; *id.*, 1892 *a*, p. 271 (type, *margaritæ* Elwes).

Sinchula, Moore, 1891, p. 154; *id.*, 1892 *a*, p. 275 (type, *sidonis* Hew.); Fruhstorfer, 1911, p. 312 (=*Lethe* group).

Kerrata, Moore, 1892 *a*, p. 285; Fruhstorfer, 1911, p. 313 (=*Lethe* group).

Putlia, Moore, 1892 *a*, p. 287 (nom. nov. pro *Charma* Doherty).

Patala, Moore, 1892 *a*, p. 305 (type, *P. yama* Moore).

Magula, Fruhstorfer, 1911, p. 313 (=*Lethe* group).

Hermias, Fruhstorfer, 1911, p. 324 (=*Lethe* group).

Type of the genus, *Papilio europa* Fabricius.

♂♀. Fore wing triangular, generally short ; costa more or less arched, sometimes strongly curved towards the apex ; outer margin straight, incurved or oblique, never excurved ; inner margin straight or slightly excurved ; cell not quite half length of wing ; discocellulars rather variable, upper two sometimes oblique, when the upper angle of cell becomes rounded ; typically, however, *udc* very short, *mdc* longer, somewhat incurved, *ldc* slightly oblique ; veins 11 and 12 coincident for half their length ; veins 10 and 11 from a little before apex of cell ; vein 12 swollen at the base, the median more or less swollen, and vein 1 *b* never swollen. Hind wing oval ; never symmetrical about a central axis from base to middle of outer margin ; outer margin strongly arched, scalloped, often

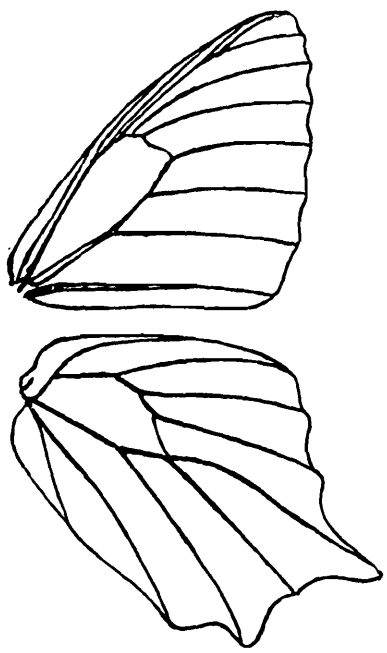


Fig. 60.—*Lethe sura* (Doubl.).
Venation of male.

caudate or dentate at vein 4 ; cell less than half length of wing ; discocellulars very oblique ; vein 3 from or from before the apex of cell, rarely stalked with 4 ; veins 6 and 7 well separated at their origin. Antennæ less than half length of fore wing, the club distinct, but gradual ; palpi long, anteriorly fringed with porrect hairs, third segment short, slender, acute at apex ; eyes hairy ; mid and hind femora scaled, hairy beneath.

The males of some forms with patches of androconia, with or without overlying tufts of long hair, usually on the fore wing, sometimes on both wings.

Although a certain amount of structural variation exists in this extensive genus, satisfactory characters for the arrangement of the numerous Indian forms under more than one genus seem to be lacking.

Bingham (1905) divided the genus into three groups, accord-

ing to sex-marks. Fruhstorfer (1911) divided it into eight groups, besides retaining *Neope* Butl. as a distinct genus.

Evans (1932 *a*), who studied closely the Indian forms, divided the genus into three groups, and this division is followed here. The names employed by him for two of his groups have to be changed, as it is necessary to employ the oldest name.

Habits (from *Seitz*, 1907) :—

The larvæ feed on bamboo or grass. The butterflies fly after sunset, but in the day-time they mostly sit motionless among leaves, flying only a few yards when disturbed. They imbibe the sap exuding from trees, and drink at puddles, visiting also the bait used for attracting moths, and coming to the lamp. Shortly after dusk, in clearings, one may observe the males, mostly with wings half open, at the top of shrubs or branches, and lying in wait for females flying by ; they rush at every insect hurrying past, and return to their post of vantage after the chase.

Distribution.—The HIMALAYAS to Japan and Siberia, south and east to Borneo, Java, the Moluccas and Celebes.

About 80 per cent. of all known forms occur in the Himalayas ascending to 11,000 and sometimes to 14,000 feet.

Key to Groups.

1. Hind wing with vein 8 about half as long as vein 7. Hind wing underside without an ocellus in area 7 ..	2.
Hind wing with vein 8 nearly as long as vein 7. Hind wing underside with an ocellus in area 7	*Yama* Group, p. 231.
2. Fore wing with upper angle of cell evenly rounded : vein 12 terminates at a point above the end of cell. Hind wing underside with more than one band in the cell.	*Sura* Group, p. 168.
Fore wing with upper angle of cell angled ; vein 12 terminates at a point well beyond end of cell. Hind wing underside with not more than one band in the cell.	*Minerva* Group, p. 189.

Sura Group

(*Sinchula* Moore, *Kerrata* Moore, *Magula* Fruhst.).

Key to Species.

1. Hind wing with vein 3 arising before end of cell .	2.
Hind wing with vein 3 arising from end of cell ; outer margin caudate at vein 4. Hind wing underside with an inverted Y-shaped dark band at end of cell, and a pale sub-basal dark bar. ♂ fore wing upperside with a broad brand from middle of vein 1 *b* to base of vein 4.	13.

2. Hind wing with tornus not excavated between veins 1 *b* and 2; margin only slightly caudate at vein 4 . . 3.
Hind wing with tornus excavated between veins 1 *b* and 2; margin caudate at vein 4. Hind wing underside with an inverted Y-shaped dark band, from costa to lower angle of cell, and beyond it a straight, broad, white or yellow band . . . 12.
3. ♂ fore wing upperside without a brand. Hind wing underside with basal markings lilacine . 4.
♂ fore wing upperside with an interrupted brand, from middle of vein 1 *b* to base of vein 4. Hind wing underside without pale markings, but with ferruginous bands on a rather pale ochreous-brown ground; obscure basal cell markings . . . . . 11.
4. Hind wing underside with the ocelli in areas 2 and 6 always larger or more clearly defined than the others. . . 5.
Hind wing underside with the ocelli in areas 2 and 6 equal . . . 9.
5. Hind wing underside with the ocelli from area 4 to tornus having their centres in a straight line . 6.
Hind wing underside with the ocelli from area 4 to tornus having their centres arranged in an arc . . 7.
6. Hind wing upperside with dark spots edged outwardly with white. ♀ mostly white . . . . . *visrava* (Moore), p. 170.
Hind wing upperside without dark spots. *siderea* Marsh., p. 171.
7. Fore wing underside with apical dots or ocelli . . 8.
Fore wing underside without apical dots or ocelli . . *nicetella*, de Nicév., p. 175.
8. Underside fore wing post-discal band not pure white near costa. Hind wing discal markings well defined . . . *sidonis* (Hew.), p. 172.
Underside fore wing post-discal band pure white near costa. Hind wing discal markings not well defined . . *dakwania* Tytler, p. 175.
9. Hind wing underside with the ocelli large and blurred, yellow rings absent. *maitrya* de Nicév., p. 176.
Hind wing underside with the ocelli small and clearly defined; margin faintly caudate at vein 4. . . . 10.
10. Hind wing underside with discal silvery line much dislocated; area between discal band and ocelli yellow. Fore wing underside with obscure discal band placed at an angle of 45° to costa. [p. 177. *violaceopicta* (Pouj.),
Hind wing underside with discal silvery line more regular, crossing area 2 at origin of vein 3, and only sinuous in area 1 *c*; distal area yellow. Fore wing underside with discal band placed at right angles to costa . *nicetas* (Hew.), p. 179.

11. Fore wing underside with subapical white spots from areas 3 or 4 to costa, in the ♀ appearing also on upperside.. *tristigmata* Elwes, p. 180.
Fore wing underside with subapical white spots from area 6 to costa *ocellata* (Pouj.), p. 181.
12. Hind wing underside with the area behind the dark band at end of cell ferruginous, and bearing a single, narrow, irregular line from costa through middle of cell. ♂ fore wing upperside with a prominent, broad brand . . . *kabrua* Tytler, p. 182.
Hind wing underside with the area behind the dark band at end of cell, dark brown, and bearing two narrow, irregular lines from costa across the cell. Fore wing underside with one or two apical ocelli [p. 182. *jalaurida* (de Nicév.),
Hind wing underside with the area behind the dark band at end of cell, brown, and bearing a pale, straight, broad band from costa across cell, also a very obscure basal band. Fore wing underside without apical ocelli *moelleri* (Elwes), p. 183.
Hind wing underside with the area on either side of the dark band at end of cell, yellow; basal area ferruginous-brown. Upperside with fulvous markings . . . . *atkinsonia* (Hew.), p. 184.
13. Hind wing underside with discal dark band not widening towards costa. Underside pale areas yellow . *goalpara* (Moore), p. 185.
Hind wing underside with discal dark band widening towards costa. Underside pale areas lilacine, but in ♀ more or less yellow. . . 14.
14. Hind wing underside with inner edge of discal band straight between veins 6 and 4. ♂ fore wing upperside uniform dark brown *sura* (Doubl.), p. 187.
Hind wing underside with inner edge of discal band angled between veins 6 and 4. ♂ fore wing upperside paler distally; hind wing distally greyish, and anterior dark spots usually absent. *dura* (Marsh.), p. 188.

271. **Lethe visrava** (Moore).

Debis visrava, Moore, 1865 *a*, p. 768, pl. xli, fig. 4 (♂) ("N.E. Bengal").
Lethe visrava, Marshall & de Nicéville, 1883, pp. 157, 161, ♂.
Sinchula visrava, Moore, 1892 *a*, p. 284, pl. lxxxix, figs. 1, 1 *a*, *b*, *c* (♂♀).
Lethe (*Sinchula*) *visrava*, de Nicéville, 1894 *a*, p. 124 (Sikkim, very rare).
Lethe visrava, Bingham, 1905, p. 87; Fruhstorfer, 1911, p. 313, t. 97 *c*; Tytler, 1914, p. 222 (♂, Manipur); Evans, 1932 *a*, p. 102; Tytler, 1939 *a*, p. 245 (N.E. Burma).
Debis deliades, Hewitson, 1872, p. 84 (Darjeeling).
Lethe deliades, Marshall & de Nicéville, 1883, p. 162.

♂. *Upperside* blackish-brown ; cilia white. Fore wing with ocelli on the underside showing through ; a prominent submarginal white line. Hind wing with a post-discal series of black blind ocelli, bordered paler inwardly and broadly with white on the outer side ; a submarginal row of brown lunular markings ; antemarginal white and marginal slender dark lines.

Underside brown, paler distally. Fore wing with a subapical series of three or four white-centred and white-ringed dark ocelli ; a submarginal white line. Hind wing with basal two-thirds crossed by interrupted, transverse, sinuous white lines ; a post-discal, curved series of six white-centred, ochraceous-ringed, black ocelli, each with an outer white ring, the tornal ocellus bipupilled ; a conspicuous submarginal white line.

♀. *Upperside* white. Fore wing with the cell, a spot below its apex, another more obscure spot below that, a spot near the tornus, the apex broadly and the outer margin, narrowing somewhat posteriorly, brown. Hind wing with basal area slightly brown ; a curved post-discal series of six round ocellar brown spots ; submarginal and marginal slender brown lines.

Underside white. Fore wing with ochraceous submarginal and marginal slender lines. Hind wing with some ochraceous cell and discal marks ; ocelli black, with white centres and broad ochraceous rings ; marginal border pale ochraceous ; an incomplete submarginal row of ochraceous lunules ; an antemarginal, slender white line.,

Antennæ, head, thorax and abdomen brown ; whitish beneath.

Expanse : ♂♀, 50–55 mm.

Habitat.—SIKKIM to BHUTAN and NORTH-EASTERN BURMA ; rare, the female especially so.

Tytler (1939 *a*, p. 245) records nine males and a female from Htawgaw in N.E. Burma, and a female from the S. Shan States (Kengtung).

272. **Lethe siderea** Marshall.

Lethe siderea, Marshall, in Marshall & de Nicéville, 1880, p. 246 ; Marshall & de Nicéville, 1883, pp. 157, 159, ♂ ; Elwes, 1891, p. 264 (Bernardmyo).

Sinchula siderea, Moore, 1892 *a*, p. 280, pl. lxxxviii, figs. 3, 3 *a* (♂).

Lethe (Sinchula) siderea, de Nicéville, 1894 *a*, p. 124 (Sikkim, 7,000 feet, very rare).

Lethe siderea, Bingham, 1905, p. 86 ; Tytler, 1911, p. 52 (Naga Hills, 6,500 feet, ♂) ; Fruhstorfer, 1911, p. 312 ; Tytler, 1914, p. 220 (Naga Hills & Manipur, 6,000–8,400 feet, ♂♀) ; Evans, 1932 *a*, p. 102, pl. xii, fig. D 3, 2 (♂).

Lethe sidonis f. *gelduba,* Fruhstorfer, 1911, p. 312.

♂. *Upperside* uniform dark greenish-bronze, slightly paler and browner along inner fold of hind wing.

Underside vandyke-brown. Both wings with a submarginal, lilacine-white, slender line ; cilia alternately lilacine and brown. Hind wing with proximal area crossed by somewhat broken, sinuous, lilacine lines ; a post-discal, strongly curved, series of black, white-centred, fulvous-ringed ocelli, of which the tornal ocellus is bipupilled.

Antennæ brown, annulated with white, a jet-black spot before the tip, the tip ochraceous ; head, thorax and abdomen brown.

♀. (from Tytler, 1915). *Upperside* paler brown than the male. Fore wing with cell and areas 3 to 6 darker than rest of wing, this dark area outwardly well-defined, and sharply angled at vein 4, followed by a pale brown band ; a subapical row of pale spots in areas 4 to 6, and a diffuse pale area in areas 7 and 8.

Underside of fore wing with dark discal area sharply defined as above, but continued into area 2 ; post-discal pale brown band as above, but very diffuse on outer edge ; a subapical row of white spots in areas 3 to 7, the lower spot sometimes absent ; base of areas 7 and 8 pale brown. Hind wing as in male.

Expanse : ♂♀, 48–55 mm.

Genitalia.—Uncus long and very narrow, the sides straight.

The name *gelduba* Fruhst. was founded upon a male of this species ; the female associated with it proves to belong to *maitrya* de Nicév.

Habitat.—Garhwal to Northern Burma and Northern Yunnan ; rare, especially the female. According to Tytler (1915) the butterfly is not rare in the Naga Hills and Manipur, from 6,000 to 8,400 feet, where it is found from May to October ; the female is usually found higher up than the male.

273. **Lethe sidonis** (Hewitson). (Fig. 61, ♂).

Debis sidonis, Hewitson, 1863, p. 77, *Debis*, pl. iii, fig. 16 (♂) Moore, 1865 *a*, p. 768 (Darjeeling).

Lethe sidonis, de Nicéville, 1882, p. 56 (Sikkim) ; Moore, 1882 *b*, p. 235 (Kangra) ; Marshall & de Nicéville, 1883, pp. 157, 159, ♂♀ ; Doherty, 1886 *a*, p. 115 (Kumaon, 6,000–8,000 feet) ; Elwes, 1891, p. 264 (Naga Hills).

Sinchula sidonis, Moore, 1892 *a*, p. 276, pl. lxxxvii, figs. 1, 1 *a* (♂, wet-season brood), 1 *b*, *c* (♂♀, dry-season brood).

Lethe (*Sinchula sidonis*), de Nicéville, 1894 *a*, p. 123 (Sikkim) ; Watson, 1897, p. 644 (Manipur).

Lethe sidonis, Bingham, 1905, pl. ii, fig. 17 ; Hannyngton, 1910, p. 134 (Kumaon, 7,000 feet) ; Fruhstorfer, 1911, p. 312, t. 97 *c* ; Tytler, 1911, p. 52 (Naga Hills, 5,000–7,000 feet).

Lethe sidonis sidonis, Evans, 1932 *a*, p. 103 ; Peile, 1937, p. 86 (Kumaon).

Lethe vaivarta, Doherty, 1886 *a*, p. 115 (Kumaon, ♂♀).

Sinchula vaivarta, Moore, 1892 *a*, p. 278, pl. lxxxvii, figs. 2, 2 *a*, *b*, *c* (♂♀, dry-season brood).

Lethe (*Sinchula*) *vaivarta*, de Nicéville, 1894 *a*, p. 124 (Bhutan); Mackinnon & de Nicéville, 1897, p. 215, pl. ii, figs. 3 *a*, *b*, *c*, *d*, *e* (larva and pupa) (Mussooree).

Lethe vaivarta, Bingham, 1905, p. 85; Hannyngton, 1910, p. 134 (Kumaon, 7,000–11,000 feet); Fruhstorfer, 1911, p. 312.
Lethe sidonis vaivarta, Evans, 1932 *a*, p. 102; Gough, 1935, p. 261 (Nepal); Peile, 1937, p. 86; Wynter-Blyth, 1940 (Simla district; Kulu, 9,000 feet).
Lethe irma, Evans, 1923, p. 531 (Gangtok).
Zophoessa nicévillei, Evans, 1923, p. 531 (Bhutan, Garhwal).

Wet-season form **sidonis** (Hew.).—♂. *Upperside* of fore wing with an obscure post-discal line, and a subapical pale costal spot as in allied forms. Hind wing with three small black post-discal spots in areas 2, 3 and 5.

Underside earth-brown. Fore wing with an obscure, pale, slightly curved bar in the cell, bearing a few lilacine scales; a post-discal line, more or less defined, usually obscure, slightly out-curved, and reaching inner margin well before tornus; area distad of post-discal line usually a little paler than proximal area; the post-discal line is usually scaled lilac-blue from vein 5 to costa; a subapical lilac spot, corresponding to the spot on

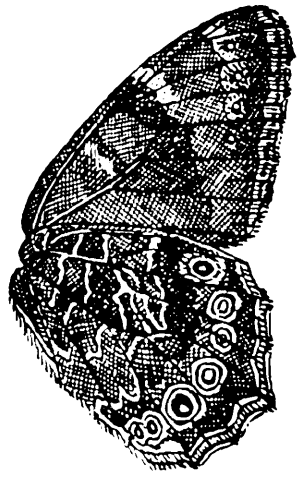


Fig. 61.—*Lethe sidonis* (Hew.), ♂.
Underside of wet-season form (Cherrapunji).

upperside, and below it, a little more distad, a minute ocellus, with a second, and larger one, a little further distad, in area 5; a third ocellus in area 4, as small as the first one, and placed nearly below it; two submarginal, narrow brown lines, separated by a linear blackish line, the inner line paler, more distinct, nearly straight, and reaching the tornus. Hind wing with the proximal area traversed by four lilacine lines; one near base of cell, excurved near lower edge of cell; the second crosses the cell about the middle, and is almost parallel to the first line; the third crosses the outer part of cell and origin of vein 2, is excurved between veins 5, 6, and 7, and again at lower edge of cell; the fourth, or discal, line, is almost parallel with the third, and crosses the basal part of area 3 near the cell; the discal line is bordered by a post-discal dark brown band, separated from the ocelli in areas 2 to 5 by a space at least equal to its width; a series of six ocelli, the anal one

small and double, the one in area 2 the largest, the anterior one black with white pupil, and those in areas 3 to 5 small, and more or less accompanied by blue scales ; the inner ring of the ocelli is ochraceous, the outer one lilac-blue, but often darkened ; a submarginal lilac-blue line from vein 1 *a* to 7, anteriorly and posteriorly very thin, but in area 1 *c* forming a triangular spot, and thence much thickened as far as vein 5 ; a marginal, narrow, dark ochraceous border, separated from the blue line by a fine blackish line, and by a similar fine line from the edge of the wing.

♀. *Upperside* similar to the male, with similar black spots on the hind wing.

Underside with paler ground-colour, and all markings more strongly defined than in the male.

Dry-season form **nicévillei** (Evans).—♂. *Upperside* of hind wing, with or without post-discal small black spots.

Underside of hind wing with the ocelli, at least in areas 3 and 4, usually also in 5, having the white pupil more extensively surrounded with blue scales.

♀. *Underside* of hind wing, with the ocelli in areas 3 to 5 having the outer lilac-blue ring much thickened.

Extreme dry-season form **irma** Evans.—♀. *Upperside* as in nominotypical *sidonis*, the type without black spots on hind wing, the paratype with three small spots.

Underside with hind wing and distal area of fore wing strongly olivaceous. Fore wing with post-discal and subapical pale bands prominent. Hind wing with blue lines obsolete ; a post-discal dark band, and a narrow stripe, crossing cell from costa to vein 2, strongly marked ; ocelli in areas 3 to 5 blurred, their centres minute.

Only known by two females from Gantok, taken in November, and now in the British Museum.

Expanse : ♂♀, 45–60 mm.

Variation.—Among the three forms described above are to be found specimens in which the hind wing upperside is entirely without black spots. This is the form **vaivarta** Doh. All transitions occur between this form and specimens in which the hind wing bears four or five well-developed spots, just as in the allied *L. cybele* Leech.

The specimens from the North-Western Himalayas cannot be separated from the Sikkim or Assam ones, though the form *nicévillei* is less frequent in the North-Eastern area. After comparing the patterns and genitalia of a long series of specimens from all areas, the conclusion is reached that there exists only a single and very variable form.

Genitalia.—Uncus narrow, somewhat lanceolate or spear-shaped, posteriorly narrower, with sides gently incurved ; the uncus curved ventrad, sometimes bent down ; tip very narrow, but obtuse. Side lobes spine-like, erect, and but little curved.

Valve narrow, with apical prolongation which is curved at the end, the tip either blunt or pointed.

The uncus varies slightly in width, being wider in some *nicévillei*, and more slender in some others, especially in the nominotypical form.

Early stages :—

Larva.—Light green, with two horns on the head, and with pale longitudinal and transverse stripes. It lives on the mountain bamboo, *Arundinaria falcata* Nees.

Pupa.—Green, more rarely red-brown, two tubercles on the head, the sides whitish, ventral surface with whitish speckles.

Habitat.—North-Western Himalayas and Afghanistan to the Shan States, extending into South-Eastern Tibet ; male common, female less so.

The butterfly has been taken at elevations ranging from 3,200 feet in Kulu to 11,000 feet in Garhwal.

The type of *sidonis* is a female from Darjeeling. The type of *nicévillei* is a male from Garhwal, 11,000 feet, August.

274. **Lethe dakwania** Tytler.

Lethe dakwania, Tytler, 1939 *a*, p. 245 (♂♀, Eastern Garhwal: Dakwani, 9,000 feet, August).

♂♀ *Upperside* similar to *sidonis* (Hew.) but much paler, the submarginal black spots well defined.

Underside very pale brown. Fore wing post-discal band better defined, pure white near costa, reaching vein 1 in the male and inner margin in the female. Hind wing discal markings pale brown and ill defined ; submarginal ocelli smaller, surrounded either with pale brown or sometimes with very pale violet.

♂ *genitalia.*—Uncus, as seen from the side, evenly curved, not thicker and higher in the middle, nor suddenly bent downwards, as in *sidonis*.

Habitat.—Eastern Garhwal. A large series of both sexes was taken at Dakwani, at about 9,000 feet, in August, 1914.

275. **Lethe nicetella** de Nicéville.

Lethe nicetella, de Nicéville, 1887, p. 418, pl. xxxix, fig. 5 (♂, Sikkim).
Sinchula nicetella, Moore, 1892 *a*, p. 279, pl. lxxxviii, fig. 2 (♂).
Lethe (*Sinchula*) *nicetella*, de Nicéville, 1894 *a*, p. 124 (Sikkim, 7,000–8,000 ft.).
Lethe nicetella, Bingham, 1905, p. 86 ; Fruhstorfer, 1911, p. 312, t. 97 *c* ; Evans, 1932 *a*, p. 103.

♂♀. Very close to *sidonis* (Hew.), but is smaller. *Upperside* uniform silky umber-brown. Fore wing, in the male, with no subapical ochraceous spot ; in the female, with a medial and subapical large white costal spot. Hind wing with a distinct post-discal series of black spots.

Underside of fore wing with distal half distinctly paler, contrasting with the dark proximal area; the latter outwardly margined near the costa with ochraceous-white; a subapical costal spot as on upperside, and apex broadly ochraceous or ferruginous. Hind wing as in *sidonis*, but the ocelli are subequal.

Antennæ, head, thorax and abdomen as in *sidonis*.

Expanse: ♂♀, 45–50 mm.

Genitalia.—Uncus somewhat as in *sidonis*, narrow, and more evenly curved at the sides. Valve having the apical process ending in a sharp point.

Habitat.—SIKKIM, 5,000 to 9,000 feet; rare, especially the female. The British Museum contains a series of males and two females from Gantok and Karponang, taken in June and July.

Lethe maitrya de Nicéville.

♂♀. *Upperside* of fore wing in the male without a brand.

Underside of hind wing with basal markings lilacine; ocelli large and blurred, yellow rings absent, those in areas 2 and 6 equal.

Distribution.—KULU to NORTH-EASTERN BURMA and Yunnan. Two subspecies.

276 *a*. **Lethe maitrya maitrya** de Nicéville. (Fig. 62, ♂).

Lethe maitrya, de Nicéville, in Marshall & de Nicéville, 1880, p. 245 (♂, Narkunda, 8,000 feet); Marshall & de Nicéville, 1883, pp. 157, 160, pl. x, fig. 20 (♂, Jalauri Pass, Narkunda); Doherty, 1886 *a*, p. 115 (Kumaon, 7,000–11,000 feet).

Sinchula maitrya, Moore, 1892 *a*, p. 281, pl. lxxxviii, figs. 1, 1 *a*; (♂♀).

Lethe (*Sinchula*) *maitrya*, de Nicéville, 1894 *a*, p. 124 (Sikkim, 9,000–12,000 feet).

Lethe maitrya, Bingham, 1905, p. 87, fig. 22 (♂); Hannyngton, 1910, p. 135 (Kumaon, 6,000-10,000 feet, not common); Fruhstorfer, 1911, p. 313, t. 97 *c*; Evans, 1932 *a*, p. 103.

♂♀. Similar to *nicetas* (Hew.), but *upperside* ground-colour

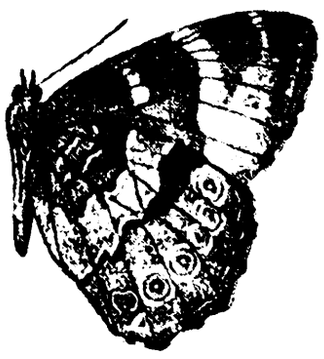


Fig. 62.—*Lethe maitrya maitrya* de Nicév., ♂.

darker. Fore wing, in male, with post-discal band showing through from underside, and with a pale subapical costal spot;

hind wing with the series of ocellar markings very obscure. The female resembles more closely the female of *nicetas* on the upperside ; hind wing less dentate at vein 4.

Underside ground-colour more uniform than in *nicetas*. Fore wing with a short, broad, oblique bar across the cell, Hind wing with the silvery lines crossing basal area more regular, and more whitish than silvery ; ocelli brown, and not bordered inwardly with ochraceous.

Expanse : ♂♀, 45–55 mm.

Genitalia.—Uncus narrow, sides slightly curved, strongly narrowed at apical third. Side lobes narrowed to a point, incurved at the middle, and the tip curved inwards.

Habitat.—KULU to BHUTAN : 6,000 to 11,000 feet ; not rare.

276 *b*. **Lethe maitrya thawgawa** Tytler.

Lethe maitrya thawgawa, Tytler, 1939 *a*, p. 245 (♂).

♂. *Underside* of fore wing without a bar across end of cell. All markings less prominent than in the nominotypical subspecies.

Habitat.—NORTH-EASTERN BURMA : Htawgaw, July.

Described from five males. Specimens in the British Museum from Yunnan may belong to this subspecies.

Lethe violaceopicta (Poujade), 1884.

♂. *Upperside* uniformly brown.

Underside of fore wing with three ocelli. Hind wing with six ocelli, the posterior one bipupilled ; proximal area traversed by numerous irregular, angulate, and interrupted silvery lines.

♀. *Upperside* of fore wing with a submarginal row of white, diffuse, patches ; a post-discal, short, white band beyond apex of cell.

Distribution.—Western China, Northern Yunnan, and ASSAM. Two subspecies in the Indian area.

277 *a*. **Lethe violaceopicta kanjupkula** Tytler.

Lethe kanjupkula, Tytler, 1914, p. 220, pl. i, figs. 5, 6 (♂♀, Manipur, 6,000–8,400 feet ; Naga Hills, 6,000 feet).
Lethe violaceopicta kanjupkula, Evans, 1932 *a*, p. 103.

Dry-season form.—♂. *Upperside* greenish-brown. Forewing unmarked.

Underside dark fuliginous-brown. Fore wing with a post-discal, strongly curved, faint band from costa to tornus ; three subapical dark spots, with blurred whitish centres, in areas 4 to 6 ; a fourth spot in area 3, indicated by a minute white dot ; a whitish spot at the base of area 7, above which is another spot in 8, and two spots below this in area 6 ; a marginal, fine black line, inwardly defined by whitish streaks in areas 2 to 5,

and outwardly defined by ochreous-brown. Hind wing with five lilacine, highly irregular, broken bands : a very short basal one ; two short sub-basal ones ; a fourth just before end of cell ; a fifth just beyond the cell, broken at areas 2 and 3, filling the base of the former, but not entering the latter ; the two latter bands bordered by dark brown, anteriorly and posteriorly respectively, and joined together by two fine lilacine lines on either side of the discocellulars ; a submarginal series of six ocelli, black, with white centres, ringed with yellow, and with an outer ring of lilacine ; tornal ocellus bipupilled, and those in areas 3 and 4 blurred ; a marginal black line, outwardly bordered by yellowish-brown, and inwardly by lilacine lunules.

Antennæ brown above, ringed with white below, the tip reddish.

Wet-season form.—♂. *Upperside* with the ground-colour richer brown than in the dry-season male.

Underside with all markings brighter lilacine than in the dry-season male.

♀. *Upperside* paler than the male. Fore wing with a post-discal, rather indistinct, macular band, inwardly edged with dark brown, oblique from costa to area 4, and then sharply bent down towards the tornus ; two subapical, pale yellow spots, in areas 4 and 5, and above these are three subcostal yellowish streaks. Hind wing as in male, but spots rather more distinct, and faintly ringed with dusky yellow ; submarginal area darker brown ; a marginal ochreous line.

Underside paler than in male. Fore wing with a post-discal yellow band as on upperside, but broader, and much more distinct, inwardly broadly bordered with dark brown ; apical area paler than in the male ; submarginal spots as in male, but the one in area 6, on the yellow macular band, very indistinct. Hind wing as in male, but proximal area dusted with violet ; ocelli more conspicuously surrounded by lilacine anteriorly ; a post-discal yellow band, most conspicuous in areas 2 to 4 ; submarginal tornal area red-brown. (From *Tytler*, 1915).

Expanse : ♂♀, 50–60 mm.

Habitat.—MANIPUR, 6,000-8,400 feet ; NAGA HILLS, 6,000 feet ; rare. The dry-season form was taken in June and July, and the wet-season form in October and November. The type is a dry-season male.

277 *b* **Lethe violaceopicta burmana** Tytler.

Lethe violaceopicta burmana, Tytler, 1939 *a*, p. 245 (♂, N.E. Burma).

♂. Resembles *kanjupkula* Tytler from Manipur. Fore wing less pointed. *Underside* of fore wing with apical spots

reduced to points. Hind wing submarginal spots much smaller, one tornal spot instead of two.

Habitat.—NORTH-EASTERN BURMA : Sadon.

Described from one male taken in October.

278. **Lethe nicetas** (Hewitson).

Debis nicetas, Hewitson, 1863, p. 78, *Debis*, pl. iii, figs. 17, 18 (♀) ; Moore, 1865 *a*, p. 768 (" Bengal ").

Lethe nicetas, Moore, 1882 *b*, p. 235 (Kangra) ; Marshall & de Nicéville, 1883, pp. 157, 161, ♀.

Sinchula nicetas, Moore, 1892 *a*, p. 282, pl. lxxxviii, figs. 4, 4 *a*, *b*, *c* (♂♀).

Lethe (*Sinchula*) *nicetas*, de Nicéville, 1894 *a*, p. 124 (Sikkim, 7,000–8,000 feet, rare) ; Mackinnon & de Nicéville, 1897, p. 216 (Garhwal, 5,000 feet, rare).

Lethe nicetas, Bingham, 1905, p. 86 ; Hannyngton, 1910, p. 134 (Kumaon, 3,000–6,000 feet, common) ; Fruhstorfer, 1911, p. 313 ; Tytler, 1914, p. 222 (♂♀, Manipur, 8,400 feet) ; Evans, 1932 *a*, p. 103 ; Peile, 1937, p. 86.

Lethe nicetas nicetas, Tytler, 1939 *a*, p. 245 (♂, N.E. Burma : Htawgaw).

♂. *Upperside* rich golden-brown ; cilia brown, alternated with white. Fore wing uniform. Hind wing with an arched post-discal series of five blind black ocelli.

Underside of fore wing with proximal area, to beyond apex of cell, brown, margined by a pale, slightly arched, oblique discontinuous discal band, not extending to the tornus ; apical area paler brown ; a post-discal, slightly oblique, white band ; three white-centred, brown, obscure ocelli ; a submarginal, pale, broad line. Hind wing with basal two-thirds dark brown, the outer edge of this area irregular ; distal third paler, in strong contrast. Basal area crossed by silvery, plumbeous, irregularly sinuous lines ; a post-discal series of six white-centred black ocelli ; each ocellus with inner, intermediate, and outer rings of ochraceous, brown and silvery respectively ; the row of ocelli irregularly bordered with ochraceous inwardly ; a submarginal series of indistinct white markings ; a marginal brown line.

♀. Very similar to the male. *Upperside* of fore wing with a post-discal series of yellowish-white spots, single to area 3, then forking, the inner branch curving into an oblique streak beyond apex of cell, the outer branch continued as a series of spots to costa. Hind wing with a submarginal, broad, ochraceous line.

Underside similar to the male, but all the markings broader.

Antennæ brown, annulated with white ; head, thorax and abdomen brown.

Expanse : ♂♀, 48–55 mm.

Habitat.—KULU to MANIPUR, and UPPER BURMA ; not rare.

Rare in North-Eastern Burma, and four males recorded by Tytler (1939*a*) from Htawgaw.

279. **Lethe tristigmata** Elwes.

Lethe tristigmata, Elwes, 1887, p. 444 (Sikkim, Tonglo, 8,500–9,500 feet); *id.*, & Möller, 1888, p. 318, pl. viii, fig. 1 (♂); de Nicéville, 1889, p. 163, pl. A, fig. 4 (♀, Native Sikkim, 10,000 feet).
Kerrata tristigmata, Moore, 1892 *a*, p. 286, pl. lxxxix, figs. 2, 2 *a*, *b*, *c* (♂♀).
Lethe (*Kerrata*) *tristigmata*, de Nicéville, 1894 *a*, p. 124 (Sikkim, 9,000–10,000 feet, very rare).
Lethe tristigmata, Bingham, 1905, p. 96; Fruhstorfer, 1911, p. 313, t. 97 *d*; Evans, 1932 *a*, p. 103.

♂♀. Hind wing shortly caudate at vein 4. *Upperside* umber-brown, with a rich satiny gloss. Fore wing cell crossed by two dusky brown bars; a discal, oblique and sinuous, dark brown band; a post-discal row of small pale spots, in the male four, in the female five; a submarginal brown shading; a comparatively broad pale marginal border. Hind wing with a discal, sinuous, dark line; a curved post-discal series of blind dark brown ocelli, in the male five, in the female six; a submarginal dark brown shading; antemarginal and marginal, slender, dark lines.

Underside ground-colour, in the male, much paler, somewhat of an ochraceous-brown; in the female very bright ochraceous-brown, almost yellow; proximal half of both wings darker, bounded by a prominent, sinuous, dark brown band. Fore wing with two short, dark brown, bars across the cell, the enclosed space whitish; post-discal pale spots as on upperside; a submarginal ochraceous band, bordered on both sides by slender dark brown lines. Hind wing with a sub-basal, curved, narrow, dark brown band; an arched post-discal series of six black, white-centred, fulvous-ringed ocelli, the anterior four with outer silvery white rings; a submarginal, lilacine-white line; a marginal, narrow, ochraceous band, bordered on both sides by slender dark brown lines. In the female the markings are much brighter in colour.

Antennæ, head, thorax and abdomen ochraceous-brown; antennæ bright ochraceous at the tip. Male sex-marks on fore wing upperside, consisting of four outwardly angular spots clothed with black scales, from vein 1 *b* to base of vein 4.

Expanse: ♂♀, 55–60 mm.

Habitat.—Sikkim, 7,000 to 10,000 feet; rare, especially the female.

Elwes (1887) records that the insect frequents open spots in the bamboo jungle and low dripping forest. It occurred in June.

Lethe ocellata (Poujade), 1885.

♂♀. *Upperside* brown, the male with a brand as in *tristigmata* Elw. Fore wing with a discal curved row of dark nebulous patches.

Underside with a dark proximal and a distal pale area. Fore wing without ocelli, but with a subapical short, white, macular band.

Distribution.—Western China, Eastern Tibet, Northern Yunnan, ASSAM, BHUTAN, and SIKKIM. One subspecies in the Indian area.

280. **Lethe ocellata lyncus** de Nicéville.

Lethe (*Kerrata*) *lyncus*, de Nicéville, 1897, p. 544, pl. i, fig. 8 (♂, Native Sikkim).
Lethe lyncus, Bingham, 1905, p. 96.
Lethe tristigmata lyncus, Fruhstorfer, 1911, p. 313, ♂.
Lethe lyncus, Tytler, 1914, p. 222 (♂, Manipur Hills, 8,000–9,000 feet).
Lethe ocellata lyncus, Evans, 1932 *a*, p. 103.

♂. *Upperside* of both wings hair-brown, with a strong, silky, ochraceous bronzy gloss; a submarginal deep brown band. Fore wing with a discal, irregular, dark brown band, from costa to vein 1 *b*; a short, subapical, pale ochraceous bar, placed within the submarginal band. Hind wing with a discal, indistinct, irregular, dark brown band; a post-discal series of five round dark brown spots, decreasing in size posteriorly.

Underside of both wings shining pale ochreous, with the markings darker ochreous. Fore wing with two discal bars as on upperside, the space between them yellow; discal band broader and more prominent than above, its outer edge sharply defined; post-discal area yellow, becoming darker to the submarginal band; a small post-discal costal patch, formed of three small bluish-white spots, in areas 6 to 8; outer margin somewhat broadly pale, bisected by a submarginal, straight, brown line. Hind wing with a sub-basal, irregular, dark band, outwardly defined by a narrow yellow line; a discal dark line from costa to vein 1 *b*; a dark fusiform bar defines the discocellulars; a broad, post-discal, highly irregular band from costa to inner margin; a submarginal series of ocelli, black, with white pupils, yellow iris, outer dark ring, and an outermost pale violet ring; all ocelli of nearly equal size, the anal one double; a submarginal, somewhat broad, ochreous line, defined on both sides by a dark brown thread; an antemarginal pale violet line, somewhat dilated at tornus. Cilia cinereous throughout.

Expanse: ♂, 55–60 mm.

Habitat.—SIKKIM, BHUTAN, and MANIPUR; very rare. I have not seen a female.

281. **Lethe kabrua** Tytler.

Lethe kabrua, Tytler, 1914, p. 222, ♂♀, pl. i, fig. 7 (♂) (Manipur : Kabrua Peak, 8,400 feet) ; Evans, 1932 *a*, p. 103.

Very similar in appearance to *L. jalaurida elwesi* (Moore), from which it differs in the following respects :—

♂. *Upperside* of fore wing with a broad black brand, placed obliquely from near base of vein 4 to middle of vein 1 *b*, its inner edge straight, its outer edge crenate between the veins.

♂♀. *Underside* of fore wing with the ocelli in areas 4 and 5 merely indicated by white specks. Hind wing with the ocelli placed on a ground of similar colour to the rest of wing, and not on a pale area as in *elwesi* ; no basal line ; sub-basal line not well defined, and distinctly violaceous ; discal band duller, and much broader ; ocellus in area 4 equal in size to those in areas 5 and 6, and not smaller as in *elwesi*. In the female the ground-colour is tinged with ochraceous. (From *Tytler*, 1915).

Expanse : ♂♀, 55–60 mm.

Habitat.—MANIPUR, 8,400 feet, in June July, and August; rare, especially the female.

Lethe jalaurida (de Nicêville).

♂♀. *Upperside* of fore wing with a broad bar across the cell, and a discal, macular band, both ochraceous-white. Hind wing with a post-discal dusky band ; a distal pale band, bearing a row of round black spots.

Underside of fore wing with one or two apical ocelli. Hind wing with two irregular lines from costa across the cell ; a discal, oblique, white band, from costa to vein 3, continued posteriorly as a macular line.

Distribution.—The HIMALAYAS, from Kulu to Bhutan, and in Western China. Very plentiful at high altitudes in the Himalayas, but rarer in China. Two subspecies in the Indian area.

282 *a*. **Lethe jalaurida jalaurida** (de Nicéville).

Zophoessa jalaurida, de Nicéville, in Marshall & de Nicéville, 1880, p. 245 (♂, Jalauri Pass) ; Marshall & de Nicéville, 1883, pp. 163, 166, pl. x, fig. 19 (♂).

Lethe (Zophoessa) jalaurida, Doherty, 1886 *a*, p. 117, ♂♀ (Kumaon, 7,000–11,000 feet).

Zophoessa jalaurida, Moore, 1892 *a*, p. 296, pl. xcii, figs. 2, 2 *a* (♂).

Lethe (Zophoessa) jalaurida, Mackinnon & de Nicéville, 1897, p. 216 (Mussooree, rare).

Lethe jalaurida, Bingham, 1905, p. 98.

Lethe (Zophoessa) jalaurida, Hannyngton, 1910, p. 135 (Kumaon, 7,000–11,000 feet).

Lethe jalaurida jalaurida, Fruhstorfer, 1911, p. 313 ; Evans, 1932 *a*, p. 103 ; Wynter-Blyth, 1940, p. 723 (Simla district).

♂♀. *Upperside* rich vandyke-brown with a silky gloss, and in certain lights, with a reddish-coppery sheen. Fore wing with a broad bar in the cell, and a discal, zigzag, macular band,

ochraceous-white, the cell bar edged on both sides, and the discal band on the inside, with diffuse dark brownish-black ; a short subapical bar or spot, ending below in three small spots, ochraceous-white ; a submarginal, broad, inwardly diffuse, brownish-black band. Hind wing with a post-discal, sinuous, dusky black band ; a distal, broad, pale band, bearing a curved row of five round black spots ; a submarginal dark sublunular band.

Underside paler and more ochraceous, marked with dark brown. Fore wing markings as on upperside, but clearer and more prominent ; the subapical band bearing three or four, semi-obsolescent, small ocelli ; apex and outer margin bright ochraceous. Hind wing with a basal, a sub-basal, a short median, and a discal zigzag white line, the last broadening above vein 3 into an oblique broad band ; a post-discal, curved row of black ocelli, each ocellus with a blue centre, an inner ochraceous, and an outer brown ring ; a submarginal, irregular, sinuous white line ; a broader marginal ochraceous line.

Antennæ, head, thorax and abdomen brown ; pale ochraceous beneath.

Expanse : ♂♀, 50–55 mm.

Habitat.—KULU to KUMAON, 7,000–11,000 feet ; rare.

Wynter-Blyth (1940) records it as occurring sparingly in the Narkanda-Baghi country and in Kulu above about 8,000 feet, from June to September.

282 *b*. **Lethe jalaurida elwesi** (Moore).

Zophoessa elwesi, Moore, 1892 *a*, p. 298, pl. xcii, fig. 3 (♂, Sikkim).
Lethe (*Zophoessa*) *elwesi*, de Nicéville, 1894 *a*, p. 125 (Sikkim, 9,000–12,000 feet).
Lethe jalaurida elwesi, Fruhstorfer, 1911, p. 313 ; Evans, 1932 *a*, p. 103, pl. xii, fig. D 3. 11 (♂).
Lethe jalaurida, Elwes & Möller (*non* de Nicéville), 1888, p. 320, pl. viii, fig. 4 (♂).

♂♀. A slightly differentiated subspecies with paler colouring. *Underside* with the silvery lines more sharply defined. Fore wing with a single apical ocellus. Hind wing more produced at the tornus ; discal line straighter posteriorly.

Habitat.—SIKKIM and EASTERN BHUTAN, 9,000 to 12,000 feet ; rare.

Lethe moelleri (Elwes).

♂♀. *Underside* of fore wing without apical ocelli. Hind wing with an inverted Y-shaped dark band, and beyond it a straight, broad, white or yellow band ; area behind dark band at end of cell brown, and bearing a pale, straight, broad band from costa across cell ; a basal obscure band.

Distribution.—SIKKIM to NORTH-EASTERN BURMA. Two subspecies.

283 *a*. **Lethe moelleri moelleri** (Elwes).

Zophoessa moelleri, Elwes, 1887, p. 445 (♂♀, Sikkim, Singalelah Range); Moore, 1892 *a*, p. 298, pl. xcii, figs. 4, 4 *a* (♂).
Lethe (*Zophoessa*) *moelleri*, de Nicéville, 1894 *a*, p. 126 (Sikkim, 9,000–11,000 feet, not common).
Lethe moelleri, Bingham, 1905, p. 98; Fruhstorfer, 1911, p. 314, t. 97 *d*; Evans, 1932 *a*, p. 103.

♂♀. Closely resembles *jalaurida* (de Nicév.). *Upperside* of fore wing without the band across the cell; the dusky black lining to the discal band is more angularly sinuous.

Underside of fore wing with ocelli obsolete. Hind wing with anterior half of proximal area crossed by two oblique broad white bands bordered inwardly (the outer band outwardly also) with dark brown; the apical four ocelli, bordered outwardly with white.

Expanse: ♂♀, 50–55 mm.

Habitat.—SIKKIM, 5,000–10,000 feet; male not rare, female rare.

283 *b*. **Lethe moelleri bruno** Tytler.

Lethe moelleri bruno, Tytler, 1939 *a*, p. 246 (♂, N.E. Burma).

♂. *Underside* much darker than in the nominotypical subspecies, and the marginal pale line absent in both wings.

Habitat.—NORTH-EASTERN BURMA: Htawgaw. Described from two males.

284. **Lethe atkinsonia** (Hewitson).

Zophoessa atkinsonia, Hewitson, 1876, p. 15 (♂, Sikkim); Elwes, 1882, p. 406 (Sikkim); Marshall & de Nicéville, 1883, pp. 163, 166, ♂; Moore, 1892 *a*, p. 295, pl. xcii, figs. 1, 1 *a* (♂).
Lethe (*Zophoessa*) *atkinsonia*, de Nicéville, 1894 *a*, p. 125 (Sikkim, 8,000–9,000 feet, not common).
Lethe atkinsonia, Bingham, 1905, p. 97, pl. ii, fig. 19; Fruhstorfer, 1911, p. 314, t. 97 *d*; Evans, 1932 *a*, p. 104.

♂♀. *Upperside* ochraceous-brown; cilia ochraceous. Fore wing with basal part of areas 1 and 2 diffusely ochraceous; cell crossed by an ochraceous, short, broad band, bordered on both sides with dark brown; discal and post-discal irregular, zigzag, macular bands, the former slightly oblique, reaching from costa to inner margin, the latter shorter, transverse. Hind wing with a post-discal, curved, series of black spots, superposed on a bright ochraceous band with sinuous margins, bordered with dark brown on both sides; a submarginal, obscure, sinuous, ochraceous line.

Underside paler. Fore wing markings bright yellow; discal band broad and continuous, posteriorly diffuse along its outer margin; post-discal band obscure, with two or three irregular white spots; an outer, somewhat diffuse brown band, from

tornus and not reaching apex ; a submarginal dark line. Hind wing posteriorly broadly dusted with brown ; basal and sub-basal dark ochraceous-brown bands ; a discal, short, broad, oblique yellow band ; a post-discal, sinuous, dark brown band ; a curved series of subequal ocelli, superposed on a pale band darkening towards the tornus ; a submarginal silvery, and a marginal ochraceous line.

Antennæ, head, thorax and abdomen brown ; pale ochraceous beneath.

Expanse : ♂♀, 48–55 mm.

Habitat.—SIKKIM to BHUTAN, 6,000 to 10,000 feet ; rare, especially the female.

Lethe goalpara (Moore).

♂. *Upperside* of fore wing with a broad brand from the middle of vein 1 *b* to base of vein 4.

♂♀. *Upperside* of hind wing with five large black ocelli.

Underside ground-colour a washed-out yellow-grey, peculiar to this species. Hind wing with an inverted Y-shaped dark band at end of cell ; discal dark band not anteriorly widened.

Distribution.—SIMLA to SIKKIM and ASSAM, at 6,000 to 10,000 feet. Three subspecies are described.

285 *a*. **Lethe goalpara goalpara** (Moore).

Zophoessa goalpara, Moore, 1865 *a*, p. 768 (♂♀, " N.E. Bengal ") ; Marshall & de Nicéville, 1883, pp. 163, 165, ♂♀.
Lethe (*Zophoessa*) *goalpara*, Doherty, 1886 *a*, p. 117 (Kumaon, 7,000–9,000 feet).
Zophoessa goalpara, Moore, 1892 *a*, p. 294, pl. xci, figs. 4, 4 *a* (♂).
Lethe goalpara, Bingham, 1905, p. 100, pl. ii, fig. 18.
Lethe (*Zophoessa*) *coalpara* (sic), Hannyngton, 1910, p. 135 (Kumaon, 4,000 feet).
Lethe goalpara narkunda, Fruhstorfer, 1911, p. 314 (Simla) ; Evans, 1932 *a*, p. 104 ; Wynter-Blyth, 1940, p. 723 (Simla district).

♂. *Upperside* closely resembles *sura* (Doubl.), but of a much lighter brown, showing the bands on both wings far more plainly, the post-discal spots on hind wing similar, but the spots smaller.

Underside pale ochraceous. Fore wing with dark cellular, discal, and submarginal bands much narrower than in *sura* ; ocelli entirely wanting, or reduced to a single obscure pale ocellus in area 5. Hind wing with a sub-basal, irregular, obscure dark band, and a single sinuous line dividing into two at upper angle of cell, only a little darker than the ground-colour ; the row of ocelli, and the markings bordering it on both sides, similar to but paler than in *sura*.

♀. *Upperside* " dark olive-brown, pale greyish-brown exteriorly. Fore wing with a marginal suffused brown line.

Hind wing with a submarginal series of brown pale-bordered spots; a marginal narrow lunulate pale line, bordered with brown.

"*Underside* glossy greyish olive-brown, palest exteriorly; markings as in male, but more suffused; those of hind wing each with a pale border; submarginal ocelli less defined, the three upper partially covered with blue, the two next wholly so, the geminated last jet-black, the whole of them having each a separate pale white outer circle. Fore wing with three small indistinct subapical ocelli" (*Moore*, 1865 *a*).

Expanse: ♂♀, 65–80 mm.

Habitat.—SIMLA (Narkunda, 9,000 feet); rare. There is no specimen of the female in the British Museum.

Wynter-Blyth (1940) records the insect as found sparingly in the Narkanda-Baghi country and in Kulu, at 9,000 to 9,500 feet, in July and August.

285 *b*. **Lethe goalpara gana,** subsp. nov.

Lethe (*Zophoessa*) *goalpara*, de Nicéville (*non* Moore), 1894 *a*, p. 125 (Sikkim, 6,000–8,000 feet).

Lethe goalpara goalpara, Fruhstorfer, 1911, p. 314, t. 99 *a*; Evans, 1932 *a*, p. 104 (Sikkim).

♂. *Upperside* of fore wing with post-discal line less distinct, more irregular below vein 4, and sharply angled inwards in area 1 *b*. Hind wing with larger spots.

Underside with paler ochraceous markings. Fore wing with post-discal band more or less irregularly toothed, its brown inner border narrower. Hind wing as in the nominotypical form, except for the paler proximal area.

Habitat.—SIKKIM; type from Karponang, 9,000 feet, 21. ix. 1927 (ex Coll. Evans); also in the British Museum, eight other males from various localities, from 9,000 to 10,000 feet.

285 *c*. **Lethe goalpara kabruensis** Tytler.

Lethe goalpara kabruensis, Tytler, 1939 *a*, p. 246 (♂♀, Naga Hills and Manipur).

Lethe goalpara, Tytler (*non* Moore), 1911, p. 53 (Naga Hills, 7,000 feet).

♂. Slightly smaller than the two preceding subspecies. *Upperside* of fore wing with post-discal band still less defined, or almost obsolete. Hind wing with post-discal line thinner, and indistinct below vein 3.

Underside resembles the Sikkim form, but the ground-colour is somewhat darker ochraceous.

Habitat.—ASSAM: Mishmi Hills, 7,000–9,000 feet, August and September, 1928 (Kingdon Ward); Naga Hills; Manipur.

286. Lethe sura (Doubleday). (Figs. 60, venation; 63, ♂).

Zophoessa sura, Doubleday, 1849, pl. lxi, fig. 1 (♀); Westwood, in Doubleday, 1851, p. 362 (Sylhet); Moore, 1865 *a*, p. 768 ("Bengal"); Marshall & de Nicéville, 1883, pp. 163, 164 (♂♀); de Nicéville, 1883 *a*, p. 93 (Sikkim: Senchal and Darjeeling, 7,000 feet); Elwes, 1891, p. 264 (Bernardmyo, 6,000 feet); Moore, 1892 *a*, p. 291, pl. xci, figs. 1, 1 *a* (♂♀); Hemming, 1941 *c*, p. 462.

Lethe (*Zophoessa*) *sura*, de Nicéville, 1894 *a*, p. 125 (Sikkim, 5,000–8,000 feet); *id.*, 1899, p. 329 (Tenasserim); *id.*, 1900, p. 163, pl. cc, figs. 5, 6 (gynandromorph, Bhutan).

Lethe sura, Bingham, 1905, p. 100; Tytler, 1911, p. 53 (Naga Hills); Fruhstorfer, 1911, p. 315, t. 99 *a*; Evans, 1932 *a*, p. 104, pl. xii, fig. D 3. 15 (♂).

♂. *Upperside* dark vandyke-brown; cilia brown, alternated with white. Fore wing with a faint, subapical, costal ochraceous spot; a discal band obscure, broad and irregular; a submarginal, darker brown, submacular band. Hind wing with a post-discal, irregularly sinuous band; a submarginal band; area between the two bands paler, and bearing a curved series of five round black spots.

Underside glossy brown. Fore wing with two narrow bands across the cell; a discal band, sharply defined; a submarginal, dark brown band, inwardly diffuse; a silvery streak between the two dark bands across the cell; a subapical, trifid, white spot, below which are traces of three obscure ocelli in vertical order; a marginal, obscure brown line. Hind wing with proximal area, to end of cell, crossed by broken and irregular

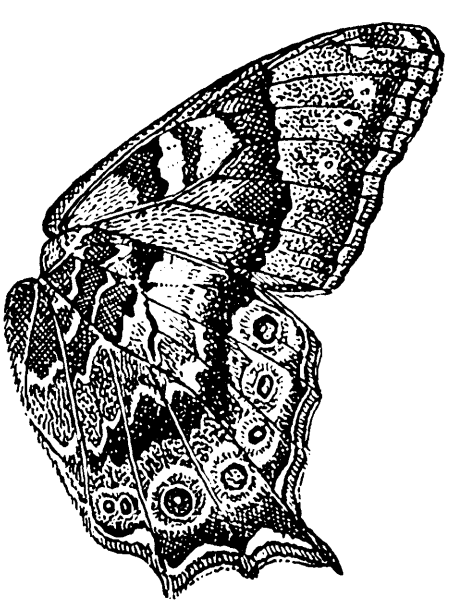


Fig. 63.—*Lethe sura* (Doubl.), ♂ (Bhutan).

silvery white lines and bands; a discal, broad and angulate band; a post-discal, curved series, of round black ocelli; a submarginal silvery line; a marginal ochraceous line; the ocelli are white-centred, with an inner ochraceous, an intermediate brown, and an outer silvery ring.

♀. *Upperside* of fore wing with the distal third lighter than in male, and hind wing with post-discal band similarly lighter.

Underside ground-colour paler than in male. Antennæ, head, thorax and abdomen dark brown, paler beneath; antennæ annulated with white.

Expanse: ♂♀, 65–85 mm.

A gynandromorph is figured by de Nicéville (1900) from Bhutan. The left half and the right fore wing is male, the right hind wing is female.

Habitat.—SIKKIM to NORTHERN BURMA; common. The species occurs also in Western China, where it appears to form another subspecies.

Lethe dura (Marshall).

♂♀. Closely allied to *sura* (Doubl.). *Upperside* of both wings with pale distal borders. Hind wing with a post-discal brownish-white band.

Underside of hind wing with discal band anteriorly widened, and its inner edge angled between veins 6 and 4.

Distribution.—SIKKIM to BURMA, Western and Central China, Formosa, Northern Luzon, Tong-king and Indo-China. Three subspecies, but slightly differentiated, are distinguished in the Indian area.

287 *a*. **Lethe dura dura** (Marshall).

Zophoessa dura, Marshall, 1882 *a*, p. 38, pl. iv, fig. 2 (♂, Upper Tenasserim); Marshall & de Nicéville, 1883, pp. 163, 165, ♂; Moore, 1892 *a*, p. 293, pl. xci, fig. 2 (♂, type).

Lethe dura, Bingham, 1905, p. 101.

Lethe dura dura, Fruhstorfer, 1911, p. 314; Evans, 1932 *a*, p. 104; Tytler, 1939 *a*, p. 246 (S. Shan States).

♂♀. *Upperside* of fore wing with the pale distal area narrow. Hind wing with very small black spots.

Underside with rather pale ground-colour; ocelli outwardly broadly bordered with silvery white.

Expanse: ♂♀, 70–85 mm.

Habitat.—KAREN HILLS to DAWNA RANGE; very rare.

287 *b*. **Lethe dura gammiei** (Moore).

Zophoessa gammiei, Moore, 1892 *a*, p. 294, pl. xci, fig. 3 (♂, Bhutan).

Lethe dura gammiei, Fruhstorfer, 1911, p. 314; Evans, 1932 *a*, p. 104.

Lethe (*Zophoessa*) *dura*, de Nicéville (*non* Marsh.), 1894 *a*, p. 125 (Bhutan, 4,500–5,000 feet).

♂♀. *Upperside* paler than in the nominotypical form. Fore wing with pale distal border broader.

Habitat.—SIKKIM to BHUTAN; very rare, especially the female. There is a male in the British Museum from the Khasi Hills (ex Coll. Elwes).

287 *c*. **Lethe dura mansonia** Fruhstorfer.

Lethe (*Zophoëssa*) *dura mansonia*, Fruhstorfer, 1911, p. 314, t. 99 *a* (♂, Tong-king, Manson Mtns.); Tytler, 1939 *a*, p. 246 (♂, S. Burma, Dawna Range).

♂. *Upperside* darker than in other forms; light distal border absent or faint. Hind wing submarginal dots absent or vestigial.



Fig. 64.—*Lethe minerva tritogeneia* Fruhst.
Venation of male.

Underside with more sharply defined bands, and ocelli bordered with brighter yellow than in allied forms.

Habitat.—SOUTHERN BURMA (Dawna Range); Tong-king. The male recorded by Tytler is in the British Museum. It was collected in April, 1926.

Minerva Group.

(*Lethe* Hübn., *Zophoessa* Doubl., *Hanipha* Moore, *Tanisma* Moore, *Charma* Doh., *Rangbia* Moore, *Nemetes* Moore, *Dionana* Moore, *Putlia* Moore, *Hermias* Fruhst.).

Key to Species.

1.	Hind wing with vein 3 arising at or close to end of cell	2.
	Hind wing with vein 3 arising before the end of cell	25.
2.	Hind wing with vein 2 arising much nearer end of cell than does vein 5	3.
	Hind wing with veins 2 and 5 arising at points equidistant from the end of cell	5.
3.	Fore wing underside with a pale bar at the end of cell. ♂ hind wing upperside with a dark brand in area 7, entering area 6 and the cell. Hind wing underside with a pale sub-basal marking from costa across the cell	*baladeva* (Moore), p. 193.
	Both wings underside without the markings described above	4.

4. Underside dark brown; fore wing with discal ocelli and a pale line beyond prominent . . . . . [p. 195. *ramadeva* (de Nicév.),

Underside ochreous; fore wing with discal ocelli and a pale line beyond obsolete or nearly so . . . . *andersoni* (Atks.), p. 195.

5. Fore wing with *ldc* strongly incurved; underside with one apical ocellus; upperside fulvous, no ♂ brand. Hind wing underside with one apical and two tornal ocelli . . . *gemina* Leech, p. 195.

Fore wing with *ldc* more or less straight. 6.

6. Fore wing cilia chequered. Hind wing caudate; underside ocelli more or less incomplete. ♀ with a white band 7.

Fore wing cilia not chequered .. 11.

7. ♂ fore wing upperside without a white band or a brand. ♀ fore wing underside with the ocellus in area 3 conjoined to the band . . . . . 8.

♂♀ fore wing upperside with a white band; underside with a single pale line in cell, continued to vein 1 *b*. ♂ hind wing upperside with a dark brand at base of area 6, extending into cell and into areas 7 and 5. . . *confusa* Auriv., p. 205.

8. Fore wing underside with a single pale band across the cell. Hind wing underside without a discal band, all ocelli very large and incomplete. . . . *europa* (Fabr.), p. 197.

Fore wing underside with a broad dark inner bar in the cell, continued into area 1 *c*; an outer narrow irregular bar, separated from the first bar by a pale area. . . . . 9.

9. Hind wing underside with the ocelli in areas 3 and 4, and sometimes that in 5, elongate and distorted . . .. 10.

Hind wing underside with the ocelli in areas 3 to 5 rounded, only slightly incomplete . ... *daretis* (Hew.), p. 204.

10. Hind wing underside with apical ocellus conspicuously larger than the ocellus in area 2. . .. . *rohria* (Fabr.), p. 200.

Hind wing underside with apical ocellus not larger than the others. ♂ fore wing upperside without white spots. .. *drypetis* (Hew.), p. 201.

11. Hind wing underside with the ocelli more or less incomplete. Hind wing more or less caudate. ♀ with white band (except in *satyavati*) .. 12.

Hind wing underside with the ocelli entire . . . . 17.

12. ♂ fore wing upperside in distal part of area 1 *b*, with a long brand covered by a black hair-pencil; underside very dark. Hind wing underside with tornal ocellus having a single pupil. ♀ fore wing upperside with a white band and detached spot in area 1 *b* . *dynsate* (Hew.), p. 207.

Hind wing underside with the tornal ocellus having more than one pupil. 13.

13. Hind wing underside with the sub-basal line straight . . . . 14.
Hind wing underside with the sub-basal line irregular, and more or less broken. 16.

14. Hind wing underside with discal line strongly waved. ♂ hind wing upperside, distally red; a brand near base of area 2, covered by a hair-pencil. ♂ fore wing upperside with a brand from inner margin to vein 3. ♀ upperside, bright brick-red; fore wing with a white spot in area 1 *b*, and a faint discal line . . . . . *minerva* (Fabr.), p. 208.
Hind wing underside with discal line sinuous . . . . . 15.

15. ♂ fore wing upperside with an obscure brand from inner margin to vein 4; hind wing with distal area more or less red. ♀ rather dusky red; fore wing upperside with discal line prominent *mekara* (Moore), p. 209.
♂ not known. ♀ fore wing upperside unmarked. Hind wing upperside with distal area pale brown, bearing black spots; underside basal area pale brown, outer area round ocelli whitish, basal line straight, discal line sinuous. *satyvati* de Nicév., [p. 210.

16. Hind wing underside with discal dark line strongly bent outwards in the middle, and in areas 2 to 4 separated from the ocelli only by the width of the latter. ♂ hind wing upperside with marginal red area obscure or absent; fore wing upperside with an obscure brand from inner margin to vein 4. ♀ upperside dusky red *chandica* (Moore), p. 211.
Hind wing underside with discal dark line less bent outwards in the middle, and in areas 2 to 4 is placed well away from the ocelli. ♂ hind wing upperside with distal area bright red, and bearing prominent black spots; brand obsolete. ♀ mostly bright red; underside of fore wing with outer margin yellow, and underside of hind wing with tornal area yellow . *distans* Butl., p. 213.

17. Fore wing with apex not produced, outer margin straight . . 18.
Fore wing with apex produced, outer margin straight. Hind wing strongly caudate. Underside dark lines very straight. ♂ fore wing upperside with obscure brand from inner margin to veins 4 or 5. . . . . 23.

18. Fore wing underside with cell markings faint or absent; upperside ocelli and submarginal dark line apparent. Hind wing upperside with complete series of spots; underside ocelli perfect, the apical one very large and shifted in. ♂ without brand . . . . 19.
Fore wing underside always with a prominent mark in the cell 21.

19. ♂ hind wing upperside with a large black brand. ♀ fore wing unmarked . . . . *christophi* Leech, p. 213.
♂ hind wing upperside without a brand. ♀ fore wing with a white band . 20.

20. ♂ upperside without a band or any white spots. ♀ with a very broad white band. Hind wing rounded, outer margin and costa strongly excurved *naga* Doh., p. 214
♂ fore wing upperside with a narrow yellow band; ♀ with a white band. Hind wing underside without a discal band; a single pale band through end of cell . . . . . *margaritæ* Elw., p. 215.

21. Fore wing underside with outer dark line in cell straight; inner line broad and single . . . . . 22.
Fore wing underside with outer dark mark in cell incurved, and well separated from inner mark, which is double. ♂ fore wing upperside with a large triangular brand from middle of inner margin to veins 4 or 5. ♀ upperside with no pale band, but dark band shows through, and area beyond is paler; two apical pale dots . . . *serbonis* (Hew.), p. 219.

22. ♂ fore wing underside with discal line sinuous, and directed to tornus. ♀ fore wing upperside with a broad white discal band . . . . . *insana* (Koll.), p. 216
♂ fore wing underside with discal line straight, and directed to inner margin. ♀ fore wing underside with a discal, very narrow, whitish band, appearing on upperside as a narrow pale band *brisanda* de Nicév., p. 218.
♂ fore wing underside with discal line straight and ending just before tornus. Hind wing upperside with a tuft of upturned hairs along upper part of cell. *sadona* Evans, p. 219.

23. Underside with distal area prominently paler; outer edge of basal dark line edged prominently with whitish. Fore wing upperside with a discal line (whitish in ♀), and area beyond paler. Hind wing upperside with the black spots fulvous-ringed and prominent *vindhya* (C. Feld.), p. 222.
Underside uniform. Fore wing upperside with small pale spots in areas 3, 4 and 6, and in ♀ with post-cellular spots; discal line showing through faintly in ♂, but prominently in ♀. . . 24.

24. Hind wing upperside with a spot in area 4; spots ringed with yellow; underside, ocellus in area 4 on an even curve with the others . . . . *kansa* (Moore), p. 223.
Hind wing upperside without a spot in area 4; ocelli placed in a red area in ♂, and in an orange area in ♀; underside ocellus in area 4 placed out of line with the rest . . . . . *sinorix* (Hew.), p. 224.

25. ♂ hind wing upperside with a prominent brand along the basal half of vein 3, covered by a hair-pencil. Fore wing underside with discal band ending on inner margin well before tornus .. 26.

♂ hind wing upperside with a dark brand at the base of area 6, extending into cell and into areas 5 and 7 ; underside ocelli nearly perfect. ♂♀ fore wing upperside with a broad white even band, ending at the margin above vein 1 *b* ; no apical white spots nor ocelli ; underside with a single obscure pale bar in cell *verma* (Koll.), p. 228.

26. Fore wing underside with area between dark bars in cell, pale, the inner bar broad. ♂ upperside distally blue, shading to purple ; fore wing with a dark brand about the middle of vein 1 *b*. ♀ dark brown ; fore wing underside with a narrow yellow band . .. *scanda* (Moore), p. 224.

Fore wing underside with the area between the dark bars in cell, not pale, the bars of equal width .. . . . 27.

27. Fore wing underside with discal dark line crossing vein 2 much nearer end of vein than its origin; upperside of ♂ wing unmarked, but brands present along each vein from veins 1 *b* to 6, increasing in width. Hind wing underside with basal band straight. ♀ fore wing underside with a narrow white band ; upperside with a prominent pale brown band, and two apical, yellowish dots. . . .. *latiaris* (Hew.), p. 225.

Fore wing underside with discal dark line crossing vein 2 beyond its middle. 28.

28. Hind wing underside with the basal dark line very irregular, interrupted at the median, and at vein 7 ; ♂ with a brand in basal half of areas 5 and 6. ♂ fore wing upperside unmarked, but with a brand along middle of vein 1 *b* ; inner margin excurved. ♀ with three yellow post-discal spots in areas 3, 4 and 7, and discal spots in areas 2 and 3 . ... [p. 226. *gulnihal* de Nicév.,

Hind wing underside with the basal dark line regular ; upperside of ♂ wing with a brand in the basal half of areas 4 to 6. ♂ fore wing upperside marked as in ♀ of *gulnihal*, discal spots often absent ; a brand along vein 1 *b*, inner margin not excurved . . . . *bhairava* (Moore), p. 228.

Lethe baladeva (Moore).

♂. *Upperside* of hind wing with a dark brand in the base of area 7 ; outer margin caudate at veins 2 and 4.

♂♀. *Underside* of fore wing with white markings more or less tinged with ochraceous; a pale bar at the end of the cell. Hind wing with a discal and a post-discal silvery white band.

Distribution.—KUMAON to SIKKIM. Two subspecies are described.

288 *a*. **Lethe baladeva baladeva** (Moore).

Zophoessa baladeva, Moore, 1865 *a*, p. 769, pl. xli, fig. 5 (♂, "N.E. Bengal"): Marshall & de Nicéville, 1883, pp. 163, 167, ♂.

Putlia baladeva, Moore, 1892 *a*, p. 288, pl. xc, figs. 1, 1 *a* (♂♀).

Lethe (*Putlia*) *baladeva*, de Nicéville, 1894 *a*, p. 124 (Sikkim, 8,000 feet).

Lethe baladeva, Bingham, 1905, p. 99.

Lethe baladeva baladeva, Fruhstorfer, 1911, p. 314, t. 97 *d*; Evans, 1932 *a*, p. 104.

♂♀. *Upperside* brown, the markings on the underside showing through by transparency, more prominent on the fore wing of the female, in the male only clearly on the hind wing, where the post-discal ocelli appear as non-pupilled round black spots, with well defined submarginal pale line.

Underside ochraceous-brown. Fore wing with inner margin broadly pale brown; base and apex of cell, a band crossing the cell, a discal broad band, and a submarginal band, all ochraceous-white; a post-discal silvery white band; a series of five minute ocelli, black, with white pupils, a broad ochraceous ring, and outwardly margined by an ochraceous transverse line; a marginal, bright ochraceous line. Hind wing with a discal, prominent silvery white band, crossing apex of cell; a post-discal silvery white band, its outer edge sinuous between veins 2 and 6; some oblique streaks and marks, submarginal and slender marginal lines ochraceous-white; a strongly arched series of silvery-centred, ochraceous-ringed, black ocelli; two prominent, reddish-ochraceous marks at tornus.

Antennæ, head, thorax and abdomen brown; antennæ tipped with ochraceous.

Expanse: ♂♀, 67–70 mm.

Habitat.—SIKKIM, above 7,000 feet; rare.

288 *b*. **Lethe baladeva alsa** Fruhstorfer.

Lethe baladeva alsa, Fruhstorfer, 1911, p. 314 (Kumaon); Evans, 1932 *a*, p. 104.

Lethe (*Charma*) *baladeva*, Doherty (*non* Moore), 1886 *a*, p. 117 (Kumaon, 7,000–8,000 feet).

Lethe (*Putlia*) *baladeva*, Mackinnon & de Nicéville, 1897, p. 216 (Garhwal).

Lethe (*Zophoessa*) *baladeva*, Hannyngton, 1910, p. 135 (Kumaon, 7,000–9,000 feet).

♂♀. Smaller and paler than the nominotypical form. *Underside* of fore wing with discal ocelli obsolete or obscure; the silvery bands on both wings narrower.

Expanse: ♂♀, 55–65 mm.

Habitat.—KUMAON, 7,000–9,000 feet; rare.

289 **Lethe ramadeva** (de Nicéville).

Zophoessa ramadeva, de Nicéville, 1888 *a*, p. 147 (Sikkim, ♂) ; *id.*, 1888 *b*, pp. 274–5, pl. xiii, fig. 3 (♂).
Putlia ramadeva, Moore, 1892 *a*, p. 289, pl. xc, figs. 3, 3 *a* (♂♀).
Lethe (*Putlia*) *ramadeva*, de Nicéville, 1894 *a*, p. 124 (Sikkim, very rare).
Lethe ramadeva, Bingham, 1905, p. 99 ; Fruhstorfer, 1911, p. 314 ; Evans, 1932 *a*, p. 104, pl. xii, fig. D 3. 18 (♂).

♂♀. Hind wing with outer margin caudate at veins 2 and 4, and without a brand in the male. *Upperside* markings as in *baladeva* (Moore).

Underside of fore wing with white markings in the base and at end of cell. Hind wing markings as in the allied species, the bands much broader and whiter ; the ochraceous sub-basal and other streaks, present in *baladeva*, entirely wanting.

Expanse : ♂♀, 60–70 mm.

Habitat.—SIKKIM to BHUTAN, and NORTH-EASTERN BURMA ; very rare.

290. **Lethe andersoni** (Atkinson).

Zophoessa andersoni, Atkinson, 1871, p. 215, pl. xii, fig. 3 (♂, Bhamo) ; Marshall & de Nicéville, 1883, pp. 163, 168, ♂.
Putlia andersoni, Moore, 1892 *a*, p. 290, pl. xc, figs. 2, 2 *a* (♂).
Lethe andersoni, Bingham, 1905, p. 100 ; Fruhstorfer, 1911, p. 314 ; Evans, 1932 *a*, p. 104 ; Tytler, 1939 *a*, p. 246 (♂, N.E. Burma).

♂♀. *Upperside* as in *baladeva* (Moore), except that the hind wing is without a brand.

Underside ground-colour much brighter ochraceous than in *baladeva*, all the markings pure white, not tinged with ochraceous. Fore wing with transverse bands much as in *ramadeva* (de Nicév.) ; a series of obscure, pale ocelli ; a very slender lunular white line ; submarginal band, reduced to a mere slender streak, close to the marginal line. Hind wing as in *ramadeva*, without the ochraceous sub-basal streak ; other markings as in *baladeva*, only broader and more clearly defined.

Expanse : ♂♀, 60–70 mm.

Habitat.—NORTHERN BURMA (Bhamo and Htawgaw) ; very rare. Also in Yunnan.

Lethe gemina Leech.

♂♀. *Upperside* dark to yellow-ochraceous. Hind wing with four or five large black ocelli ringed with yellow.

Underside yellowish-brown, the distal areas more or less marked with lilac. Fore wing with an apical ocellus. Hind wing with a large apical and a large anal ocellus ; a small secondary anal ocellus, and sometimes with secondary apical and median ocelli ; a post-discal yellowish-brown line, produced strongly distad in area 3.

Distribution.—Western China, ASSAM, and Formosa. One subspecies in the Indian area.

291. **Lethe gemina gafuri** (Tytler). (Fig. 65, ♂).

Pararge gafuri, Tytler, 1914, p. 218, ♂♀, pl. i, fig. 1 (♂, Naga Hills, 6,000–7,000 feet).
Lethe gemina gafuri, Evans, 1932 *a*, p. 104, pl. xii, figs. D 3. 20 (♂).

♂♀. *Upperside* ochreous-yellow. Fore wing, near base and along costa, rather fuscous ; apex and outer margin black, the latter tending to form broad contiguous lunules in areas 1 to 4 ; a submarginal row of diffuse, blackish, patches ; discocellulars marked with darker colour ; in area 5 a subapical black ocellus with a white centre ; a fine anteciliary black line, inwardly bordered by a broader line of the ground-colour. Hind wing, along inner margin, rather fuscous, becoming more so near tornus ; submarginal area paler, inwardly defined by a dark, diffuse, line, outwardly projected at vein 4, and inwardly bordered by a broad dark row of contiguous spots, followed by a narrow line of the ground-colour, and a still narrower black anteciliary line ; the submarginal pale area bears five black ocelli in areas 1, 2, 3, 5 and 6, the last three blind and subequal, the others white-centred, the one in area 2 being the largest, and that in 1 being the smallest.



Fig. 65.— *Lethe gemina gafuri* Tytler, ♂ (Naga Hills).

Underside of both wings clearer yellow than above. Fore wing with discocellulars marked with darker yellow ; a submarginal, pale, silvery-lilac band, ending with a black ocellus, in area 5, ringed with yellow and centred with bluish-white, bordered inwardly and outwardly by darker yellow ; the inner border recurves sharply back in area 4, till it reaches vein 9 ; the outer border is followed by a narrow, pale, lilac line, a still narrower black line, a broader line of ground-colour, and lastly by a very narrow anteciliary thread. Hind wing with discocellulars marked with darker yellow ; a submarginal, pale, silvery-lilac band, bearing, in areas 1, 2 and 6, black ocelli, ringed with yellow, and centred with white ; tornal ocellus

small, but the other two large and subequal ; this pale band is inwardly bordered by a dark yellow line which projects outwards at vein 4, and is outwardly bordered by a similarly coloured line, followed by four other lines as on fore wing. Cilia of both wings blackish.

Antennæ above blackish, ringed with white, and tipped with ochreous ; below brownish-ochre near base, turning to ochreous near the club, which is black. (From *Tytler*, 1915).

Expanse : ♂♀, 60–70 mm.

Habitat.—ASSAM : Naga Hills, 6,000–7,000 feet ; very rare. A series of both sexes, of which specimens are in the British Museum, was taken at Kirbari between the end of July and beginning of October.

Lethe europa (Fabricius), 1775.

♂♀. *Upperside* of fore wing in male with two subapical white spots, in female with a discal white band.

Underside of fore wing with a single pale band across the cell. Hind wing with the ocelli large and incomplete ; proximal area blackish, with a conspicuous sub-basal, pale, straight line ; no discal band.

The ground-colour of the underside is rather variable, and specimens with dark or light undersides occur everywhere.

Distribution.—PENINSULAR INDIA, the HIMALAYAS, BURMA, ANDAMAN and NICOBAR ISLANDS, Malaya, Siam, Tong-king, Southern China, Hainan, Formosa, the Philippines, and Java. Four subspecies in the Indian area.

292 *a*. **Lethe europa europa** (Fabricius).

Papilio europa, Fabricius, 1775, p. 500 (♂) ; Corbet, 1941 *e*, p. 102 (type from S. India) ; *id.*, 1941 *d*, p. 133 (South India).
Debis europa, Moore, 1865 *a*, p. 767 (Bengal, plains).
Lethe europa, de Nicéville, 1885 *a*, p. 42 (Calcutta) ; Taylor & de Nicéville, 1888, no. 17 (Orissa) ; Hampson, 1889, p. 348 (Nilgiri Hills, 3,000–5,000 feet, rare) ; Davidson & Aitken, 1890, p. 350 (early stages) ; Bell, 1909, p. 451.
Lethe europa ragalva, Fruhstorfer, 1911, p. 316 (Karwar) ; Evans, 1932 *a*, p. 105 ; Peile, 1937, p. 87.

♂♀. Inner third of hind wing covered with long brown hairs.

♂. *Upperside* rich dark brown. Fore wing with discal band showing through faintly from underside ; two obscure black spots or ocelli ; two prominent subapical white spots, the upper one double ; both wings with some black markings, edged outwardly with pale dusky brown, along the outer margins ; hind wing with a submarginal, obscure, pale line.

Underside very dark blackish-brown ; both wings crossed by a sub-basal, slender, lilacine-white straight line. Fore

wing with a discal, short, oblique, yellowish-brown band; a post-discal series of large black ocelli; a marginal, somewhat ochraceous, narrow band, bordered on the inner side by a more or less silvery-purple line; the series of ocelli is margined on both sides by silvery-purple lunular lines, and is incurved; the ocelli are black, without pupils, and are confluent. Hind wing with ocelli as on the fore wing, but with disintegrate silvery-speckled irregular centres on a brown ground; the series is curved outwards; marginal lines as on fore wing.

♀. Similar to the male. *Upperside* of fore wing with a discal, oblique, broad white band. Hind wing with a post-discal incomplete series of black spots.

Underside markings larger than in the ♂.

Expanse: ♂♀, 65–75 mm.:

Larva.—Green, paler beneath, fusiform; head with a single short erect horn; body attenuated suddenly from the 11th segment.

Pupa.—Uniform pale green, stout, smooth, quite regular, except the head-case which is semi-detached, broad and angular, with two sharp points in front (after *Davidson & Aitken*).

Habits.—"The larva feeds upon bamboo. The butterfly is a strong flier, and is often seen sitting on bamboo leaves; affects the jungles by the sides of rivers, especially where the ground is flat." (*Bell*, 1909).

Habitat—PENINSULAR INDIA; not rare. The type is a very dark male from Karwar.

292 *b*. **Lethe europa niladana** Fruhstorfer. (Fig. 66, ♂).

Lethe europa niladana, Fruhstorfer, 1911; p. 315 (Kumaon to Burma); Evans, 1932 *a*, p. 105, pl. xii, fig. D 3. 21 (♂); Peile, 1937, p. 87.

Lethe europa, de Nicéville (*non* Fabr.), 1881, p. 49 (Sikkim); *id.*, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 143, 149 (part.); Doherty, 1886 *a*, p. 115 (Kumaon, 1,000 feet); Moore, 1886, p. 32 (Mergui Islands); Wood-Mason & de Nicéville, 1887, p. 350 (Cachar); Elwes & de Nicéville, 1887, p. 417 (Tavoy); Moore, 1892 *a*, p. 254, pl. lxxxii, figs. 1, 1 *a*, *b*, *c*, (♂♀) (part.); de Nicéville, 1894 *a*, p. 123 (Sikkim); Mackinnon & de Nicéville, 1897, p. 215 (Mussooree); Watson, 1897, p. 643 (Upper Chindwin); Adamson, 1905, p. 165 (Burma); Bingham, 1905, p. 77 (part.), fig. 20 (♂); Hannyngton, 1910, p. 134 (Kumaon, 2,000 ft.); Ellis, 1917, p. 106 (Pegu Yoma).

♂♀. This subspecies is not sharply defined, and appears to be distinguished from the nominotypical subspecies by the paler underside, the discal band on fore wing being whiter also. Specimens with darker colouring occur, and the type is a dark female from Assam.

Habitat.—The PUNJAB to BURMA, Siam, and Tong-king; common.

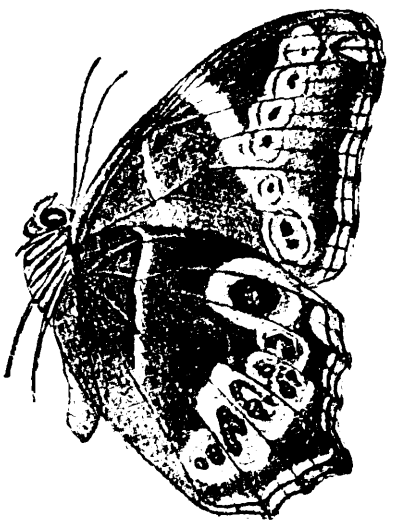


Fig. 66.—*Lethe europa niladana* Fruhst., ♂. ♀

The specimens from Siam and Tong-king, although separated by Fruhstorfer (1911), cannot be distinguished from Indian ones as a whole.

292 *c*. **Lethe europa nudgara** Fruhstorfer.

Lethe europa nudgara, Fruhstorfer, 1911, p. 316, t. 96 *c* (Andaman Islands); Evans, 1932 *a*, p. 105.
Lethe europa, Moore (*non* Fabr.), 1877 *b*, p. 582 (Port Blair); Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♂♀, Andaman Islands); *id.*, 1881 *a*, p. 244 (Andaman Islands).

♂♀. Both sides much darker than *niladana*. ♀ with a broader white band on the fore wing upperside. Larger than other Indian subspecies.

Expanse: ♂♀, 70–80 mm.

Habitat.—ANDAMAN ISLANDS; not rare.

292 *d*. **Lethe europa tamuna** de Nicéville.

Lethe tamuna, de Nicéville, 1887, pp. 449–50, pl. xxxix, fig. 6 (♀) (♀, Little Nicobar); Moore, 1892 *a*, p. 256, pl. lxxxii, fig. 2 (♀, type); Bingham, 1905, p. 78.
Lethe europa tamuna, Fruhstorfer, 1911, p. 316; Evans, 1932 *a*, p. 105.

♀. *Upperside* of fore wing with discal band ochraceous-yellow. Hind wing with a submarginal series of bright ochraceous lunules with inner dark borders.

Underside dull brown, the markings similar to those in *niladana* Fruhst.

Expanse: ♀, 70 mm.

Habitat.—SOUTH NICOBAR ISLANDS; very rare. The male does not appear to be known.

Lethe rohria (Fabricius).

♂♀. *Upperside* of fore wing in male, with a costal trifid spot, and two subapical white spots ; in female, with a discal, oblique, white band reaching to below vein 2.

Underside of hind wing with the ocelli in areas 3 and 4 elongate and distorted ; apical ocellus much larger than the one in area 2.

Distribution.—CEYLON and PENINSULAR INDIA to the HIMALAYAS and BURMA, extending to Java, Southern China, Hainan, and Formosa. Two subspecies in the Indian area.

This is the species usually known as *dyrta* (C. & R. Felder).

293 *a*. Lethe rohria rohria (Fabricius).

Papilio rohria, Fabricius, 1787, p. 45.
Lethe rohria, Bingham, 1905, p. 80.
Lethe rohria rohria, Evans, 1932 *a*, p. 105 ; Peile, 1937, p. 88.
Lethe dyrta, C. & R. Felder, 1867, p. 497, ♀ ; Moore, 1882 *b*, p. 235 (Kangra) ; de Nicéville, 1883 *a*, p. 93 (♂, Sikkim) ; Marshall & de Nicéville, 1883, pp. 144, 152, pl. x, fig. 22 (♂, Shillong ; ♀, Kulu) ; Butler, 1886 *a*, p. 357 (N.W. Punjab, 4,000–5,000 feet) ; Doherty, 1886 *a*, p. 115 (Kumaon, 3,000–6,000 feet) ; Butler, 1888, p. 135 (N.E. Punjab) ; Moore, 1892 *a*, p. 259, pl. lxxxii, figs. 3, 3 *a*, *b*, *c* (♂♀) ; de Nicéville, 1894 *a*, p. 123 (Sikkim, scarce) ; Mackinnon & de Nicéville, 1897, p. 215 (Mussooree) ; Watson, 1897, p. 643 (Upper Chindwin) ; Adamson, 1905, p. 166 (♂, Bhamo).
Lethe dyrta dyrta, Fruhstorfer, 1911, p. 317 ; Evans, 1932 *a*, p. 105 ; Gough, 1935, p. 261 (Nepal, rare) ; Peile, 1937, p. 87, pl. xi, fig. 96 (♂) (Mussooree).
Lethe rohria dyrta, Wynter-Blyth, p. 724, 1940 (Simla).

♂♀. *Upperside* vandyke-brown, slightly darker, especially in the female, towards apex of fore wing.

♂. *Upperside* of fore wing with a costal and two subapical white spots. Hind wing with ocelli of underside showing through, sometimes forming two or three obscure black spots ; two submarginal slender, black lines.

Underside paler, shaded with dark brown. Fore wing with narrow, sinuous, white lines, crossing the sub-basal area and outer part of cell ; a discal, irregular, broad white band ; a post-discal, narrower white band, forming with the discal band a V ; post-discal band bearing a series of four blind, dusky black, fulvous-ringed ocelli ; two subapical white spots ; distinct, slender, submarginal whitish, and broader marginal ochraceous lines. Hind wing with a sub-basal, sinuous, white line ; a post-discal, arched series of six black ocelli, their centres disintegrated, their inner ring ochraceous, outer brown, the whole series bordered on both sides by lilacine-white lines ; submarginal and marginal lines as on fore wing.

♀. *Upperside* of fore wing with a discal, broad, oblique

white band, with a posterior spot in area 1 *b* ; inner edge of the band bi-emarginate, the outer edge irregularly sinuous.

Underside as in the male, but the markings more pronounced, the white discal band on fore wing very prominent.

Antennæ, head, thorax and abdomen brown ; antennæ black before the tip, the tip ochraceous.

Expanse : ♂♀, 60–70 mm.

Habitat.—KASHMIR to SIKKIM and BURMA, extending to Yunnan, Malaya, and Java ; common.

The whole series from this area is variable and does not seem to include more than one subspecies.

The description of the larva given by Moore is, according to Bell (1909), "not sufficient to distinguish it from that of *drypetis* (Hew.) and, no doubt, they are very similar."

293 *b*. **Lethe rohria neelgheriensis** (Guérin).

Satyrus neelgheriensis, Guérin, 1843, p. 74, pl. xxi, figs. 1, 1 *a* (♂).
Debis neilgherriensis (sic), Moore, 1865 *a*, p. 767.
Lethe neelgherriensis (sic), Marshall & de Nicéville, 1883, pp. 144, 153, ♂♀ ; Hampson, 1889, p. 349 (Nilgiri Hills, 2,000–7,000 feet).
Lethe neelgheriensis, Moore, 1892 *a*, p. 261, pl. lxxxiv, figs. 1, 1 *a*, *b*, *c* (♂♀), 1 *d* (larva, Ceylon).
Lethe rohria nilgiriensis (sic), Bingham, 1905, p. 81.
Lethe nilgiriensis (sic), Bell, 1909, p. 453, pl. F, figs. 38, 38 *a* (♂♀).
Lethe rohria nilgiriensis (sic), Evans, 1910, p. 382 (Palni Hills).
Lethe dyrta neelgheriensis, Fruhstorfer, 1911, p. 317, t. 96 *d*.
Lethe neelgheriensis, Ormiston, 1918, p. 13 (Ceylon).
Lethe rohria nilgiriensis (sic), Evans, 1932 *a*, p. 105, pl. xii, fig. D 3. 22 (♀) ; Peile, 1937, p. 87 ; Woodhouse & Henry, 1942, p. 44, pl. iv, figs. 12 (♂), 13 (♀) (Ceylon).
Lethe dyrta yoga, Fruhstorfer, 1911, p. 317 (Ceylon).

♂. *Upperside* of fore wing with a distal whitish spot in area 2.

♀. *Upperside* of fore wing with the discal white band divided into three distinct, well-separated, white spots.

Underside of fore wing with discal band narrower than in the nominotypical form.

In other respects this subspecies does not differ from the nominotypical form.

Expanse : ♂♀, 58–65 mm.

Habitat.—CEYLON and PENINSULAR INDIA, to PACHMARHI ; common.

Lethe drypetis (Hewitson).

♂♀. Very similar to *rohria* (Fabr.). *Upperside* of fore wing in the male without white spots.

Underside of hind wing, in both sexes, with the apical ocellus not larger than the others.

Early stages and *habits* (from *Bell*, 1909).

Larva.—Head pointed, produced on the vertex to a longish point composed of two closely applied conical processes, one from the vertex of each lobe; colour darker green than the body, the points red, and a yellow lateral line from base of points at vertex, to meet the spiracular body-line. Body spindle-shaped, flattened ventrally, the last segment produced to a long pointed tail composed of two closely applied, long, conical processes; surface of body and head covered with minute, pointed, white tubercles, each surmounted by a minute hair. Colour of body light grass-green; a dorsal and a subdorsal thin white line; a yellow lateral band, interrupted, and broadening out into patches with deep rose-coloured centres on segments 7 and 8, and into yellow lunules on segments 5, 6, 9 and 10; a spiracular, light yellow line from segment 4 to centre of tail-points, bordered above finely with brown; sometimes there is no rose-colour, and at other times there is little yellow; occasionally the whole colour may be rosy brown, instead of green, with diagonal side-lines. Length over all, 44 mm.; breadth, 4 mm.; tail-points, 4 mm.; head-points, 1 mm.

Pupa.—Abdomen not swollen, head with two short points, thorax angulate above, otherwise the pupa is nearly smooth; cremaster triangular, thickened at the end; spiracles of segment 2 linear, yellow, the others small and oval; surface of pupa smooth and somewhat shiny; last three segments bent down, so that the pupa hangs at an angle of 45° to the vertical. Colour grass-green; dorsal wing-margins, continued to points of head over the shoulders, yellow, sometimes golden; apex of thorax yellow; a subdorsal, small, conical, tubercular mark on segments 5 to 9. Length, 18 mm.; breadth, 7 mm. The pupa may be rosy brown, as is the case sometimes in the larva.

Habits.—The egg is laid singly on the underside of a leaf, though it is the rule to find two or three adjacent leaves with one egg on each. The young larva eats the shell, and afterwards always stays fully stretched on the under surface with the venter closely applied, and the face bent down so as to bring the head-points to project straight forward in a line with the body. The larva is then not at all easy to make out, being of a similar shade of green to the leaf. The larvæ are generally to be found on leaves within two or three feet of the ground, in shady places. They feed on bamboo, and seem to prefer the big thorny one, *Bambusa arundinaceæ*.

The butterfly does not visit flowers, but is very fond of toddy and sap-juices. It is a swifter flier than the two preceding species. It is extremely plentiful in the jungles of the Western Ghats, in Belgaum and Kanara.

Distribution.—CEYLON and PENINSULAR INDIA. Two subspecies.

294 *a*. **Lethe drypetis drypetis** (Hewitson).

Debis drypetis, Hewitson, 1863, p. 76, *Debis*, pl. ii, figs. 11, 12 (♀) (Ceylon).
Lethe drypetis, Marshall & de Nicéville, 1883, pp. 144, 150 (♂♀), Moore, 1892 *a*, p. 257, pl. lxxxiii, figs. 1, 1 *a*, *b*, *c* (♂♀), 1 *d* (larva and pupa) (Ceylon); Bingham, 1905, p. 79, pl. ii, fig. 16.
Lethe drypetis drypetis, Fruhstorfer, 1911, p. 317, t. 97 *a* (as *embolina* (sic)).
Lethe drypetis, Ormiston, 1918, p. 13 (Ceylon).
Lethe drypetis drypetis, Evans, 1932 *a*, p. 105; Woodhouse & Henry, 1942, p. 44, pl. iv, figs. 10 (♂), 11 (♀).
Lethe embolima, Butler, 1886, p. 77 (Ceylon).

♂. *Upperside* very dark vandyke-brown. Fore wing uniform; hind wing with a post-discal series of three or four blind, black, small ocellate spots in areas 3 to 5.

Underside brown; fore wing paler along outer margin and below vein 2; both wings with submarginal, slender, lilacine lines, and marginal, broader, ochraceous lines. Fore wing with a broad band across the cell; median and apical areas suffused with lilac; a post-discal, incurved, series of five blind, black, ocelli. Hind wing with sub-basal and discal, narrow, lilac bands, the former sinuous, the latter angulate on vein 4; an arched post-discal series of black, fulvous-ringed, ocelli, some with disintegrate centres, the series with lilacine lunules on both sides.

♀. *Upperside* paler. Fore wing with a discal, broad, oblique band; this band irregular, and the spot in area 3 placed more proximad, so that its outer edge is in line with the spot in 2; two subapical white spots. Hind wing with a large submarginal, rectangular, black mark, having a white spot above and below it.

Underside similar to that of the male; all the markings more prominent, the lilac, ochraceous and brown shades paler; the discal bar on fore wing is joined by a nearly vertical lilacine-white band, bearing the series of ocelli. Hind wing with brown discal band very broadly produced between veins 4 and 5.

Antennæ, head, thorax and abdomen brown; antennæ ochraceous at tip.

Expanse: ♂♀, 65–70 mm.

Habitat.—CEYLON; not rare. According to Ormiston (1918) the butterfly is common in bamboo jungle where there is a good rainfall.

294 *b*. **Lethe drypetis todara** Moore.

Lethe todara, Moore, 1881 *a*, p. 305 (♂♀, Nilgiri Hills); Marshall & de Nicéville, 1883, pp. 144, 151; Hampson, 1889, p. 348 (Nilgiri Hills, 3,000–5,000 feet); Taylor & de Nicéville, 1888, no. 18 (Orissa); Davidson, Bell & Aitken, 1896, p. 243 (North Kanara).

Lethe drypetis todara, Fruhstorfer, 1911, p. 317, t. 97 *e* (as *drypetis*) ; Evans, 1932 *a*, p. 105 ; Peile, 1937, p. 88.
Lethe drypetis, Bell (*non* Hew.), 1909, p. 451 (♂♀, early stages and habits) ; Evans, 1910, p. 382 (Palni Hills).

Distinguished from the nominotypical form as follows :—

♂. *Upperside* of hind wing with the spot in area 5 large and prominent.

♀. *Upperside* of fore wing with the white band narrow and regular, the spot in area 2 long and narrow, and no spot in area 1 *b*.

Early stages. (From Davidson, Bell and Aitken, 1896).

Larva.—Somewhat fusiform, the surface rough owing to minute and close-set tubercles ; head produced occipitally into a long horn composed of two united processes ; a similar composite process on anal segment. Body green with a dorsal and subdorsal white line, also a lateral one which is marked with crimson on segments 7 and 8 ; head green with lateral yellow line ; horn tipped red. Feeds on bamboo.

Pupa.—Stout, slightly constricted between thorax and abdomen very like that of *Melanitis*, but rather more angular. Green, with wing-cases marked in yellow or gold. Suspended rigidly at an angle of 45°

Both larva and pupa may be light rosy brown instead of green, perhaps to match dry grass, for the larva affects concealment, lying close on the underside of a blade.

Habitat.—Peninsular India to Orissa ; not rare.

295. Lethe daretis (Hewitson).

Debis daretis, Hewitson, 1863, p. 75, *Debis*, pl. ii, figs. 7, 8 (♀) (Ceylon).
Lethe daretis, Marshall & de Nicéville, 1883, pp. 144, 151, ♂♀ ; Moore, 1892 *a*, p. 263, pl. lxxxiii, figs. 2, 2 *a*, *b*, *c* (♂♀) ; Bingham, 1905, p. 81 ; Fruhstorfer, 1911, p. 317, t. 97 *a* ; Ormiston, 1918, p. 14 ; Evans, 1932 *a*, p. 105 ; Woodhouse & Henry, 1942, p. 45, pl. iv, figs. 14 (♂), 15 (♀).

♂♀. Differs from *rohria* (Fabr.) in the costa of fore wing being less strongly arched, in the hind wing being narrower, with a more elongate and slender tail, and in the darker and more uniform colour of the upperside. In markings it differs slightly as follows :—

♂. *Upperside* of fore wing with the costal and subapical white spots minute, and tinged with ochraceous. Hind wing with a post-discal series of five, blind, black ocelli ; a submarginal dark sinuous line.

Underside differs in being darker and more suffused with purple, especially on the hind wing ; ocelli of hind wing more uniform in size, the apical not larger than the subtornal one, and their centres are not disintegrated.

♀. *Upperside* of fore wing with discal white band narrower than in *rohria*. Hind wing with the black spots very prominent, edged on both sides with pale ochreous-white.

Underside colouring richer than in *rohia*; hind wing ocelli sometimes bipupilled, but never disintegrate.

Expanse: ♂♀, 50–60 mm.

Habitat.—CEYLON, 4,000 to 6,000 feet; not rare. The butterfly settles on banks by the roadside, and comes readily to sugar.

Lethe confusa Aurivillius.

Indian specimens of this species were formerly confused with *rohria* (Fabr.). The species is distinguished by the male having a discal white band on the fore wing upperside, as in the female.

The type, as indicated by Aurivillius (1898), is the insect figured by Moore (1892 *a*) on pl. lxxxiv, fig. 2.

An examination of a long series of specimens from all parts of the species range, does not show the existence of more than one subspecies in the Indian area. There exists, however, two seasonal forms; these intergrade, and can only be separated in extreme examples. Where the rainfall is low, as in the North-Western Himalayas, and parts of Burma, Siam and Tong-king, the specimens are smaller; where a high rainfall exists, as in Assam and parts of China, the specimens are larger.

Distribution.—The HIMALAYAS, ASSAM, BURMA, Tong-king, Siam, Malaya to Java, Hainan, and Southern and Western China.

296. **Lethe confusa confusa** Aurivillius. (Fig. 67, ♂).

Lethe confusa, Aurivillius, 1898, p. 142; Bingham, 1905, p. 82; Hannyngton, 1910, p. 134 (Kumaon, 2,000–7,000 feet); Tytler, 1911, pp. 51, 52 (Naga Hills); South, 1913, p. 347 (Mishmi Hills, 5,000 feet.); Ellis, 1917, p. 106 (Pegu Yoma).

Lethe confusa confusa, Evans, 1932 *a*, p. 105; Gough, 1935, p. 261 (Nepal, 4,500 feet); Peile, 1937, p. 88 (Mussooree; Kumaon).

Debis rohria, Moore (*non* Fabr.), 1865 *a*, p. 768 ("Bengal").

Lethe rohria, Moore, 1879 *a*, p. 824 (Upper Tenasserim); de Nicéville, 1881, p. 49 (Sikkim); Moore, 1882 *b*, p. 235 (Kangra); de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 144, 156.

Lethe (*Tanisma*) *rohria*, Doherty, 1886 *a*, p. 117 (Kumaon, 2,500–7,500 feet).

Lethe rohria, Wood-Mason & de Nicéville, 1887, p. 350 (Cachar); Moore, 1892 *a*, p. 264, pl. lxxxiv, figs. 2, 2 *a*, *b*, *c* (♂♀); de Nicéville, 1894 *a*, p. 123 (Sikkim); Mackinnon & de Nicéville, 1897, p. 215 (Mussooree); Watson, 1897, p. 644 (Upper Chindwin); Adamson, 1905, p. 166 (Lower Burma); Tytler, 1911, p. 50 (Naga Hills).

Lethe rohria rohria, Fruhstorfer, 1911, p. 315.

Lethe rohria gambara, Fruhstorfer, 1911, p. 315 (Assam).

Lethe confusa gambara, Evans, 1932 *a*, p. 106.

Lethe rohria apara, Fruhstorfer, 1911, p. 315 (Tenasserim).

Wet-season form **confusa** Auriv.—♂♀. Hind wing dentate at vein 4. *Upperside* vandyke-brown. Fore wing with a discal, oblique, slightly curved, white band, its edges more even and regular than in the female of *rohria* (Fabr.); two subapical, obliquely placed, white spots. Hind wing uniform, ocelli of the underside showing through.

Underside uniform brown; both wings with sub-basal, submarginal, and marginal sinuous lilacine-white lines. Fore wing with discal white bar as on upperside, its posterior end usually not narrowed and curved; a subapical lilacine patch bearing three small ocelli in vertical order, and with a very short, oblique, white bar joining it to the costa. Hind wing with a discal, sinuous, irregular, angulate, lilacine-white line; a strongly arched series of black ocelli, speckled with white in the centre, with an inner ochraceous, intermediate brown, and outer lilacine ring. All markings very prominent.

Antennæ, head, thorax and abdomen dull brown; antennæ tipped with ochraceous.

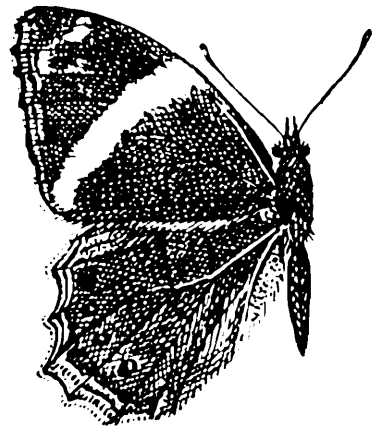


Fig. 67.— *Lethe confusa confusa* Auriv., ♂.
Upperside of wet-season form (Bhutan).

Expanse: ♂♀, 52–65 mm.

The type of *gambara* Fruhst. is a female of the wet-season form from Assam, and *apara* Fruhst. is founded upon a male of the wet brood from Tong-king.

Dry-season form.—♂♀. *Underside* with the darker areas having a ruddy tinge, the ocelli reduced. Fore wing with the subapical white costal bar heavy, and a similar white bar between the ocelli and submarginal line, in area 5 and part of 4; submarginal pale lines ochraceous. Hind wing with the bluish markings duller, and tending to ochraceous; submarginal lines ochraceous.

Expanse: ♂♀, 50–55 mm.

Habitat.—MURREE to SIKKIM, ASSAM, and BURMA, extending to Tong-king, Siam, and Malaya, Hainan, Southern and Western China, and South-East Tibet; common.

Mr. Wood-Mason (in Wood-Mason and de Nicéville, 1887) notes that the males "emit a delicous vanilla-like scent"

According to Peile (1937) the species is fairly common at Mussooree at 6,000 feet, and has, apparently, three broods: (1) end of April to early June; (2) end of June to end of July; (3) early September to mid-October. In Kumaon it is common at 7,000 feet, from June to October.

Mackinnon and de Nicéville (1897) note two broods at Mussooree, the dry-season one, from April to May, and the wet-season one from August to October.

Tytler (1911) notes two broods in the Naga Hills, the dry-season one, from February to April, and the wet-season one from July to October.

297. **Lethe dynsate** (Hewitson).

Debis dynsate, Hewitson, 1863, p. 76, *Debis*, pl. ii, figs. 9, 10 (♀)
Lethe dynsate, Marshall & de Nicéville, 1883, pp. 139, 142, ♀
Hanipha dynsate, Moore, 1892 *a*, p. 239, pl. lxxvii, figs. 2, 2 *a*, *b* (♂♀).
Lethe dynsate, Bingham, 1905, p. 91; Fruhstorfer, 1911, p. 318; Ormiston, 1918, p. 12; Evans, 1932 *a*, p. 106; Woodhouse & Henry, 1942, p. 45, pl. iv, figs. 8 (♂), 9 (♀).
Lethe sihala, Moore, 1872, p. 555 (♂♀, Ceylon).

Wet-season form **dynsate** (Hew.).—♂♀. Hind wing shortly and broadly caudate at vein 4. ♂ fore wing on *upperside*, in area 1 *b*, with a longitudinal brand, overlapped by a tuft of long hair.

♂. *Upperside* rich umber-brown, uniform. Fore wing with one or two subapical, and some faint black submarginal spots. Hind wing with four or five submarginal, round, black, blind ocelli or spots.

Underside with proximal half very dark umber-brown. Fore wing with apical half, and inner margin, broadly pale brown; submarginal and marginal dark brown lines; cell and discal area crossed by pale bands; a post-discal, obscure series of five ocelli. Hind wing with sub-basal and discal dark brown lines, the latter angulate on vein 4; a well defined curved series of seven white-centred and fulvous-ringed black ocelli; submarginal and marginal dark brown lines.

♀. *Upperside* of fore wing with a broad white oblique band from middle of costa to vein 1 *b*; a partially obsolescent broad ochraceous streak, and a quadrate white spot beyond it in area 1 *b*; a subapical series of black spots, with white spots beyond the anterior two. Hind wing lighter brown; outer half blotched with ochraceous-white, bearing a series of five black ocelli, the upper two diffuse, merging into one; a submarginal and marginal dark brown line.

Underside similar to the male, shaded with lilacine-white, the spots or ocelli on the fore wing on a pale band, each ocellus with a brown outer ring. Hind wing with six black, white-centred, fulvous-ringed complete ocelli. Both wings with a sub-basal dark brown line.

Antennæ, head, thorax and abdomen brown; antennæ tipped with ochraceous.

Dry-season form **sihala** Moore.—Only differs in the *underside* being distinctly paler, with more or less ochraceous tinge.

Expanse: ♂♀, 55–60 mm.

Habitat.—CEYLON; very rare.

According to Ormiston (1918) the form *sihala* Moore occurs only in the hills. The male flies rapidly round the tree-tops, usually settling high up.

Lethe minerva (Fabricius), 1775.

♂. Costa of fore wing strongly curved towards apex. *Upperside* of fore wing brown; a dark brown brand from middle of inner margin to vein 3. Hind wing angulate at vein 4; area 2 with a dark brown brand covered by a brown hair-pencil; distal area ochraceous-red, with a series of dark brown spots.

♀. *Upperside* ochraceous-red. Hind wing with spots as in the male.

Distribution.—BURMA and Siam, to Malaya and Java. One Indian subspecies.

298. **Lethe minerva tritogeneia** Fruhstorfer. (Fig. 64, venation).

Lethe minerva tritogeneia, Fruhstorfer, 1911, p. 318 (Burma); Evans, 1932 *a*, p. 106, pl. xii, fig. D 3. 27 (♂).
Lethe minerva, Marshall & de Nicéville (*non* Fabr.), 1883, pp. 138, 140, ♂♀; Elwes, 1891, p. 264 (Pegu).
Nemetis minerva, Moore, 1892 *a*, p. 237, pl. lxxvii, figs. 1, 1 *a*, *b* (♂♀).
Lethe (*Nemetis*) *minerva*, Watson, 1897, p. 643 (Upper Chindwin).
Nemetis minerva, Adamson, 1905, p. 165 (Burma).
Lethe minerva, Bingham, 1905, p. 90, pl. ii, fig. 14; Ellis, 1917, p. 106 (Pegu Yoma).

♂. *Upperside* brown. Fore wing anteriorly with an ochraceous tint, darkening towards the tornus. Hind wing posteriorly, from apex of cell to outer margin and vein 1, ochraceous-red; abdominal fold brown; a curved series of five dark brown spots, the apical two large and diffuse; a submarginal dark line.

Underside pale ochraceous-brown; both wings crossed by highly irregular and more or less broken basal and discal lines of ochraceous-red, the latter obsolescent on the fore wing; outer margins ochraceous-red, outlined inwardly by a slender black line. Fore wing with a post-discal, pale, broad band, widening anteriorly, and bearing a series of four obscure black ocelli. Hind wing with a post-discal, curved, series of six large ochraceous ocelli, having disintegrated ochraceous and black centres.

♀. *Upperside* ochraceous-red. Fore wing with apical half dark brown, bearing a subapical spot, and a broad oblique band of white, the latter posteriorly divided into three conical spots. Hind wing with a post-discal, curved, series of dark brown spots, the anterior two the largest; a submarginal, slender, black line.

Underside similar to that of the male, but paler, and with the white band as on the upperside.

Antennæ, head, thorax and abdomen dull ochraceous-brown.

Expanse: ♂♀, 63–70 mm.

Habitat.—CHIN HILLS to SOUTHERN BURMA and Siam; not rare.

Lethe mekara (Moore).

♂. *Upperside* of fore wing with a brand from inner margin to vein 4. Hind wing with distal area more or less reddish; no brand.

♀. *Upperside* rather dusky red. Fore wing with a prominent white costal bar, and two post-discal white spots in areas 2 and 3.

Distribution.—SIKKIM, to BURMA, Siam, and Tong-king, extending to Sumatra and Borneo. Two subspecies in the Indian area.

299 *a*. **Lethe mekara mekara** (Moore).

Debis mekara, Moore, 1857, p. 219; *id.*, 1865 *a*, p. 768 (Darjeeling).
Lethe mekara, de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 143, 148, pl. xi, fig. 24 (♂, Sikkim; ♀, Sibsagar).
Debis mekara, Moore, 1892 *a*, p. 244, pl. lxxix, figs. 1, 1 *a*, *b* (♂♀, wet-season brood), 1 *c* (♂, dry-season brood) (Sikkim).
Lethe (*Debis*) *mekara*, de Nicéville, 1894 *a*, p. 122 (Sikkim).
Lethe mekara, Bingham, 1905, p. 95 (part.).
Lethe mekara mekara, Fruhstorfer, 1911, p. 319; Evans, 1932 *a*, p. 106.
Lethe mekara mekara f. *vajra*, Fruhstorfer, 1911, p. 319 (=dry-season form).

♂♀. Allied to *chandica* (Moore), from which it differs as follows:—

Wet-season form **mekara** (Moore).—♂. *Upperside* umber-brown with a silky gloss, never so dark as in *chandica*. Hind wing with a posterior submarginal ochraceous-red patch, bearing a series of four black blind ocelli; a submarginal, rather obscure, dark brown sinuous line.

Underside of both wings with the sub-basal and discal dark lines less sinuous than in *chandica*. Hind wing with discal line only very slightly angulate, never produced towards the line of ocelli.

♀. *Upperside* of fore wing without ocelli; discal white band narrower and shorter than in *chandica*; two post-discal, triangular, white spots in areas 2 and 3.

Underside as in male.

Head, thorax and abdomen brown; antennæ light brown, tipped with ochraceous.

Dry-season form **vajra** Fruhst.—♂♀. *Underside* pale brown, without dark shading, and only a vestige of the silvery-grey bands; ocelli smaller, especially on the fore wing.

Expanse: ♂♀, 65–75 mm.

Habitat.—SIKKIM and BHUTAN; common. Also sparsely in ASSAM.

The larva feeds on bamboo (de Nicéville, 1894 *a*).

299 *b*. **Lethe mekara zuchara** Fruhstorfer.

Lethe mekara zuchara, Fruhstorfer, 1911, p. 319 (♂♀, Assam); Evans, 1932 *a*, p. 106, pl. xii, fig. D 3. 28 (♀).
Lethe mekara, Moore (*non* Moore, 1857), 1879 *a*, p. 824 (Upper Tenasserim); Elwes, 1891, p. 263 (Karen Hills; Naga Hills).
Lethe (*Debis*) *mekara*, Watson, 1897, p. 643 (Chin Hills).
Debis mekara, Adamson, 1905, p. 165 (Burma).
Lethe mekara, Tytler, 1911, p. 53 (Naga Hills); Ellis, 1917, p. 106 (Pegu Yoma).

Wet-season form **zuchara** Fruhst.—♂. *Upperside* of hind wing with more strongly marked rufous area than in the nominotypical form.

Underside more strongly marked, and with richer colouring than in the nominotypical form.

♂. *Upperside* usually with rather strongly marked reddish areas.

Underside as in the male.

Dry-season form **vajra** Fruhst.—♂♀. The markings of the underside, which characterize this form, are the same as occur in the nominotypical dry-season brood.

Habitat.—ASSAM to BURMA, and the MERGUI ISLANDS; common.

300. **Lethe satyavati** de Nicéville.

Lethe satyavati, de Nicéville, in Marshall & de Nicéville, 1880, p. 246 (♀, Assam); Marshall & de Nicéville, 1883, pp. 144, 154, ♀.
Debis satyavati, Moore, 1892 *a*, p. 246, pl. lxxx, figs. 2, 2 *a* (♀, type).
Lethe satyavati, Bingham, 1905, p. 93; Fruhstorfer, 1911, p. 319; Tytler, 1914, p. 220 (♀, Western Manipur); Evans, 1932 *a*, p. 106.

Wet-season form.—♀. *Upperside* dull brown, paler distally. Fore wing with an indistinct submarginal darker line. Hind wing with a submarginal series of four rounded spots, darker than the ground-colour; two marginal darker lines, defined inwardly by lines paler than the ground-colour.

Underside pale brown, with no ochraceous tint, and washed with lilac, especially on the outer half. Both wings crossed by a sub-basal, nearly straight, prominent brown line, outwardly edged with lilac. Fore wing with a discal, irregular, brown line; a bar in the cell, within the sub-basal line; five indistinct submarginal ocelli, encircled with lilac and brown on a lilac ground; a marginal yellowish line, edged on both sides with dusky; a submarginal, brown, waved band on the lilac ground. Hind wing with a post-discal, very much angled, dark brown line; a very distinct lilac mark above vein 4, just beyond apex of cell; submarginal ocelli large, the anterior one distinctly pupilled with white, and all of them profusely speckled with white; the usual marginal markings. (From *de Nicéville*).

Dry-season form.—♀. *Upperside* greyish-brown, not red-brown; marginal whitish area much more conspicuous.

Underside with the pale marginal area not so distinctly lilacine; ocelli smaller. (From *Tytler*, 1915).

Expanse: ♀ 65–75 mm.

Habitat.—ASSAM; very rare. The male appears to be unknown. The ♀ holotype and another, now in the Indian Museum, Calcutta, were taken by Wood-Mason at Sibsagar. A ♀ of the dry season form is recorded by Tytler (1915) from the Barak River, Western Manipur Hills, April.

Lethe chandica (Moore).

♂. *Upperside* of fore wing with an obscure brand, from inner margin to vein 4; proximal area darker than distal area. Hind wing with obscure marginal red area; outer margin scalloped, and broadly dentate at vein 4.

Underside of hind wing with post-discal line bent strongly outwards at the middle.

♀. *Upperside* dusky red; fore wing with a post-discal, angulate, white band.

In the Indian area there are two seasonal forms, but two subspecies cannot be defined satisfactorily; the seasonal forms intergrade, and are not sharply distinguished; specimens with darker upperside, and with darker and more richly coloured underside, belong to the wet season.

Distribution.—SIKKIM to Malaya and Java, Hainan, China, Formosa, and the Philippines. One subspecies in the Indian area.

301. **Lethe chandica chandica** (Moore). (Fig. 68, ♂♀).

Debis chandica, Moore, 1857, p. 219; *id.*, 1865 *a*, p. 768 (Darjeeling).

Lethe chandica, de Nicéville, 1882, p. 56 (♂♀, Sikkim); Marshall & de Nicéville, 1883, pp. 143, 149; Elwes, 1891, p. 264 (Karen Hills, low elevations).

Debis chandica, Moore, 1892 *a*, p. 247, pl. lxxix, figs. 2, 2 *a*, *b* (♂♀).
Lethe (*Debis*) *chandica*, de Nicéville, 1894 *a*, p. 122 (Sikkim); Watson, 1897, p. 643 (Chin Hills; Upper Chindwin).
Debis chandica, Adamson, 1905, p. 165 (Arracan; Upper Chindwin).
Lethe chandica, Bingham, 1905, p. 94; Tytler, 1911, p. 53 (Naga Hills).
Lethe chandica chandica, Fruhstorfer, 1911, p. 320.
Lethe chandica, South, 1913, p. 347 (Mishmi Hills, 1,000 feet); Ellis, 1917, p. 106 (Pegu Yoma).
Lethe chandica chandica, Evans, 1932 *a*, p. 106.
Lethe chandica flanona, Fruhstorfer, 1911, p. 320 (♂♀, Assam); Evans, 1932 *a*, p. 106, pl. xii, fig. D 3. 30 (♂).

♂. *Upperside* of both wings velvety brownish-black, darkest on the basal half; cilia conspicuously white, alternated with brown; hind wing shaded with ochraceous-red posteriorly, sometimes entirely dark brown, the ocelli of the underside often showing through.

Underside pale greyish ochraceous-brown. Both wings with basal and discal areas shaded with pale purple; sub-basal and discal maroon-brown bands, irregularly sinuous; discal band

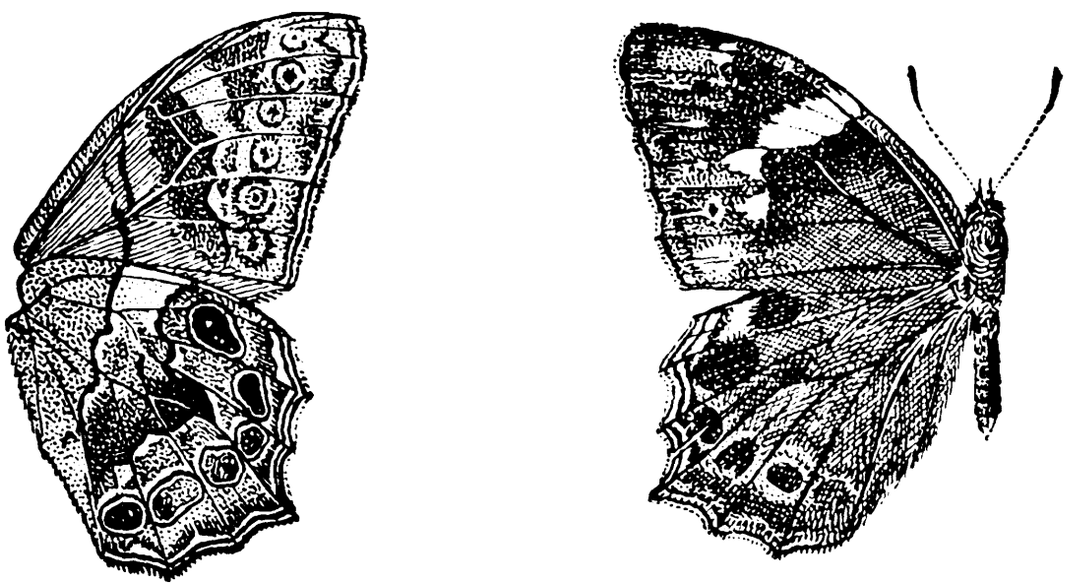


Fig. 68.—*Lethe chandica chandica* (Moore).
♂, underside; ♀, upperside (Sikkim).

of hind wing angulate at vein 4, the space enclosed in the angle dark brown. Fore wing with an almost straight series of four to six pale ocelli; hindwing with a curved series of six better-defined but somewhat irregularly-shaped ocelli, their centres disintegrated. Both wings with submarginal and marginal slender dark lines.

♀. *Upperside* dull ochraceous-red. Fore wing with apical half brown, broadly paler towards the outer margin; a post-discal, broad, angulate white bar, ending posteriorly in a detached white spot; a small subapical white spot; a row of more or less obscure brown ocelli on a pale or whitish

ground. Hind wing with a curved series of black spots, of which the subapical spot is the largest; submarginal and marginal lines, and anal fold, brown.

Underside similar to that of the male, but the bands are broader, the discal band broadly margined on the inner side with dark brown; fore wing with post-discal white bar as above.

Antennæ, head, thorax and abdomen brown, in the female shaded with ochraceous-red.

Expanse: ♂♀, 65–75 mm.

Habitat.—SIKKIM to ASSAM, BURMA, and Siam. More common in Sikkim than in Assam and Burma.

The types of both *chandica* (Moore) and *flanona* Fruhst. belong to the wet season.

302. **Lethe distans** Butler.

Lethe distans, Butler, 1870 *b*, p. 488 (Darjeeling); Marshall & de Nicéville, 1883, pp. 143, 148, ♂; Elwes, 1891, p. 263 (Karen Hills).

Debis distans, Moore, 1892 *a*, p. 248, figs. 1, 1 *a*, *b* (♂♀, types).

Lethe (*Debis*) *distans*, de Nicéville, 1894 *a*, p. 122 (Sikkim, very rare).

Lethe distans, Bingham, 1905, p. 95; Fruhstorfer, 1911, p. 321, t. 95 *c*; Evans, 1932 *a*, p. 106.

♂. *Upperside* bright or ochraceous-brown. Fore wing with one or two subapical pale spots. Hind wing with apical half orange-red; a post-discal curved row of five black spots, of which the anterior two are much the larger.

Underside very similar to that of *chandica* (Moore), the hind wing with a similar series of ocelli having disintegrated centres. Ground-colour of both wings more ochraceous-yellow, and the basal and discal shadings of purple more brownish.

♀. Very similar to that of *chandica*, but upperside ground-colour deeper, more of an orange-red, the apical half of fore wing a darker brown; fore wing with a discal, oblique, short and broad bar, with two detached white spots bent inwards at an angle to it.

Underside colouring similar to that in *chandica*, but clearer and more striking.

Expanse: ♂♀, 70–80 mm.

Habitat.—SIKKIM to the KAREN HILLS; very rare.

Lethe christophi Leech.

This species is distinguished by the prominent black brand on the upperside of the male hind wing. Both sexes, on the upperside, are without markings with the exception of some indistinct ocelli on the hind wing.

Distribution.—NORTH-EASTERN BURMA, Western and Central China, Formosa. Two subspecies, one in Burma.

303. **Lethe christophi christophi** Leech.

Lethe christophi, Leech, 1891, p. 67 (W. China); *id.*, 1892, p. 30, pl. v, figs. 5, 6 (♂♀); Seitz, 1907, p. 83, t. 29 *e*; Tytler, 1939 *a*, p. 245 (♂, N.E. Burma).

♂. *Upperside* earth-brown. Fore wing unmarked. Hind wing with a large black scent-patch or brand in basal part of area 2; a submarginal row of five blind and not very distinct ocelli.

Underside paler; marginal borders usually dark reddish-brown. Both wings crossed by a discal and a post-discal reddish-brown line which is very distinct. Fore wing with from two to four small and indistinct subapical ocelli, the one in area 4 with prominent white centre; a submarginal obscure, angled, reddish-brown line. Hind wing with a row of six small ocelli, the one in area 3 centred with white.

♀. Resembles the male, but has no brand.

Expanse: ♂♀, 70–80 mm.

Habitat.—NORTH-EASTERN BURMA; Western and Central China.

The only record of the occurrence of this species within Indian limits is that of a male taken at Htawgaw, N.E. Burma, in September. (*Tytler*, 1939 *a*).

Lethe naga Doherty.

♂. *Upperside* of fore wing without a brand; neither discal band nor white spots.

Underside with the ocelli perfect, the anterior one very large.

♀. *Upperside* of fore wing with a very broad white band.

Distribution.—ASSAM to the SOUTHERN SHAN STATES and Tong-king.

There are two slightly differentiated seasonal forms. The male of the nominotypical form was discovered by Tytler, who recorded it in 1914.

304. **Lethe naga naga** Doherty.

Lethe naga, Doherty, 1889, p. 123, pl. x, fig. 4 (♀, Margherita).
Dionana naga, Moore, 1892 *a*, p. 272, pl. lxxxvi, fig. 2 (♀, type).
Lethe naga, Bingham, 1905, p. 83.
Lethe naga naga, Fruhstorfer, 1911, p. 318.
Lethe naga, Tytler, 1914, p. 219 (♂♀, Manipur); Evans, 1932 *a*, p. 107.

Wet-season form.—♂. *Upperside* without a discal white band, and all the ocelli usually blind; fore wing apical ocellus sometimes minutely centred with white.

♀. Resembles somewhat *margaritæ* Elwes. Hind wing more rounded, not caudate. *Upperside* ground-colour much paler, more of an ashy-brown. Fore wing with discal white band narrower. Both wings with the ocelli, and submarginal line of hind wing, less distinct.

Underside paler. Fore wing with discal, oblique, white band, and post-discal series of ocelli more or less as in *margaritæ*, the discal band narrower; the ocelli not superposed on a white band, and each ocellus pupilled with white, with inner and outer rings of white, and an intermediate brown ring. Hind wing with a discal, pale, anteriorly lilacine, irregularly curved band, bordered on both sides by brown lines; a strongly curved, post-discal, series of black ocelli, each ocellus with an inner ochraceous, intermediate brown, and outer lilacine ring.

Antennæ, head, thorax and abdomen greyish-brown; thorax and abdomen beneath paler.

Dry-season form.—♂. Smaller. *Upperside* of fore wing with the two anterior ocelli sometimes centred with white. Hind wing with the ocelli in areas 2, 4 and 5 sometimes similarly minutely pupilled.

Underside of fore wing with basal half, and whole of hind wing, darker brown; apical half of fore wing tinged with violet.

♀. Fore wing on both sides, with the white band at costal end produced proximad. *Upperside* ocelli, with exception of costal and tornal ones of hind wing, often minutely centred with white.

Expanse: ♂♀, 70–80 mm.

Habitat.—ASSAM to the SOUTHERN SHAN STATES; rare. The ♀ holotype was taken at Margherita in the Assam Valley. Other specimens were taken by Tytler in Manipur and the Naga Hills, at low elevations; the wet-season form from September to December, the dry-season form in June.

305. **Lethe margaritæ** Elwes.

Lethe (?) *margaritæ*, Elwes, 1882, p. 405, pl. xxv, fig. 1 (♂, Sikkim).
Neorina margaritæ, Marshall & de Nicéville, 1883, p. 136.
Dionana margaritæ, Moore, 1892 *a*, p. 271, pl. lxxxvi, figs. 1, 1 *a*, *b* (♂♀, types).
Lethe (*Dionana*) *margaritæ*, de Nicéville, 1894 *a*, p. 123 (Bhutan, rare).
Lethe margaritæ, Bingham, 1905, p. 83; Fruhstorfer, 1911, p. 318, t. 97 *b*; South, 1913, p. 346 (♂, Mishmi Hills, 5,000 feet); Evans, 1932 *a*, p. 107.

♂. Hind wing broadly caudate. *Upperside* very dark brown; submarginal and marginal thin sinuous lines; cilia ochraceous-white. Fore wing with a discal, oblique, narrow, ochraceous-white band; a post-discal series of four dark brown, broadly white-ringed, spots. Hind wing uniform; a post-discal series of ochraceous-ringed black spots, the posterior one or two pupilled with white.

Underside slightly paler. Both wings with prominent ochraceous-white discal bands and submarginal and marginal lines. Fore wing, in addition, with a post-discal series of

five black ocelli placed on a white band, the ocelli with inner and outer rings of ochraceous and brown; costa suffused with ochraceous-white. Hind wing with distal third ochraceous-white suffused with brown; distal pale area bearing a curved series of black, white-pupilled, ocelli, of which the apical one is very large.

♀. *Upperside* of fore wing with apical area much darker, the discal band broader and purer white.

Underside of fore wing with a white band across the cell. Other markings, on both sides, as in the male.

Expanse: ♂♀, 85–95 mm.

Habitat.—SIKKIM to BHUTAN, and in the MISHMI HILLS; very rare, especially the female. Occurs from about 5,000 to 16,000 feet.

Lethe insana (Kollar).

♂. *Upperside* of fore wing with greyish-brown ground-colour; two minute subapical spots. Hind wing with four round black spots.

Underside of fore wing with the discal line sinuous, and directed to tornus. Hind wing ocelli with their centres not disintegrated.

♀. *Upperside* of fore wing with a discal, broad, sharply-defined white band.

The early stages are known, but are imperfectly described.

"*Lethe insana* ♀, *L. confusa* Auriv. (both sexes), *L. rohria* (Fabr.) ♀, *L. verma* (Koll.) (both sexes), and *Dodona ouida* Moore ♀ (a Riodinid), all found in the same nullahs, have a strong superficial resemblance to one another above, though their undersides differ considerably. Thus *L. insana* ♀ may easily be passed over in mistake for the other more common species." (*Peile*, 1937).

Distribution.—CHAMBA to UPPER BURMA and Tong-king, extending to China and Formosa. Two Indian subspecies.

306 *a*. **Lethe insana insana** (Kollar).

Satyrus insana, Kollar, 1844, p. 448, pl. xvi, figs. 3, 4 (♀, Kashmir).
Lethe insana, Bingham, 1905, p. 81.
Lethe insana insana, Fruhstorfer, 1911, p. 317; Evans, 1932 *a*, p. 107; Wynter-Blyth, p. 724 (1940) (Simla district).
Satyrus hyrania, Kollar, 1844, p. 449, t. xvii, figs. 1, 2 (♂, Simla).
Lethe hyranica, Moore, 1882 *b*, p. 235 (Kangra); Marshall & de Nicéville, 1883, pp. 144, 154, ♂♀; Moore, 1892 *a*, p. 266, pl. lxxxv, figs. 1, 1 *a*, *b*, *c* (♂♀).

♂. *Upperside* rich vandyke-brown to dark brown. Fore wing with discal band showing through from below; two subapical, minute, ochraceous spots. Hind wing uniform;

a post-discal, curved series of four round black spots, the apical spot sometimes elongate; submarginal and marginal slender black lines.

Underside paler. Fore wing with basal half darkest; a discal, broad, oblique, pale bar; a subapical, short, narrow band, bearing three white-centred, obscure, small ocelli; apical area very pale; two short, dark brown, cell bands; a submarginal, inwardly diffuse, narrow, dark brown band. Hind wing with sub-basal, discal, and submarginal slender brown lines; a curved post-discal series of black ocelli, each ocellus with a minute white centre, inner ochraceous, intermediate brown, and outer pale rings.

♀. *Upperside* of fore wing with a post-discal, broad, oblique white band, nearly reaching the tornus; subapical spots white.

Underside of fore wing with a white band as above, margined inwardly by an irregular shading, and outwardly by a triangle of dark brown; outer margin broadly pale yellowish-brown, with three small ocelli in vertical order; submarginal and marginal brown lines as in the male. Hind wing as in the male.

Antennæ, head, thorax and abdomen brown; antennæ annulated with white.

Expanse: ♂♀, 55–60 mm.

Habitat.—CHAMBA to KUMAON; rare. According to Peile (1937) the male is not uncommon at Mussooree in the nullahs at 5,000 to 6,000 feet, the female very scarce. There are two broods: (1) end of April to early June; (2) from end of August to October. Wynter-Blyth (1940) found the insect "common in the middle of September one year in the forest just beyond the Dak-Bungalow at Sungri, 8,500 feet."

306 *b*. **Lethe insana dinarbas** (Hewitson).

Debis dinarbas, Hewitson, 1863, p. 77, *Debis*, pl. iii, fig. 15 (♂, Naga Hills).

Lethe dinarbas, de Nicéville, 1883 *a*, p. 93 (♂, Sikkim: Senchal, 7,000 feet); Marshall & de Nicéville, 1883, pp. 144, 155, ♂; Elwes, 1891, p. 264 (Naga Hills, 7,000 feet); Moore, 1892 *a*, p. 267, pl. lxxxv, figs. 2, 2 *a*, *b* (♂♀); de Nicéville, 1894 *a*, p. 123 (Sikkim, 7,000–9,000 feet); Tytler, 1911, p. 50, pl. A, figs. 3, 4 (♂♀, Naga Hills, 6,000–7,000 feet).

Lethe insana dinarbas, Fruhstorfer, 1911, p. 317, t. 97 *a*; Evans, 1932 *a*, p. 107, pl. xii, fig. D 3. 32; Gough, 1935, p. 261 (Nepal, about 7,000 feet, rare).

Lethe hyrania, Doherty (*non* Koll.), 1886 *a*, p. 115 (Kumaon, 3,000–7,000 feet).

♂♀. *Underside* washed with metallic violet. Hind wing ocelli with a silvery-purple ring. Female with discal white band narrower and straighter than in the nominotypical form.

Habitat.—KUMAON to ASSAM and UPPER BURMA; not rare. Occurs in Sikkim up to 10,000 feet.

307. **Lethe brisanda** de Nicéville.

Lethe brisanda, de Nicéville, 1886 *a*, p. 249, pl. xi, fig. 13 (♀, Bhutan); *id.*, 1887, p. 451, pl. xxxix, fig. 8 (♂, Bhutan); Moore, 1892 *a*, p. 268, pl. lxxxv, figs. 3, 3 *a* (♂♀, types); de Nicéville, 1894 *a*, p. 123 (Sikkim); Tytler, 1911, p. 50, pl. A, figs. 1, 2 (♂♀) (Naga Hills, 5,500–7,000 feet); *id.*, 1939 *a*, p. 244 (N.E. Burma).
Lethe insana brisanda, Fruhstorfer, 1911, p. 318.
Lethe brisanda brisanda, Evans, 1932 *a*, p. 107.

Closely allied to *insana* (Koll.), from which it differs slightly in the genitalia.

♂♀. *Underside* of fore wing with the discal line straight, and reaching inner margin. ♀ with a very narrow white band on fore wing, showing through on upperside.

Genitalia.—Compared with *insana* the uncus and valve are longer, valve with sharper apical process, side-lobes of tegumen apparently thinner and shorter.

♂. *Upperside* chestnut-brown. Fore wing with a discal dusky, sinuous line, its outer edge paler; a subapical pale costal spot. Hind wing with six submarginal, indistinct, blackish, pale-bordered ocelli; a marginal pale line, with dusky inner border.

Underside paler brown; both wings crossed by a sub-basal dark brown line, and an outer short line crossing cell of fore wing, with an intervening lilac band. Fore wing with a discal, oblique, narrow, straight, lilac band of equal width throughout its length; four small black ocelli, each with a white pupil, a brown and a ferruginous ring, and an outer pale ring; marginal line pale bordered. Hind wing with a discal dark brown line, acutely angulate; a series of six prominent ocelli, each with a black centre and white pupil, an ochraceous, an intermediate dark brown, and an outer violaceous ring.

♀. *Upperside* chestnut-brown. Fore wing with more than the distal half fuscous; a white band, posteriorly narrowing, from middle of costa to near tornus, anteriorly tinged with ochraceous, its inner edge straight and sharply defined, its outer edge less regular and diffuse; two subapical, small, ochraceous spots. Hind wing with distal half fuscous, bearing a submarginal series of four black spots placed upon a chestnut band; two marginal, pale, fine lines.

Underside pale ochraceous-brown. Fore wing with two ferruginous fine lines crossing middle of cell; discal bands as above, but somewhat lengthened posteriorly; a submarginal series of four small ocelli, made up of a white pupil, a black ring, a ring of the ground-colour, a ferruginous ring, and an outer pale ring; two marginal fine dark lines. Hind wing with two discal, fine, irregular, ferruginous lines, from costa to vein 1 *b*; a submarginal series of six black ocelli each

with a white pupil, an ochraceous ring, a dark brown ring, and an outer violaceous ring ; apical ocellus much larger than the others ; two marginal, fine, dark lines, inwardly defined by a pale violet line, and enclosing a fine ochraceous line. Cilia pale brown.

Expanse : ♂♀, 55–60 mm.

Habitat.—BHUTAN to ASSAM and North-Eastern Burma ; rare, especially the female. Recorded by Tytler (1939 *a*) from Htawgaw.

308. **Lethe sadona** Evans.

Lethe brisanda sadona, Evans, 1932 *a*, p. 107 (♂, Sadon, Upper Burma).
Lethe sadona, Tytler, 1939 *a*, p. 244 (♂, N.E. Burma : Sadon).

♂. *Upperside* darker than in *brisanda* de Nicév. Hind wing with a tuft of upturned hairs along the upper part of the cell.

Underside markings prominently lilac-blue. Fore wing with the post-discal band more broadly edged with lilac, and at vein 3 directed towards the tornus, ending on the inner margin just before the tornus, and therefore more distad than in *brisanda* ; the lilac bar crossing middle of cell is straight and wider, and is not curved and directed to below the origin of vein 2. Hind wing paler, but otherwise as in *brisanda*.

Expanse : ♂, 56 mm.

Genitalia.—According to Tytler (1939 *a*) the tegumen is tapering and more or less straight. In *brisanda* the tegumen is sharply bent down in the middle.

Habitat.—NORTH-EASTERN BURMA ; very rare. Recorded from Sadon. The male holotype and two others are in the British Museum. The female is unknown.

Lethe serbonis (Hewitson).

♂. *Upperside* of fore wing with a large triangular brand, from middle of inner margin to veins 4 or 5. Hind wing with five black ocelli, only the posterior one with a pupil.

Underside of fore wing with a broad pale bar across the cell ; the outer dark mark in the cell incurved, and well separated from the inner mark.

♀. *Upperside* of fore wing with a post-discal pale band, and a subapical pale spot.

Distribution.—SIKKIM to ASSAM and Western China.

A rather variable species in all parts of its range. The Indian specimens appear to resolve into five subspecies.

309 *a*. **Lethe serbonis serbonis** (Hewitson). (Fig. 69, ♂).

Debis serbonis, Hewitson, 1876, p. 151 (Sikkim).
Lethe serbonis, Marshall & de Nicéville, 1883, pp. 144, 155, ♂.
Debis serbonis, Moore, 1892 *a*, p. 252, pl. lxxx, figs. 3, 3 *a*, 3 *b* (♂♀).

Lethe (*Debis*) *serbonis*, de Nicéville, 1894 *a*, p. 123 (Sikkim, 7,000–9,000 feet).
Lethe serbonis, Bingham, 1905, p. 93.
Lethe serbonis serbonis, Fruhstorfer, 1911, p. 319, t. 98 *b* ; Evans, 1932 *a*, p. 107.

♂♀. Hind wing shortly and broadly caudate at vein 4. *Upperside* rich umber-brown ; both wings with submarginal and marginal slender dark lines. Fore wings of male uniform, of female with a post-discal pale band, and a subapical pale spot. Hind wing with a curved line of five black ocelli, the posterior one white-pupilled, the others blind.

Underside paler. Both wings with the cell crossed by three darker sinuous lines, with a pale conspicuous band between the middle and outer lines ; the intermediate line is prolonged

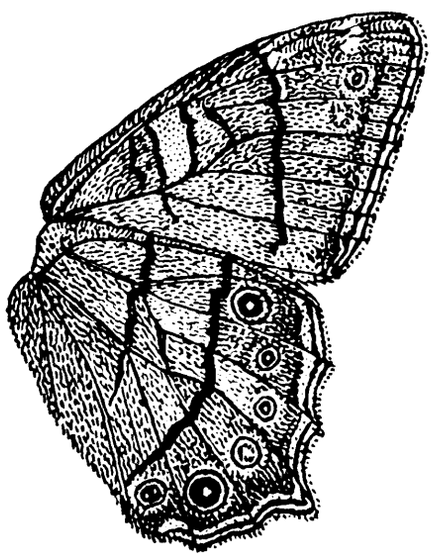


Fig. 69.—*Lethe serbonis serbonis* (How.), ♂ (Sikkim).

across the hind wing, and divides into two below the subcostal vein ; a discal, much broader band, in the female bordered outwardly by pale yellow on the anterior portion of the fore wing ; a post-discal, diffuse, dark band ; submarginal and marginal slender lines ; a post-discal row of obscure black ocelli, two on the fore wing, six on the hind wing ; the ocelli white-pupilled, with an inner and outer ring of pale brown, and an intermediate darker ring.

Antennæ, head, thorax and abdomen brown.

Expanse : ♂♀, 66–74 mm.

Habitat.—Sikkim, excepting the upper part, rare.

309 *b*. Lethe serbonis teesta, subsp. nov.

♂. A smaller form. *Upperside* of fore wing with outer edge of the brand very irregular, not even as in the nominotypical form.

Underside with a reddish-brown tinge ; post-discal line

straighter, less curved anteriorly ; fore wing with an ocellus in area 3. Hind wing with a distinct submarginal, narrow, reddish-brown border, between the ocelli and the inner submarginal line.

♀. Resembles the nominotypical form. *Underside* paler, with less reddish tinge, especially over the distal area of fore wing.

Expanse : ♂♀, 62–66 mm.

Habitat.—NATIVE SIKKIM ; rare. ♂ holotype from Upper Teesta Valley, 30. vi. 1903 (Tibet Exped., H. J. Walton) ; ♀ allotype from Tonglo, 10,000 feet, vii. 1886 (ex. Coll. Elwes). Also in the British Museum from Troomling ; Lachin Lachoong, 8,000–16,000 feet, 1895 ; " Sikkim," 2 ♂♂ ; " Darjeeling," ♂♀. Described from a series of 8 ♂♂, 3 ♀♀ in the British Museum.

309 *c*. **Lethe serbonis bhutya,** subsp. nov.

♂. Resembles *teesta*, but is larger and darker. Also similar to *naganum* Tytl., but is smaller and darker than this.

Underside with more red-brown coloration than in *teesta*. Fore wing with an ocellus in area 3, and sometimes one in area 2.

Habitat.—BHUTAN : Trashiyangsi Valley, 9,000 feet, 11. viii. 1933 (♂ type) ; *id.*, 8,000 feet, 28. vii. 1933. 1 ♂ ; *id.*, 8,000 feet, ix. 1934, 1 ♂ ; Dokyong La, 7,500 feet, 30. vi. 1933, 1 ♂. The specimens noted above are in the British Museum.

309 *d*. **Lethe serbonis naganum** Tytler.

Lethe serbonis naganum, Tytler, 1914, p. 219 (♂♀, Manipur : Kabru Peak, 7,000–8,400 feet ; Naga Hills, 7,000 feet) ; Evans, 1932 *a*, p. 107.

Lethe serbonis, Tytler (*non* Hew.), 1911, p. 53 (Naga Hills, 6,000–7,000 feet, rather rare).

♂♀. Larger than the nominotypical subspecies.

♂. *Upperside* of fore wing with outer edge of the brand very irregular. Both wings much darker than in the nominotypical form. Fore wing with post-discal area less conspicuously paler than rest of wing.

Underside much darker than in the nominotypical form ; markings red-brown.

♀. Similar to the male. *Upperside* of fore wing with post-discal band more conspicuous, and distal area paler ; costal and subapical spots more conspicuous.

Underside brighter, with strong golden-brown coloration.

Expanse : ♂♀, 70–75 mm.

Habitat.—ASSAM : Manipur and the Naga Hills, 7,000 to 8,400 feet ; not common.

309 *e*. **Lethe serbonis pallida** Tytler.

Lethe serbonis pallida, Tytler, 1939 *a*, p. 245 (♂♀, N. E. Burma).

♂♀. Smaller than *naganum* Tytler. Wings on both sides paler, especially on underside which is much paler.

Habitat.—North-Eastern Burma.

Described from a male and female obtained at Htawgaw in July.

310. **Lethe vindhya** (C. Felder).

Debis vindhya, C. Felder, 1859, p. 402.
Lethe vindhya, Marshall & de Nicéville, 1883, pp. 143, 146, ♂; Elwes, 1891, p. 263 (Naga Hills; Karen Hills, 4,000–5,000 feet).
Debis vindhya, Moore, 1892 *a*, p. 250, pl. lxxxi, figs. 1, 1 *a*, *b*, *c* (♂♀, Khasi Hills, wet-season brood), 1 *d* (♂, Khasi Hills, dry-season brood), 1 *e* (♀, dry-season brood).
Lethe (*Debis*) *vindhya*, de Nicéville, 1894 *a*, p. 122 (Sikkim, very rare); Watson, 1897, p. 643 (Upper Chindwin).
Debis vindhya, Adamson, 1905, p. 165 (Burma).
Lethe vindhya, Bingham, 1905, p. 92, pl. ii, fig. 15; Tytler, 1911, p. 53 (Naga Hills).
Lethe vindhya vindhya, Fruhstorfer, 1911, p. 319, t. 98 *b*.
Lethe vindhya, Ellis, 1917, p. 106 (Pegu Yoma); Evans, 1932 *a*, p. 107.
Lethe alberta, Butler, 1871*a*, p. 283 (♂, "Benares"); Marshall & de Nicéville, 1883, pp. 143, 147, ♂.
Debis dolopes, Hewitson, 1872, p. 85 (♀, Sikkim).
Lethe dolopes, Marshall & de Nicéville, 1883, pp. 143, 147, ♀.
Lethe vindhya vindhya f. *dolopes*, Fruhstorfer, 1911, p. 319 (=dry-season form).
Lethe vindhya ladesta, Fruhstorfer, 1911, p. 319 (Tenasserim).

Wet-season form **vindhya** (C. Feld.) (*alberta* Butl.).—♂♀. Resembles *kansa* (Moore), but the wings are comparatively broader in proportion to length; hind wing more produced at vein 4. *Upperside* dark umber-brown, sometimes suffused with ochraceous, but never olivaceous. Both wings with proximal half distinctly and abruptly darker than distal half; male without subapical spots, but these sometimes indicated in the female. Hind wing with a post-discal series of black, fulvous-ringed, spots, larger than in *kansa*.

Underside much darker than in *kansa*, the proximal two-thirds in striking contrast to the paler purple-tinted distal third; sub-basal lines as in *kansa*, but outwardly broadly bordered with purple; discal lines and ocelli as in *kansa*; apical area of fore wing purplish.

Antennæ ochraceous-brown, annulated with white; head, thorax and abdomen umber-brown; abdomen whitish beneath.

Dry-season form **dolopes** (Hew.) (*ladesta* Fruhst.).—♂♀. Distinguished chiefly only by the paler ground-colour, and by the ocelli being less distinct.

Expanse: ♂♀, 65–70 mm.

Habitat.—SIKKIM to BURMA, Malaya, and Tong-king; not rare.

The type of *dolopes* (Hew.), described as a female, is a female to which a male abdomen has been fixed.

311. **Lethe kansa** (Moore).

Debis kansa, Moore, 1857, p. 220.
Lethe kansa, de Nicéville, 1881, p. 55 (Sikkim); *id.* 1882, p. 56 (♂♀, Sikkim); Marshall & de Nicéville, 1883, pp. 143, 145; Elwes, 1891, p. 263 (Karen Hills, 3,000–5,000 feet).
Debis kansa, Moore, 1892*a*, p. 241, pl. lxxviii, figs. 1, *a*, *b* (♂♀).
Lethe (*Debis*) *kansa*, de Nicéville, 1894*a*, p. 122 (Sikkim, to 9,000 feet, common).
Debis kansa, Adamson, 1905, p. 165 (Upper Chindwin).
Lethe kansa, Bingham, 1905, p. 92; Hannyngton, 1910, p. 135 (Kumaon, 4,500–8,000 feet); Tytler, 1911, p. 53 (Naga Hills).
Lethe kansa kansa, Fruhstorfer, 1911, p. 318.
Lethe kansa, South, 1913, p. 347 (♀, Mishmi Hills, 2,000 feet); Evans, 1932*a*, p. 108, pl. xii, fig. D 3. 38 (♂).
Lethe kansa zeugitana, Fruhstorfer, 1911, p. 318, t. 98*a* (Assam; Burma).
Lethe kansa vaga, Fruhstorfer, 1911, p. 318 (Tenasserim; Tong-king).

Wet-season form **kansa** (Moore).—♂♀. Hind wing conspicuously caudate at vein 4. ♂. *Upperside* brown, with an olivaceous-green, sometimes ochraceous-red, tint in certain lights. Fore wing uniform; an obscure brand, from inner margin to veins 4 or 5; three somewhat obscure subapical spots in vertical order. Hind wing with a curved series of five black, partially fulvous-ringed, ocelli, the second and fourth the largest, the third minute; submarginal and marginal dark lines, with an intermediate ochraceous line.

Underside pale vinaceous-brown. Both wings crossed by sub-basal and discal, narrow, maroon-brown bands; submarginal and marginal dark lines, edged inwardly with lilacine. Fore wing with apical area lilacine-white; a series of five pale and obscure ocelli. Hind wing with a series of six black ocelli with white centres, and with rings of ochraceous-yellow, brown, and lilacine-white; a conspicuous small white triangular spot near tornus.

♀. Differs only from the male in having on both sides of the fore wing a distinct discal, irregularly sinuous, dark line, outwardly bordered by white spots.

Antennæ, head, thorax and abdomen brown; beneath somewhat ochraceous.

Dry-season form **vaga** Fruhst.—♂♀. *Underside* paler, more uniform in colour, and with smaller ocelli.

Expanse: ♂♀, 65–75 mm.

The names *zeugitana* Fruhst., and *vaga* Frusht., supposed to represent subspecies, denote merely wet-season and dry-

season forms respectively. The type of *kansa* is a dark male of the extreme wet season.

Habitat.—KUMAON to BURMA, Tong-king, and Siam; common.

312. **Lethe sinorix** (Hewitson).

Debis sinorix, Hewitson, 1863, p. 78, *Debis*, pl. iii, figs. 19, 20 (♂).
Lethe sinorix, Marshall & de Nicéville, 1883, pp. 143, 144, ♂; Elwes, 1891, p. 262 (Naga Hills; Karen Hills, 4,000–5,000 feet).
Debis sinorix, Moore, 1892 *a*, p. 243, pl. lxxviii, figs. 3, *a*, *b* (♂♀).
Lethe (*Debis*) *sinorix*, de Nicéville, 1894 *a*, p. 122 (Sikkim, rare).
Lethe sinorix, Bingham, 1905, p. 94; Tytler, 1911, p. 53 (Naga Hills, 5,000 feet); Fruhstorfer, 1911, p. 319, t. 98 *b*; Evans, 1932 *a*, p. 108, pl. xii, fig. D 3. 39 (♀).

♂♀. Resembles *kansa* (Moore), from which it differs in the characters mentioned in the key, and also as follows:—

♂. *Upperside* of fore wing with a discal, very distinct, dark line; subapical white spots larger and more conspicuous. Hind wing with the black spots placed on a broad band of rich ochraceous-red.

Underside similar to that of *kansa*, but of a lighter vinaceous tint.

♀. *Upperside* of both wings with ochraceous-red, rarely olivaceous-brown, ground-colour. Fore wing with discal white band, and subapical white spots, more distinctly marked; basal half very often ochraceous-red. Hind wing with a curved, post-discal, series of black spots as in the male, placed on an ochraceous-red ground, which colour spreads inwards almost to the base.

Underside as in the male.

Expanse: ♂♀, 70–78 mm.

Habitat.—SIKKIM to BURMA and Malaya; rare. The species is found also in South-Eastern China, but this subspecies is apparently undescribed.

313. **Lethe scanda** (Moore).

Debis scanda, Moore, 1857, p. 218, ♂.
Lethe scanda, Marshall & de Nicéville, 1883, pp. 138, 139, ♂; de Nicéville, 1885 *b*, p. 2 (♀, Darjeeling, 6,800 feet).
Rangbia scanda, Moore, 1891, p. 232, pl. lxxv, figs. 4, 4 *a*, *b* (♂♀).
Lethe (*Rangbia*) *scanda*, de Nicéville, 1894 *a*, p. 121 (Sikkim, 6,000–8,000 feet).
Lethe scanda, Bingham, 1905, p. 88; Tytler, 1911, p. 52 (♂, Naga Hills, 7,000 feet); Fruhstorfer, 1911, p. 323, t. 97 *e*; Evans, 1932 *a*, p. 108, pl. xii, fig. D 3. 40 (♂).
Debis nada, Moore, 1857, p. 218, ♀.
Zophoessa dirphia, Druce, 1875, p. 357 (♀, Darjeeling).

♂. *Upperside* of fore wing with a long narrow brand along vein 1 *b*. Hind wing, at base of vein 3, with a brand, overlapped by a tuft of long hairs. Ground-colour of both wings deep indigo-blue, broadly silvery-blue towards outer margin.

Hind wing with three, somewhat obscure, dusky black ocelli; broadly but shortly caudate at vein 4.

Underside dark ferruginous. Both wings with submarginal and marginal olivaceous-brown or yellowish lines; cilia white. Fore wing with basal area, inner margin, an oblique band across the cell, and a discal band, olivaceous-brown; a straight row of four, obscure, minutely white-pupilled, ocelli. Hind wing with basal area to the line of ocelli more or less olivaceous-brown, and crossed by two dark lines; a post-discal row of black, white-pupilled ocelli, each ocellus with an inner fulvous and outer silvery-purple ring.

♀. *Upperside* vandyke-brown. Fore wing with a yellow, oblique, somewhat obscure discal bar; three obscure ocelli, with a yellow anterior spot beyond. Hind wing with four similar ocelli.

Underside similar to that of the male. Fore wing with bands crossing cell and discal area yellowish-white. Hind wing with the outer of the two basal dark lines bordered with dull yellow.

Antennæ brown, ferruginous beneath, with a black spot before the tip; head, thorax and abdomen purplish-brown.

Expanse: ♂♀, 58–65 mm.

Habitat.—SIKKIM to ASSAM, and the Mishmi Hills, up to 9,000 feet; rare.

Lethe latiaris (Hewitson).

♂. *Upperside* of fore wing with narrow brands on veins 1 *b* to 6.

♂♀. *Upperside* of fore wing, in ♀, with a pale brown band. Hind wing dentate, not caudate at vein 4.

Underside of fore wing in female, with a narrow white band. Ground-colour pale brown. Fore wing without a pale band in cell.

Seasonal forms are slightly distinguished, the wet one being darker on both sides.

Distribution.—SIKKIM to the KAREN HILLS and Tong-king. Two subspecies, both found in the Indian area.

314 *a*. **Lethe latiaris latiaris** (Hewitson).

Debis latiaris, Hewitson, 1863, p. 74, *Debis*, pl. i, fig. 4 (♀).
Lethe latiaris, Marshall & de Nicéville, 1883, pp. 138, 140, ♂♀; Butler, 1885 *a*, p. 300 (" near Assam ").
Rangbia latiaris, Moore, 1892 *a*, p. 236, pl. lxxvi, figs. 3, 3 *a*, *b* (♂♀).
Lethe (*Rangbia*) *latiaris*, de Nicéville, 1894 *a*, p. 122 (Sikkim, 6,000–8,000 feet); Watson, 1897, p. 643 (Chin Hills, 3,500 feet).
Lethe latiaris, Bingham, 1905, p. 90; Tytler, 1911, p. 53 (Naga Hills, 5,000–7,000 feet).
Lethe latiaris latiaris, Fruhstorfer, 1911, p. 323; Evans, 1932 *a*, p. 108 (part.).

♂. *Upperside* dark vandyke brown; cilia ochraceous-white; in some specimens the ocelli on underside of hind wing show through.

Underside paler. Fore wing with two dark lines across the cell, the inner one continued to vein 1 *b*; a discal oblique line, bordered outwardly by faint lilacine; a post-discal series of four, partially obsolescent, brown-centred and brown-ringed, small pale ocelli, the series bordered on both sides by faint dark bands. Hind wing with a sub-basal, straight, narrow, umber-brown band; a discal, sinuous band of the same colour; a curved series of six ocelli, similar to those on the fore wing, but pupilled with white. Both wings with submarginal and marginal slender brown lines, the discocellulars defined with brown.

♀. Similar to the male. *Upperside* of fore wing with a subapical ochraceous spot, and a discal ochraceous line.

Underside of fore wing with a broad lilacine border to the discal band.

Antennæ ochraceous, annulated with white; head, thorax and abdomen brown, paler beneath; , thorax above with dark bluish-green pubescence.

Expanse: ♂♀, 55–65 mm.

Habitat.—SIKKIM to BHUTAN and ASSAM; rare.

314 *b*. **Lethe latiaris perimele** Fruhstorfer.

Lethe latiaris perimele, Fruhstorfer, 1911, p. 323, t. 97 *c* (Tenasserim: Tandong, 4,000 feet).

Lethe latiaris, Elwes (*non* Hew.), 1891, p. 262 (Karen Hills, 4,000–5,000 feet).

♂. *Upperside* paler than in the nominotypical form.

Underside paler. Fore wing with post-discal line straighter, not curved inwards below vein 9, and posteriorly nearer the tornus. Hind wing with ocelli placed nearer the margin, the dark submarginal border therefore narrower.

♀. Paler, especially on underside. Fore wing with discal band whiter, and posteriorly nearer the tornus than in the nominotypical form. Hind wing as in the male.

Habitat.—PEGU to the KAREN HILLS, and in Tong-king; not common.

Lethe gulnihal de Nicéville.

♂. *Upperside* of fore wing with a brand along the middle of vein 1 *b*; inner margin strongly excurved. Hind wing with a brand in the base of areas 5 and 6, covered by a hair-pencil.

Underside of hind wing with the sub-basal line zigzag.

♀. *Upperside* of fore wing with three post-discal yellow spots, and two discal white ones.

Underside similar to that of the male.

Distribution.—BHUTAN to BURMA and Tong-king. Two Indian subspecies.

315 *a*. **Lethe gulnihal gulnihal** de Nicéville.

Lethe gulnihal, de Nicéville, 1887, p. 450, pl. xxxix, fig. 7 (♂, Bhutan).
Rangbia gulnihal, Moore, 1892 *a*, p. 234, pl. lxxvi, fig. 2 (♂, type).
Lethe (*Rangbia*) *gulnihal*, de Nicéville, 1894 *a*, p. 122 (Sikkim, very rare); *id.*, 1895 *a*, p. 259, pl. N, fig. 1 (♀, Bhutan).
Lethe gulnihal, Bingham, 1905, p. 89; Tytler, 1911, p. 53 (Naga Hills, 1,700 feet).
Lethe gulnihal gulnihal, Fruhstorfer, 1911, p. 323; Evans, 1932 *a*, p. 108.

♂. Resembles *bhairava* (Moore), but is considerably smaller. *Upperside* ground-colour richer and darker, without spots.

Underside golden-brown; proximal half, in some specimens, darker than the distal half; the lines or bands and the ocelli as in *bhairava*, but the former more irregularly sinuous, the latter much smaller. Fore wing with the cell-bars posteriorly convergent.

♀. *Upperside* only differs from the female of *bhairava* in the smaller markings of fore wing, and in the ocelli on the hind wing being without any distinct iris.

Underside bright ochraceous; proximal half slightly darker, and more or less sharply demarcated from the brighter distal half by a discal dark line; discal line on fore wing outwardly oblique, and margined by three or four white spots, on hind wing inwardly oblique; basal and median lines as in the male; ocelli ill-defined, smaller, almost obsolete.

Antennæ, head, thorax and abdomen brown; antennæ annulated with white.

Expanse: ♂♀, 58–64 mm.

Habitat.—BHUTAN to NORTHERN BURMA; very rare.

315 *b*. **Lethe gulnihal peguana** (Moore).

Rangbia peguana, Moore, 1892 *a*, p. 235 (Pegu).
Lethe gulnihal var. *peguana*, Bingham, 1905, p. 90.
Lethe gulnihal peguana, Fruhstorfer, 1911, p. 323; Evans, 1932 *a*, p. 108.
Lethe gulnihal var., Elwes, 1891, p. 263 (♂♀, Karen Hills, 2,000–5,000 feet).
Lethe gulnihal peguana f. *issa*, Fruhstorfer, 1911, p. 323 (Saipha, Upper Burma) (= dry-season form).

Wet-season form **peguana** (Moore).—♂. *Upperside* rich claret-brown.

Underside more ochraceous than in the nominotypical form, the lines more sinuous, the cell-bars on fore wing parallel.

♀. Paler brown. Fore wing with white discal spots absent or only indicated.

Dry-season form **issa** Fruhst.—♂♀. *Upperside* paler, the hair-pencil on hind wing standing out very distinctly.

Underside uniform yellowish-grey, with the markings obsolescent.

Habitat.—KAREN HILLS to the DAWNA RANGE, and in Tong-king; rare. The dry form *issa* Fruhst. occurs also with the nominotypical form.

316. **Lethe bhairava** (Moore).

Debis bhairava, Moore, 1857, p. 217, ♀.
Lethe bhairava, Marshall & de Nicéville, 1883, pp. 138, 139, ♂♀ Elwes, 1891, p. 262 (Naga Hills, 6,000–7,000 feet).
Rangbia bhairava, Moore, 1892 *a*, p. 233, pl. lxxvi, figs. 1, 1 *a*, 1 *b* (♂♀).
Lethe (*Rangbia*) *bhairava*, de Nicéville, 1894 *a*, p. 122 (Sikkim, 6,000–8,000 feet, rare).
Lethe bhairava, Bingham, 1905, p. 89; Tytler, 1911, p. 52 (Naga Hills, 7,000 feet); Fruhstorfer, 1911, p. 323, t. 97 *e*; Evans, 1932 *a*, p. 108.
Debis anysis, Hewitson, 1862, p. 73, *Debis*, pl. i, fig. 1 (♂).

♂. *Upperside* of fore wing marked as in the female of *gulnihal* de Nicév.; a brand on vein 1 *b* as in that species; inner margin not excurved. Hind wing with a brand in the basal half of areas 4 to 6.

♂♀. *Upperside* deep rich umber-brown, cilia brownish-white. Fore wing with proximal half slightly darker, the outer edge of this area oblique and well-defined; female with one or two discal white spots, and both sexes with a post-discal series of three yellow spots. Hind wing more elongate in the female than in the male; a post-discal series of four blind ocelli, each ocellus pale-ringed in male, in female ringed broadly with ochraceous.

Underside similar to that of *scanda* (Moore), but ground-colour a lighter, brighter ferruginous. Fore wing with cell-band and discal band dark ferruginous, the latter band in the female bordered by a few white spots. Hind wing ocelli with outer ferruginous, not silvery purple, rings.

Antennæ as in *scanda* (Moore); head, thorax and abdomen brown; thorax with bluish-green pubescence above.

Expanse: ♂♀, 65–75 mm.

Habitat.—SIKKIM to ASSAM and the DAWNA RANGE; not rare.

Lethe verma (Kollar).

♂. *Upperside* of hind wing with an anterior dark brand.

♂♀. *Upperside* of fore wing with a broad white band, no subapical spots.

Underside of fore wing with a single, obscure, pale bar in the cell. Hind wing basal area crossed by two sinuous silvery lines.

Distribution.—KASHMIR to BURMA, Malaya, Siam, Tongking, Hainan, Formosa, and China. Three subspecies in the Indian area.

317 *a*. **Lethe verma verma** (Kollar). (Fig. 70, ♂).

Satyrus verma, Kollar, 1844, p. 447, t. xvi, figs. 1, 2 (♂, Simla).
Tanisma verma, Moore, 1882, p. 235 (Kangra).
Lethe verma, Marshall & de Nicéville, 1883, pp. 157, 158 (part., *non* pl. x).
Lethe (*Tanisma*) *verma*, Doherty, 1886 *a*, p. 117 (Kumaon, 2,500–6,000 feet).
Lethe verma, Butler, 1888, p. 135 (North-East Punjab).
Tanisma verma, Moore, 1892 *a*, p. 273, pl. lxxxvi, figs. 3, 3 *a*, *b* (♂♀).
Lethe (*Tanisma*) *verma*, MacKinnon & de Nicéville, 1897, p. 215 (Mussooree).
Lethe verma, Bingham, 1905, p. 84, fig. 21 (♂); Hannyngton, 1910, p. 134 (Kumaon, 6,000–8,000 feet).
Lethe verma verma, Fruhstorfer, 1911, p. 324; Evans, 1932 *a*, p. 108; Peile, 1937, p. 90, pl. xi, fig. 92 (♀).

♂♀. *Upperside* brown. Fore wing with a discal, broad, even, oblique, white band, terminating near the margin above vein 2, in the female continued below vein 2. Hind wing with a post-discal small, obscure, white-centred black ocellus in area 2. Both wings with faintly marked, pale submarginal and marginal lines.

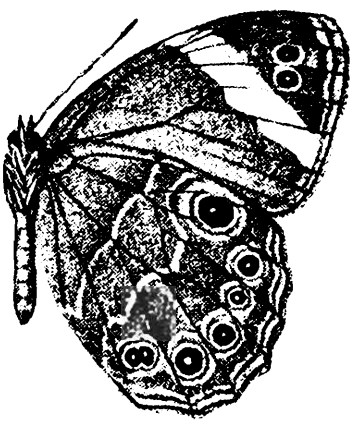


Fig. 70.—*Lethe verma verma* (Koll.) ♂. Underside.

Underside with similar ground-colour. Fore wing with white band as above; two white-centred, ochraceous-ringed, black ocelli. Hind wing with two very irregular sinuous brown lines, slightly scaled with lilac; a post-discal, strongly arched, series of white-centred black ocelli, each ocellus with an ochraceous, a brown, and a silvery ring. Both wings with submarginal and marginal pale ochraceous lines.

Antennæ, head, thorax and abdomen brown; antennæ tipped with ochraceous.

Expanse: ♂♀, 55–60 mm.

Habitat.—KASHMIR to KUMAON; common.

317 *b*. **Lethe verma sintica** Fruhstorfer.

Lethe verma sintica, Fruhstorfer, 1911, p. 324 (Sikkim ; Assam) ; Evans, 1932 *a*, p. 109 ; Gough, 1935, p. 261 (Nepal, about 7,000 feet, rare).
Debis verma, Moore, (*non* Koll.), 1865 *a*, p. 767 (" Bengal ").
Lethe verma, Moore, 1879 *a*, p. 824 (Upper Tenasserim).
Lethe (*Tanisma*) *verma*, de Nicéville, 1882, p. 56 (Sikkim).
Lethe verma, Marshall & de Nicéville, 1883, pl. x, fig. 23 (♂, Shillong) ; Butler, 1885 *a*, p. 301 (" near Assam ").
Lethe (*Tanisma*) *verma*, de Nicéville, 1894 *a*, p. 123 (Sikkim, 4,000–8,000 feet) ; Watson, 1897, p. 644 (Chin Hills, 5,500 feet ; Manipur).
Tanisma verma, Adamson, 1905, p. 166 (Burma).
Lethe verma, Tytler, 1911, p. 52 (Naga Hills, 5,000–7,000 feet) ; South, 1913, p. 347 (♂, Mishmi Hills, 2,000 feet).

♂♀. Larger than the nominotypical form. *Upperside* of fore wing with white band wider, sometimes yellowish. Hind wing usually with an ocellus in areas 2 and 3.

Underside of hind wing with the lines distinctly bluish.

In both sexes the white band is of variable width ; specimens with the widest bands occur in Sikkim and Assam.

Habitat.—SIKKIM to ASSAM, and NORTHERN BURMA ; common. Also recorded from NEPAL (Gough, 1935).

317 *c*. **Lethe verma stenopa** Fruhstorfer.

Lethe verma stenopa, Fruhstorfer, 1908 *d*, p. 127 (Tong-king) ; *id*., 1911, p. 324, t. 99 *b* (Tong-king ; Hainan ; Shan States ; Tenasserim) ; Evans, 1932 *a*, p. 109, pl. xii, fig. D 3. 44 (♂).

♂♀. A smaller subspecies. *Upperside* of fore wing with the band narrower, rather yellowish.

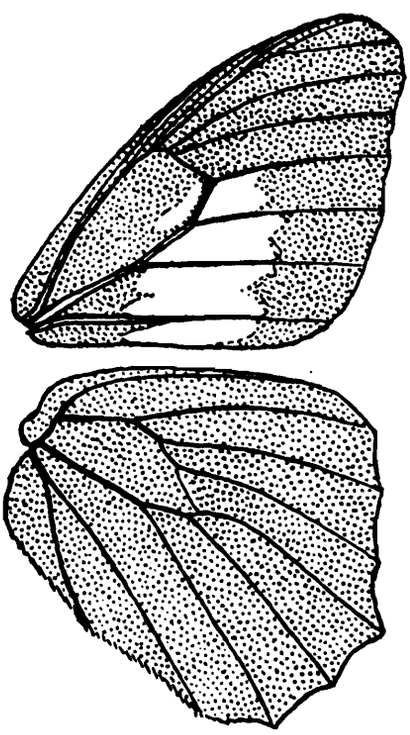


Fig. 71.—*Lethe yama yama* (Moore).
Venation of male.

Underside of hind wing with the ocelli small.

Expanse : ♂♀. 50–55 mm.

Habitat.—SHAN STATES to SOUTHERN BURMA, Siam, Tongking, and Hainan.

Yama Group. (*Neope* Butl., *Blanaida* Kirby, *Patala* Moore).

Key to Species.

1. Fore wing on both sides with a number of large yellow or whitish spots, always two in area 3. — 2.
   Fore wing upperside without pale spots or markings, except the ocellar rings . — 5.
2. Fore wing upperside always with two pale spots in area 2; vein 1 *b*, the median, and bases of veins 2 and 3, yellow. . . — 3.
   Fore wing on both sides with only one pale spot in area 2; none of the veins are yellow. . — 4.
3. Fore wing upperside rarely with a spot beyond the cell in area 5; if such a spot be present, it is placed in line with the spot in area 4, not well behind it; underside with the costal bar beyond the cell, oblique. — [p. 231. *pulaha* (Moore),
   Fore wing upperside, beyond the cell in area 5, with a spot in continuation of the two costal spots; underside with pale costal bar placed at right angles to costa, and continued to vein 4 . . — [p. 234. *pulahina* Evans,
4. Hind wing underside without an ocellus in area 1 *a*; upperside, in wet form, distally brown, except for yellow ocellar rings, and in dry form, distally yellow. Fore wing upperside with pale bars in cell, obscure; underside with central pale bar in cell strongly angled, and behind it a similar angled bar. . — [(Oberth.), p. 23 *armandii*
   Hind wing underside with an ocellus in area 1 *a*. Fore wing upperside with two prominent pale bars in cell; underside with central pale bar in cell oblique but straight, and behind it only a pale detached bar against upper edge of cell. . — [p. 236. *bhadra* (Moore),
5. Underside discal band with a prominent pale edging, and on fore wing curved distad posteriorly; fore wing ocelli large, with prominent pupils. ♀ fore wing with prominent black spots edged outwardly with dull yellow. — R. Feld), [p. 236. *muirheadi* (C. &
   Underside discal band with a very obscure white edging, and on fore wing straight; fore wing ocelli small and obscure, the one in area 2 not larger than the others. ♀ fore wing with black spots not strongly marked. — [p. 237. *yama* (Moore),

Lethe pulaha (Moore).

A typical example of this group of large species, formerly known as *Neope* Butl., all with a characteristic mottled underside, and both wings bearing a submarginal row of ocelli.

♂. *Upperside* of fore wing with an obscure brand from vein 1 *b* to 4

♂♀. *Upperside* chocolate-brown, the basal areas chestnut. Fore wing with costal area bearing ochraceous bands, each continued as a row of yellow dots.

Underside of hind wing with a discal, irregular, band, variegated with white, and with a white outer border.

Habits.—Frequents dark woods, in which it often rests on the trunks of oak, sycamore and wild chestnut. Peile (1937) notes that it has a fast flight, usually a foot or two from the ground. It often settles on the trunks of oaks, at about seven feet from the ground, the underside of the wings blending perfectly with the bark.

Distribution.—North-Western Himalayas to Assam and Karen Hills, extending to Tong-king, Formosa, and China. Three Indian subspecies.

318 *a*. **Lethe pulaha pulaha** (Moore).

Lasiommata pulaha, Moore, 1857, p. 227.
Neope pulaha, Moore, 1865 *a*, p. 770 ("Bengal"); Marshall & de Nicéville, 1883, p. 130, pl. xi, fig. 25 (♀, Sikkim).
Blanaida pulaha, Moore, 1892 *a*, p. 303, pl. xciv, fig. 1 (♂); de Nicéville, 1894 *a*, p. 126 (Sikkim, 9,000–11,000 feet).
Lethe pulaha, Bingham, 1905, p. 102 (part.).
Lethe pulaha pulaha, Fruhstorfer, 1911, p. 325 (part.); Evans, 1932 *a*, p. 109, pl. xi, fig. D 3. 45 (♂) (part.).

Dry-season form **pulaha** (Moore).—♂♀. Hind wing more shortly caudate than in *bhadra* (Moore). *Upperside* dark brown; base of fore wing, and posterior half of hind wing clothed with long, soft, paler brown hairs. Fore wing with basal halves of veins 1 *b* and 2, the median, and discocellulars entirely ochraceous-white; discal and submarginal, irregular, curved rows of ochraceous-white spots, from costa to area 2; between the rows of spots, a similar spot in area 4, and two very short streaks in area 1 *b*. Hind wing with basal half uniform; outer half with two anterior rows of spots similar to those on fore wing. Cilia brown, alternated with white.

Underside somewhat similar. Fore wing with basal half of areas 1 *b* and 2, some spots and streaks in the cell, and the posterior spots of the discal and submarginal series bright ochraceous; apical area mottled with purple, white, and dark brown. Hind wing richly blotched and mottled with purple, freckled with brown, and marked with dark umber-brown sinuous bands and lines. One or two black, white-centred ochraceous-ringed ocelli on fore wing, and a post-discal, strongly curved series of similar ocelli on hind wing.

Antennæ brown, annulated with white, club ferruginous; head, thorax and abdomen brown, paler beneath.

Wet-season form **plagiata** nov.—♂♀. Larger than the dry-season form, with which it agrees in the markings of *upperside*.

Underside markings as in the wet form of the North-Western subspecies, *pandyia* nov

Expanse : ♂♀, 66–72 mm.

Habitat.—SIKKIM to BHUTAN ; not rare. Form *plagiata* : Sikkim, 7,000 feet, 20. viii. 1886 (H. J. Elwes) (♂ holotype) ; Zulla Valley, 8 000 feet (H. J. Elwes) (♀ allotype). Also from Sikkim, at 7,500 to 9 000 feet, 6 ♂♂ ; Bhutan, 7,500 feet, 1 ♂.

318 *b*. **Lethe pulaha pandyia,** subsp. nov.

Lethe (*Neope*) *pulaha,* Doherty (*non* Moore), 1886 *a*, p. 117 (Kumaon, 7,000–8,000 feet, rare).

Blanaida pulaha, MacKinnon & de Nicéville, 1897, p. 216 (Mussooree, 6,000–7,000 feet).

Lethe (*Neope*) *pulaha,* Hannyngton, 1910, p. 135 (Kumaon, rare).

Lethe pulaha pulaha, Peile, 1937, p. 90, pl. xi, fig. 90 (♀) (Mussooree ; Kumaon) ; Wynter-Blyth, p. 724, 1940 (Simla district).

Dry-season form **pandyia** nov.—♂♀. Smaller than the nominotypical subspecies. *Upperside* more ochraceous, and paler over the proximal areas, especially in the female ; the spots in the female tend to be larger.

Underside of fore wing with the spots in areas 2 and 3 larger and closer together than in the wet form. Hind wing with ocelli reduced.

Wet-season form **pulla** nov.—♂. *Upperside* with the spots smaller than in the nominotypical subspecies. Fore wing with cell-spot at upper angle enlarged, not forming a distinct bar across the cell.

Underside of hind wing with narrower darker markings.

Expanse : ♂♀, 64–68 mm.

Habitat.—NORTH-WESTERN HIMALAYAS.—Form *pandyia* : Mussooree, 5,500 feet, 2. v. 1914 (H. D. Peile) (♂ holotype) ; *id.*, 26. iv. 1913 (H. D. Peile) (♀ allotype) ; *id.*, 2 ♂♂, 4 ♀♀, April and May (H. D. Peile) ; *id.*, 1 ♂, April (W H. Evans) ; Kumaon, 1 ♀ (Evans).

Form *pulla* : "Punjab Hills" (Baden-Powell, ex Coll. Moore) (♂ type) ; Nepal, 1 ♂ (ex Coll. Moore) ; Kumaon, 1 ♂ (ex Coll. Evans).

MacKinnon and de Nicéville (1897) record that the species is not common at Mussooree, but is more common in the Ganges Valley, at about 8,000 feet, in July.

Wynter-Blyth (1940) records it as rare in the Simla district.

318 *c*. **Lethe pulaha pulahoides** (Moore).

Blanaida pulahoides, Moore, 1892 *a*, p. 304, pl. xciv, fig. 2 (♂, Karen Hills).

Lethe pulaha pulahoides, Bingham, 1905, p. 102.

Lethe pulahoides, Tytler, 1911, p. 53 (Naga Hills, 5,000–6,000 feet).

Neope pulaha pulahoides. Fruhstorfer, 1911, p. 325 ; Evans, 1932 *a*, p. 109.

Neope pulaha, Elwes (*non* Moore), 1891, p. 265 (Karen Hills, 4,000–5,000 feet; Naga Hills).
Blanaida pulaha, de Nicéville, 1899, p. 330 (Taungoo Hills, 4,000 feet).

♂♀. The large pale spots of the upperside, and the pale underside, give this the appearance of a dry form; the ocelli, however, are complete. *Upperside* of fore wing with the pale bar before end of cell continued across the cell at full width; the edging to basal portions of veins 1 *b*, 2, and median is broader.

Habitat.—ASSAM to KAREN HILLS, and in Tong-king; rare.

319. **Lethe pulahina** Evans.

Lethe pulahina, Evans, 1924, p. 536; *id.*, 1932 *a*, p. 109 (Sikkim to Manipur); Tytler, 1939 *a*, p. 246 (♂, N. E. Burma).

♂♀. *Upperside* somewhat resembles *pulaha pulahoides* (Moore), but the spots are ochraceous. Fore wing with apex less produced than in *pulaha* (Moore); area 5 with a small post-discal spot, placed just below the lower of the two costal spots. Hind wing darker than fore wing, and spots deeper yellow; costa and vein 8 straight, not convex.

Underside of fore wing with pale costal bar continued to vein 4 at right angles to costa; pale markings in inner two-thirds of cell nearly obsolete. Hind wing darker; basal markings very obscure; ocelli larger.

Expanse: ♂♀, 60–70 mm.

Habitat.—SIKKIM to MANIPUR and NORTH-EASTERN BURMA. The British Museum contains a series of males and two females, from Sikkim and Bhutan. Tytler (1939 *a*) records two males from Htawgaw, taken in July.

Lethe armandii (Oberthür), 1876.

♂♀. *Upperside* of fore wing sparsely spotted with yellow. Hind wing yellow or brown.

Underside of hind wing with a dull white band extending from the inner margin towards the apex; at vein 7 a second widely sinuous band arises from the first one, runs parallel with the submarginal row of ocelli, and ends above the tornus; between the two bands a dark discal spot, marked with white.

Distribution.—ASSAM to NORTHERN BURMA, Western China and Formosa. One Indian subspecies, with two well marked seasonal forms.

320. **Lethe armandii khasiana** (Moore).

Neope khasiana, Moore, 1881 *a*, p. 306 (♂, Khasi Hills); Marshall & de Nicéville, 1883, pp. 170, 172, ♂.
Blanaida khasiana, Moore, 1892 *a*, p. 302, pl. xciii, fig. 2 (♂, type, Khasi Hills).

Lethe bhadra f. *khasiana*, Bingham, 1905, p. 102.
Lethe khasiana, Tytler, 1911, p. 53 (♂, Naga Hills).
Neope bhadra f. *khasiana*, Fruhstorfer, 1911, p. 325.
Lethe armandii khasiana, Tytler, 1926, p. 258 (♂♀, Khasi Hills; Naga Hills) (= dry-season form); Evans, 1932*a*, p. 109.
Neope armandii, Elwes (*non* Oberth.), 1891, p. 265 (Naga Hills; Bernardmyo).
Blanaida armandii, Tytler, 1914, p. 222 (Manipur, 7,500 feet; Naga Hills, 6,000–7,500 feet).

♂♀. Closely allied to *bhadra* (Moore), the upperside in the dry-season forms being very similar. In both seasonal forms the markings in the cell of the fore wing underside are characteristic. In *khasiana* the central pale band is sharply bent back at its middle at right angles to base of vein 2; in *bhadra* it is more or less straight. The ground-colour of the underside is pure brown in *khasiana*; in *bhadra* it is more or less washed with lilac (from *Tytler*, 1915).

Dry-season form **khasiana** (Moore).—♂♀. *Upperside* of fore wing with apical spots and spot in area 3, with a tendency to become white, the latter in the male being small and narrowly oval. Hind wing mostly ochraceous, with rather small ocelli.

Underside with all white markings broader. Hind wing with distal and inner areas pale or dark ochraceous; ocelli somewhat smaller than above.

Wet-season form **alcas** nov.—♂♀. *Upperside* resembles this brood of the nominotypical form; markings uniformly pale yellow. Fore wing with an ochraceous bar in the end of the cell; spot in base of area 3 larger and more rounded than in the dry-season form, and other spots also more prominent. Hind wing with distal half concolorous with proximal half.

Underside of fore wing with reduced discal ochraceous patch, this extending only slightly above vein 2. Hind wing with distal half light brown.

Expanse: ♂♀, 75–85 mm.

Two broods are recorded by Tytler (1915) as occurring in Assam: (1) a summer brood of the wet-season form, flying from May to September; (2) an autumn brood of the dry-season form, emerging in September, and probably flying into October and November. A single dry-season ♀ was taken in June.

Habitat.—Assam and North-Eastern Burma. Recorded from Manipur and the Naga Hills at from 6,000 to 7,500 feet; rare in Manipur, but fairly common in the Naga Hills (*Tytler*, 1915). Form *alcas*: Naga Hills, Kirbari, August, 1912 (H. C. Tytler) (♂ holotype); Naga Hills, 5,500 to 7,000 feet, August, 1889 (W Doherty) (♀ allotype). Also in the British Museum, 8 ♂♂ from Naga Hills, and 2 ♂♂ from Manipur.

North-Eastern Burma: Sadon, one ♀, taken 9. x. 1927 (Coll. Tytler), is in the British Museum under the manuscript name of *burmana* Tytler. This cannot be separated as a subspecies without a male for comparison.

321. **Lethe bhadra** (Moore).

Lasiommata bhadra, Moore, 1857, p. 227.
Neope bhadra, Moore, 1865 *a*, p. 770 ("Bengal"); de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 170, 171, ♂♀; Elwes, 1891, p. 265 (Karen Hills, 4,000–5,000 feet).
Blanaida bhadra, Moore, 1892 *a*, p. 300, pl. xciii, figs. 1, 1 *a*, *b* (♂♀); de Nicéville, 1894 *a*, p. 126 (Sikkim, 1,000–4,000 feet); *id.*, 1899, p. 329 (Taungoo Hills, 4,000 feet); Adamson, 1905, p. 166 (Arracan, 3,000 feet).
Lethe bhadra, Bingham, 1905, p. 101.
Neope bhadra, Fruhstorfer, 1911, p. 325, t. 99 *b*.
Lethe bhadra, Evans, 1932 *a*, p. 109, pl. xi, fig. D 3. 48 (♂).

Wet-season form **bhadra** (Moore).—♂♀. Hind wing broadly caudate at vein 4. *Upperside* blackish-brown; base of fore wing, and anterior half of hind wing, clothed with long, soft, ochraceous hairs. Fore wing with a streak in area 1 *b*, and a spot beyond it; two oblique streaks in the cell; three oblique lines of white spots beyond cell, decreasing in number to the apex. Hind wing with posterior half strongly suffused with ochraceous; a small discocellular patch; post-discal, brighter ochraceous spots, those in areas 2 to 4 interrupted by obscure, round, black, ocellar marks. Cilia of both wings white, alternated with brown.

Underside similar, the spots and markings somewhat blurred; both wings shaded with purple and ochraceous. Hind wing with a post-discal, strongly curved, series of nine ocelli, the tornal ocellus geminate.

Antennæ ochraceous; head, thorax and abdomen brown.

Dry-season form **beata** nov.—♂♀. *Upperside* of fore wing with spots purer white. Hind wing markings enlarged, lighter, not dusted with black.

Underside with ocelli smaller, the area bearing them paler.

Expanse: ♂♀, 80–100 mm.

Habitat.—Sikkim to Karen Hills, and in Tong-king; not rare.

Specimens from Sikkim, Bhutan and Assam belong chiefly to the wet-season form, and those from Burma chiefly to the dry-season form.

Form *beata*: East Pegu, 4,000 to 5,000 feet, March to April, 1890 (W Doherty) (♂ holotype); Toungoo, October (ex Coll Evans) (♀ allotype); also in the British Museum seven other males, chiefly from the Karen Hills.

Lethe muirheadi (C. & R. Felder), 1862.

♂. *Upperside* of fore wing with a brand from inner margin to vein 4, extending into the apex of cell.

♂♀. *Underside* of both wings with a post-discal more or less conspicuous, greyish-white band, and a submarginal row of ocelli.

Distribution.—NORTHERN BURMA to ATARAN VALLEY, Siam, Tong-king, Hainan, Formosa, and China. One Indian subspecies.

322. **Lethe muirheadi bhima** (Marshall).

Neope bhima, Marshall, 1880, in Marshall & de Nicéville, p. 246 (♀, Upper Tenasserim); Marshall & de Nicéville, 1883, pp. 170, 172, pl. xi, fig. 26 (♀).
Neope muirheadi var. *bhima*, Elwes, 1891, p. 266 (Karen Hills, 1,500–2,000 feet; Shan Hills).
Patala bhima, Moore, 1892*a*, p. 308, pl. xciv, figs. 5, 5*a* (♂♀); Watson, 1897, p. 644 (Upper Chindwin).
Neope muirheadi bhima, Fruhstorfer, 1911, p. 326.
Lethe muirheadi bhima, Ellis, 1917, p. 106 (Pegu Yoma, rare; Northern Shan States, common); Evans, 1932*a*, p. 109, pl. xi, fig. D 3. 49 (♂).
Lethe muirheadi, Bingham (*non* C. & R. Feld.), 1905, p. 103.

♂♀. Very like the North-Western subspecies of *yama* (Moore). *Upperside* of fore wing with one or two ocelli always present, and beyond them some ochraceous-white shading; the female with four or five, very distinct, and large ocelli, bordered outwardly, as in the male, with ochraceous, but paler. Hind wing with ocelli more distinct.

Underside much paler ochraceous-grey than in *yama*, and speckled with brown. Fore wing with cell crossed by three zigzag bands, the intermediate the broadest, bearing four ochraceous-grey spots; discal, sinuous, brown band, outwardly margined with ochraceous-grey; ocelli distinct, with ochraceous-grey rings on a brown ground; submarginal and marginal, distinct, sinuous, brown lines. Hind wing with three brown spots near base; three very irregular, sinuous, brown lines, the intermediate line broad, and not extending below vein 6; ocelli oval, the series more sinuous than in *yama*, placed on a brown ground, bordered on both sides by ochraceous-grey; submarginal and marginal, lunular brown lines.

Expanse: ♂♀, 70–80 mm.

Habitat.—NORTHERN BURMA to ATARAN VALLEY, and Siam; rare.

Lethe yama (Moore).

♂. *Upperside* of fore wing with a brand from inner margin to vein 4, extending into the apex of cell.

♂♀. Hind wing with outer margin scalloped, more produced at veins 2 and 4. *Upperside* with markings obscure; cilia white.

Underside of both wings without a post-discal greyish-white band as in *muirheadi*.

Distribution.—KULU to SIKKIM, ASSAM, and BURMA, extending to China. Two Indian subspecies.

Moore (1892 *a*, pp. 306–7), gives the habitat of *yama* as "N.W Himalayas," and then describes *yamoides* from the Eastern Himalayas. The type of *yama* is in the British Museum, and is identical with *yamoides*, only the ♀ allotype representing the North-Western subspecies; this form is, therefore, without a name.

323 *a*. **Lethe yama yama** (Moore). (Figs. 71, venation; 72, ♂).

Zophoessa yama, Moore, 1857, p. 221 (♂, Bhutan; ♀, N. India); Marshall & de Nicéville, 1883, pp. 163, 169, pl. x, fig. 21 (♂, Shillong); Elwes, 1891, p. 264 (Bernardmyo; Naga Hills).
Patala yama, Watson, 1897, p. 644 (Chin Hills, 5,000 feet).
Lethe yama, Bingham, 1905, p. 103 (part.), fig. 23 (♂).
Lethe yama yama, Evans, 1932 *a*, p. 110 (part.).
Patala yamoides, Moore, 1892 *a*, p. 307, pl. xciv, fig. 4 (♂); de Nicéville, 1894 *a*, p. 126 (Sikkim, 6,000–7,000 feet).
Lethe yamoides, Tytler, 1911, p. 53 (Naga Hills).
Neope yama yamoides, Fruhstorfer, 1911, p. 325.
Lethe yama yamoides, Evans, 1932 *a*, p. 110, pl. xi, fig. D 3. 50 (♂).
Patala yamamoides (sic), Swinhoe, 1913, p. 341 (♀, Khasi Hills).

♂♀. *Upperside* pale to dark vandyke-brown; cilia conspicuously white, brown at the veins. Fore wing with discal and submarginal bands faintly darker; a post-discal, obscure, row of two or three dark ocelli, more numerous and better defined in the female; costa marked narrowly with two white median, and two subapical short streaks. Hind wing with a post-discal series of dark ocelli, obscurely ringed with brown; a submarginal, faint, dark brown band.

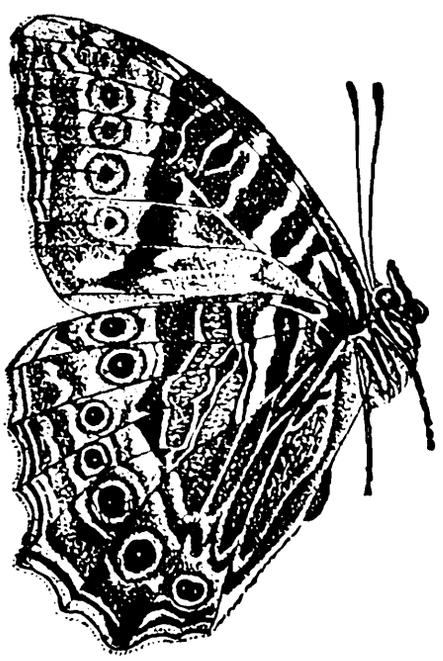


Fig. 72.—*Lethe yama yama* (Moore), ♂. Underside.

Underside paler. Fore wing with cell crossed by four narrow greyish-white bars; a discal, slightly oblique, submacular, dark brown band; a post-discal, obscure, dark brown band, parallel with outer margin; a submarginal row of broadly pale-ringed ocelli, margined on both sides with greyish-white mixed with brown; costa as on upperside; posterior area pale

brown; submarginal and marginal dark brown lines. Hind wing with proximal area variegated by medially pale brown bands, bordered on both sides by slender ochraceous lines, and the whole area freckled with brown; a discal sinuous band; a curved row of black ocelli; submarginal and marginal dark brown lines.

Antennæ ochraceous-brown; head, thorax and abdomen pale brown.

Expanse: ♂♀. 70–85 mm.

Early stages (from *Fruhstorfer*, 1911):—

Larva.—Straw-coloured, with dark head, until it is nearly full-grown, when it becomes light ochre-yellow with a dorsal brown stripe, and a row of dark brown dots, and acquires a reddish head; anal segment with two yellowish points.

Pupa.—Short, very dark, and enclosed in a sort of moss nest, where it remains from September to the following June.

Larva on bamboo, to some extent gregarious, for three to seven have been found in a sort of nest constructed of three or four leaves.

Eggs laid early in July on underside of a leaf, in large numbers and in rows of up to thirty-four on one leaf.

Habitat.—SIKKIM to ASSAM, and UPPER BURMA to the DAWNA RANGE; usually rare.

323 *b*. **Lethe yama buckleyi,** subsp. nov.

Patala yama, Moore (*non* Moore, 1857), 1892 *a*, p. 306, pl. xciv, fig. 3 (♂); MacKinnon & de Nicéville, 1897, p. 216, pl. U, figs. 4 *a* (larva), 4 *b* (pupa) (Mussooree, 5,000–7,000 feet).

Lethe (*Zophoessa*) *yama*, Hannyngton, 1910, p. 135 (Kumaon, 7,000 feet).

Neope yama yama, Fruhstorfer, 1911, p. 325.

Lethe yama yama, Peile, 1937, p. 91 (Mussooree; Kumaon).

♂♀. *Upperside* distinctly paler than *yama*, not as shown by the figs. in Moore (1892 *a*).

Underside paler, with more uniform colouring. Fore wing post-discal band narrower, and fading out posteriorly. Hind wing without dark shading over distal area. A smaller subspecies.

Habitat.—KULU to NEPAL; usually rare. Types from Mussooree, 5,500 feet, June (H. D. Peile). A series of both sexes from Mussooree in the British Museum.

The early stages were described and figured by MacKinnon and de Nicéville (1897).

The specimen selected by Moore as the female of *yama* was taken by Colonel Buckley.

Genus **PARARGE** Hübner.

Pararge, Hübner, 1819, p. 59; Butler, 1867 *e*, p. 195 (type, *ægeria* Linn.); Marshall & de Nicéville, 1883, p. 177; Bingham, 1905, p. 112; Seitz, 1908, p. 133; Evans, 1932 *a*, p. 110; Hemming, 1934 *a*, p. 28 (type, *Papilio ægeria* Linn., 1758).

Lasiommata, Westwood, 1841, p. 65; *id.*, 1851 *a*, p. 385; Scudder, 1875, p. 202 (type, *megera* Linn.); Moore, 1892 *b*, p. 5; Hemming, 1934 *a*, p. 29 (type, *Papilio megera* Linn., 1767).
Amecera, Butler, 1867 *g*, p. 162; Marshall & de Nicéville, 1883, pp. 96, 178, pl. xv; Moore, 1892 *b*, p. 12 (type, *eversmanni* Eversm.).
Chonala, Moore, 1891, p. 154; *id.*, 1892 *b*, p. 14 (type, *masoni* Elw.).
Lopinga, Moore, 1892 *b*, p. 11.
Satyrus, Bingham (*non* Latr.), 1905, p. 109; Fruhstorfer, 1911, p. 310.

Type of the genus *P. ægeria* Linn., from Europe.

Distribution.—The Palæarctic Region and HIMALAYAS.

♂♀. Fore wing triangular; apex subtruncate, rounded; outer margin below apex slightly incurved; costa slightly arched; inner margin nearly straight; cell longer than half length of wing; *udc* inclined obliquely outwards; *mdc* twice as long as *udc*, inclined obliquely inwards; *ldc* very long, inclined obliquely outwards; vein 5 remote from 6; veins



Fig. 73.—*Pararge ægeria* (L.).
Venation of male.

1 to 5 nearly parallel; vein 1 *b* not swollen; median vein more or less swollen. Hind wing oval; outer margin regular or slightly scalloped; cell nearly half length of wing; discocellulars subequal, very oblique; veins 3 and 4 from apex of cell, vein 4 arched upwards; vein 3 arises at or close to the *ldc*; veins 6 and 7 well separated at their origins. Antennæ not quite half length of fore wing, club gradual, broadly grooved on underside. Palpi porrect, compressed, third segment long, anteriorly fringed with long hair. Eyes hairy. Femora of middle legs with long hair beneath.

Key to Species.

1. Fore wing upperside with a prominent pupilled ocellus; upper angle of cell strongly acute; median vein much swollen. Hind wing with vein 3 from beyond end of cell. Antennal club spatulate. .. .. 2.
Fore wing upperside without pupilled ocelli; no ♂ brand; upper angle of cell right-angled. Hind wing with vein 3 from end of cell. Antennal club gradual. 4.

2. Fore wing upperside in ♂ with a broad black brand from middle of inner margin to base of vein 4. Hind wing underside with discal line not interrupted at vein 4 . . [p. 241. *menava* (Moore),
Hind wing underside with discal line interrupted at vein 4 . . . . . 3.
3. Fore wing upperside with a narrow black band. Hind wing underside with discal line evenly curved from costa to vein 5 . . [p. 242. *schakra* (Koll.),
Fore wing upperside without a ♂ brand. Hind wing underside with discal line interrupted between veins 6 and 7 . [Feld.), p. 244. *mærula* (C. & R.
4. Upperside yellow. Fore wing underside with two dark lines in cell; median vein much swollen . . . . . [p. 245. *eversmanni* Eversm.,
Upperside dark brown. Fore wing with a broad white band; two apical dots. Hind wing costa white. . [p. 246. *masoni* (Elw.),
Upperside dark brown. Fore wing with a post-discal yellowish-brown band. . [p. 247. *præusta*, Leech,

Pararge menava (Moore).

♂. *Upperside* dark brown. Fore wing with a subapical ocellus; a prominent black brand, narrowing anteriorly. Hind wing with two posterior ocelli.

Underside grey. Fore wing with extensive discal orange-yellow area.

♀. *Upperside* of fore wing with large triangular orange-yellow patch; subapical ocellus conspicuous within the yellow area.

Distribution.—Persia, Turkestan, and Afghanistan to KASHMIR. Two subspecies, both in the Indian area.

324 *a*. Pararge menava menava (Moore).

Lasiommata menava, Moore, 1865 *b*, p. 499, pl. xxx, fig. 3 (♂).
Amecera menava, Marshall & de Nicéville, 1883, pp. 179, 180, ♂♀.
Lasiommata menava, Moore, 1892 *b*, p. 9, pl. xcvi, figs. 4, 4 *a* (♂♀); Alcock, 1898, p. 41 (Gilgit Road, between Dashkin and Doyan, 8,000–9,000 feet); Leslie & Evans, 1903, p. 667 (Chitral, 6,000–9,000 feet).
Satyrus menava, Bingham, 1905, p. 111; Fruhstorfer, 1911, p. 311.
Pararge menava, Evans, 1932 *b*, p. 200 (Baluchistan, above 6,000 feet).
Pararge menava menava, Evans, 1932 *a*, p. 110.

♂. *Upperside* very dark ochraceous-brown, the dark bands or lines on the underside showing through; cilia white, black at the veins. Fore wing with a subapical ocellus, black, white-centred, and yellow-ringed; a much smaller, but similar, ocellus near the apex. Hind wing uniform; two, sometimes three, posterior ocelli similar to those on the fore wing.

Underside very similar to *schakra*.

♀. *Upperside* very similar to *schakra*. Fore wing with much broader yellow patch which, posteriorly, generally diminishes to a point, and is not broken up into spots. Hind wing as in the male.

Underside as in *schakra*. Fore wing with orange-yellow discal area spreading into the cell; inner line crossing cell bordered on both sides with white; apex of cell white. Hind wing ground-colour more uniform than in *schakra*, and dusted with grey.

Antennæ, head, thorax and abdomen pale brown; antennæ ringed with white; abdomen whitish below.

Expanse: ♂♀, 50–60 mm.

Habitat.—Baluchistan to Chitral and Kashmir; not rare. Common in Chitral at elevations between 6,000 and 9,000 feet.

324 *b*. **Pararge menava mæroides** (C. & R. Felder).

Lasiommata mæroides, C. & R. Felder, 1867, p. 496, pl. lxix, fig. 1 (♀).
Amecera mæroides, Marshall & de Nicéville, 1883, pp. 179, 181, ♂♀.
Lasiommata mæroides, Moore, 1892 *b*, p. 9, pl. xcvi, fig. 3 (♀).
Satyrus menava ab. *mæroides*, Fruhstorfer, 1911, p. 311.
Pararge mæroides, Tytler, 1926, p. 253 (♂♀, Ladak).
Pararge menava mæroides, Evans, 1932 *a*, p. 110 (Ladak).

♂. *Upperside* of fore wing with the ocellus enclosed by a fulvous area.

Habitat.—Ladak; very rare.

I have seen no specimens of this form. It is, apparently, very slightly differentiated.

Pararge schakra (Kollar).

♂. *Upperside* of fore wing with a brand and a subapical ocellus as in *menava*; ocellus broadly yellow-ringed, and below it are two or three yellow patches. Hind wing with from three to six ocelli.

Underside greyish-white. Fore wing with discal orange area, two lines crossing the cell, and a post-discal irregular line. Hind wing with lines as on fore wing; ocelli as on upperside, but six in number.

♀. Resembles the male. Fore wing without brand.

Distribution.—Baluchistan and Chitral to Kumaon. Two subspecies.

325 *a*. **Pararge schakra schakra** (Kollar). (Fig. 74, ♂).

Satyrus schakra, Kollar, 1844, p. 446, t. xv, figs. 3, 4 (♂, Simla).
Amecera schakra, Moore, 1882 *b*, p. 236 (Kangra); Marshall & de Nicéville, 1883, p. 179, pl. xv, fig. 45 (♂, Simla), fig. 46 (♀, Mussooree); Butler, 1886 *a*, p. 358 (N.W. Punjab); Doherty, 1886 *a*; Butler, 1888, p. 135 (N.E. Punjab).

Lasiommata schakra, Moore, 1892 *b*, p. 7, pl. xcvi, figs. 1, 1 *a* (♂♀); MacKinnon & de Nicéville, 1897, p. 217 (Mussooree and Upper Ganges Valley, 3,000–6,000 feet).
Satyrus schakra, Bingham, 1905, p. 110, fig. 28 (♂).
Satyrus (*Amecera*) *schakra*, Hannyngton, 1910, p. 135 (Kumaon, 4,500–11,000 feet).
Satyrus schakra, Frukstorfer, 1911, p. 311.
Pararge schakra, Evans, 1932 *a*, p. 110, pl. xii, fig. D 4. 2 (♂); *id.*, 1932 *b*, p. 201 (Baluchistan); Peile, 1937, p. 92, pl. x, fig. 89 (♂).

♂♀. Sexes differing slightly. ♂. *Upperside* silky, pale vandyke-brown; cilia whitish. Fore wing, in distal area, with four large orange spots, the apical one the largest, bearing a black white-pupilled ocellus; a submarginal dark brown line. Hind wing uniform; a post-discal row of from three to six black, white-pupilled, orange-ringed ocelli.

Underside very pale greyish-white. Fore wing with discal orange area, outwardly defined by a dark line; two lines crossing the cell; a post-discal, irregular, oblique, orange-brown line, not reaching tornus; submarginal and marginal dark lines; a subapical ocellus, its outer ring paler than on upperside; a minute ocellus near apex. Hind wing with orange-brown lines; two sub-basal short lines; a discal, irregular line;

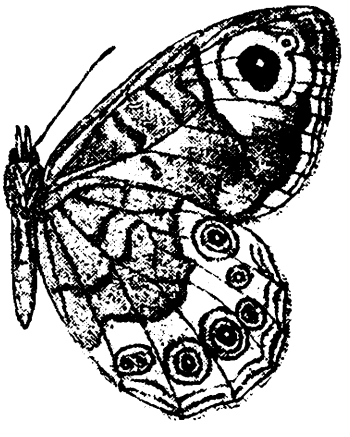


Fig. 74.—*Pararge schakra schakra* (Koll.), ♂. Underside.

a line defining the discocellulars; a post-discal, irregular, curved line; a distal curved row of six ocelli, each ocellus with rings of pale ochraceous and of brown, alternately two of each; a submarginal and a marginal brown line.

Antennæ brown; head and thorax studded with long, dark grey pubescence; abdomen pale brown.

♀. Resembles the male. *Upperside* of fore wing with the orange spot bearing the ocellus inwardly bordered by a broad, pale, short line.

Expanse: ♂♀, 55–60 mm.

Larva.—" Apple-green, with pale yellow lateral lines. Feeds on various grasses." (A. G. Young, quoted by Moore, 1892 *a*).

Habitat.—BALUCHISTAN (Zhob; Kurram), and CHITRAL to KUMAON; common from 4,500 to 11,000 feet.

325 *b*. **Pararge schakra aiyuna,** subsp. nov.

Lasiommata schakra, Leslie & Evans (*non* Kollar), 1903, p. 667 (Chitral, ♂♀).

♂. *Upperside* of fore wing with the orange band broader and more compact, the spot below vein 2 vestigial in the two specimens examined. Hind wing with reduced yellow patch in area 4, the ocellus only represented by a dot.

Underside of fore wing with post-discal line less oblique, crossing vein 3 nearer the cell than in the nominotypical form, continuing almost obliquely straight to inner margin instead of being excurved in area 2. Hind wing post-discal line irregularly dentate from costa to inner margin, whereas in *s. schakra* this line is evenly curved above vein 5.

♀. The single specimen available does not differ in any way from the nominotypical female.

Habitat.—CHITRAL: Drosh, 6,000 feet, 2. vii. 1903 (A. R. C. Saunders), ♂ type; nallahs below Chitral, 5,000 feet, June to August, 1902 (Leslie & Evans), 1 ♂; Ziarat, 8,000 feet, August to September, 1902 (Leslie & Evans), ♀ allotype.

Pararge mærula (C. & R. Felder).

♂♀. Resembles *schakra* (Koll.), but differs especially in the absence of a brand on the fore wing of the male.

Distribution.—Persia to CHITRAL and KUMAON. Two Indian subspecies.

326 *a*. **Pararge mærula mærula** (C. & R. Felder).

Lasiommata mærula, C. & R. Felder, 1867, p. 496 (♂).
Amecera mærula, Marshall & de Nicéville, 1883, pp. 179, 180, ♂.
Lasiommata mærula, Moore, 1892 *b*, p. 8, pl. xcvi, figs. 2, 2 *a*, *b* (♂♀); MacKinnon & de Nicéville, 1897, p. 217 (Mussooree).
Satyrus mærula, Bingham, 1905, p. 111; Fruhstorfer, 1911, p. 311.
Pararge mærula, Evans, 1932 *a*, p. 110; Wynter-Blyth, 1940, p. 724 (Simla district).
Lasiommata laurion, de Nicéville, 1895 *b*, p. 15, pl. R, figs. 5, 6 (♂♀, Gonas Pass).

♂♀. Almost identical in ground-colour and markings with *schakra*, but the fore wing of the male is without a brand.

Underside of fore wing with discal yellow area slightly more extended than in *schakra*, and encroaching on the dull pale brown of the cell.

Expanse: ♂♀, 55–60 mm.

Habitat.—KASHMIR to KUMAON; rare.

326 *b*. **Pararge mærula tarbena,** subsp. nov.

Lasiommata mærula, Leslie & Evans (*non* Felder), 1903, p. 667 (Chitral, 5,000–8,000 feet).

♂. Compared with the nominotypical form *upperside* of fore wing with more or less extended yellow patches in areas 1 *b*, 2 and 3, and in the upper part of cell; ocellus smaller,

the yellow band more prominent and compact. Hind wing with ocelli smaller.

Underside of fore wing with post-discal line less curved in area 3. Hind wing with post-discal line distinctly angled at vein 7

♀. *Upperside* of fore wing with more or less ochraceous-yellow discal scaling as in the male ; apical band as in nominotypical form, but always well marked on its proximal side ; spot in area 2 of varying size ; spot below vein 2 indistinct. Hind wing with ocelli in areas 2 and 3 as in the nominotypical form, and also a very small ocellus in 4.

Underside of fore wing with post-discal line gently curved as in male, with no angle at vein 4. Hind wing as in nominotypical form.

Habitat.—CHITRAL : Nallahs below Chitral, 5,000 feet, June to August, 1902 (Leslie and Evans), 1 ♂ (holotype), 1 ♀ ; Ziarat, 8,000 feet, August and September, 1902 (Leslie and Evans), 2 ♀♀ (allotype) ; above Drosh, 6,000–10,000 feet, July, 1903 (A. R. C. Saunders), 1 ♀ ; Chitral, 6,000–7,000 feet, June and July, 2 ♂♂ (Coll. Evans).

Pararge eversmanni Eversmann, 1847.

♂♀. A species of distinctive pattern. *Upperside* of fore wing ochraceous-yellow, with a black outer border which invades the yellow area in area 3 ; a prominent black discocellular spot. Hind wing more or less ochraceous, and bearing from two to five ocelli.

Underside of fore wing paler than above. Hind wing with a post-discal greyish-white band, bearing the ocelli.

Distribution.—Turkestan to the Pamirs, CHITRAL and KASHMIR. One Indian subspecies.

327 **Pararge eversmanni cashmirensis** Moore.

Pararge cashmirensis, Moore, 1874 *a*, p. 265, pl. xliii, fig 3 (♂) ; Marshall & de Nicéville, 1883, p. 177, ♂♀.
Amecera cashmirensis, Moore, 1892 *b*, p. 12, pl. xcvii, figs. 1, 1 *a*, *b* (♂♀) ; Leslie & Evans, 1903, p. 667 (Chitral, 6,000–9,000 feet).
Pararge cashmirensis, Bingham, 1905, p. 112.
Pararge eversmanni cashmirensis, Evans, 1932 *a*, p. 110, pl. xi, fig. D 4. 4 (♂).

♂. *Upperside* of fore wing ochraceous-yellow, with outer broad black border which invades the yellow in area 3 ; a black discocellular bar ; one or two subapical spots or ill-formed ocelli, their outer edges merged with the apical black. Hind wing ochraceous-brown, shading into the broad black outer border ; a post-discal series of three or four black ocelli ringed with rich ochraceous-yellow.

Underside of fore wing pale yellow ; cell crossed by three sinuous lines ; a discocellular bar ; a post-discal, sinuous,

short, dusky line ; marginal border as on upperside, but much paler. Hind wing, over the basal half, thickly suffused with dark brown ; a sub-basal, sinuous, slender line ; outer margin broadly pale brown ; a dark marginal line ; post-discal area distinctly whitish, dusted with grey, and defined on both sides by dark sinuous lines ; a post-discal, curved, series of six or seven black, white-centred, yellow-ringed ocelli ; apical ocellus edged with white inwardly, the third placed more proximad. Cilia white, alternated with dark brown at the veins.

Antennæ, head, thorax and abdomen ochraceous-brown, paler beneath ; antennæ annulated with white towards the base.

♀. Resembles the male. *Upperside* paler. Fore wing with discocellular bar much broader, and between this and apical black the costa white.

Expanse : ♂♀, 55–60 mm.

Habitat.—CHITRAL to KASHMIR ; rare.

328. **Pararge masoni** (Elwes).

Debis (*Tanisma*) *masoni*, Elwes, 1882, p. 405, ♂♀, pl. xxv, fig. 2 (Sikkim).
Lethe masoni, Marshall & de Nicéville, 1883, pp. 157, 159.
Chonala masoni, Moore, 1892 *b*, p. 15, pl. xcvii, figs. 2, 2 *a*, *b* (♂♀) ; de Nicéville, 1894 *a*, p. 126 (Sikkim).
Lethe masoni, Bingham, 1905, p. 84.
Satyrus masoni, Fruhstorfer, 1911, p. 311.
Pararge masoni, Evans, 1932 *a*, p. 110, pl. xi, fig. D 4. 5 (♀).

This species closely resembles *Lethe verma* (Koll.), but can be distinguished by the subapical white spot on fore wing upperside.

♂♀. *Upperside* blackish-brown Fore wing with a post-discal, broad, white band, which is slightly curved ; a subapical, small, white spot ; in area 5 a small black ocellus, placed below the white spot ; cilia brown. Hind wing with apex narrowly, and cilia, down to vein 2, white, cilia otherwise brown.

Underside of fore wing resembles the upperside ; subapical ocellus more prominent, yellow-ringed in the female, submarginal and marginal pale slender lines. Hind wing with the brown ground-colour dusted with greyish-white, in the male more so over the basal area, in the female more uniformly ; a discal, irregular, more or less broken, dark line, and a post-discal similar line ; a series of six, rather large, more or less subequal, white-centred, black ocelli, in the female prominently yellow-ringed ; submarginal and marginal greyish-white lines.

Antennæ, head, thorax and abdomen dark brown.

Expanse : ♂♀, 60–65 mm.

Habitat.—SIKKIM, BHUTAN, and South-East Tibet ; not rare.

Pararge præusta Leech.

♂♀. *Upperside* of fore wing with a post-discal yellowish-brown band, usually broken at vein 2 and in area 3, bent strongly outwards in area 4, and in area 2 forming a prominent, somewhat quadrate, spot; a narrow subtornal spot, two subapical small spots as in *masoni* (Elwes), pale yellowish-brown, in the female white. Hind wing unmarked.

Underside of fore wing with discal area chocolate-brown; band paler, only broken at vein 2. Hind wing with a prominent subapical ocellus in area 6; in the nominotypical form this ocellus marked on its inner side by a white crescent; a submarginal row of five ocelli in areas 1 *c* to 5, the anterior two much smaller than those in 2 and 3; proximal half of wing strongly dusted with grey, crossed by distinct lines of the brown ground-colour, a basal, sub-basal, two discal, and a post-discal line.

Expanse: ♂♀, 60–65 mm.

Distribution.—Western and Central China, North-Eastern Burma. Two subspecies, one in Burma.

329. **Pararge præustra burmana** Tytler.

Pararge præusta burmana, Tytler, 1939 *a*, p. 246 (♂; N.E. Burma).

♂. Larger than the nominotypical form from China.

Upperside of fore wing with orange band much broader and continuous, not broken in area 3.

Underside darker and brighter than in the nominotypical form. Hind wing without the conspicuous white crescent bordering inner edge of subapical spot; this is replaced by an indistinct crescent of the same greyish colour as the ground colour of basal and discal areas.

Specimens in the British Museum from Yunnan are closer to this form than to the nominotypical one.

Habitat.—North-Eastern Burma: Htawgaw. Described from two males taken in August.

Genus **RHAPHICERA** Butler.

Rhaphicera, Butler, 1867 *g*, p. 164; Marshall & de Nicéville, 1883, pp. 96, 175, pl. xv; Moore, 1891, p. 154; *id.*, 1892 *b*, p. 2 (type, *satricus* Doubl.); Bingham, 1905, p. 107; Fruhstorfer, 1911, p. 310.

Type of genus, *R. satricus* Doubl.

Distribution.—The Himalayas, Western and Central China.

♂♀. Fore wing without a brand in the male; vein 12 swollen at base; median vein not swollen; veins 5 and 6 closer together than in *Pararge*. Hind wing with vein 3 arising before the *ldc*. Palpus with third segment less hairy than in *Pararge*.

Key to Species.

1. Hind wing underside with two dark lines in the cell [p. 249. *moorei* Butl.,
2. Hind wing underside with no dark lines in the cell [p. 248. *satricus* (Doubl.),

Rhaphicera satricus (Doubleday).

♂♀. *Upperside* ochraceous-brown. Fore wing marked with black bands and spots. Hind wing with a black median bar; four black ocellate spots near outer margin.

Underside much paler, the markings similar to those above. Hind wing without a median black bar, but with a whitish bar beyond end of cell.

Distribution.—SIKKIM to ASSAM. Two subspecies.

330 *a*. **Rhaphicera satricus satricus** (Doubleday). (Pl. I, fig. 1, ♂; fig. 75, venation).

Lasiommata satricus, Doubleday, 1849, pl. lxiv, fig. 4 (♀); Westwood, 1851 *a*, p. 387 (East Indies, Darjeeling); Moore, 1865 *a*, p. 770 ("Bengal"); Hemming, 1941 *c*, p. 461.

Rhaphicera satricus, Butler, 1867 *g*, pl. iv, fig. 3 (♀); Marshall & de Nicéville, 1883, p. 175, ♂♀; Moore, 1892 *b*, p. 3, pl. xcv, figs. 2, 2 *a* (♂); de Nicéville, 1894 *a*, p. 126 (Sikkim, 6,000–8,000 feet); Bingham, 1905, p. 107, pl. iii, fig. 20 (♂); Fruhstorfer, 1911, p. 310.

Pararge satricus, Evans, 1932 *a*, p. 110, pl. xi, fig. D 4. 7 (♂).

♂♀. *Upperside* ochraceous-brown; cilia fulvous. Fore wing with inner margin and median vein bordered with black; cell crossed by two bands, the outer one the broader; a post-

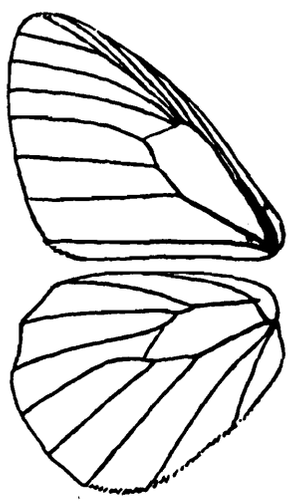


Fig. 75.—*Rhaphicera satricus satricus* (Doubl.). Venation of male.

discal, broader band, its anterior part, to vein 5, placed at right angles to the costa, its posterior part, to vein 2, parallel with outer margin; in areas 2 and 5, somewhat quadrate spots; a short oblique bar from costa to spot in area 5; apex and outer margin to vein 3 broadly, thence narrowly to tornus,

black; costa dusky. Hind wing with inner margin broadly dusky, paler in the ♀; a median bar from vein 2 to vein 5, touching apex of cell, and merged with a spot in area 4; four submarginal, round spots, placed in areas 2, 3, 5 and 6; submarginal and marginal slender black lines.

Underside much paler, markings similar. Fore wing with inner and outer margins not black; an incomplete submarginal, and a complete marginal black line; an ocellus in areas 2 and 5. Hind wing with the median black bar absent; a post-discal, slender black line, from costa to vein 2, angled strongly outwards at vein 5; a whitish or yellowish diffuse bar, in areas 4 and 5, from end of cell to the ocelli; a submarginal series of five or six white-centred ocelli.

Antennæ black; head, thorax and abdomen dusky brown.

Expanse: ♂♀, 60–65 mm.

Habitat.—SIKKIM and BHUTAN; male not rare, female rare.

330 *b*. **Rhaphicera satricus kabrua** Tytler.

Pararge satricus kabrua, Tytler, 1939 *a*, p. 246 (♂♀, Manipur and Naga Hills).

Rhaphicera satricus, Elwes (*non* Doubl.), 1891, p. 266 (Naga Hills, 6,000–7,000 feet); Tytler, 1911, p. 53 (Naga Hills, 6,000 feet, ♂).

♂. Compared with the nominotypical form *upperside* much deeper brown. Fore wing with marginal black extended below vein 3 to tornus and along inner margin. Hind wing with marginal black wider; ocellus in area 3 usually merged with the black border.

Underside of fore wing with all dark markings slightly extended; submarginal dark line heavily marked between veins 3 and 4. Hind wing darker, the pale longitudinal bar more distinct.

♀. Darker than the nominotypical female, with black markings extended as in the male.

Habitat.—ASSAM: Manipur, August; Kabru, 8,400 feet. A ♀ from the Naga Hills is intermediate, and a ♂ from Omei-Shan in China (Coll. Leech) also tends to resemble this form. Appears to be rare.

Described from fourteen males and ten females. In addition, five females with lighter coloration are recorded.

Rhaphicera moorei Butler.

♂♀. Smaller than *satricus* and with similar markings. *Upperside* ochraceous-yellow, hind wing darkened in male, and fore wing more broken up into spots than in *satricus*.

Underside of hind wing with two black lines crossing cell.

Distribution.—NORTH-WESTERN HIMALAYAS; SIKKIM. Two subspecies.

331 *a*. **Rhaphicera moorei moorei** Butler. (Fig. 76, ♂).

Rhaphicera moorei, Butler, 1867 *a*, p. 164, pl. iv, fig. 4 (♀); Moore, 1882 *b*, p. 236 (Kangra); Marshall & de Nicéville, 1883, pp. 175, 176, pl. xv, fig. 38 (♂, Narkunda); Doherty, 1886 *a*, p. 117 (Kumaon, 7,000–11,000 feet, ♂♀); Moore, 1892 *b*, p. 4, pl. xcv, figs. 3, 3 *a* (♂♀); Mackinnon & de Nicéville, 1897, p. 216 (Mussooree); Bingham, 1905, p. 108, fig. 26 (♂); Hannyngton, 1910, p. 135 (Kumaon, 7,000–11,000 feet); Fruhstorfer, 1911, p. 310.

Pararge moorei, Evans, 1932 *a*, p. 110; Peile, 1937, p. 92; Wynter-Blyth, 1940, p. 724 (Simla district).

♂♀. *Upperside* ground-colour ochraceous-yellow, the black markings proportionately more extensive, giving the insect the the appearance of being dusky black spotted with yellow. Fore wing with basal area shaded with dusky brown; distal yellow spot in area 3 bears a black dot, rarely absent. Hind wing with basal area shaded with dusky brown; distal patch in area 4 bears a black dot or spot, or is small.

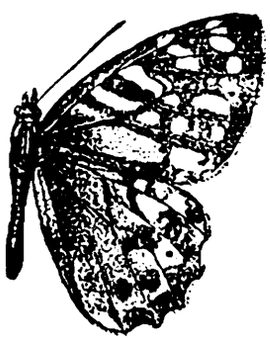


Fig. 76.—*Rhaphicera moorei moorei* Butl., ♂.

Underside dull ochraceous-yellow. Fore wing with post-discal line more evenly curved than in *satricus*, and reaching inner margin. Hind wing with six ocelli; pale stripe, through cell to distal area, more marked than in *satricus*.

Expanse: ♂♀, 55–60 mm.

Habitat.—Kulu; Garhwal; Mussooree; Darjeeling. Not rare.

Wynter-Blyth (1940) records it as very local but not uncommon in the Simla district. It occurs on the Tibet road by the Rest House at Kufri.

331 *b*. **Rhaphicera moorei mantra**, subsp. nov.

Rhaphicera moorei, de Nicéville (*non* Butl.), 1894 *a*, p. 126 (Sikkim, 9,000–11,000 feet).

♂♀. *Upperside* of fore wing without a black dot in the yellow distal patch in area 3; all yellow spots larger than in the nominotypical form. Hind wing without a black spot on the yellow in area 4.

Underside, compared with the nominotypical form.—Fore wing with the three subapical paler patches narrower. Hind wing without blue scaling to the ocellus in area 3; no ocellus

in area 4; posterior area, excepting some median brown suffusion, paler.

Habitat.—SIKKIM: Chumbi Valley, 10,000 to 15,000 feet (ex. Coll. Elwes) (♂♀ types); *id.* (D. Macdonald), 4 ♂♂; *id.*, 9,000 feet, April to May, 1916, 1 ♂; Tonglo, 10,000 feet, August, 1888 (H. J. Elwes), 1 ♂; "Sikkim" (ex Coll. Moore), 1 ♂. BHUTAN, 11,500 feet, 18. viii. 1922 (ex. Coll. Evans), 1 ♂.

Genus **ORINOMA** Gray.

Orinoma, Gray, 1846, p. 14; Marshall & de Nicéville, 1883, pp. 96, 173, pl. xiii; Moore, 1891, p. 154; *id.*, 1892 *b*, p. 1; Bingham, 1905, p. 106; Fruhstorfer, 1911, p. 309; Evans, 1932 *a*, pp. 94, 111.

Type of the genus, *O. damaris* Gray.

Distribution.—The HIMALAYAS, ASSAM, and BURMA. A single species is known.

♂♀. Wings comparatively long and narrow. Fore wing with costa widely arched; outer margin slightly convex, oblique; inner margin straight; apex and tornus rounded; cell slightly over half length of wing, upper angle strongly acute; discocellular veins angled, *udc* and *mdc* short, *ldc* long, deeply angulate inwards at the middle; vein 3 from well before vein 4; veins 4 and 5 nearly parallel; veins 10 and 11 before apex of cell; vein 12 slightly inflated at base. Hind wing pear-shaped; outer margin strongly arched, slightly scalloped; cell short and broad; *mdc* and *ldc* straight; vein 3 from just before apex of cell; vein 4 from apex of cell, strongly arched upwards; veins 6 and 7 arising close together. Antennæ filiform, less than half length of fore wing, club long and gradual; palpi with third segment long, not fringed with porrect hairs anteriorly; eyes hairy; femora and tibiæ slender, the former with moderately long hair posteriorly.

332. **Orinoma damaris** Gray. (Fig. 77, ♂).

Orinoma damaris, Gray, 1846, p. 14, pl. vii, figs. 2, 2 *a*; Moore, 1865 *a*, p. 770 ("Bengal"); *id.*, 1882 *b*, p. 235 (Kangra); Marshall & de Nicéville, 1883, p. 174, pl. xiii, fig. 32 (♂, Sylhet); de Nicéville, 1885 *b*, p. 2 (Sikkim, 3,200 feet, ♀); Wood-Mason & de Nicéville, 1887, p. 351 (♂, Cachar); Moore, 1892 *b*, p. 1, pl. xcv. figs. 1, 1 *a* (♂♀); de Nicéville, 1894 *a*, p. 126 (Sikkim, 2,000–6,000 feet); *id.*, 1899, p. 330 (Tenasserim; Taungoo Hills, 4,000 feet); Bingham, 1905, p. 106, fig. 25 (♂); Hannyngton, 1910, p. 135 (Kumaon, 4,000 feet); Tytler, 1911, p. 53 (Naga Hills, 5,000 feet).

Orinoma damaris damaris, Fruhstorfer, 1911, p. 310, t. 90 *d*.

Orinoma damaris, Evans, 1932 *a*, p. 111, pl. xii, fig. D 5.1 (♂); Gough, 1935, p. 261 (Nepal, c. 5,000 feet).

Orinoma damaris harmostus, Fruhstorfer, 1911, p. 310 (Tenasserim).

♂♀. *Upperside* dusky black. Fore wing with the cell rich ochraceous-red in its basal half, this area bearing a spot of

black in the middle of its anterior and posterior margins; distal half of cell black, with a pale diffuse centre in its anterior half, and a broad greenish-white streak in its lower half; area 1 *b* greenish-white, divided by fine black oblique lines

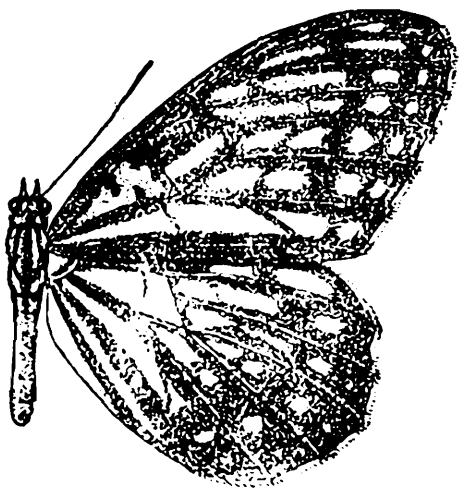


Fig. 77.—*Orinoma damaris* Gray, ♂.

into three short streaks and a submarginal spot; areas 2 to 7 with two discal series of short streaks, and two submarginal series of quadrate spots, all greenish-white. Hind wing cell with a broad, greenish-white, transversely divided streak; a discal, post-discal, and submarginal series of greenish-white streaks and spots, the outer submarginal row indistinct; the streak in area 1 *a* fills the area, and those in 1 *b* and 1 *c* extend to the post-discal row.

Underside similar to the upperside, the markings more distinct. Cilia of both wings alternately black and white.

Antennæ black; head, thorax and abdomen above dark grey, the thorax in front with orange hairs; abdomen beneath white, with fine black lines.

Expanse: ♂♀, 75–80 mm.

Habitat.—Kangra to the Karen Hills; not rare.

Genus **CŒNONYMPHA** Hübner.

Cœnonympha, Hübner, 1819, p. 65; Westwood, 1851 *a*, p. 396; Butler, 1867 *e*, p. 194 (type, *geticus* Esper, = *œdipe* Hübn.); Seitz, 1908, p. 144; Fruhstorfer, 1911, p. 301; Evans, 1932 *a*, pp. 94, 111; Hemming, 1934 *a*, p. 43 (type, *C. œdipe* Hübner = *Papilio œdippus* Fabricius, 1787).

Lyela, Swinhoe, 1908, p. 60 (type, *macmahoni* sp. nov.).

Type of the genus *C. œdippus* Fabr.

Distribution.—Holarctic Region, including North Africa and Baluchistan.

♂♀. Wings small, outer margins more or less evenly curved; underside of hind wing usually with grey sandy colouring, and bearing a number of ocelli. Fore wing with veins 1 *b*, median,

and 12 much swollen at base; upper angle of cell acute; antennal club spatulate; eyes glabrous; palpus long, erect, pointed, with long bristly hairs.

Cœnonympha myops Staudinger (1881).

♂♀. *Upperside* dark brown. Fore wing with a small subapical, blind, black ocellus, with yellow-brown ring, more or less distinct.

Distribution.—Turkestan to BALUCHISTAN. Two subspecies, one in the Indian area.

333. **Cœnonympha myops macmahoni** (Swinhoe). (Fig. 78, ♂).

Lyela macmahoni, Swinhoe, 1908, p. 60 (Quetta, ♂♀).
Cœnonympha myops macmahoni, Fruhstorfer, 1911, p. 301; Evans, 1932 *a*, p. 111; *id.*, 1932 *b*, p. 201 (Baluchistan).

This insect appears to be rather distinct from the nominotypical form, and only resembles it by the single ocellus on fore wing, and by the more or less white antennæ; but such characters are found in other species of the genus.

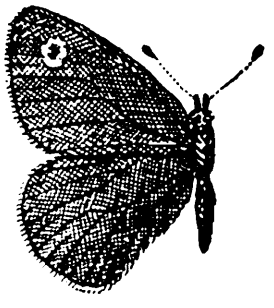


Fig. 78.—*Cœnonympha myops macmahoni* (Swinh.), ♂.

♂♀. *Upperside* blackish-brown. Fore wing with a subapical, small blind ocellus, black, with fulvous ring, somewhat variable, and sometimes indistinct. Hind wing unmarked.

Underside as above. Fore wing ocellus larger, more sharply defined, and centred with white; female usually with some rufous scaling in cell and beyond it.

Head, thorax and abdomen blackish-brown, paler below; antennæ black, ringed with white, club white along outer edge.

Expanse: ♂♀, 35–40 mm.

Habitat.—Afghanistan (Quetta); BALUCHISTAN (Gwal, Urak, Zhob, March to May), a series in the British Museum, obtained by Evans.

"Frequently met with in the Khojak-Urak area, above 6,000 feet, from end of March to early May. I found it very common one year in the Gwal Forest at the end of March." (*Evans*, 1932 *b*).

Genus **MANIOLA** Schrank.

Maniola, Schrank, 1801, pp. 152, 170; Scudder, 1875, p. 211 (type, *lemur* Schrank); Moore, 1891, p. 155; *id.*, 1892 *b*, p. 44 (type, *jurtina* Linn.); Bingham, 1905, p. 118; Fruhstorfer, 1911, p. 306; Evans, 1932 *a*, p. 111; Hemming, 1934 *a*, p. 42 (type, *Papilio lemur* Schr., 1801, = *P. jurtina* Linn., 1758).

Epinephele, Hübner, 1819, p. 59; Butler, 1867 *e*, p. 194 (type, *janira* Linn.); Marshall & de Nicéville, 1883, p. 201, pl. xv; Hemming, 1934 *a*, p. 43 (type, *Papilio janira* Linn., 1758, = *P. jurtina* Linn., 1758).

Chortobius, Guenée, 1859, p. 2; Moore, 1891, p. 155; *id.*, 1892 *b*, p. 51 (type, *pamphilus* Linn.).

Type of genus, *M. jurtina* Linn.

Distribution.—Palæarctic Region, extending to North-Western India.

♂♀. Fore wing triangular, costa arched, outer margin straight or excurved, inner margin straight, apex distinct, tornus rounded; cell broad, less than half length of wing; vein 1 *b* thickened, the median and vein 12 much swollen at the base; *udc* minute, *mdc* strongly incurved, *ldc* outwardly oblique; veins 2 to 6 equidistant, subparallel. Hind wing ovate, costa and outer margin in a regular arch; inner margin very long, straight, slightly emarginate towards apex; tornus well marked; cell elongate, well over half length of wing; vein 3 from before apex of cell; vein 6 equidistant from 5 and 7. Antennæ about half length of fore wing, gradually incrassate without distinct club; palpus with third segment comparatively long, hairy anteriorly to apex; eyes naked; mid-tarsi long, hairy beneath.

Larva.—Green, with velvety pubescence; anal processes short. Feeds on grasses, is concealed by day, and hibernates when young.

Pupa.—Usually green; suspended close to the ground.

Habits.—Found on sunny grassy slopes and in meadows, frequenting flowers, especially *Umbelliferæ*, and keeping the wings closed when at rest.

Key to the Species.

1. Hind wing with outer margin even. Fore wing without a ♂ brand . . . . . 2.
   Hind wing with outer margin crenulate. Fore wing upperside with a broad dark brand from vein 1 *b* to veins 3 or 4; ♀ usually with an ocellus in area 2 . . . . . 4.
2. Hind wing underside without prominent pale markings. Fore wing upperside with a single apical ocellus; ♀ rarely with an ocellus in area 2; ocelli not yellow-ringed . . . . . 3.
   Hind wing underside with prominent fulvous markings from base of vein 8 to middle of cell; a discal series of irregular fulvous or pale yellow spots . . . . . [p. 258. [(C. & R. Feld.), *cœnonympha*

3. Fore wing upperside bright tawny, except for extreme base and margin. Fore wing underside with discal line obsolete or nearly so. . [p. 255. [(C. & R. Feld.), *pulchella*
Fore wing upperside with tawny area completely overlaid with dark brown scales, less so in ♀. Fore wing underside with discal line more or less prominent, especially in ♀; a discal, scarcely darkened, tawny area . [p. 255. [(C. & R. Feld), *pulchra*
4. Hind wing underside with no prominent ocelli, at most a very small one in area 1 *c* .. 6.
Hind wing underside with prominent white-ringed ocelli; a prominent white-edged discal line . 7.
6. Upperside dark brown; only tawny beyond cell and about the ocelli in the ♀ . . . [p. 259. *lupinus* (Costa),
Upperside tawny, except for extreme base and border. Fore wing underside with discal line obsolete. Hind wing underside paler and more striated, with very irregular discal and submarginal lines . ... [p. 261. *narica* (Hübn.),
7. Fore wing upperside with apical ocellus elongate .. . . [p. 262. *wagneri* (H.-S.),
Fore wing upperside with apical ocellus circular 8. [p. 263.
8. ♂ genitalia with uncus long and thin *davendra* (Moore),
♂ genitalia with uncus short and stout *tenuistigma* [Moore, p. 265.

334. **Maniola pulchella** (C. & R. Felder).

Epinephele pulchella, C. & R. Felder, 1867, p. 490, pl. lxix, fig. 16 (♂); Moore, 1874 *b*, p. 566 (Kashmir); *id.*, 1882 *b*, p. 237 (Lahoul); Marshall & de Nicéville, 1883, p. 208, pl. xv, fig. 40 (left half, ♂, Dras, Ladak).
Chortobius pulchella, Moore, 1892 *b*, p. 54, pl. cv, figs. 1, 1 *a* (♂♀).
Maniola pulchella, Bingham, 1905, p. 121; Hannyngton, 1910, p. 135 (Kumaon, 12,000 feet and over).
Maniola pulchella pulchella, Fruhstorfer, 1911, p. 307.
Maniola pulchella, Evans, 1932 *a*, p. 111, pl. xiii, fig. D 7. 1 (♂).

♂. *Upperside* of fore wing ochraceous-yellow; costa, and outer and inner margins, broadly greyish-brown; a subapical round black spot or non-pupilled ocellus. Hind wing uniform, greyish-brown; outer margin very slightly scalloped. Cilia of both wings paler greyish-brown.

Underside similar to above. Fore wing with paler borders; subapical ocellus white-centred, and surrounded by a broad zone of yellow paler than the ground-colour. Hind wing ground-colour paler than on upperside, speckled and striated with dark brown; a discal, obscure, angulate, broken line.

♀. Resembles the male. *Upperside* of fore wing usually with an additional round black spot near tornus.

Antennæ, head, thorax and abdomen pale greyish-brown.

Expanse: ♂♀, 38–45 mm.

Habitat.—Chitral to Kashmir, and Lahoul; not rare.

Maniola pulchra (C. & R. Felder).

♂♀. Resembles *pulchella* (C. & R. Feld.). *Upperside* of fore wing darker. *Underside* of fore wing with a discal line, more prominent in the female, and a discal tawny area.

This species is variable within small limits, and five forms have been recognized.—The Pamir and Chitral at high elevations, *sylvia* Hemm.; Chitral and Gilgit, up to 9,000 feet, *baroghila* Tytl.; Baltistan, *astorica* Tytl.; between Ladak and the Pir Panjal, *neoza* Lang.; from Lahoul to Kumaon, the nominotypical *pulchra*.

More material is required in order to estimate the subspecific value of these forms, but they are retained here provisionally.

Distribution.—The Pamirs and CHITRAL to KUMAON. Five subspecies.

335 *a*. **Maniola pulchra pulchra** (C. & R. Felder). (Fig. 79, ♂).

Epinephele pulchra, C. & R. Felder, 1867, p. 491, ♂; Marshall & de Nicéville, 1883, pp. 208, 209.
Chortobius pulchra, Moore, 1892 *b*, p. 52, pl. civ, figs. 3, 3 *a* (♂♀).
Maniola pulchella pulchra, Bingham, 1905, p. 122; Fruhstorfer, 1911, p. 307.
Maniola pulchra pulchra, Tytler, 1926, p. 258 (Lahoul; Spiti; Panji; Garhwal); Evans, 1932 *a*, p. 111.

♂. Resembles *pulchella* (C. & R. Feld.), but is larger. *Upperside* of fore wing with the tawny ground-colour overlaid with brown, which forms a more or less diffuse dark band across the wing; a small subapical ocellus. Hind wing similar to that of *pulchella*.

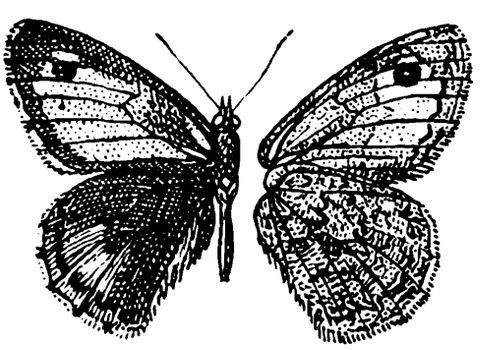


Fig. 79.—*Maniola pulchra pulchra* (C. and R. Feld.), ♂. (Upper Kunawur).

Underside as in *pulchella*, the greyish-brown ground-colour darker. Fore wing with broader dark margins; obscure discal and submarginal sinuous brown lines; yellow area round the subapical ocellus more prominent than in *pulchella*.

♀. Resembles the male. *Upperside* of fore wing brighter ochraceous; sometimes a second smaller ocellus is present.

Underside with discal and submarginal brown lines usually more distinct.

Expanse: ♂♀, 41–44 mm.

Habitat.—LAHOUL to KUMAON (the inner ranges); not rare.

335 *b*. **Maniola pulchra sylvia** Hemming.

Maniola pulchra chitralica, Tytler, 1926, p. 257 (♂♀, Chitral, to 9,000 feet) ; Evans, 1932 *a*, p. 111.
Maniola pulchra sylvia, Hemming, 1933 *a*, p. 275 (=nom. nov. pro *chitralica* Tytl.=homonym of *chitralica* Evans).

♂♀. *Upperside* of fore wing with paler and more extensive fulvous area, but ranging to dark brown with slight fulvous suffusion.

Underside of fore wing with ocellus somewhat larger ; submarginal dark crenulate line more regular, and placed a little farther from the margin than in the nominotypical form.

Habitat.—The Pamirs and CHITRAL, at high elevations. The British Museum contains a series from Chitral, 8 000 to 14,000 feet, chiefly from the Evans Collection. There are also 3 ♂ from the Pamirs : Chichilik Pass, 13,000 feet (ex Coll. Evans).

335 *c*. **Maniola pulchra baroghila** Tytler.

Maniola pulchra baroghila, Tytler, 1926, p. 257 (♂♀, N.E. Chitral ; Afghanistan, Gilgit ; above 9,000 feet) ; Evans, 1932 *a*, p. 111.

♂♀. A small form, with greyish-brown ground-colour. *Upperside* of fore wing with the fulvous area pale and extensive.

Underside of fore wing with fulvous area paler than in other subspecies. Ground-colour of both wings paler than in allied forms.

Expanse : ♂♀, 40 mm.

Habitat.—Afghanistan ; NORTH-EASTERN CHITRAL ; GILGIT, above 9,000 feet ; not rare.

335 *d*. **Maniola pulchra astorica** Tytler.

Maniola pulchra astorica, Tytler, 1926, p. 258, pl. iii, fig. 5 (♀) (♂♀, Astor ; Ladak, 11,000 feet) ; Evans, 1932 *a*, p. 111.
Epinephele pulchra, Marshall & de Nicéville (*non* C. & R. Feld.), 1883, pl. xv, fig. 40 (right half, ♂, Dras, Ladak).

♂. Not distinguishable from the nominotypical form.

♀. *Upperside* of fore wing as in *pulchella* (C. & R. Feld.), with the same extensive and pure ochraceous area.

Underside as in male.

Habitat.—ASTOR ; WESTERN GILGIT ; LADAK, 11,000 feet, not rare.

335 *e*. **Maniola pulchra neoza** (Lang).

Epinephele neoza, A. M. Lang, 1868 *b*, p. 35 (♂♀, Kunawar and Cashmere) ; Marshall & de Nicéville, 1883, pp. 208, 209, ♂♀.
Chortobius neoza, Moore, 1892 *b*, p. 53, pl. civ, figs. 4, 4 *a* (♂♀).
Epinephele (*Chortobius*) *neoza*, Mackinnon & de Nicéville, 1897, p. 218 (Mussooree).
Maniola pulchella neoza, Fruhstorfer, 1911, p. 307 (Kashmir, 10,000–12,000 feet).
Maniola pulchra neoza, Evans, 1932 *a*, p. 111.

♂♀. Doubtfully distinct from the nominotypical form, but larger.

Expanse : ♂♀, 48 mm.

Habitat.—LADAK to the PIR PANJAL ; not rare.

336. **Maniola cœnonympha** (C. & R. Felder).

Epinephele cœnonympha, C. & R. Felder, 1867, p. 492, t. 69, figs. 14, 15 (♀) ; Marshall & de Nicéville, 1883, pp. 208, 210, ♂♀.
Chortobius cœnonympha, Moore, 1892 *b*, p. 54, pl. cv, fig. 2 (♀, ex Felder).
Maniola cœnonympha, Bingham, 1905, p. 122 ; Fruhstorfer, 1911, p. 307 ; Evans, 1932 *a*, p. 111, pl. xiii, fig. D 7. 4 (♂).
Epinephele goolmurga, A. M. Lang, 1868 *b*, p. 36 (♀, Gulmarg) ; Marshall & de Nicéville, 1883, pp. 208, 212, ♀.
Chortobius goolmurga, Moore, 1892 *b*, p. 56, pl. cv, fig. 4 (♂, Boorzil Valley), fig. 4 *a* (♀).
Maniola cœnonympha var. *goolmurga*, Bingham, 1905, p. 123.
Maniola cœnonympha goolmurga, Fruhstorfer, 1911, p. 307 (Kashmir, 11,000–13,000 feet).
Epinephele maiza, A. M. Lang, 1868 *b*, p. 36 (♀, Gulmarg) ; Marshall & de Nicéville, 1883, pp. 208, 211, pl. xv, fig. 41 (♀, Pir Pinjal).
Chortobius maiza, Moore, 1892 *b*, p. 55, pl. cv, figs. 3, 3 *a*, *b* (♂♀).
Maniola cœnonympha var. *maiza*, Bingham, 1905, p. 3 ; Fruhstorfer, 1911, p. 307.

♂. *Upperside* brown, uniform, with a powdering of shining cupreous scales seen only in certain lights ; cilia brown. Fore wing sometimes with a subapical, faintly indicated, round black spot, surrounded by a narrow pale ring.

Underside of fore wing deep ochraceous orange ; costa, apex, outer and inner margins broadly overlaid with brown ; disco-cellulars brown ; a short, brown, distal costal streak ; subapical spot as on upperside. Hind wing with proximal half dark brown ; distal half brown with a deep ochraceous tinge ; a comparatively large ochraceous spot near the base ; a discal, angulate, band of six or seven detached, whitish, unequal spots ; two minute ocelli, black with an ochraceous ring, in areas 2 and 5 respectively.

♀. Resembles the male. *Upperside* paler brown ; cilia whitish. Fore wing with two post-discal ocelli, black, and broadly ringed with white or ochraceous. Hind wing with the discal band of spots of the underside showing through.

Underside as in the male. Fore wing paler ochraceous ; a discal, dark brown line, bordered outwardly, near costa, by a short white streak ; a submarginal, dark brown line ; ocelli as on upperside. Hind wing brown, darker basally ; otherwise as in the male.

Antennæ, head, thorax and abdomen brown.

Form **maiza** (Lang).—♂♀. *Underside* of fore wing with a discal brown line.

Form **goolmurga** (Lang).—♂♀. Fore wing with narrower dark borders.

Expanse : ♂♀, 35–45 mm.

Habitat.—KASHMIR ; not rare.

Maniola lupinus (Costa, 1835).

This species closely resembles *lycaon* Rott., which occurs with it in some places, but has a more northern distribution.

♂. *Upperside* dark greyish-brown. Fore wing with more or less dull ochraceous scaling ; a small subapical ocellus ; brand prominent, wider than in *lycaon*, and more black.

Underside of fore wing ochraceous-yellow, with costal, outer and inner pale brown borders of moderate width ; subapical ocellus somewhat larger and more sharply defined. Hind wing paler than above, more greyish ; a proximal darker area, extending to a little beyond the cell, limited by an irregular, angulate, post-discal line, as in *lycaon* ; the whole wing more densely striated with black than in *lycaon*.

♀. Apparently indistinguishable from *lycaon*. *Upperside* of fore wing more or less ochraceous, but sometimes entirely greyish-brown, or with a small discal ochraceous patch ; in the more ochraceous specimens brown borders are always present ; a subapical ocellus, larger than in the male ; a similar ocellus in area 2, rarely absent ; both ocelli rarely pupilled with white ; the ocelli lie within the pale area, or are ringed with ochraceous ; a post-discal, dark, distinct, line or band, more or less angled distad on vein 4. Hind wing with post-discal distinct, irregular line, as on underside of male ; a submarginal, more or less distinct, somewhat crenulate line ; area between the two lines usually paler than the rest of the wing, but less so than in *lycaon*.

Underside as in the male, except that on fore wing the post-discal line is always present, and the posterior ocellus, as on upperside, is very rarely absent.

Distribution.—Hungary, the Eastern Mediterranean, and North Africa, to BALUCHISTAN and NEPAL. Four subspecies in the Indian area.

337 *a*. **Maniola lupinus centralis** (Riley).

Epinephele lupinus centralis, Riley, 1921, p. 593 (♂♀, Mesopotamia, Kurdistan, W. Persia) ; Evans, 1927, p. 72 ; *id.*, 1932 *a*, p. 112 ; *id.*, 1932 *b*, p. 201 (Baluchistan) ; Peile, 1937, p. 93.

Epinephele interposita, Marshall & de Nicéville (*non* Erschoff, 1874), 1883, pp. 201, 206, ♂♀.

Maniola interposita, Moore, 1892 *b*, p. 49 ; Bingham, 1905, p. 121 ; Fruhstorfer, 1911, p. 306.

♂. *Upperside* greyish-brown, with a powdering of glittering, somewhat copper-coloured scales, visible only in certain lights ; cilia silvery-grey.

Underside much as in *cheena* (Moore), but ground-colour paler, and lines on hind wing obscure.

♀. *Upperside* brown; proximal half, or more, of both wings darker, this area with a curved, angulate, sinuous border, sharply defined, and margined by a pale, broken, discal band. Fore wing subapical spot ringed with pale yellow. Both wings with a submarginal obscure dark band.

Underside as in *cheena*, but paler.

Expanse: ♂♀, 45–50 mm.

Habitat.—BALUCHISTAN; North-Western Persia; Iraq; not rare.

According to Peile (1937) the butterfly is very common in Persia, and settles on brushwood and the lower branches of trees.

Evans (1932 *b*) records it as common in Baluchistan, on the Khojak and Bogra Passes, at 7,000 feet, in June and July.

337 *b*. **Maniola lupinus iskander** Hemming.

Maniola cheena iskander, Hemming, 1941 *d*, p. 207 (nom. nov pro *chitralica* Tytler *non* Evans).
Maniola cheena chitralica, Tytler, 1926, p. 258 (♂♀, Tarban Nala, Utgen, Chitral).
Maniola lupinus chitralica, Evans, 1932 *a*, p. 112; Hemming, 1933 *a*, p. 275.

The name *chitralica* Tytler is a homonym of *M. davendra chitralica* Evans.

This subspecies more resembles *cheena* (Moore) than *centralis* Riley, but is smaller than the former.

♂. Compared with *cheena*. *Underside* of fore wing paler ochraceous; post-discal dark line obsolete or absent. Hind wing ground-colour paler.

♀. *Underside* of fore wing with paler ochraceous area; post-discal dark line from the origin of vein 9, becoming indistinct below vein 2.

Expanse: ♂, 44–46 mm.; ♀, 50 mm.

Habitat.—CHITRAL; not rare. There is in the British Museum a ♂ from Gilgit, 8,000 to 9,000 feet (ex Coll. Evans).

337 *c*. **Maniola lupinus kashmirica** Moore.

Maniola kashmirica, Moore, 1892 *b*, p. 51, pl. civ, figs. 2, 2 *a* (♂♀, Kashmir).
Maniola cheena var. *kashmirica*, Bingham, 1905, p. 121.
Maniola cheena kashmirica, Fruhstorfer, 1911, p. 306.
Maniola lupinus kashmirica, Evans, 1932 *a*, p. 112, pl. xiii, fig. D 7. 5 (♂).

♂. *Upperside* ground-colour differs from *centralis* in being of a deep coffee-brown colour, as in *cheena*. Fore wing with the brand narrower; ocellus ringed with ochraceous, more conspicuous than in *centralis*, but less so than in *cheena*; often a smaller subtornal ocellus in area 2.

Underside of fore wing with ochraceous area smaller than in *cheena*, and lines on both wings less distinct.

♀. *Underside* resembles the male, except for the posterior ocellus on fore wing; in other respects resembles *cheena*.

Habitat.—SOUTHERN CHITRAL and KASHMIR; not rare.

337 *d*. **Maniola lupinus cheena** (Moore).

Epinephele cheena, Moore, 1865 *b*, p. 504, pl. xxx, fig. 6 (♂♀); Marshall & de Nicéville, 1883, pp. 201, 205.
Maniola cheena, Moore, 1892 *b*, p. 50, pl. civ, figs. 1, 1 *a* (♂♀).
Epinephele (*Maniola*) *cheena*, Mackinnon & de Nicéville, 1897, p. 218 (Mussooree, 11,000–12,000 feet).
Maniola cheena, Bingham, 1905, p. 120.
Maniola cheena cheena, Fruhstorfer, 1911, p. 306.
Maniola lupinus cheena, Evans, 1932 *a*, p. 112.

♂. *Upperside* umber-brown; cilia brown, tipped with grey. Fore wing with a subapical ocellus, black, with a minute fulvous centre and broad orange zone; sometimes a similar, but much smaller, ocellus in area 2. Hind wing uniform.

Underside of fore wing dull orange; costa, apical area, outer and inner margins greyish-brown; a discal, sinuous, dark line; a submarginal, nearly straight, dark line; a subapical ocellus as on upperside, but ringed with yellow. Hind wing greyish-brown, with delicate transverse brown striæ; a discal, zigzag, curved, dark line; a submarginal, obscure, sinuous, dark line; tornal area with one or two minute ocelli, black with yellow ring.

♀. *Upperside* resembles the male. Fore wing with a large post-discal orange area, bearing a round black spot in area 2, a smaller black spot in 3, and a subapical ocellus as in the male.

Underside resembles the male. Fore wing with the spot in area 2 with a yellow zone.

Expanse: ♂♀, 50–60 mm.

This form may be possibly a separate species. It shows the most prominent ocellus. The two preceding forms are very similar to *cheena*, but all three are very different to *centralis*. They are distinguished by the female hind wing being without markings on upperside, whereas in *centralis* a post-discal dark line is well developed.

Habitat.—KUNAWUR to NEPAL, to 12,000 feet (inner ranges); not rare.

338. **Maniola narica** (Hübner).

Papilio narica, Hübner, 1818, figs. 704–707.
Epinephele narica, Marshall & de Nicéville, 1883, pp. 201, 204, ♂♀.
Maniola narica, Moore, 1892 *b*, p. 48, ♂♀; Bingham, 1905, p. 120; Evans, 1932 *a*, p. 112; *id.*, 1932 *b*, p. 201 (Baluchistan).

♂♀. *Upperside* very closely resembles small specimens of *davendra* Moore.

Underside of fore wing without a discal line; subapical ocellus broadly bordered with very pale yellow on the inner side, the colour being continued to the costa in a short oblique streak; costal and outer margins and apex white, thickly dusted with brown. Hind wing pale greyish-white, thickly dusted with reddish-brown, forming discal and submarginal, irregular, obscure bands, their outer edges defined by curved, highly sinuous, dark lines; ocelli entirely absent.

Expanse: ♂♀, 48–50 mm.

Habitat.—BALUCHISTAN; Turkestan and Southern Russia. Evans (1932 *b*) records it as being common in Baluchistan in May, on the Khojak slopes, and on the Bogra and Murgha Mehtarzai Passes.

Maniola wagneri (Herrich-Schäffer).

♂♀. Easily recognized by the subapical ocellus, in area 5, being elongate and black, and sharply defined on the grey ground-colour.

Distribution.—Armenia, Asia Minor, and Mesopotamia, to Persia and BALUCHISTAN. One Indian subspecies.

339. **Maniola wagneri mandane** (Kollar).

Satyrus mandane, Kollar, 1850, p. 52.
Maniola wagneri mandane, Evans, 1932 *a*, p. 112; *id.*, 1932 *b*, p. 201 (Baluchistan).

♂. *Upperside* grey. Fore wing with subapical ocellus rather elongate and narrow; cell suffused with ochraceous; a post-discal, wide, ochraceous band, between veins 2 and 5, and divided into oblong patches by the veins; these ochraceous markings very indistinct; brand blackish, relatively broad, reaching into area 3; a marginal thin white line; cilia greyish-brown. Hind wing with outer margin strongly crenulate, produced to short tails at veins 3 and 4; a submarginal, pale, curved, indistinct line; cilia white, at least anteriorly, but posteriorly usually with inner half white and outer half brown.

Underside of fore wing largely ochraceous; subapical ocellus round, with pale ring defined outwardly by darker scaling; a post-discal, thin, dark, slightly irregular line, from costa to grey inner area, and edged broadly with white on its outer side, from costa to vein 4; a small, white, curved mark, near costa beyond ocellus; a submarginal dark line, sinuous below vein 4; a marginal, thin, black line, edged outwardly by a thicker white line. Hind wing paler than on upperside; a post-discal, narrow, white band, edged inwardly with black, from near middle of costa to inner margin, strongly curved outwards; two tornal ocelli in areas 1 *c* and 2, the latter one placed more proximad, both round, black, without white pupil

and ringed with white; in distal area between veins 4 and 7 some diffuse white scaling, forming an indistinct band; a submarginal, whitish line, evenly curved; inner margin greyish-white.

Head, thorax and abdomen brown; antennæ brown, club dark chestnut; anal tuft smoky-black; abdomen greyish-white below.

♀. *Upperside* resembles the male. Fore wing with subapical ocellus lying within a large, pale ochraceous, somewhat triangular, patch, narrowed posteriorly to vein 2; between the ochraceous patch and the cell, more or less distinct ochraceous spots in areas 3 and 4, and usually also a small spot in end of cell. Hind wing as in male.

Underside as in male.

Expanse: ♂♀, 50–52 mm.

Habitat.—BALUCHISTAN and Persia; very rare in Baluchistan.

Maniola dàvendra (Moore).

M. davendra, narica (Hübn.) and *tenuistigma* Moore, are all very similar in appearance. *M. narica* is distinguished by the absence of ocelli on hind wing underside. *M. davendra* has a relatively broad brand in the male, which varies in length. *M. tenuistigma* has a narrower brand, which always extends above vein 3.

♂. *Upperside* greyish-brown. Fore wing ochraceous-yellow, except for the borders of ground-colour; a subapical, black, ocellus; brand dark grey, reaching veins 3 or 4; cilia brown to white. Hind wing unmarked; outer edge strongly crenulate; cilia white.

Underside much as in *wagneri* (H.-S.). Hind wing with a subapical, small, ocellus, which is rarely absent; post-discal band strongly bent in area 3.

♀. *Upperside* similar to *wagneri*. Fore wing ochraceous area extended into the cell, and often to the base, leaving a post-discal dark line.

Distribution.—Persia and Turkestan, to BALUCHISTAN and KUMAON. Four subspecies in the Indian area.

340 *a*. **Maniola davendra davendra** (Moore).

Epinephele davendra, Moore, 1865 *b*, p. 502, pl. xxx, fig. 7 (♂); Marshall & de Nicéville, 1883, p. 201, ♂♀, pl. xv, fig. 39 (♀, Kabul).

Maniola davendra, Moore, 1892 *b*, p. 45, pl. ciii, figs. 1, 1 *a* (♂♀); Bingham, 1905, p. 119; Fruhstorfer, 1911, p. 306.

Maniola davendra davendra, Evans, 1932 *a*, p. 112.

Epinephele roxane, C. & R. Felder, 1867, p. 491, pl. lxix, figs. 12, 13 (♀); Marshall & de Nicéville, 1883, pp. 201, 202, ♂♀.

♂. *Upperside* of fore wing orange-yellow; margins somewhat broadly greyish-brown, sharply defined; a subapical, round,

black spot; cilia greyish; brand broad, not extending into area 3. Hind wing uniform greyish-brown; a submarginal, obscure, dark line; outer margin strongly scalloped; cilia white.

Underside similar to upperside. Fore wing with margins paler brown and less sharply defined; proximal orange-yellow area bordered by a curved, somewhat obscure, pale band; distal area bordered by a dark zigzag line; outer margin narrowly pale; a subapical ocellus, black, with white pupil, an inner yellow ring, and an outer slender brown ring; an antemarginal black line. Hind wing paler than on upperside; a discal, strongly curved, narrow white band, margined inwardly with ferruginous; three black, white-ringed spots; one in the distal part of area 1 *c*, one in area 2, placed more proximad, and a third smaller one in 5; a submarginal, obscure, narrow whitish band; an antemarginal black line.

♀. *Upperside* differs from the male in having on both wings a discal, curved, sinuous dark band, sometimes obscure on the hind wing; proximal area, on fore wing, greyish-brown, with a shading of yellow outwardly.

Underside resembles the male; discal band more clearly defined.

Expanse: ♂♀, 50–55 mm.

Habitat.—Spiti to Kumaon; rare.

340 *b*. **Maniola davendra latistigma** Moore.

Maniola latistigma, Moore, 1892 *b*, p. 46, pl. ciii, figs. 2, 2 *a* (♂♀) (S. Afghanistan; Baluchistan).
Maniola davendra f. *latistigma*, Fruhstorfer, 1911, p. 306.
Maniola davendra latistigma, Evans, 1932 *a*, p. 112, pl. xiii, fig. D 7. 8 (♂); *id.*, 1932 *b*, p. 201 (Baluchistan).

♂. *Upperside* of fore wing differs from the nominotypical form in the broader brand, which reaches almost to vein 4.

Underside of fore wing brighter ochraceous, with markings more sharply defined; outer edge of submarginal line bordered with white, at least anteriorly; post-discal line, from vein 4 to costa, outwardly bordered with white. Hind wing with post-discal line more strongly bordered with white on outer side.

♀. *Upperside* of fore wing with post-discal line strongly marked, and similarly on hind wing.

Underside as in the male.

Expanse: ♂♀, 52–55 mm.

Habitat.—Baluchistan and Afghanistan; common.

340 *c*. **Maniola davendra chitralica** (Evans).

Epinephele davendra chitralica, Evans, 1923, p. 781.
Maniola davendra chitralica, Evans, 1932 *a*, p. 112.

♂♀. Smaller than the two preceding subspecies; subapical ocellus larger than is usual in the nominotypical form.

♂. Fore wing brand divided by the veins into three spots, with a speck in the base of area 3.

Underside resembles the nominotypical form.

♀. *Upperside* resembles *latistigma*, but the subapical ocellus is larger. Hind wing with a post-discal line as in *latistigma*.

Expanse: ♂♀, 48–52 mm.

Habitat.—CHITRAL, 5,000 to 8,500 feet; Khyber Pass; not rare.

340 *d*. **Maniola davendra brevistigma** Moore.

Maniola brevistigma, Moore, 1892 *b*, p. 47, pl. ciii, fig. 3 (♂, Dras), fig. 3 *a* (♀, Kardong).
Maniola davendra f. *brevistigma*, Fruhstorfer, 1911, p. 306.
Maniola davendra brevistigma, Evans, 1932 *a*, p. 112.

♂. *Upperside* of fore wing with brand short, only reaching vein 3, its outer edge produced on vein 2; outer brown border somewhat narrower than in other subspecies. Hind wing as in the nominotypical form.

Underside resembles the nominotypical form. Hind wing with subapical ocellus larger.

♀. *Upperside* of fore wing with the pale ochraceous area extending usually to the base; post-discal line weakly marked.

Underside as in the male.

Habitat.—BALTISTAN to LADAK, 10,000 to 14,000 feet; not rare.

Maniola tenuistigma Moore.

♂. A smaller species than *davendra*. ♂ brand narrower and longer, with narrower androconia. Genitalia with uncus short and stout.

♀. *Upperside* resembles *brevistigma* Moore.

Underside as in the male.

Distribution.—BALUCHISTAN and CHITRAL. Two subspecies.

341 *a*. **Maniola tenuistigma tenuistigma** Moore.

Maniola tenuistigma, Moore, 1892 *b*, p. 48, pl. ciii, figs. 4, 4 *a* (♂, Khojak, Baluchistan); Evans, 1932 *b*, p. 201 (Baluchistan).
Maniola tenuistigma tenuistigma, Evans, 1932 *a*, p. 112.

♂. *Underside* of fore wing with post-discal and submarginal lines strongly marked; post-discal line strongly waved below vein 4, and anteriorly edged with white on its outer side. Hind wing with post-discal line as in *davendra*, but more evenly defined.

♀. *Upperside* as in *brevistigma* Moore, extensively pale ochraceous.

Underside as in the male.

Expanse : ♂♀, 45–48 mm.

Habitat.—BALUCHISTAN, above 7,000 feet ; not uncommon.

341 *b*. **Maniola tenuistigma laspura** Evans.

Maniola tenuistigma laspura, Evans, 1932 *a*, p. 112 (Chitral, above 9,000 feet).

♂♀. *Upperside* as in the nominotypical form, except that the subapical ocellus tends to be larger.

Underside with ocelli larger.

The male is distinguished from the very similar *davendra chitralica* (Evans) by the brand not being divided by the yellow veins.

Expanse : ♂♀, 48–50 mm.

Habitat.—CHITRAL, above 9,000 feet ; rare.

Maniola hilaris (Staudinger) has not been recorded from Indian territory. The record by Evans (1932 *a*, p. 111) is based on Alcock (1898), but the insect was obtained on the northern side of the Durkot Pass, leading to Wakhan.

Genus **HIPPARCHIA** Fabricius.

Hipparchia, Fabricius, 1807, p. 281 ; Butler, 1868, p. 194 (type, *hermione* Linn.) ; Marshall & de Nicéville, 1883, pp. 96, 182 (part.) ; Hemming, 1934 *a*, p. 41 (type *hermione* Linn., 1764, =*Papilio fagi* Scopoli, 1763).

Satyrus, Latreille, 1810, pp. 355, 440 ; Scudder, 1875, pp. 265, 266 (type, *galathea* Linn.) ; Hemming, 1934 *a*, p. 35 (type, *Satyrus galathea* Fabr. =*Papilio galathea* Linn., 1758) ; *id.*, 1936, p. 194 (type, *Papilio actæa* Esper, 1780).

Minois, Hübner, 1819, p. 57 ; Butler, 1868, p. 194 (type, *phædra*, Linn.) ; *id.*, 1868, p. 61 (type, *pkædra* Linn.) ; Fruhstorfer, 1908 *e*, p. 29 (=*Satyrus* group) ; Hemming, 1934 *a*, p. 42 (type, *Papilio phædra* Linn., 1764, =*Papilio dryas* Scopoli, 1763).

Eumenis, Hübner, 1819, p. 58 ; Grote, 1873, p. 62 (type, *autonoë* Esper) ; Moore, 1891, p. 154 ; *id.*, 1892 *b*, p. 17 ; Fruhstorfer, 1908 *e*, p. 29 (=*Satyrus* group) ; *id.*, 1911, p. 307 ; Evans, 1932 *a*, pp. 94, 113 ; Hemming, 1934 *a*, p. 42 (type, *Papilio autonoë* Esper, 1784).

Nytha, Billberg, 1820, p. 77 ; Moore, 1891, p. 154 ; *id.*, 1892 *b*, p. 24 (type, *hermione* Linn.) ; Bingham, 1905, p. 113.

Chazara, Moore, 1891, p. 154 ; *id.*, 1892 *b*, p. 21 (type, *briseis* Linn.).

Philareta, Moore, 1891, p. 154 ; *id.*, 1892 *b*, p. 23 (type, *hanifa* Nordmann).

Karanasa, Moore, 1891, p. 154 ; *id.*, 1892 *b*, p. 38 (type, *huebneri* Feld.) ; Bingham, 1905, p. 123 ; Fruhstorfer, 1911, p. 307 ; Evans, 1932 *a*, pp. 95, 114.

Kanetisa, Moore, 1892 *b*, p. 42 (type, *digna* Marsh.).

Type of the genus, *H. fagi* Scopoli.

Distribution.—The Palæarctic Region, and the NORTH-WESTERN HIMALAYAS.

♂♀. Wings rounded or narrow. Fore wing with cell half or a little over half length of wing, narrow or broad; *udc* minute; *mdc* curved or angled inwards; *ldc* longer than the others, excurved; upper angle of cell right-angled; veins 10 and 11 from before apex of cell; vein 12 strongly swollen at base; median vein more or less swollen. Hind wing with cell less than or more than half length of wing, broad or narrow; *mdc* long, incurved; vein 3 from well before apex of cell; vein 4 from angle of cell; vein 6 closer to 7 than to 5. Antennæ more or less than half length of fore wing; club long and gradual, or abrupt and spatulate and grooved beneath. Palpi fringed with long porrect hairs; third segment short. Eyes naked. Mid-femora with long hair beneath. Male fore wing with or without a brand.

The variability in structure of the species formerly grouped under *Hipparchia* (*Eumenis*) and *Karanasa* is such that no real division into two genera seems possible. There exists, however, a certain difference in the facies, which enables one to divide the genus into two groups, conformably to the method employed with *Mycalesis* and *Lethe*.

Key to Groups.

1. Fore wing underside largely dark brown. Hind wing underside with submarginal line rarely dentate, often indistinct .. .. [p. 267. *Dryas* Group,
2. Fore wing underside largely ochraceous. Hind wing underside with submarginal line sharply dentate [p 275. *Actæa* Group,

Dryas Group.

(*Eumenis* Hübn., *Minois* Hübn., *Nytha* Billb., *Chazara* Moore, *Philareta* Moore).

Key to Species.

1. Upperside without a discal band; wings velvet-black, with white border .... [p. 268. *parisatis* (Koll.),
   Upperside with a tawny or white discal band 2.
2. Fore wing upperside with discal band formed of disconnected broad streaks, those in areas 2 and 5 being divided by an ocellus . 3.
   Fore wing upperside with discal tawny band prominent and continuous; veins more or less dark. . . . . 4.
3. Fore wing upperside with basal half of cell white; discal band white; a streak in area 4; ♂ with a broad band . . [p. 270. *heydenreichi* Led.
   Fore wing upperside with cell dark brown; discal band tawny or white; ♂ brand narrow .. [p. 270. *persephone* (Hübn.)

4. Fore wing underside with apical ocellus distinctly ringed; upperside, in ♂, with dark basal area not projecting prominently into discal band at vein 4; an obscure but broad brand from vein 1 *b* to vein 4 . . . . *mniszechii* (H.-S.), [p. 271.

Fore wing underside with apical ocellus not ringed; upperside, in ♂, with dark basal area projecting well into discal band at vein 4; brand black and prominent from middle of cell parallel to subcostal vein *thelephassa* (Hübn.), [p. 275.

Hipparchia parisatis (Kollar, 1849).

♂♀. Distinguished by the white outer borders of both wings, always wider on the hind wing.

Distribution.—Turkestan, the Pamirs, and Persia to BALUCHISTAN and KUMAON. Two Indian subspecies.

342 *a*. **Hipparchia parisatis parsis** (Le Cerf).

Satyrus parisatis parsis, Le Cerf, 1913, p. 39, pl. ii, fig. 13 (♂, Toba, " Nepal "); Peile, 1937, p. 94.
Nytha parisatis, Leslie & Evans (*non* Koll.), 1903, p. 667 (Chitral, 5,000–7,000 feet).
Eumenis parisatis shiva, Evans (*non* Le Cerf), 1932 *a*, p. 113; *id.*, 1932 *b*, p. 201 (Baluchistan).

♂♀. *Upperside* of fore wing with white border prominent, reaching vein 5 or beyond it. Hind wing with a wider border; small ocellus in area 2 usually placed just within the white edge, but never separated from it.

Underside of both wings with submarginal line farther from the margin than in *shiva* (Le Cerf), and ocelli larger.

Expanse: ♂♀, 65–70 mm.

Habitat.—BALUCHISTAN to CHITRAL; N.W Frontier, and HUNZA; common.

Peile (1937) remarks that this species settles in numbers in holes in limestone rock.

342 *b*. **Hipparchia parisatis shiva** (Le Cerf). (Fig. 80, ♂).

Satyrus parisatis shiva, Le Cerf, 1913, p. 39, pl. ii, fig. 11 (♂, Simla); Peile, 1937, p. 93, pl. xii, fig. 106 (♂).
Hipparchia parisatis, Moore (*non* Koll.), 1882 *b*, p. 236 (Kangra); Marshall & de Nicéville, 1883, pp. 183, 184, pl. xvi, fig. 47 (♀, Kashmir).
Satyrus parisatis, Butler, 1886 *a*, p. 357 (N.W. Punjab, 4,000–5,000 feet).
Hipparchia parisatis, Butler, 1888, p. 134 (N.E. Punjab).
Nytha parisatis, Moore, 1892 *b*, p. 24 (part.), pl. xcviii, figs. 4, 4 *a* (♂♀).
Hipparchia (*Nytha*) *parysatis* (sic), Mackinnon & de Nicéville, 1897, p. 217 (Mussooree).
Nytha parisatis, Bingham, 1905, p. 117, fig. 29 (♂).
Nytha (*Hipparchia*) *parisatis*, Hannyngton, 1910, p. 135 (Kumaon, extreme west of Garhwal, rare).
Eumenis parisatis parisatis, Fruhstorfer, 1911, p. 308.
Eumenis parisatis parsis, Evans (*non* Le Cerf), 1932 *a*, p. 113, pl. xiii, fig. D. 8. 1 (♂) (Kashmir to Kumaon).

♂. *Upperside* dark vandyke-brown. Fore wing with costa, before the apex, and posterior half of outer margin narrowly bluish-grey, crossed by the dark veins, and touched with brown at ends of the veins; a small subapical ocellus, black with white centre, and a similar one in area 2; between the two

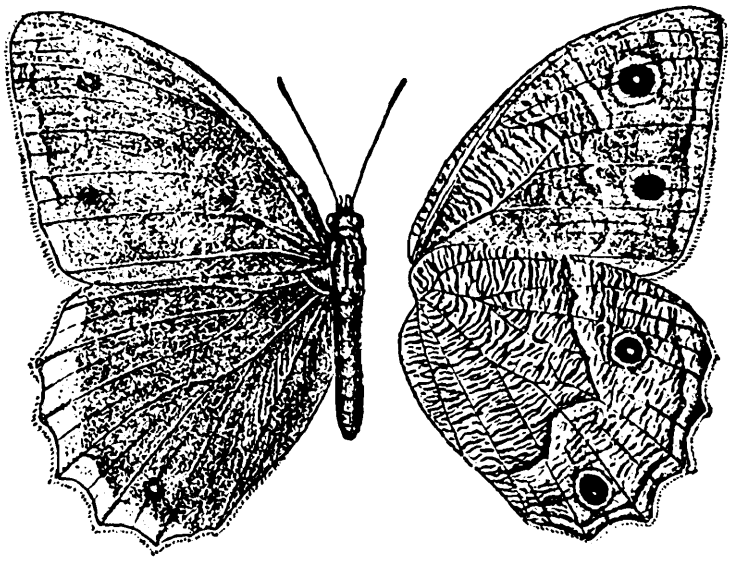


Fig. 80.—*Hipparchia parisatis shiva* (Le Cerf), ♂.

ocelli are two white dots in areas 3 and 4; proximal area with a large dark brown patch of androconia. Hind wing with outer margin broadly bluish-grey, crossed by the dark veins, and touched with brown at ends of the veins; area 2 with a small subanal ocellus, similar to those on the fore wing, placed in the brown area.

Underside pale sepia-brown. Fore wing finely striated with white, excepting over the discal and tornal areas; a discal, highly sinuous, narrow white band, inwardly defined by a dark brown line; submarginal and marginal narrow brown bands; ocelli as on upperside, but larger, more distinct, and ringed with yellow. Hind wing finely striated with white; a discal band as on fore wing, but broader, and with heavier inner black edging; subanal ocellus as on upperside, but larger and ringed with yellow; a similar ocellus in area 5.

♀. Resembles the male; greyish-white marginal borders broader.

Antennæ, head, thorax and abdomen concolorous with the wings above, paler below.

Expanse: 65–70 mm.

Habitat.—Kashmir to Kumaon; not rare.

Moore (1882 *b*) records it from the Kangra Valley where it occurs during the rains, from June to September, and always settles underneath overhanging rocks.

Hipparchia heydenreichi Lederer, 1853.

♂♀. Distinguished by the white markings on both wings, and especially by the basal white patch on fore wing.

Distribution.—Turkestan to the Pamirs, CHITRAL and KASHMIR. One Indian subspecies.

343. **Hipparchia heydenreichi shandura** Marshall.

Hipparchia shandura, Marshall, 1882 *a*, p. 38, pl. iv, fig. 3 (♀); Marshall & de Nicéville, 1883, pp. 183, 191, ♀.
Chazara shandura, Moore, 1892 *b*, p. 21, pl. xcviii, fig. 3 (♂, Skoro La); fig. 3 *a* (♀, ex Marshall).
Philarcta (sic) *shandura*, Leslie & Evans, 1903, p. 668 (Shandur and Baroghil Passes, 12,000 feet).
Nytha shandura, Bingham, 1905, p. 116.
Eumenis heydenreichi shandura, Fruhstorfer, 1911, p. 308; Evans, 1932 *a*, p. 113.

♂. *Upperside* of fore wing with a broad brand from inner margin to lower angle of cell.

♂♀. *Upperside* dusky black; cilia white, dusky black at the veins. Fore wing with basal half of cell white; a discal, outwardly curved, series of broad white streaks, those in areas 2 and 5 completely interrupted in the middle by black, white-centred ocelli. Hind wing with apex of cell white; a discal, outwardly curved, diffuse, broad white band.

Underside of fore wing with the cell white, crossed sub-apically by a black bar; discal series of streaks as on upperside, but broader, longer, and confluent; ocelli as on upperside; a submarginal, somewhat indistinct lunular black line, and a more distinct marginal black line; apex and costa dusted with grey and black. Hind wing dusky greyish-brown; apex of cell and discal band white, and as on upperside; the greyish area strongly dusted with brown, and the white area with dusky black, giving altogether a mottled appearance.

Antennæ, head, thorax and abdomen dark greyish-brown; legs and abdomen beneath whitish.

Expanse: ♂♀, 50–65 mm.

Habitat.—CHITRAL to KASHMIR; the Pamirs and the Tianshan; rare in the Indian area.

Hipparchia persephone (Hübner, 1805).

♂♀. *Upperside* markings similar to those of *shandura* Marsh., but more prominent. Fore wing without white patch in cell. Hind wing with a post-discal curved band. Markings of both wings white or ochraceous.

Distribution.—South Russia, Armenia, and Asia Minor to Turkestan, the Pamirs, Persia, BALUCHISTAN, and CHITRAL. One Indian subspecies.

344. Hipparchia persephone enervata (Staudinger).

Satyrus anthe var. *enervata*, Staudinger, 1881, p. 271 (Central Asia).
Satyrus anthe f. *enervata*, Seitz, 1908, p. 125.
Eumenis persephone enervata, Evans, 1932 *a*, p. 113, pl. xiii, fig. D 8. 3 (♂); *id.*, 1932 *b*, p. 201 (Baluchistan).
Nytha persephone, Bingham (*non* (Hübn.), 1905, p. 115.
Philarcta (sic) *persephone*, Leslie & Evans, 1903, p. 668 (Chitral 4,000–6,000 feet).
Eumensis persephone, Fruhstorfer, 1911, p. 308.
Satyrus anthe var. *analoga*, Alpheraky, 1881, p. 418 (Kouldja).
Satyrus anthe ab. *ochracea*, Rühl, 1894, p. 534.

♂♀. *Upperside* ground-colour greyish-brown; markings white or ochraceous-brown. Fore wing with two round ocelli in areas 5 and 2, the lower one the larger; the anterior ocellus divides a stripe, and there is a similar stripe in areas 3 and 2; in area 1 *b* a small, somewhat square patch, its inner edge usually placed in line with, or distad of, the outer edge of discal spot in area 2; a short stripe below this patch; ocelli black, without a pupil. Hind wing with a post-discal, curved, band from vein 7 to vein 2, or diffused below this; this band is anteriorly narrowed, its outer edge irregular, usually with a distinct tooth in area 4, its inner edge incurved, also with a small tooth in area 4.

Underside of fore wing pale ochraceous, with black striæ in the cell, and along costal and apical areas; a post-discal, angulate, black line; distal area usually paler; a submarginal, strongly angulate, black line; area 1 *b* greyish-black, except for its distal part. Hind wing greyish-white, densely freckled with greyish-black; a sub-basal, black, irregular line crossing middle of cell, and more or less distinct; a post-discal, black, highly irregular, angulate line, forming the inner edge of a white band; post-discal white band of varying width, and bent outwards between veins 4 and 5; a submarginal, black, irregular line, edged outwardly with white. Cilia of fore wing chequered grey and white; of hind wing, greyish-white.

Expanse: ♂♀, 60–70 mm.

Form **analoga** (Alpheraky).—Markings ochraceous-brown, instead of white.

According to Evans (1932 *b*) the species occurs in Chitral in two generations, the first being of the form *analoga*. In Baluchistan there is only one generation, but occasional specimens of *analoga* are found.

Habitat.—BALUCHISTAN; CHITRAL; Pamirs; Turkestan; not rare, common in Chitral on bare hill-sides, from 4,000 to 6,000 feet.

Hipparchia mniszechii (Herrich-Schäffer, 1852).

♂♀. *Upperside* pale brown. Fore wing with two white-pupilled ocelli, each within an ochraceous area which often

forms a complete band ; often two white dots or spots between the ocelli. Hind wing with an ochraceous, curved, band in the distal area.

Underside greyish-white to pale ochraceous, dusted and shaded with brownish-black. Fore wing more or less ochraceous in the distal and discal areas. Cilia white, on fore wing chequered greyish-brown.

Head, thorax and abdomen pale brown, paler below ; antennæ black, marked lightly with white.

Distribution.—Asia Minor ; east side of the Black Sea ; Turkestan to Western China, and the NORTH-WEST HIMALAYAS. Five Indian subspecies.

345 *a*. **Hipparchia mniszechii balucha** (Evans).

Eumenis mniszechii balucha, Evans, 1932 *a*, p. 113 (Baluchistan) ; *id.*, 1932 *b*, p. 201.
Eumenis mniszechii balucha f. *pallida*, Evans, 1932 *a*, p. 113 *id.*, 1932 *b*, p. 201.

♂. Resembles *gilgitica* Tytler. *Upperside* ochraceous bands normally without whitish suffusion. Fore wing band with inner edge slightly excurved between veins 2 and 4 ; posterior ocellus always present, larger than in *gilgitica*.

Underside almost as in *gilgitica*. Fore wing with a costal white bar, distinctly marked, near the apical ocellus. Hind wing lighter, without the brownish tinge over distal area usually found in *gilgitica*, but with post-discal white band more distinct.

♀. *Upperside* with ochraceous bands paler than in *gilgitica*. Fore wing usually with two black dots in areas 2 and 3, more or less obscured by their white centres.

Underside as in the male, but hind wing with white post-discal band less distinct, except at the costa.

Expanse : ♂♀, 58–65 mm.

Form **pallida** (Evans).—♂♀. *Upperside* with bands pale ochraceous to white.

Underside much whiter than in *balucha*. Fore wing with little or no ochraceous tinge over distal area.

Habitat.—BALUCHISTAN ; not rare.

345 *b*. **Hipparchia mniszechii droshica** (Tytler).

Eumenis lehana droshica, Tytler, 1926, p. 256 (♂♀, Drosh ; Shandur Pass).
Eumensis mniszechii droshica, Evans, 1932 *a*, p. 113.

♂. *Upperside* with bands on both wings deep ochraceous. Fore wing ocelli usually larger than in *lehana*, the anterior ocellus usually placed close to the inner edge of the band ; inner edge of band as in *gilgitica*. Hind wing with band broad, without any white or pale suffusion.

Underside of fore wing more extended ochraceous than in *gilgitica*; post-discal line only gently angled at vein 4, almost curved. Hind wing as in *gilgitica*, except that the post-discal line forms the inner edge of a more or less distinct greyish-white post-discal band.

♀. *Upperside* colouring as in male; bands on both wings wider than in *lehana* female, but similarly shaped.

Underside as in the male.

Habitat.—CHITRAL, GILGIT, and BALTISTAN to 9,000 feet; not rare.

345 *c*. **Hipparchia mniszechii gilgitica** (Tytler).

Eumenis lehana gilgitica, Tytler, 1926, p. 256 (♂♀, Gilgit; Shandur Pass).
Eumenis mniszechii gilgitica, Evans, 1932 *a*, p. 113.

♂. *Upperside* of fore wing with ochraceous band narrower, the outer dark border wider; inner edge of band almost even, scarcely angled at vein 4; posterior ocellus very small, occasionally absent. Hind wing as in *lehana*.

♀. *Upperside* of fore wing as in *lehana*; ochraceous band narrower below vein 2. Hind wing as in *lehana*.

Underside as in *lehana*. Hind wing paler; post-discal line less distinct.

Habitat.—CHITRAL, GILGIT, and BALTISTAN, above 9,000 feet; not rare.

345 *d*. **Hipparchia mniszechii lehana** Moore.

Hipparchia lehana, Moore, 1878, p. 227 (♂♀, Leh, Kharbu, Ladak, 13,000 feet); Marshall & de Nicéville, 1883, pp. 183, 188, pl. xvi, fig. 48 (♀).
Eumenis lehana, Moore, 1892 *b*, p. 19, pl. xcviii, fig. 2 (♂ type), fig. 2 *a* (♀, Indus Valley).
Nytha baldiva lehana, Bingham, 1905, p. 115.
Satyrus mniszechii lehana, Seitz, 1908, p. 128 (text only).
Eumenis mniszechii lehana, Fruhstorfer, 1911, p. 307; Evans, 1932 *a*, p. 114.

♂. *Upperside* of fore wing with complete ochraceous band, the veins crossing it dark, inner edge of band even, angled at vein 4; ocelli small. Hind wing with ochraceous band wide, usually reaching the cell between veins 2 and 4, and extending posteriorly into areas 1 *c* or 1 *b*; inner edge of band usually paler and somewhat diffuse.

Underside ground-colour greyish-white. Fore wing with a discal ochraceous patch, entering lower edge of cell, usually limited by the post-discal line, but distal area more or less suffused ochraceous between veins 2 and 4; post-discal line faint, angled outwards at vein 4, and gently incurved; submarginal line black, strongly waved; area between the two lines marks the band on upperside. Hind wing strongly

freckled with black, and more or less shaded with ochraceous between the post-discal and submarginal lines; post-discal line black, very irregular; submarginal line black, more or less waved, and often toothed on veins 5 and 6.

♀. Resembles the male. *Upperside* of fore wing with broader ochraceous band, its inner edge strongly angled inwards at vein 4, and gently incurved in area 1 *b*; band paler than in the male; spot placed proximad of the anterior ocellus usually whitish. Hind wing as in male.

Underside as in male.

Habitat.—LADAK, 12,000 to 14,000 feet; not rare.

345 *e*. **Hipparchia mniszechii baldiva** (Moore). (Fig. 81, ♂).

Lasiommata baldiva, Moore, 1865 *b*, p. 499, pl. xxx, fig. 4.
Hipparchia baldiva, Marshall & de Nicéville, 1883, pp. 183, 188, ♂♀.
Eumenis baldiva, Moore, 1892 *b*, p. 18, pl. xcviii, figs. 1, 1 *a* (♂♀).
Nytha baldiva, Bingham, 1905, p. 114.
Eumensis mniszechi (sic) *baldiva*, Fruhstorfer, 1911, p. 308.
Eumensis mniszechii baldiva, Evans, 1932 *a*, p. 114.

♂. Resembles *gilgitica*. *Upperside* of fore wing usually with a rounded black dot, centred with white, between the two ocelli, in areas 3 and 4; posterior spot of the band (in area 1 *b*) strongly constricted. Hind wing with one tornal ocellus, often two.

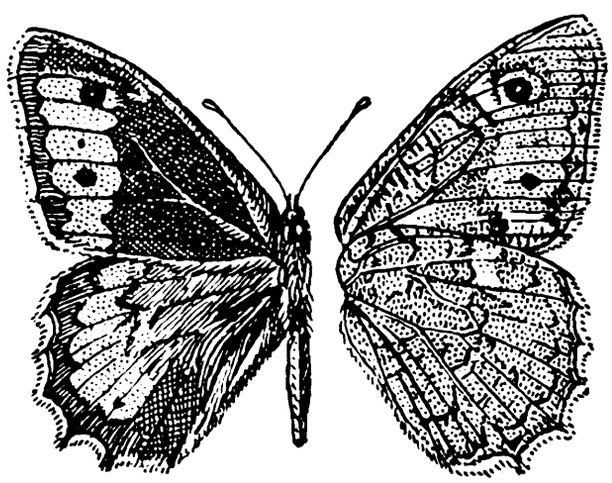


Fig. 81.—*Hipparchia mniszechii baldiva* (Moore), ♂ (Skardo).

Underside of fore wing with discal line clearly defined; submarginal line sinuous or zigzag. Hind wing with post-discal and submarginal lines strongly marked.

♀. *Upperside* of fore wing with posterior ocellus larger than in *lehana* and *gilgitica*; two black spots, in areas 3 and 4, but obscured by the enlarged white centres.

Underside resembles the male.

Expanse: ♂♀, 50–55 mm.

Habitat.—SHIPKI; KUNAWUR to Western Tibet; not rare.

346. **Hipparchia thelephassa** (Hübner).

Eumenis thelephassa, Hübner, 1819–1827, pl. lxxxv, figs. 1–4 (♂♀).
Hipparchia thelephassa, Marshall & de Nicéville, 1883, pp. 183, 187, ♂♀.
Eumenis thelephassa, Moore, 1892 *b*, p. 20; Alcock, 1898, p. 41 (Gilgit road, between Dashkin and Doyan, 8,000–9,000 feet).
Nytha thelephassa, Bingham, 1905, p. 114.
Satyrus telephassa (sic), Seitz, 1908, p. 127, t. 43 *e*.
Eumenis thelephassa, Fruhstorfer, 1911, p. 307; Evans, 1932 *a*, p. 114, pl. xiii, fig. D 8. 5 (♂); *id.*, 1932 *b*, p. 202 (Baluchistan, above 4,000 feet).

♂. *Upperside* pale brown; cilia white, alternated with brown; both wings crossed by a post-discal, broad, ochraceous band, its outer edge defined by a dark line. Fore wing with inner edge of post-discal band indented at vein 4; within the band are two white-centred black ocelli, with two intermediate white spots; cell with a comspicuous broad, jet-black brand. Hind wing with inner edge of post-discal band somewhat diffuse; within the band a very small, subtornal, white-centred black ocellus, with one or two white specks above it.

Underside pale greyish-white, freckled with black and dark grey striæ. Fore wing with lower apical half of cell, discal area, and ocellar area ochraceous. Hind wing with a post-discal, irregular, curved band, paler than the rest of the wing, and more or less defined on both sides by broken zigzag black lines; ocelli on both wings as on upperside.

Antennæ, head, thorax and abdomen greyish-brown; abdomen beneath white.

♀. Resembles the male. Discal ochraceous band broader, and on the fore wing with its inner edge more deeply indented at vein 4 than in the male.

Expanse: ♂♀, 55–65 mm.

Habitat.—BALUCHISTAN; Khyber Pass. According to Evans (1932 *b*) the species is common in Baluchistan above 4,000 feet, from May to September.

Actæa Group

(*Satyrus* Latr., *Karanasa* Moore, *Kanetisa* Moore).

Key to Species

1. Fore wing upperside with a single ocellus, in area 5 . . . . . 2.
   Fore wing upperside with ocelli in areas 5 and 2, placed on a pale band; ocellus in 2 rarely absent . . . . . 3.
2. Fore wing upperside with discal band broad, tawny; ocellus not pupilled . . . *digna* Marsh, p. 276.
   Fore wing upperside without a discal tawny band; ocellus pupilled . . . . . *actæa* (Esp.), p. 277.
3. Fore wing upperside with veins crossing tawny area concolourous . . . [(C. &. R. Feld), p. 279. *huebneri*
   Fore wing upperside with veins crossing tawny area darkened . . . . . 4.

4. Fore wing underside with discal line obscure; posterior ocellus prominent and pupilled. Hind wing underside with basal line obscure . . . . . *moorei* (Evans), p. 282.

Fore wing underside with discal line prominent; posterior ocellus not pupilled, or is absent. Hind wing underside with basal line prominent [Gr.-Grsh.), p. 283. *boloricus*

Hipparchia digna Marshall.

♂♀. *Upperside* dark brown; both wings with ochraceous bands as in *mniszechii* (H.-S.), but no posterior ocellus.

Underside of hind wing with prominent black markings, including a prominent discal band.

Distribution.—CHITRAL. Two subspecies.

347 *a*. **Hipparchia digna digna** Marshall.

Hipparchia digna, Marshall, 1882 *a*, p. 67, ♀ (Shandur Plateau); Marshall & de Nicéville, 1883, pp. 183, 189, ♀.

Kanetisa digna, Moore, 1892 *b*, p. 42, pl. cii, fig. 2 (♂, Gilgit), fig. 2 *a* (♀ holotype).

Karanasa digna, Bingham, 1905, p. 125; Fruhstorfer, 1911, p. 307.

Karanasa digna digna, Evans, 1932 *a*, p. 114 (Chitral, above 9,000 feet).

♂. *Upperside* of fore wing with the band narrow, sometimes broken at vein 4, and above this bordering the lower half of the black ocellus in area 5; outer edge of band crenulate, inner edge even. Hind wing with the band of variable width, curved, outer edge dentate, inner edge even.

Underside ground-colour much as in *mniszechii* (H.-S.). Fore wing pale ochraceous, bordered with the grey ground-colour; submarginal line strongly dentate; post-discal line faint or absent. Hind wing with discal and post-discal black lines, enclosing a band which is more brownish-black than the ground-colour; a post-discal greyish-white band, outwardly diffuse; submarginal black line strongly dentate; outer marginal border sometimes more or less clouded with blackish-brown.

♀. Resembles the male. *Upperside* bands paler and broader.

Expanse: ♂♀, 52 mm.

Habitat.—CHITRAL, above 9,000 feet; not rare.

347 *b*. **Hipparchia digna pallas** (Evans).

Karanasa digna pallas, Evans, 1924, p. 782 (Chitral); *id.*, 1932 *a*, p. 114 (Chitral, to 9,000 feet).

♂♀. Fore wing not noticeably produced at apex; bands of both wings wider and somewhat paler than in the nomino-typical form. *Upperside* of fore wing with band never broken at vein 4, usually extending beyond ocellus to include its

upper half, so that the ocellus lies entirely within the band; inner edge of band angled inwards at vein 4.

Underside as in the nominotypical form.

Expanse: ♂♀, 55 mm.

Habitat.—CHITRAL, up to 9,000 feet; WESTERN GILGIT; not rare.

Hipparchia actæa (Esper, 1780).

follow Seitz (1908) and Evans (1932 *a*) in treating the three forms which follow as subspecies of *actæa* (Esp.). It is possible that they represent, together with the Persian *parthica* Lederer, a separate species. They present certain characteristics in common, not found in the true *actæa*; at the same time they are closely related to *digna* Marsh.

♂. *Upperside* blackish-brown, in a side-light with deep blue sheen; cilia chequered brown and white, in Indian forms only. Fore wing with a small, black, white-pupilled, subapical ocellus; sometimes a posterior ocellus is present; a brand, blackish and indistinct, composed of four spots placed near the cell in areas 1 *b*, 2, and 3, the former one divided by the fold. Hind wing unmarked.

Underside of fore wing with ocellus more prominent, ringed with pale ochraceous or grey-white; a large discal ochraceous area, only present in Indian forms. Hind wing ground-colour lighter in Indian forms, very dark in others, and strongly freckled with blackish-brown in all; a post-discal, narrow, white band, more or less distinct, and defined by the post-discal black line; post-discal line not dentate in Indian forms but distinctly so in others; submarginal line more of less dentate, but more so in Indian forms.

♀. *Upperside* ground-colour distinctly paler than in the male. Fore wing ocelli larger, and ringed narrowly with ochraceous; proximal area not darker in Indian forms; more or less discal ochraceous suffusion, absent in some forms.

Underside resembles the male, but is paler.

Distribution.—Southern Europe, Northern Africa, Turkestan, to Persia and NORTH-WESTERN HIMALAYAS. Three Indian subspecies.

348 *a*. **Hipparchia actæa ziara**, subsp. nov.

Karanasa actæa nana, Evans (*non* Stgr.), 1932 *a*, p. 114; *id.*, 1932 *b*, p. 202 (Baluchistan).

♂. Resembles *pimpla* (C. & R. Feld.). *Upperside* of fore wing with ocellus tending to be smaller.

Underside of fore wing with ocellus smaller; ochraceous area usually more extended than in *pimpla*, and not darkened. Hind wing with lighter ground-colour; post-discal white band more strongly marked.

♀. *Upperside* as in *pimpla*. Fore wing usually with some slight discal ochraceous suffusion.

Underside as in male, but ground-colour lighter, and fore wing with a more extended ochraceous area.

Expanse : ♂♀, 50–55 mm.

Habitat.—BALUCHISTAN : Old Urak, August (♂♀ types); Ziarat, 9,000 feet, September ; Kawas, 8,500 feet ; Raigora. A series of 13 ♂♂, 22 ♀♀, chiefly from Ziarat, in the British Museum (ex Coll. W. H. Evans).

Recorded by Evans (1932 *b*) as being not uncommon in July and August, above 7,000 feet, at Ziarat, Upper Urak, and the Bogra.

348 *b*. **Hipparchia actæa magna** (Evans).

Karanasa actæa magna, Evans, 1924, p. 783, pl. xiii, fig. D 9. 2 (♂, Chitral) ; *id.*, 1932 *a*, p. 114, pl. xiii, fig. D 9. 2 (♂) (Chitral, to 9,000 feet).

♂. Larger than *pimpla* (C. & R. Feld.). *Upperside* of fore wing with a larger ocellus.

Underside resembles *pimpla* but subapical ocellus much larger.

♀. *Upperside* darker than in *pimpla*. Fore wing ocellus only ringed faintly with ochraceous ; no ochraceous suffusion.

Underside as in male, but with more extended ochraceous area on fore wing.

Expanse : ♂♀, 60–65 mm.

Habitat.—CHITRAL, up to 9,000 feet ; rare.

348 *c*. **Hipparchia actæa pimpla** (C. & R. Felder). (Fig. 82, ♂).

Satyrus pimpla, C. & R. Felder, 1867, p. 494, pl. lxix, figs. 10, 11 (♀).

Hipparchia pimpla, Marshall, & de Nicéville, 1883, pp. 183, 185, ♂♀.

Kanetisa pimpla, Moore, 1892 *b*, p. 43, pl. cii, fig. 3 (♂, Kabul), fig. 3 *a* (♀, Shandur Plateau) ; Alcock, 1898, p. 41 (Gilgit road, between Dashkin and Doyan, 8,000–9,000 feet).

Karanasa pimpla, Bingham, 1905, p. 124 ; Fruhstorfer, 1911, p. 307.

Satyrus actæa pimpla, Seitz, 1908, p. 131.

Karanasa actæa pimpla, Evans, 1932 *a*, p. 114.

Minois (*Satyrus*) *actæa monoculus*, Fruhstorfer, 1908 *b*, p. 10 (♀, Kashmir) ; *id.*, 1908 *e*, p. 29 (=*Satyrus pimpla* Feld.).

♂. *Upperside* of fore wing without white dots in areas 3 and 4. Both wings with cilia chequered dark grey.

Underside of fore wing with proximal half dark ochraceous, including the cell and areas 2 to 5, or at least 2 and 3 ; post-discal line as in nominotypical form ; areas 3 and 4 without

white dots. Hind wing ground-colour lighter than in the nominotypical form ; veins white ; a sub-basal, very angulate, black line ; post-discal line scarcely dentate, strongly

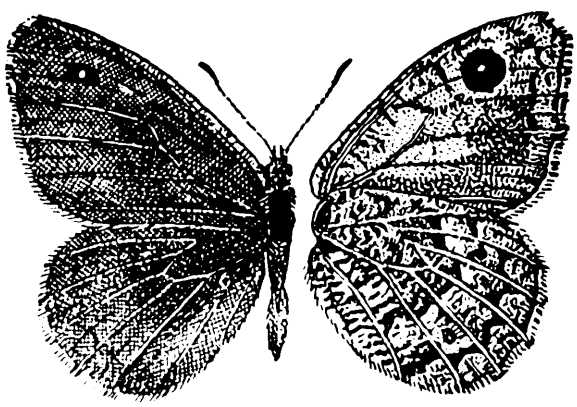


Fig. 82.—*Hipparchia actæa pimpla* (C. & R. Feld.), ♂, (Chitral).

excurved at vein 4, and outwardly with narrow greyish-white border ; submarginal line very crenulate.

♀. *Upperside* of fore wing pale brown ; discal area more or less ochraceous ; no white dots in areas 3 and 4 ; no ocellus in area 2.

Underside as in male, but paler. Fore wing with ochraceous area much extended. Hind wing much whiter than in male.

Expanse : ♂♀, 45–50 mm.

Habitat.—CHITRAL, above 9,000 feet ; BALTISTAN ; LADAK ; Afghanistan ; rare.

Hipparchia huebneri (C. & R. Felder).

♂♀. *Upperside* of fore wing with an ochraceous distal band, usually merged with a proximal ochraceous area ; two ocelli, usually without white centres, in areas 2 and 5 ; ocellus in 2 sometimes reduced to a dot, or is absent ; an indistinct brand as in *actæa* ; outer edge of ochraceous area strongly crenulate. Hind wing with a distal, curved, ochraceous band.

Underside of fore wing largely ochraceous, becoming yellowish distally ; post-discal line more or less distinct ; ocellus in area 2 small or absent. Hind wing ground-colour greyish-brown, freckled with black and brown ; veins greyish-white ; a sub-basal, post-discal, and submarginal black line, the former one often indistinct ; post-discal line anteriorly angulate, and with more or less distinct greyish-white outer border ; submarginal line sagittate. Cilia chequered grey-white and fuscous.

Distribution.—Turkestan, the Pamirs, Afghanistan, NORTH-WEST HIMALAYAS. Three Indian subspecies.

349 *a*. Hipparchia huebneri huebneri (C. & R. Felder). (Fig. 83, ♂).

Satyrus huebneri, C. & R. Felder, 1867, p. 494, pl. lxix, figs. 8, 9 (♀).
Hipparchia huebneri, Marshall & de Nicéville, 1883, pp. 183, 189, ♂♀.
Karanasa huebneri, Moore, 1892 *b*, p. 39, pl. ci, figs. 3, 3 *a* (♂♀); Bingham, 1905, p. 124.
Karanasa huebneri huebneri, Tytler, 1926, p. 255 (Lahoul); Evans, 1932 *a*, p. 114.
Hipparchia cadesia, Moore, 1874 *b*, p. 565, pl. lxvi, fig. 7 (♂, " Cashmere : Boorzil Valley, 11,000 feet "); Marshall & de Nicéville, 1883, pp. 183, 190, ♂♀.
Karanasa huebneri cadesia, Fruhstorfer, 1911, p. 307.
Karanasa leechi, Moore (*non* Gr.-Grsh.), 1892 *b*, p. 41, pl. ci, figs. 4, 4 *a* (♂♀) (Skoro La, Baltistan).
Karanasa huebneri var. *leechi*, Bingham, 1905, p. 124.
Karanasa huebneri leechi, Fruhstorfer, 1911, p. 307.
Karanasa modesta, Moore, 1892 *b*, p. 41, pl. cii, figs. 1, 1 *a* (♂♀) (Deosi Plains, 13,000 feet).
Karanasa huebneri var. *modesta*, Bingham, 1905, p. 124.
Karanasa huebneri modesta, Fruhstorfer, 1911, p. 307.
Karanasa huebneri astorica, Tytler, 1926, p. 254 (♂♀, Astor).
Karanasa huebneri balti, Tytler, 1926, p. 255 (♂♀, Skoro La, Baltistan ; Kardhong) (=*leechi* Moore, *non* Gr.-Grsh.).
Karanasa huebneri pallida, Tytler, 1926, p. 255 (♂♀, Chongking Valley).

♂. *Upperside* pale vandyke-brown ; cilia white, alternated with brown ; both wings with a post-discal, broad, bright ochraceous band, not reaching the costal nor inner margin. Fore wing with the band bearing an anterior and a posterior ocellus, the latter much smaller, reduced to a dot or obsolete ; inner edge angulate, outer edge defined by a zigzag dark line. Hind wing with the band somewhat crescentic in shape, but otherwise as on the fore wing.

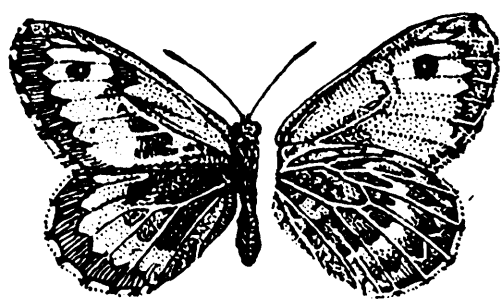


Fig. 83.—*Hipparchia huebneri huebneri* (C. and R. Feld.), ♂ (Lahoul).

Underside of fore wing ochraceous, with the spots as above, and ground-colour paler round the anterior spot ; costal and outer margins greyish-brown ; a submarginal, zigzag, dark line. Hind wing thickly freckled with white, grey, and brown ; the brown scaling forms a median, broad, curved band, edged

inwardly by a curved, outwardly by a zigzag, dark line; a post-discal, zigzag, highly curved line; veins conspicuously pale.

Antennæ, head, thorax and abdomen greyish-brown.

♀. Resembles the male, but is much paler. *Upperside* of fore wing, to the dark outer margin, suffused with ochraceous; posterior ocellus always present. Hind wing with the band much broader, and inwardly diffuse.

Expanse: ♂♀, 42–50 mm.

Habitat.—LAHOUL; LADAK; ASTOR; BALTISTAN; not rare.

A long series of this subspecies in the British Museum from the above areas, shows it to be very variable. There does not seem to be any constant characters by which the supposed races can be separated. The following forms may be distinguished :—

Form **cadesia** Moore.—♂ with greatly extended ochraceous areas on both wings.

Form **modesta** (Moore).—♂. *Upperside* of fore wing with ochraceous band narrower; ocelli without white centres; proximal area darker.

Form **pallida** (Tytler).—Markings much paler.

349 *b*. **Hipparchia huebneri safeda** (Tytler).

Karanasa pamirus safeda, Tytler, 1926, p. 254 (♂, Safed Koh; Kurram Valley).

Karanasa huebneri safeda, Evans, 1932 *a*, p. 114.

♂. *Upperside* darker ochraceous than in the nominotypical form. Fore wing with the ochraceous area confined to a sharply defined distal band, its inner edge angled at vein 4; anterior ocellus with a white centre, and placed within a yellowish-white area; posterior ocellus much larger than in the nominotypical form. Hind wing with a narrower ochraceous band.

Underside of fore wing with ocelli larger than in the nominotypical form. Hind wing darker; white border of post-discal line much narrower.

♀. *Upperside* resembes the male. Fore wing with much wider band, with ochraceous discal suffusion extending faintly to base. Hind wing as in the male, but band wider.

Underside as in the male.

Habitat.—SAFED KOH, 11,500 feet; KURRAM; not rare.

349 *c*. **Hipparchia huebneri pupilata** (Tytler).

Karanasa pamirus pupilata, Tytler, 1926, p. 254 (♂♀, Jhila Drosh, Chitral).

Karanasa huebneri pupilata, Evans, 1932 *a*, p. 114, pl. xiii, fig. D 9. 3 (♂).

Karanasa huebneri, Leslie & Evans (*non* C. & R. Feld.), 1903, p. 667 (Chitral, 9,000–12,000 feet).

♂. Resembles *safeda*, but ochraceous areas darker. *Upperside* of fore wing with only a vestige of paler scaling around the anterior ocellus.

Underside as in *safeda*.

♀. *Upperside* usually with ochraceous areas more extended than in *safeda*.

Underside as in the male.

Habitat.—CHITRAL, above 10,000 feet; not rare.

It appears very probable that this form is not distinct, but I have seen only four specimens.

Hipparchia moorei (Evans).

♂. *Upperside* of fore wing with ochraceous markings as in *huebneri*, but more nearly resembling *regeli* Alpheraky, from Central Asia; band deeply indented at vein 4; ocellus in area 2 small, sometimes a mere dot. Hind wing with proximal part of the band paler.

Underside much as in *huebneri*.

♀. Closely resembles *huebneri*. *Upperside* of fore wing with darker basal area; post-discal line deeply angled at vein 4.

Genitalia.—Valve with dorsal edge angled about two-thirds from apex, being incurved above and below this point; side lobes obtuse.

This species, together with *huebneri* (C. & R. Feld.), *boloricus* (Gr.-Grsh.), and *regeli* (Alph.), form a puzzling group that requires investigation. It is, perhaps, doubtful whether *boloricus* and *regeli* are distinct species.

Distribution.—CHITRAL and GILGIT. Two subspecies.

350 *a*. **Hipparchia moorei moorei** (Evans).

Satyrus (*Karanasa*) *hubneri moorei*, Evans, 1912, p. 563 (Chitral).
Karanasa moorei moorei, Evans, 1932 *a*, p. 115.
Karanasa cadesia, Leslie & Evans (*non* Moore), 1903, p. 668 (Chitral).

♂. *Upperside* of fore wing with outer edge of ochraceous band dentate; inner edge of band sharply defined, strongly angled inwards at vein 4, almost cutting off a rounded apical patch bearing the ocellus; proximal border of the band ochraceous-yellow. Hind wing with distal band as in *huebneri*, its inner edge sharply defined, proximal half bordered with ochraceous yellow.

Underside as in *huebneri*. Fore wing with more or less distinct post-discal line. Hind wing as in *huebneri huebneri*.

♀. Closely resembles *huebneri*. *Upperside* of fore wing with darker basal area; ocelli larger than in *huebneri*; post-discal line usually distinct, and at vein 4 more strongly angled than in *huebneri*.

Underside as in the male.

Expanse: ♂♀, 50–57 mm.

Habitat.—SHANDUR PASS; Utzen and Tarben Nallahs, CHITRAL; not rare.

350 *b*. **Hipparchia moorei gilgitica** (Tytler).

Karanasa moorei gilgitica, Tytler, 1926, p. 254 (♂♀, Yasin and Ghizer in Gilgit); Evans, 1932 *a*, p. 115.

♂♀. Only slightly differentiated from the nominotypical form. *Upperside* with the ochraceous markings paler and patchy.

Habitat.—GILGIT, Yasin and Ghizar; not rare.

I have seen no specimens of this form.

Hipparchia boloricus (Grum-Grshimaïlo).

♂♀. *Upperside* markings white, but always tinged with ochraceous, otherwise as in *moorei* (Evans). Fore wing with proximal area, to end of cell, more or less dull ochraceous.

Underside resembles *huebneri*. Fore wing with ocellus in area 2 of variable size, sometimes absent.

Genitalia.—Valve with dorsal edge, about two-thirds from apex, with a small tubercle bearing a tuft of hair; edge of valve not incurved. Side lobes pointed.

Distribution.—The Pamirs and NORTH-WESTERN HIMALAYAS Two Indian subspecies.

351 *a*. **Hipparchia boloricus boloricus** (Grum-Grshimaïlo).

Satyrus boloricus, Grum-Grshimaïlo, 1888, p. 307 (Eastern Hindukush).
Satyrus regeli boloricus, Seitz, 1908, p. 127.
Karanasa regeli boloricus, Tytler, 1926, p. 254 (♂♀, Misgar, Hunza, Gilgit).
Karanasa boloricus boloricus, Evans, 1932 *a*, p. 115.

♂♀. As previously described. Smaller than *chitralica* (Tytler).

Expanse: ♂♀, 38-45 mm.

Habitat.—MISGAR and HUNZA; not rare.

351 *b*. **Hipparchia boloricus chitralica** (Tytler).

Karanasa regeli chitralica, Tytler, 1926, p. 254 (♂♀, Chitral).
Karanasa boloricus chitralica, Evans, 1932 *a*, p. 115.

♂. Differs slightly from the nominotypical form, and usually larger. *Upperside* of fore wing with the band of variable width; proximal area less distinctly greyish than in the nominotypical form.

Underside as in the nominotypical form. Hind wing usually darker.

♀. Resembles the male. *Upperside* of fore wing with a curved dark cell-mark at vein 3; proximal area darker than in the nominotypical form. Hind wing as in the male.

Underside as in the nominotypical form.

Expanse: ♂♀, 44–50 mm.

Habitat.—CHITRAL, above 10,000 feet; not rare.

Genus **ŒNEIS** Hübner.

Œneis, Hübner, 1819, p. 58; Butler, 1867 *e*, p. 196 (type, *norna* Thunberg); Marshall & de Nicéville, 1883, pp. 97, 238, pl. xv; Bingham, 1905, p. 128; Fruhstorfer, 1911, p. 311; Evans, 1932 *a*, p. 115; Hemming, 1934 *a*, p. 40 (type, *Papilio norna* Thunberg, 1791).

Paræneis, Moore, 1891, p. 154; *id.*, 1892 *b*, p. 36 (type, *pumilus* C. & R. Felder).

Type of the genus, *O. norna* Thunberg, from Northern Europe.

Distribution.—Holarctic Region, to Formosa and North-Western Himalayas.

♂♀. Fore wing triangular, costa widely arched, outer margin slightly excurved, inner margin straight; apex rounded in Indian forms; tornus rounded; cell well over half length of wing; vein 4 straight; veins 6 and 7 closely approximate; *udc* minute; *mdc* strongly incurved; *ldc* oblique; veins 10 and 11 from before end of cell; vein 12 not swollen at base, only moderately thickened. Hind wing oval, costa somewhat straight, outer margin very slightly scalloped, inner margin long; apex and tornus rounded; cell well over half length of wing; discocellulars long, *mdc* incurved in its upper part; vein 3 from well before apex of cell, 4 from apex, 6 closer to 7 than to 5. Antennæ short, less than half length of fore wing; club gradual, flattened on underside, blunt at apex, proportionately thicker and shorter in the Indian forms; palpi short, with long hairs to apex; eyes naked; head and abdomen very hairy; mid-femora with long floccus of hair posteriorly. No brand on fore wing in Indian forms.

Key to Species.

1. Upperside yellowish-brown, with broad dark margins; no discal band. Hind wing underside pale, with broad discal and marginal dark bands . . . . . [p. 284. *buddha* Gr.-Grsh.,
   Upperside brown; a tawny discal band. Hind wing underside dark, with a pale discal band . . . . . 2.
2. Fore wing upperside with discal tawny band ill-defined, inwardly diffuse . . . . . [(C. & R. Feld.), p 285. *pumilus*
   Fore wing upperside with discal tawny band narrow and well defined . . . . . [Stgr., p. 287. *palæarcticus*

Œneis buddha Grum-Grshimaïlo (1891).

♂. *Upperside* ground-colour brown, with a slight coppery tinge. Fore wing with a distal, dull ochraceous band, more or less divided by the veins into six narrow patches; inner edge of band slightly dentate, more strongly on vein 4; ocelli rather small, black, with white pupil, comprising three, in areas 2, 3, and 5. Hind wing with a distal, curved, dull ochraceous band, its outer edge defined by darker brown than

the ground-colour; usually some proximal ochraceous suffusion. Both wings with a more or less defined anteciliary dark line; cilia of fore wing chequered brown and white; of hind wing, proximally white, distally yellowish-white.

Underside of fore wing pale ochraceous except for the outer greyish-brown marginal border; distal band as on upperside, defined by blackish-brown; an angled mark in cell, and a discocellular mark, blackish-brown; ocelli as on upperside. Hind wing smoky-brown, shaded with blackish-brown; veins white; a discal broad band of dark ground-colour, bent inwards at the middle, from middle of costa to inner margin, its edges defined by darker brown, and bordered with white to a greater or less degree; a submarginal dark line.

♀. *Upperside* paler. Fore wing with band wider; proximal area more or less ochraceous, the inner edge of band forming a post-discal dark line. Hind wing as in male; with usually more ochraceous suffusion over proximal area.

Underside as in the male, but paler.

Antennæ white, black on upperside, the club more or less reddish-brown; head, thorax and abdomen black.

Distribution.—Tibet, and NORTH-WESTERN HIMALAYAS.

352. **Œneis buddha garhwalica** Tytler.

Œneis garhwalica, Tytler, 1926, p. 253, pl. iv, fig. 4 (♀), (♂♀, Shiruans, Garhwal, 13,500 feet).
Œneis buddha garhwalica, Evans, 1932 *a*, p. 115.

♂. *Upperside* more ochraceous, somewhat resembling the nominotypical female.

♀. Resembles the nominotypical form.

Expanse: ♂♀, 48–53 mm.

It is doubtful if this form can maintain subspecific rank. A paratype ♂ in the British Museum agrees exactly with specimens in the nominotypical series, including co-types from Sinin Shan.

Habitat.—GARHWAL; Shiruans, 13,500 feet; rare.

Œneis pumilus (C. & R. Felder).

♂♀. *Upppperside* of fore wing largely ochraceous-yellow, paler and more extended in the female; outer margin broadly blackish-brown; a post-discal series of six ochraceous spots, the one in area 5 more elongate, and usually divided by a rudimentary ocellus or dark spot. Hind wing with a post-discal, narrow, curved, ochraceous band, of which the spots in areas 4 and 5 are more square, that in 4 produced proximad, that in 5 produced distad; proximal area more or less ochraceous, the suffusion often extending to outer margin.

Underside of fore wing similar to above; a brown cell-mark, and base of cell more or less dusted with brown; costal and outer areas more or less freckled with brown and grey. Hind

wing with veins greyish-white ; proximal half, to discal band, blackish-brown ; discal band pale ochraceous-white or buff, formed as on upperside ; a post-discal series of black marks, bordering the discal band or placed beyond it ; black mark in area 4 placed obliquely or almost longitudinally ; outer marginal area blackish, freckled with brown and greyish-white. Cilia of fore wing chequered brown and white ; cilia of hind wing white, chequered distally.

Antennæ, head, thorax and abdomen as in *buddha*.

Distribution.—Turkestan to Western China, North-Western Himalayas, Sikkim, Bhutan, and South-Eastern Tibet. Two Indian subspecies.

353 *a*. **Œneis pumilus pumilus** (C. & R. Felder).

Chionobas pumilus, C. & R. Felder, 1867, p. 490, t. lxix, figs. 6, (♂).
Œneis pumilus, Marshall & de Nicéville, 1883, p. 238, pl. xv, fig. 37 (♂, ex Felder).
Parœneis pumilus, Moore, 1892 *b*, p. 37, pl. ci, figs. 1, 1 *a* (♂♀, Gya, Ladak, 14,000 feet).
Œneis pumilus, Bingham, 1905, p. 129.
Œneis pumilus pumilus, Fruhstorfer, 1911, p. 311 ; Evans, 1932 *a*, p. 115.

♂♀. *Upperside* pale to dull ochraceous, usually both wings suffused to outer margin.

Underside of fore wing paler than above. Hind wing with discal band very pale buff, its outer edge not sharply defined ; ground-colour strongly dusted with pale buff, especially over the distal area.

Expanse : ♂♀, 38–40 mm.

Habitat.—Kashmir to Ladak, to 16,000 feet ; not rare.

353 *b*. **Œneis pumilus bicolor** (Seitz).

Satyrus pumilus f. *bicolor*, Seitz, 1908, p. 121 (Chumbi Valley).
Œneis pumilus bicolor, Fruhstorfer, 1911, p 311 ; Evans, 1932 *a*, p. 115, fig. D 10. 1 (♂).

♂♀. *Upperside* darker ochraceous than the nominotypical form. Fore wing with a broad dark border, the subcostal area and upper border of cell also dark. Hind wing usually with a broad dark border.

Underside darker than in the nominotypical form. Fore wing deeper ochraceous, only slightly freckled. Hind wing blackish-brown, but slightly dusted with buff or grey ; distal white dusting is sometimes prominent in dark males.

Two forms occur, one with upperside pale ochraceous, the other deeper ochraceous with darker proximal area.

Expanse : ♂♀, 40–45 mm.

Habitat.—Sikkim : Chumbi Valley ; not rare. There are no specimens from this locality in the British Museum. Bhutan : Singhi Dzong, 13,800 feet, September (F. Ludlow & G.

Sheriff), 3 ♂, 2 ♀, in British Museum. Also a series from Gyantse, South-Eastern Tibet, 13,000 feet; Everest district, 16,500 feet.

Œneis palæarcticus Staudinger, 1889.

♂♀. Resembles *pumilus*. *Upperside* without or with only slight ochraceous suffusion; spots of the post-discal ochraceous bands smaller.

Underside markings similar to *pumilus*.

Distribution.—Turkestan to China, Tibet, and SIKKIM. One Indian subspecies.

354. **Œneis palæarcticus sikkimensis** Staudinger. (Pl. I, fig. 2, ♂).

Œneis palæarcticus var. *sikkimensis*, Staudinger, 1889, p. 21.
Parœneis sikkimensis, Moore, 1892 *b*, p. 38, pl. ci, figs. 2, 2 *a* (♂); de Nicéville, 1894 *a*, p. 127.
Œneis pumilus sikhimensis (sic), Bingham, 1905, p. 129, pl. iii, fig. 21.
Œneis palæarcticus sikkimensis, Fruhstorfer, 1911, p. 311, t. 93 *g*; Evans, 1932 *a*, p. 115.
Chionobas pumilus, Elwes (*non* C. & R. Felder), 1882, p. 404, pl., xxv, fig. 3 (♂ Sikkim).

♂♀. *Upperside* ground-colour ochraceous-red, deeply overlaid with dark brown; spots of the post-discal bands pale ochraceous with paler centres. Fore wing with the band anteriorly wider, surrounding a dusky spot which is often white-centred.

Underside much darker than in *pumilus*, especially the hind wing which is strongly freckled with brown; both wings with discal bands white.

Expanse: ♂♀, 40–45 mm.

Habitat.—SIKKIM; Tibet. There is a good series in the British Museum from the Teesta Valley, 13,000 to 14,000 feet; Chumbi Valley, 10,000 to 15,000 feet; Lachung Valley, 12,000 feet; Tibet, 14,000 to 17,000 feet.

In his original description of this form Staudinger quotes Elwes' figure (1882).

Genus **AULOCERA** Butler.

Aulocera, Butler, 1867 *j*, p. 121 (figs. 1, venation; 1 *a*, antennal club); Marshall & de Nicéville, 1883, pp. 96, 195, pl. xvi; Moore, 1891, p. 154; *id.*, 1892 *b*, p. 26 (type, *brahminus* Blanch.); Bingham, 1905, p. 125; Fruhstorfer, 1911, p. 308; Evans, 1932 *a*, pp. 95, 115.
Oreas, Oken, 1815, p. 740; Scudder, 1875, p. 233 (type, *proserpina* Schiff.); Hemming, 1934 *a*, p. 41 (type, *Papilio circe* Fabr., 1775, = *proserpina* Schiff., 1775 (= *Aulocera* Butl., præocc. *Oreas* de Montf., 1808).
Satyrus, Seitz (*non* Latr.), 1908, p. 121 (part.).
Brintesia, Fruhstorfer, 1911, p. 307 (nom. nov. pro *Oreas* Oken, *non* Hübner, nom. præocc., type, *circe* Fabr.).

Type of the genus, *A. circe* (Fabr.).

♂♀. Large insects, with wings crossed by a discal white or pale yellow band. Male fore wing with a dark brand from middle of inner margin to vein 4. Fore wing with costa arched; outer margin convex or straight, never incurved; inner margin straight; cell slightly over half length of wing; *udc* minute; *mdc* moderately long, straight; *ldc* twice length of *mdc*, obtusely angulate outwards; vein 4 from lower angle of cell; 5 and 6 apart, subparallel; 10 from just before uppe angle of cell; vein 12 greatly swollen at base, median vein slightly so. Hind wing ovate; outer margin moderately arched, scalloped; vein 3 from well before apex of cell; vein 4 from apex of cell, 5 and 6 well apart, 6 and 7 closely approximate.

Antennæ less than half length of fore wing; club gradual, slightly flattened. Eyes naked. Palpi strongly compressed, fringed with long porrect hairs. Mid femora longer than tibiæ, with long hair at base; tibiæ strongly spinose.

Genitalia.—Uncus provided with hooks, except in *saraswati* (Koll.), and the hooks are very long in *swaha* (Koll.). In *brahminus* (Blanch.) the uncus gradually slopes to the tip, but in other species there is a distinct shoulder.

Key to Species of Aulocera.

1. Underside dark, white striation less prominent than the dark ground . . . 2.
   Underside very pale, white striation predominant; white band broad and straight on hind wing . . . . *saraswati* (Koll.), [p. 295.
2. Fore wing upperside with inner edge of white discal spots in areas 1 to 4 in line. Hind wing upperside with band narrow and even. *brahminus* (Blanch.), [p. 288.
   Fore wing upperside with inner edge of discal white spots in areas 1 to 3 nearer base and not in line with spot in 4. . . . . 3.
3. Upperside with band of even width, and veins crossing it black . . . . . *padma* (Koll.), [p. 290.
   Hind wing upperside with band distinctly narrowing to inner margin, not reaching it except rarely in ♀, and veins crossing it usually not darkened . *swaha* (Koll.), [p. 293.

Aulocera brahminus (Blanchard).

♂♀. The smallest Indian species of this genus. Wings rounded, outer margin convex. *Upperside* of fore wing with the inner edge of discal white spots in area, 1 to 4 in line. Hind wing with the band narrow and even.

Underside dark, the white striation less prominent than the dark ground.

Distribution.—North-West Himalayas to Sikkim and Southern Tibet. Three Indian subspecies are distinguished.

355 *a*. **Aulocera brahminus brahminus** (Blanchard).

Satyrus brahminus, Blanchard, 1844, p. 22, pl. ii, fig. 4 (♂).
Aulocera brahminus, Marshall & de Nicéville, 1883, pp. 195. 198, pl. xvi, fig. 49 (♂, Kulu Valley); Moore, 1892 *b*, p. 27, pl. xcix, figs. 1, 1 *a* (♂♀); Mackinnon & de Nicéville, 1897, p. 217 (Mussooree); Bingham, 1905, p. 126.
Satyrus brahminus, Seitz, 1908, p. 122, t. 41 *c*.
Aulocera brahminus brahminus, Fruhstorfer, 1911, p. 309; Evans, 1932 *a*, p. 116.
Aulocera scylla, Butler, 1867 *j*, p. 122 (♂, Sylhet).
Aulocera brahminus var. *scylla*, Marshal & de Nicéville, 1883, p. 199, ♂.
Aulocera scylla, Moore, 1892 *b*, p. 28, ♂♀.
Aulocera brahminus var. *scylla*, Bingham, 1905, p. 126.
Aulocera brahminus f. *scylla*, Fruhstorfer, 1911, p. 309.
Aulocera werang, Lang, 1868 *a*, p. 247 (W. Himalayas).
Aulocera brahminus var. *werang*, Marshall & de Nicéville, 1883, p. 199, ♂♀.
Satyrus brahminus werang, Seitz, 1908, p. 122, t. 41 *c*.
Aulocera brahminus werang, Fruhstorfer, 1911, p. 309.

♂♀. *Upperside* black with, in certain lights, a bronzy sheen; both wings crossed by a post-discal oblique band of white spots, slightly excurved on hind wing. Fore wing with band interrupted subapically by a large round black spot, this spot marked with white on its inner, upper, and outer edges; one or two short white streaks continue the inner white spot to the costa, prominently so in the female; anterior three or four spots of the band well separated and outwardly conical. Hind wing band continuous, not quite reaching inner margin. Cilia alternately black and white.

Underside fuscous bronzy-brown, irrorated with minute specks and striæ of white; on the fore wing this irroration less pronounced over discal, basal and inner areas, hind wing darker in lower basal half; white band and subapical black spot as on upperside; one or two minute white spots beyond the band; hind wing with a post-discal, lunular, somewhat irregularly curved, black band. Margins of both wings defined by a black line.

Antennæ, head, thorax and abdomen dark brown.

Expanse: ♂♀, 55–65 mm.

Form **scylla**, Butler.—Hind wing with discal band obsolete posteriorly.

Form **werang**, Lang.—Underside variegated with brown, especially on hind wing.

Habitat.—KASHMIR to MUSSOOREE; not common. Occurs at high elevations, near the snows, in the Nila and other valleys in July and August.

355 *b* **Aulocera brahminus dokwana** Evans.

Aulocera brahminus dokwana, Evans, 1923, p. 782; *id.*, 1932 *a*, p. 116 (W. Garhwal; Kumaon; Nepal).
Aulocera brahminus, Doherty (*non* Blanch.), 1886 *a*, p. 118 (Kumaon, 10,000–12,000 feet); Hannyngton, 1910, p. 136 (Kumaon, 12,000 feet and over).

♂♀. Larger than *brahminoides* Moore. *Upperside* of hind wing with discal band reaching inner margin, and comparatively straight.

Underside of fore wing with apical ocellus ill-defined.

Expanse : ♂♀, 65–68 mm.

Habitat.—West Garhwal, Kumaon, Nepal ; rare.

355 *c*. **Aulocera brahminus brahminoides** Moore.

Aulocera brahminoides, Moore, 1892 *b*, p. 29, pl. xcix, figs. 2, 2 *a* (♀, Chumbi Valley).

Aulocera bhahminoides (sic), de Nicéville, 1894 *a*, p. 126 (Sikkim, at high elevations).

Aulocera brahminus var. *brahminoides*, Bingham, 1905, p. 126.

Satyrus brahminus brahminoides, Seitz, 1908, p. 122.

Aulocera brahminus brahminoides, Fruhstorfer, 1911, p. 309 (Bhutan & Sikkim) ; Evans, 1932 *a*, p. 116.

Satyrus brahminus, Elwes & Möller (*non* Blanch.), 1888, p. 324.

♂♀. A more deeply and more richly coloured smaller race. *Upperside* of fore wing glossed with purple at apex. Hind wing band curved.

Underside of hind wing with ends of veins purple.

Expanse : ♂♀, 50–60 mm.

Habitat.—Sikkim : Chumbi Valley ; rare. Also at Yatung in Southern Tibet.

Aulocera padma (Kollar).

♂♀. Wings produced, fore wing with outer margin straight. *Upperside* of fore wing with bands white ; inner edge of discal spots in areas 1 to 3 placed nearer the base than in *brahminus*, and not in line with the spot in 4 ; male without a post-cellular spot in area 5, present in the female. Hind wing with band of even width throughout, the veins crossing it black ; the band usually reaches the margin or forms a spot below vein 1 *b*.

Distribution.—North-West Himalayas to Sikkim, Bhutan, Abor Valley, South-East Tibet, and Western China. Eight Indian subspecies are distinguished.

356 *a*. **Aulocera padma padma** (Kollar). (Fig. 84, ♂).

Satyrus padma, Kollar, 1844, p. 445, pl. xv, figs. 1, 2 (♀) (Kashmir) ; Elwes, 1882, p. 406 (Sikkim).

Aulocera padma, Moore, 1882 *b*, p. 236 (Kangra) ; Marshall & de Nicéville, 1883, pp. 195, 196, ♂♀ ; Doherty, 1886 *a*, p. 118 (Kumaon, to 7,000 feet) ; Moore, 1892 *b*, p. 32, pl. c, figs. 1, 1 *a* (♂♀) ; de Nicéville, 1894 *a*, p. 127 (Sikkim) ; Mackinnon & de Nicéville, 1897, p. 217 (Mussooree) ; Bingham, 1905, p. 127, fig. 31 (♂) ; Hannyngton, 1910, p. 136 (Kumaon, 5,000–8,000 feet).

Satyrus padma, Seitz, 1908, p. 122, t. 41 *f*.

Aulocera padma padma, Fruhstorfer, 1911, p. 309.

Aulocera padma, South, 1913, p. 351 (Mishmi Hills, 6,000 feet).

Aulocera padma padma, Evans, 1932 *a*, p. 116 ; Peile, 1937, p. 95, pl. x, fig. 85 (♂).

Satyrus avatara, Moore, 1857, p. 229 (♀, non ♂) ; *id.*, 1865 *a*, p. 770.

Aulocera avatara, Moore, 1882 *b*, p. 236 (Kangra).

♂♀. Larger than *brahminus*. *Upperside* black or dark brown without any bronzy sheen ; discal band on both wings much broader than in *brahminus*, 4 mm. wide, straight, not tinged with cream-colour as in *swaha*. Fore wings with the free spots more or less oval and pointed outwardly ; subapical black spot not prominent ; white spot on inner edge of subapical spot continued to costa only in the female.

Underside silky brown ; discal band sharply defined on its inner edge, diffuse outwardly. Fore wing with a submarginal, broad, dark brown band ; spots in areas 3 and 4 of discal band

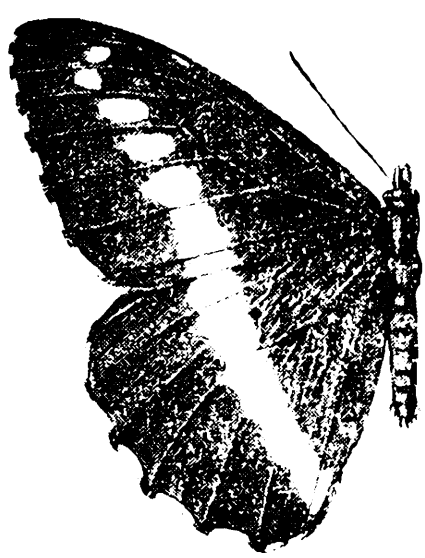


Fig. 84.—*Aulocera padma padma* (Koll.), ♂.

separate. Hind wing basal area very dark, the greyish-white striæ very delicate and fine, and tinged with purplish in distal area ; post-discal black band broad, consisting of a series of irregular triangular blotches.

Expanse : ♂♀, 70–85 mm.

Habitat.—KASHMIR to SIKKIM and Western China ; not rare.

According to Mackinnon & de Niceville (1897) this insect has two broods in the Mussooree district, one in April and another in September and October. Occurs at about 9,000 feet.

In Kumaon it occurs sparingly on the inner ranges at 5,000 to 8,000 feet, from May to October.

356 *b*. **Aulocera padma burnettii** Evans.

Aulocera padma burnettii, Evans, 1932 *a*, p. 116 (♂♀, Baluchistan : Shingarh, Zhob) ; *id.*, 1932 *b*, p. 202 (Shingarh ; rare).

♂♀. *Upperside* discal band 6 mm. wide. Fore wing of male with no inner spot in area 5. Hind wing of male with band

fontinued to inner margin, this being not always so in the female.

Underside of fore wing with spots in areas 3 and 4 united, the ocellus with a prominent pupil.

Expanse : ♂♀, 76 mm.

Habitat.—BALUCHISTAN : Shingarh and Zhob ; very rare.

356 *c*. **Aulocera padma grandis** Tytler.

Aulocera padma grandis, Tytler, 1926, p. 253 (♂♀, Western Gilgit : Yasin) ; Evans, 1932 *a*, p. 116.

♂♀. Differs from the nominotypical form by the rather large size and by the discal bands being curved, and broader on both sides.

Underside ground-colour lighter and more greyish. Fore wing with white spots in areas 3 and 4 coalescent.

Expanse : ♂♀, 82–98 mm.

Habitat.—GILGIT ; rare.

The types were taken in Yasin, Western Gilgit. In specimens from Eastern Gilgit the discal band of hind wing is straight.

356 *d*. **Aulocera padma loha** Doherty.

Aulocera loha, Doherty, 1886 *a*, p. 118 (♂♀, N.W. Kumaon 9,000 to 12,000 feet).
Satyrus loha, Elwes, 1891, p. 266 (♀, Naga Hills, 8,500 feet).
Aulocera loha, Moore, 1892 *b*, p. 30, pl. xcix, figs. 4 (♂, Kumaon), 4 *a* (♀, Nepal) ; de Nicéville, 1894 *a*, p. 127 (Sikkim, 10,000 to 12,000 feet).
Aulocera padma var. *loha*, Bingham, 1905, p. 128.
Satyrus padma loha, Seitz, 1908, p. 122, t. 41 *f*.
Aulocera loha, Tytler, 1911, p. 53 (Naga Hills, 8,000 feet, teste Elwes) ; Fruhstorfer, 1911, p. 309.
Aulocera padma loha, Evans, 1932 *a*, p. 116.

♂♀. *Upperside* of fore wing with inner spot in area 5 present. Hind wing band continued to inner margin.

Underside of fore wing with ocellus often ill-defined.

Expanse : ♂♀, 80–92 mm.

Habitat.—KUMAON to ASSAM, up to 8,000 feet ; not rare.

356 *e*. **Aulocera padma chumbica** Moore.

Aulocera chumbica, Moore, 1892 *b*, p. 30, pl. xcix, figs. 3, 3 *a* (♂♀, Chumbi Valley) ; de Nicéville, 1894 *a*, p. 127 (Chumbi Valley).
Aulocera padma var. *chumbica*, Bingham, 1905, p. 128.
Aulocera padma chumbica, Fruhstorfer, 1911, p. 309, t. 94 *c* ; Evans, 1932 *a*, p. 116.
Satyrus padma, Elwes (*non* Kollar), 1882, p. 406.

♂♀. Smaller than *loha*, with discal bands narrower than either *loha* or *padma*. *Upperside* of hind wing with band curved, and usually not reaching inner margin in male.

Expanse : ♂♀, 65–75 mm.

Habitat.—CHUMBI VALLEY and BHUTAN, over 9,000 feet ; not rare.

356 *f*. **Aulocera padma fulva** Evans.

Aulocera padma fulva, Evans, 1923, p. 783 (Abor Valley) ; *id.*, 1932 *a*, p. 116.

♂♀. Resembles *chumbica*, but discal bands on upperside pale yellow, on underside bright yellow.

Expanse : ♂♀, 70–75 mm.

Habitat.—ABOR VALLEY ; South-East Tibet, over 9,000 feet ; rare.

Also occurs with *chumbica* as a form.

356 *g*. **Aulocera padma japroa** Tytler.

Aulocera loha japroa, Tytler, 1939 *a*, p. 247 (♂♀, Japro, Naga Hills).

♂♀. Resembles *loha* Doh., on both sides of wings, but the white band is broader, also broader than in *chumbica* Moore. *Underside* much darker than in *loha* or *chumbica*, and the white striation more extended and pronounced than in the former. The bands on both wings of equal width.

Habitat.—ASSAM : NAGA HILLS ; MANIPUR HILLS, Suroifui, September, October. Described from five males, four females.

356 *h*. **Aulocera padma thawgawa** Tytler.

Aulocera padma thawgawa, Tytler, 1939 *a*, p. 247 (♂♀, N.E. Burma, Htawgaw).

♂♀. Much larger and much darker than the nominotypical subspecies. White band on both sides much broader.

Underside with white striation very distinct and extending to the base of hind wing.

Habitat.—NORTH-EASTERN BURMA : Htawgaw.

Described from three males and one female, taken in August.

Aulocera swaha (Kollar).

♂♀. The bronzy sheen on both sides paler than in *padma* (Koll.). *Upperside* of fore wing with a post-cellular spot in area 5. Hind wing band creamy to pale ochraceous (bright yellow in one form), distinctly narrowing posteriorly, and not reaching below vein 1 *b* except rarely in the female ; veins crossing the band usually not darkened.

Distribution.—CHITRAL and NORTH-WEST HIMALAYAS to IKKIM. Four subspecies.

357 *a*. **Aulocera swaha swaha** (Kollar). (Fig. 85, ♂).

Satyrus swaha, Kollar, 1844, p. 444, t. xiv, fig. 1 (♂, " Massuri ").
Aulocera swaha, Moore, 1882 *b*, p. 236 (Kangra); Marshall & de Nicéville, 1883, pp. 195, 197, ♂♀; Butler, 1886 *a*, p. 357 (N.W. Punjab, 9,000 feet); Doherty, 1886 *a*, p. 118 (Kumaon, 5,000 to 10,000 feet); Butler, 1888, p. 133 (N.E. Punjab); Moore, 1892 *b*, p. 33, pl. c, figs. 2, 2 *a* (♂♀); Mackinnon & de Nicéville, 1897, p. 218 (Mussooree; very common); Leslie & Evans, 1903, p. 668 (Chitral, 6,000 to 10,000 feet); Bingham, 1905, p. 126, fig. 30 (♂); Hannyngton, 1910, p. 136 (Kumaon, 6,000 to 10,000 feet; very common).
Satyrus swaha, Seitz, 1908, p. 122, t. 41 *d*.
Aulocera swaha swaha, Fruhstorfer, 1911, p. 309; Evans, 1932 *a*, p. 117, pl. xiii, fig. D 11. 3 (♂); Peile, 1937, p. 95, pl. x, fig. 86 (♂).

♂♀. *Upperside* with discal white band broader than in *brahminus*, not excurved on the hind wing, tinged with creamy yellow. Fore wing with subapical black spot less distinct, the white spot on its inner edge not continued to costa.

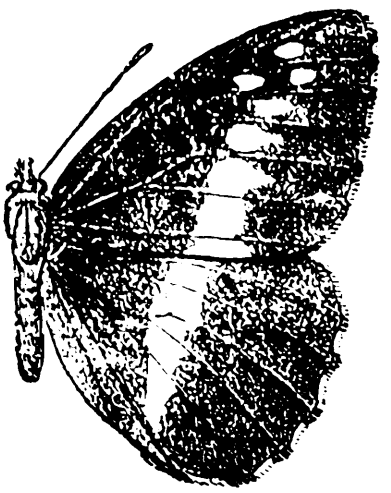


Fig. 85.—*Aulocera swaha swaha* (Koll.), ♂.

Underside of fore wing with less numerous greyish-white striæ. Hind wing with lower basal area tinged with green; post-discal, lunular, black band straighter than in *brahminus*, somewhat diffuse; a distal broad band of greyish-white striæ; marginal black lines obscure on both wings.

Expanse: ♂♀, 60–70 mm.

Larva.—According to Mackinnon (1897) the larva is brown, with " a rough hairless skin "; it feeds on " different grasses."

Habitat.—CHITRAL to SIKKIM; common.

Peile (1937) records it as frequenting open, grassy, hillsides from August to October at 6,000 to 10,000 feet. Very common at Naini Tal in September.

357 *b*. **Aulocera swaha tellula** Fruhstorfer.

Aulocera swaha tellula, Fruhstorfer, 1911, p. 309 (♂♀, Mardan, N.W. Provinces); Evans, 1932 *a*, p. 116 (Safed Koh).
Aulocera swaha kurrama, Evans, 1923, p. 783 (Safed Koh).

♂♀. *Upperside* of fore wing with the spots of the discal band well separated, and only very faintly tinged with yellow. Hind wing discal band very narrow, and does not enter the cell.

Expanse: ♂♀, 60–65 mm.

Habitat.—The Safed Koh; not rare.

357 *c*. **Aulocera swaha gilgitica** Tytler.

Aulocera swaha gilgitica, Tytler, 1926, p. 253 (♂♀, Astor; Chilas; Gilgit); Evans, 1932 *a*, p. 117.
Aulocera swaha, Alcock (*non* Kollar), 1898, p. 41 (Gilgit road, between Dashkin and Doyan, 8,000 to 9,000 feet).

♂♀. Differs from the nominotypical form by the discal band of both wings being pure white.

Underside very pale grey; hind wing distal markings very obscure.

Expanse: ♂♀, 60–70 mm.

Habitat.—Astor; Chilas; Gilgit; Gurais; Baltistan; rare.

357 *d*. **Aulocera swaha garuna** Fruhstorfer.

Aulocera swaha garuna, Fruhstorfer, 1911, p. 309, t. 94 *c* (♂, Kulu); Evans, 1932 *a*, p. 117.

♂♀. *Upperside* differs from the nominotypical form in the band of fore wing being bright yellow.

Habitat.—The inner ranges from Kashmir to Kulu; not rare.

358. **Aulocera saraswati** (Kollar).

Satyrus saraswati, Kollar, 1844, p. 445, t. xiv, figs. 3, 4 (♀, "Massuri").
Aulocera saraswati, Moore, 1892 *b*, p. 236 (Kangra); Marshall & de Nicéville, 1883, pp. 195, 200, ♂♀; Butler, 1886 *a*, p. 357 (Punjab); Doherty, 1886 *a*, p. 119 (Kumaon, 5,000 to 9,000 feet); Butler, 1888, p. 133 (Punjab); Moore, 1892 *b*, p. 35, pl. c, figs. 3, 3 *a* (♂♀); de Nicéville, 1894 *a*, p. 127 (Sikkim); Marshall & de Nicéville, 1897, p. 218 (Mussooree; common); Leslie & Evans, 1903, p. 668 (Chitral; fairly common); Bingham, 1905, p. 128.
Satyrus saraswati, Seitz, 1908, p. 122, t. 41 *d*.
Aulocera saraswati, Hannyngton, 1910, p. 136 (Kumaon, 6,000 to 10,000 feet; rare); Fruhstorfer, 1911, p. 309; Evans, 1932 *a*, p. 117; Gough, 1935, p. 261 (Nepal, about 5,500 feet); Peile, 1937, p. 96, pl. x, fig. 84 (♀).
Aulocera dehradunensis, Strand, 1918, p. 2, t. xviii, figs. 6, 7 (♂).

♂♀. Can be distinguished from other similar species by the proportionately much shorter and broader wings, the fore wing

having the costa more strongly arched, and the apex and tornus much more rounded. Discal white band very broad and of nearly even width throughout, and reaching inner margin on hind wing. In the female fore wing the white spot on the inner edge of the black subapical spot is large and elongate, in the male minute.

Underside with predominant white striation, washed with ochraceous ; numerous fine black striæ except on the discal and post-discal bands ; the former inwardly margined by a slender dark brown line, the latter very distinct, black, and somewhat diffuse at the edges, very broad towards inner margin of fore wing.

Expanse : ♂♀, 65–75 mm.

Habitat.—CHITRAL to SIKKIM ; common.

According to Doherty (1886 *a*) the egg has 23 ribs, whilst that of other *Aulocera* has from 26 to 28 ribs.

Occurs at Mussooree at 6,500 to 7,000 feet, and in Kumaon at 6,000 to 10,000 feet. Frequents grassy places and settles on thistles. In Chitral the insect is said to be rare.

Genus **AGAPETES** Billberg.

Agapetes, Billberg, 1820, p. 78 ; Scudder, 1875, p. 104 (type *galathea* Linn.) ; Bingham, 1905, p. 108 ; Hemming, 1934 *a*, p. 40 (type, *Papilio galathea* Linn., 1758).

Arge, Hübner, 1819, p. 60 ; Butler, 1868, p. 196 (type, *psyche* Hübner) ; Fruhstorfer, 1911, p. 310 ; Evans, 1932 *a*, pp. 95, 117 ; Hemming, 1934 *a*, p. 40 (type, *Papilio psyche* Hübner, 1799) (præocc. *Arge* Schrank, 1802).

Melanargia, Meigen, 1828, p. 97 ; Moore, 1891, p. 154 ; Kirby, 1894, p. 240 (type, *galathea* Linn.) ; Hemming, 1934 *a*, p. 40 (type, *Papilio galathea* Linn., 1758).

Type of the genus, *A. galathea* (Linn.), from Britain and Europe.

This genus comprises the butterflies which are well-known as the "Marbled Whites." All the forms have similar black and white markings. Most species occur in two forms, one with pure white markings, the other with yellowish-white ones. The genus is a Palæarctic one, and only one species enters the Indian area.

♂♀. Fore wing with costa widely arched ; outer margin convex ; inner margin straight ; apex distinct, not rounded ; cell over half length of wing ; *udc* minute ; *mdc* and *ldc* incurved ; vein 5 closer to 6 than to 4 ; 6 and 7 from a point or closely approximate ; 10 and 11 from before apex of cell ; 12 inflated at base. Hind wing broadly oval ; cell short, less than half length of wing ; *udc* straight ; *mdc* and *ldc* oblique ; vein 3 from well before, 4 from apex of cell, latter slightly curved upwards, 6 about equidistant from 5 and 7.

Antenna stout, about half length of fore wing, club gradual, slightly compressed; palpus porrect, fringed with hairs anteriorly to apex, third segment long; mid-femur scaled, not hairy, grooved beneath.

Early stages.—Larva yellowish, brownish, or light green. Feeds on grass at night. Hibernates when half-grown or shortly before pupation. Pupa lies free on the ground, and has no cocoon.

Agapetes halimede (Ménétriés, 1859).

This species can be distinguished by the hind wing upperside bearing a broad black stripe along the inner margin.

Distribution.—China; Mongolia; Southern Siberia; Korea; Yunnan; NORTHERN BURMA. Only one form enters the Indian area where it is extremely rare.

359. **Agapetes halimede montana** (Leech). (Fig. 86, ♂).

Melanargia halimede var. *montana*, Leech, 1890, p. 26 (Chang Yang); *id.*, 1892, p. 60, pl. xi, fig. 7 (♂); Seitz, 1908, p. 117, t. 39 *c*.

Arge halimede montana, Evans, 1932 *a*, p. 117, pl. xiii, fig. D 12. 1 (♂).

Agapetes halimede, Bingham (*non* Ménétriés), 1905, p. 108, fig. 27 (♂).

♂♀. The largest and lightest form of the species. *Upperside* of fore wing with cell white, basal half of areas 2 and 3 white, two-thirds of costa narrowly white, a post-discal, curved, series of elongate white spots, from costa to near tornus, and three obliquely-placed subapical white streaks; inner margin,

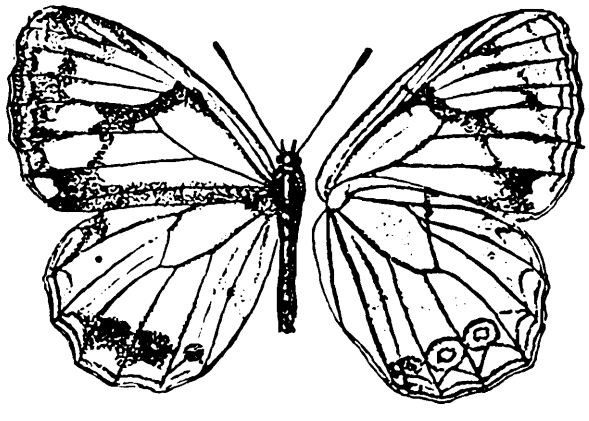


Fig. 86.—*Agapetes halimede montana* (Leech), ♂.

outer margin and apex broadly, and an irregular oblique discal band black. Hind wing white, with black markings; a short transverse band above apex of cell; a large apical spot; a broad post-discal band from vein 1 *b* to vein 5; submarginal and marginal lines; a zigzag line joins the black apical spot to the obliquely-placed post-discal band.

Underside somewhat similar. Fore wing with apex creamy-white, bordered proximally by a broad dusky black oblique band; outer margin with submarginal, antemarginal, and marginal black lines. Hind wing creamy-white, the black marks as on upperside, but diffuse and dusky; post-discal band with three or four, the subapical spot with two lilac-centred, ochraceous-ringed, dusky black ocelli; a submarginal series of white lunules defined inwardly by a black line; antemarginal and marginal black lines as on upperside.

Antennæ, head, thorax and abdomen dusky black; abdomen whitish beneath.

Expanse: 60–65 mm.

Habitat.—Northern Burma; very rare. Also occurs in Eastern Tibet, and more frequent in Western China and Amurland.

Genus **EREBIA** Dalman.

Erebia, Dalman, 1816, p. 58 (type, *ligea* Linn.): Marshall & de Nicéville, 1883, pp. 97, 239, pl. xv; Bingham, 1905, p. 146; Evans, 1932 *a*, pp. 95, 117; Hemming, 1934 *a*, p. 33 (type, *Papilio ligea* Linn., 1758).

Epigea, Hübner, 1819, p. 62; Hemming, 1934 *a*, p. 33 (type, *Papilio ligea* Linn.).

Phorcis, Hübner, 1819, p. 62; Hemming, 1934 *a*, p. 34 (type, *Phorcis epistygne* Hübn., 1819).

Syngea, Hübner, 1819, p. 62; Hemming, 1934 *a*, p. 34 (type, *Papilio pronoë* Esper, 1780).

Marica, Hübner, 1819, p. 63; Hemming, 1934 *a*, p. 34 (type, *Papilio stygne* Ochs., 1807).

Gorgo, Hübner, 1819, p. 64; Hemming, 1934 *a*, p. 33 (type, *Papilio ceto* Hübn., 1804).

Oreina, Westwood, 1841, p. 76; Butler, 1868, pp. 72, 194 (type, *cassiope* Fabr.); Hemming, 1934 *a*, p. 33 (type, *Papilio cassiope* Fabr., 1787) (præocc. *Oreina* Chevrolet, 1835).

Callerebia, Butler, 1867 *f*, p. 217; Marshall & de Nicéville, 1883, pp. 97, 243, pl. xv; Moore, 1891, p. 155; *id.*, 1892 *b*, p. 96 (type, *scanda* Kollar); Fruhstorfer, 1911, p. 300.

Hemadara, Moore, 1891, p. 155; *id.*, 1893, p. 106 (type, *narasingha* Moore).

Paralasa, Moore, 1891, p. 155; *id.*, 1893, p. 103 (type, *kalinda* Moore).

Dallacha, Moore, 1892 *b*, p. 94 (type, *hyagriva* Moore).

Loxerebia, Watkins, 1925 *b*, p. 237 (type, *pratorum* Oberth.).

Type of the genus, *E. ligea* (Linn.).

The species of this genus are of moderate size and have all a similar colouring and pattern. The predominating colour is dark brown, with a continuous or interrupted submarginal band, seldom absent; this submarginal band usually bears black ocelli which are often centred with white.

The characters given below have been drawn up from the Indian forms.

♂♀. Fore wing broadly triangular or narrow ; costa strongly arched ; apex generally broadly rounded ; outer margin convex or straight, inner margin straight ; cell long, over half length of wing ; veins 6 and 7 approximate at base, with *udc* short ; *mdc* strongly curved inwards ; *ldc* long, oblique, excurved ; veins 10 and 11 from before apex of cell, 12 inflated at base, subcostal and median normal. Hind wing ovate ; costa and outer margin widely arched, the latter more strongly arched and rounded in some forms ; inner margin very long, straight, emarginate towards tornus ; tornus angulate, lobed or rounded ; cell over half length of wing ; discocellulars oblique ; vein 3 from well before, vein 4 from apex of cell, vein 6 slightly closer to 7 than to 5 at base.

Antennæ about half length of fore wing, club long and gradual or short and flattened ; palpus comparatively short with porrect hairs anteriorly ; eye naked ; mid and posterior femora scaled, not hairy beneath.

Habits.—The males frequent flowers, especially *Compositæ*. The female is sluggish, and rests mostly among the grass. The eggs are dropped on the ground among grass.

Larva feeds on grasses. It tapers strongly posteriorly, and the anal processes are short, usually marked with paler and darker longitudinal stripes.

Distribution.—Alpine regions of Europe to Turkestan, Central China, Tibet and the HIMALAYAS.

Key to Groups and Species of Erebia.

A. Antennal club spatulate. Fore wing without a ♂ brand. Hind wing underside without ocelli .. . .. [p. 300. *Kalinda* Group,

1. Fore wing upperside with outer half yellow. Hind wing upperside dark brown .. [p. 300. *mani* (de Nicév.),

   Fore wing upperside with outer half not yellow. Hind wing upperside with a post-discal obscure ferruginous patch 2.

2. Fore wing upperside with a post-discal ferruginous area, and apical ocellus with a prominent yellow ring . [p. 302. *kalinda*, Moore,

   Fore wing upperside with ferruginous area obscure, not merged with ocellus ; ocellus only ringed with yellow in ♀ [Nicév., p. 303. *shallada*, Marsh. & de

B. Antennal club gradual. Hind wing underside with ocellus in area 2 at least ; no large double ocellus . . . . [p. 304. *Scanda* Group,

1. Hind wing underside without a submarginal brown band or line ; discal brown band or line obscure . .. 2.

   Hind wing underside with prominent submarginal and discal bands or lines .. 3.

2. Upperside with uniform coloration. No ♂ brand . . . [p. 304. *nirmala*, Moore,

   Upperside with prominent paler distal area. ♂ fore wing with a discal brand [p. 307. *scanda*, Koll.,

3. Hind wing underside with prominent submarginal and discal lines, not bands; submarginal line free from the ocelli. 4.
Hind wing underside with prominent submarginal and discal bands, not lines; submarginal line runs into the ocelli... [p. 310. *annada*, Moore,
4. Both wings upperside with marginal narrow diffuse white borders . . . [p. 309. *baileyi* (South),
Both wings upperside with no white marbinal borders . . . . . [p. 309. *hybrida* (Butl.),
C. Antennal club gradual. Fore wing without a brand in the ♂. Hind wing underside with two large double ocelli in areas 1 and 2, and 5 and 6 . . . . . [p. 312. *Hyagriva* Group,
Hind wing upperside with a prominent ocellus in area 2 . . . . . [p. 312 *hyagriva* (Moore),
D. Antennal club gradual. Fore wing with a prominent dark brand from middle of vein 1 *b* to base of vein 4, entering cell [p. 313. *Narasingha* Group,
Hind wing on both sides without an ocellus. [p. 314. *narasingha* (Moore),

Kalinda Group (*Parɑlasa* Moore).

♂♀. Antennal club spatulate. *Upperside* velvety dark brown. Fore wing without a male brand; a single ocellus, sometimes without a pupil, and very rarely with two pupils.

Underside of fore wing maroon. Hind wing dark brown, dusted with white; no ocelli; a post-discal row of white dots.

The Indian species of this group are *mani* (de Nicév.), *kalinda* Moore, and *shallada* Lang.

Erebia mani (de Nicéville).

♂♀. *Upperside* blackish-brown; fringes chequered dark brown and grey. Fore wing with a subapical large black white-centred ocellus; ocellus placed in a distal, broad, yellow band, posteriorly brownish, and extending to vein 2 or inner margin.

Underside of fore wing reddish-brown, the inner and outer margins darker; distal band similar to upperside or reddish-brown with a broad yellow ocellar ring; in the female the band is more yellow. Hind wing greyish-brown, more dusted with grey in the female; six or seven submarginal white dots.

Distribution.—Turkestan to the Pamirs, CHITRAL, and NORTH WEST HIMALAYAS. Three subspecies are distinguished in the Indian area.

360 *a*. **Erebia mani mani** (de Nicéville).

Callerebia mani, de Nicéville, in Marshall & de Nicéville, 1880, p. 247 (♂♀, Ladak); Marshall & de Nicéville, 1883, pp. 240, 242, ♂♀, pl. xv, fig. 43 (♂, Ladak).
Paralasa mani, Moore, 1893, p. 106, pl. cxviii, figs. 2, 2 *a*, *b* (♂♀).
Erebia mani, Bingham, 1905, p. 148; Eiffinger, 1908, p. 110.
Callerebia mani, Fruhstorfer, 1911, p. 300.
Erebia mani, Evans, 1932 *a*, p. 117, pl. xiii, fig. D 13. 1 (♂).

♂♀. *Upperside* brown ; cilia white, alternated with brown. Fore wing with a very large subtriangular yellow patch, larger in the male than in the female, extending from apex of cell to a narrow marginal brown border, and from a narrow costal brown border to vein 1 *a*, enclosing a black subapical ocellus with a minute white centre and a much paler yellow ring. Hind wing uniform.

Underside of fore wing with basal area to apex of cell brown tinged with ochraceous-red ; other markings as on upperside, but ocellus with a broader pale yellow ring, and costa, apex and distal margin sprinkled with scales. Hind wing pale reddish-brown dusted with white ; a post-discal series of white dots.

Antennæ, head, thorax and abdomen brown.

Expanse : ♂♀, 45–50 mm.

Habitat.—KASHMIR ; LADAK ; HUNZA ; rare. Also in the Pamir and Turkestan.

The two subspecies which follow are retained provisionally. They are of doubtful standing, and are founded upon meagre material.

360 *b*. **Erebia mani shandura** Tytler.

Erebia mani shandura, Tytler, 1926, p. 257, pl. i, fig. 9 (♂) (♂♀, Shandur Lake, Chitral).
Erebia kalinda f. *shandura*, Evans, 1932 *a*, p. 117.

♂. *Upperside* of fore wing with the reddish fulvous patch darker than in the nominotypical form, and darker than in *lorimeri* Tytler, but not so dark as in *kamriana* Tytler.

Underside of fore wing with reddish fulvous patch extending almost to base ; pale yellow ocellar ring broad and distinct.

♀. *Upperside* of fore wing with fulvous patch as in nominotypical female, being more yellow than in the male. Hind wing with a small dark ferruginous discal patch.

Underside as in nominotypical form.

Expanse : ♂♀, 46–53 mm.

Habitat.—CHITRAL : Shandur Lake ; rare.

The type " ♂ " in the British Museum is without legs and body, and has the look of a ♀ *kalinda*, but not *chitralica*.

360 *c*. **Erebia mani lorimeri** Tytler.

Erebia mani lorimeri, Tytler, 1926, p. 257, pl. i, fig. 10 (♂) (♂♀, Ghizer, Gilgit).
Erebia kalinda f. *lorimeri*, Evans, 1932 *a*, p. 117.
Erebia mani yasina, Tytler, 1926 (part.), p. 257, ♀.

♂♀. *Upperside* of fore wing with the yellow patch much paler than in the nominotypical form, and not reaching below vein 2 except for slight scaling.

Underside of fore wing with yellow patch extending into the cell, its inner edge as on upperside and less defined than in the nominotypical form.

Expanse : ♂♀, 50–54 mm.

Habitat.—GILGIT : Ghizer ; rare.

Erebia kalinda Moore.

♂♀. *Upperside* of fore wing not yellow in distal half, but with a post-discal broad and prominent ferruginous area ; ocellus with a prominent yellow ring. Hind wing with a post-discal obscure ferruginous patch.

Distribution.—Afghanistan to CHITRAL and NORTH-WEST HIMALAYAS. Three Indian subspecies are distinguished.

361 *a*. **Erebia kalinda kalinda** Moore. (Pl. I., fig. 3, ♂).

Erebia kalinda, Moore, 1865 *b*, p. 501, pl. xxx, fig. 5 (♀) ; Marshall & de Nicéville, 1883, pp. 240, 241, ♂♀.

Paralasa kalinda, Moore, 1893, p. 104, pl. cxvii, figs. 3, 3 *a*, *b* (♂♀) ; Mackinnon & de Nicéville, 1897, p. 220 (Nilang Pass, 16,000 feet, Ju[illegible]).

Erebia kalinda, Bingham, 1905, p. 149, pl. iii, fig. 22.

Callerebia kalinda, Fruhstorfer, 1911, p. 300.

Erebia kalinda kalinda, Evans, 1932 *a*, p. 117, pl. xiii, figs. D 13. 2 (♂) : Wynter-Blyth, 1940, p. 725 (Simla district).

♂♀. *Upperside* rich brown. Fore wing with a subapical yellow-ringed ocellus, black, with a single pupil ; distal area of wing deep ochraceous-red. Hind wing without ocelli ; a small submarginal patch of deep ochraceous-red in middle distal area. Cilia of both wings white alternated with brown.

Underside of fore wing ochraceous-red ; subapical ocellus as on upperside ; costa, apex broadly, outer and inner margins, brown, dusted with grey. Hind wing very dark blackish-brown, thickly dusted with greyish-white ; a post-discal, strongly arched, series of seven white spots.

Antenna brown, ringed with white ; head, thorax and abdomen brown.

Expanse : ♂♀, 45–50 mm.

Habitat.—KASHMIR to KUMAON ; rare.

Wynter-Blyth (1940) notes that in the Simla district the insect is recorded from Shipki, 14,000 feet, and the Baspa Valley, 12,000 feet, in July.

361 *b*. **Erebia kalinda chitralica** Evans.

Erebia kalinda chitralica, Evans, 1923, p. 783 (Chitral, 13,000 feet) ; *id.*, 1932 *a*, p. 117.

Erebia mani yasina, Tytler, 1926, p. 257 (part.), pl. i, fig. 11 (♂) (Yasin, Gilgit).

♂♀. *Upperside* of fore wing with no pupil to the ocellus ; ocellar ring wider than in the nominotypical form, and pale

ochraceous in both sexes. Hind wing without a tawny patch.

Underside of fore wing with reddish-brown area darker and smaller than in the nominotypical form.

Habitat.—CHITRAL ; GILGIT ; rare.

The ♂ type of *yasina* Tytler agrees with the type of *chitralica*.

361 *c*. **Erebia kalinda kamriana** Tytler.

Erebia mani kamriana, Tytler, 1926, p. 256, pl. i, fig. 12 (♂) (♂♀, Kamri Pass, Gurais ; Babusar Pass, Chilas).
Erebia kalinda f. *kamriana*, Evans, 1932 *a*, p. 117.

♂♀. *Upperside* of fore wing with the dark rufous patch well defined, as large as the yellow one of *mani*, and of similar shape. Hind wing without a submarginal patch.

Underside ground-colour blackish. Fore wing with rufous patch only reaching to about middle of cell. Hind wing darker than in the nominotypical form.

Habitat.—CHILAS ; GURAIS ; rare.

Erebia shallada Marshall & de Nicéville.

♂♀. *Upperside* of fore wing with an obscure ferruginous area which does not reach the ocellus ; ocellus with a very obscure pale ring.

Distribution.—The Alai to CHITRAL and NORTH-WEST HIMALAYAS. Two Indian subspecies.

362 *a*. **Erebia shallada shallada** Marshall & de Nicéville.

Erebia shallada, Marshall & de Nicéville (Lang in MS.), 1880, p. 247 (♂♀, Kunawar).
Callerebia shallada, Moore, 1882 *b*, p. 237 (Kangra).
Erebia shallada, Marshall & de Nicéville, 1883, pp. 240, 241, ♂♀, pl. xv, fig. 42 (♂, Kulu).
Paralasa shallada, Moore, 1893, p. 105, pl. cxviii, figs. 1, 1 *a*, *b* (♂♀) ; Mackinnon & de Nicéville, 1897, p. 220 (Nag Tiba, and Upper Ganges Valley, 8,000 to 9,000 feet, May to July).
Erebia shallada, Bingham, 1905, p. 149 ; Eiffinger, 1908, p. 110, t. 35 *b*.
Callerebia shallada, Fruhstorfer, 1911, p. 300.
Erebia shallada shallada, Evans, 1932 *a*, p. 118 (Kashmir to Kumaon) ; Wynter-Blyth, 1940, p. 725 (Simla district).

♂♀. Resembles *kalinda*, but wings much broader in proportion to length. Fore wing ocellus much larger with only a very obscure, reddish-yellow ring, or without one ; ochraceous-red patch darker and much smaller.

Underside of fore wing similar to that of *kalinda*, but the red of a darker shade. Hind wing similar, with a similar

curved series of white dots, but ground-colour very much paler, and dusted with white.

Antenna, head, thorax and abdomen as in *kalinda*.

Expanse : ♂♀, 45–55 mm.

Habitat.—KASHMIR to KUMAON ; not rare.

Wynter-Blyth (1940) notes that this insect is rare in the inner hills of the Simla district above 12,000 feet.

362 *b*. **Erebia shallada tarbena** Evans.

Erebia shallada tarbena, Evans, 1932 *a*, p. 117 (Chitral, ♂♀).
Paralasa shallada, Leslie & Evans (*non* Marsh. & de Nic.), 1903, p. 669 (Chitral, 9,000 feet).

♂♀. Differs from the nominotypical form in having the fore wing apical ocellus much larger.

Habitat.—CHITRAL ; not rare.

Scanda Group. (*Callerebia* Butler).

♂♀. Antennal club gradual. *Upperside* velvety dark brown. Fore wing ocellus bipupilled. Hind wing with an ocellus in area 2.

Underside of hind wing at least with an ocellus in area 2.

The Indian species of this group are *nirmala* Moore, *scanda* Koll., *hybrida* (Butl.), *baileyi* (South), and *annada* Moore.

I am indebted to Lieut-Colonel F M. Bailey for notes on the occurrence of *scanda scanda*, *hybrida*, and *annada cæca* in Nepal. The first to appear are *hybrida* and *cæca* in April and May, whilst *scanda* appears in August and September at from 6,000 to 7,000 feet, being always found higher up than *cæca*. In September and October a second brood of *cæca* appears, at from 4,000 to 5,000 feet.

Erebia nirmala Moore.

♂♀. *Upperside* of uniform coloration. Fore wing of male without a brand ; subapical ocellus smaller than in *hybrida* (Butl.).

Underside of fore wing with ocellus large and round, the ring well-defined. Hind wing without fine striation ; no submarginal brown band or line ; discal brown band or line obscure or obsolete ; a post-discal row of white dots ; usually a small tornal ocellus, and sometimes one or more ocelli developed in place of white dots.

Distribution.—CHITRAL and NORTH-WEST HIMALAYAS. Five Indian subspecies.

363 *a*. **Erebia nirmala nirmala** Moore.

Erebia nirmala, Moore, 1865 *b*, p. 501 (Western Himalayas).
Callerebia nirmala, Moore, 1882 *b*, p. 236 (Kangra) ; Marshall & de Nicéville, 1883, pp. 244, 247, ♂♀ ; Doherty, 1886 *a*, p. 119 (Kumaon, 7,000 to 8,000 feet) ; Butler, 1888, p. 134 (Punjab) ;

Moore, 1893, p. 100, pl. cxvi, figs. 2, 2 *a* (♂♀); Robson, 1894, p. 551 (Mussooree, life-history); Mackinnon & de Nicéville, 1897, p. 220, pl. U, figs. 5, to 5 *b* (larva), 5 *c* (larval head), 5 *d*, *e* (pupa) (Mussooree).

Erebia nirmala, Bingham, 1905, p. 150; Hannyngton, 1910, p. 136 (Kumaon, 4,000 to 8,000 feet).

Callerebia nirmala, Seitz, 1908, p. 94; Fruhstorfer, 1911, p. 300, t. 93 *f*.

Erebia nirmala nirmala, Evans, 1932 *a*, p. 118, pl. xiii, fig. D 13. 4 (♂).

Callerebia nirmala nirmala, Peile, 1937, p. 97, pl. x, fig. 81.

Callerebia intermedia, Moore, 1882 *b*, p. 236 (♂♀, Kangra).

Callerebia nirmala f. *intermedia*, Moore, 1893, p. 100, pl. cxvi, figs. 2 *b*, *c* (♂♀); Seitz, 1908, p. 94, t. 35 *b*; Fruhstorfer, 1911, p. 300.

Callerebia cashapa, Moore, 1882 *b*, p. 236 (♂♀, Dharmsala; Mussooree).

Callerebia nirmala f. *cashapa*, Moore, 1893, p. 100, pl. cxvi, figs. 2 *d*, *e* (♂♀); Seitz, 1908, p. 94; Fruhstorfer, 1911, p. 300.

♂♀. *Upperside* dark brown. Hind wing with a subtornal ocellus and one or more post-discal ocelli.

Underside of fore wing with discal area deep ochraceous-red; post-discal and submarginal dark bands as in *annada* (Moore). Hind wing with prominent white dusting, and often a broad discal line; ocelli varying in size and number, but range up to six.

Antenna, head, thorax and abdomen brown.

Expanse: ♂♀, 50–55 mm.

The names *intermedia* and *cashapa* cannot be sustained, being founded on specimens having a varying number of ocelli on hind wing.

Early stages (from *Robson*, 1894) :—

"A ♀, caught at Mussoorie, laid eight eggs on grass. These hatched 17 days later, and became nearly full-grown in thirty-six days."

Egg.—"Pearly-white, irregularly globular, slightly flattened at top and bottom. About the size of very fine grains of sago. After eleven days it turned yellow and remained so for four days, when a slight crescent-shaped mark was visible on the top of the egg. The next day the head of the caterpillar was distinctly visible, the rest of the egg being of a dirty pink shade."

Larva.—"The larva emerged by eating away the top of the shell, the rest of the shell being left untouched. The newly-hatched larva is a little over $\frac{1}{8}$" long, white, with a few fine white hairs or down. Head black. After six days the larvæ were nearly $\frac{1}{4}$" long, of a blue-green colour, fading to yellowish at the tail. The body is thicker at the head, and tapers regularly to the tail. It is covered with minute white hairs. Scarcely perceptible lines of a brownish tint extend from the head to the tail. When thirty days old the larvæ were nearly full-grown. The full-grown larva is $1\frac{1}{4}$" in length."

" Head flat, rising to two little points at the top. Head and body fawn-colour, with the following markings :—Two ear-like projections on the head, and a line on each side of the head, dark brown. Minute brown lines forming a square on the face. A narrow dorsal dark brown stripe, much darker from the middle of the body to the tails, bifurcate anally. Five narrow yellowish-white lateral lines, the two upper ones undulate, the three lower ones straight. Two minute, subdorsal, dark brown spines on segment 3, two on segment 4, and a dorsal one on 13. An irregular subdorsal series of dark brown spots, one on each of segments 6, 7, 8 and 9. A narrow spiracular dark brown line. Legs, claspers and abdomen fawn-colour. The whole body presents the appearance of a piece of very finely woven rep."

Pupa.—" Brown, the wing-cases paler and more of a reddish golden-brown."

Habitat.—KANGRA to KUMAON ; very common.

Peile (1937, p. 97) records that in specimens from Mussooree the hind wing has most often three or four ocelli. Three males, taken in the pumping station nullah, had a complete chain of six ocelli on each hind wing beneath. Peile (*l. c.*) also notes that this species is " much the commonest *Callerebia* at Mussoorie."

363 *b*. **Erebia nirmala materta** (Fruhstorfer).

Callerebia nirmala materta, Fruhstorfer, 1916, p. 25 (Chitral, ca. 6,000 feet).
Erebia nirmala materta, Evans, 1932 *a*, p. 118.
Callerebia nirmala, de Nicéville, (*non* Moore), 1902 *b*, p. 238, pl. FF, fig. 3 (♂ form ; Drosh, Chitral) ; Leslie and Evans, 1903, p. 668 (Chitral, 6,000 to 9,000 feet).
Callerebia reducta, Evans, 1924, p. 784 (Chitral).

♂♀. *Upperside* without ocelli.

Underside of fore wing maroon. Hind wing finely irrorated ; no ocellus in area 1 *c*, ocellus in 2 minute ; white spots in areas 4, 5, and 6 obscure ; a faint discal brown line.

Expanse : ♂♀, 50–55 mm.

Habitat.—CHITRAL ; very common.

363 *c*. **Erebia nirmala daksha** (Moore).

Callerebia daksha, Moore, 1874 *a*, p. 266, pl. xliii, fig. 1 (♂, Gulmarg), Marshall & de Nicéville, 1883, p. 248, ♂♀ ; Moore, 1893, p. 102, ♂, pl. cxvii, figs. 2, 2 *a* (♂).
Erebia daksha, Bingham, 1905, p. 152.
Callerebia daksha, Seitz, 1908, p. 94 ; Fruhstorfer, 1911, p. 301, t. 93 *f*.
Erebia nirmala daksha, Evans, 1932 *a*, p. 118.
Callerebia modesta, Moore, 1883 *b*, p. 521 (♂, Garhwal).

♂♀. *Upperside* of fore wing with a bipupilled black subapical ocellus. Hind wing with a unipupilled subtornal black ocellus.

Underside with ocelli encircled with dark ferruginous rings. Fore wing dark brown, and sometimes with an additional small ocellus below the subapical one. Hind wing without white dusting ; ocellus in area 2 prominent, usually no ocellus in 1 *c*, and rarely one in 4 ; a submarginal, curved series of white spots ; no discal line.

Expanse : ♂♀, 45–50 mm.

Habitat.—KASHMIR ; common.

363 *d*. **Erebia nirmala kala** Evans.

Erebia nirmala kala, Evans, 1923, p. 784 (Murree).
Erebia nirmala kala, Evans, 1932 *a*, p. 118.
Callerebia nirmala, Butler (*non* Moore), 1886 *a*, p. 358 (Murree).

♂♀. Transitional between *daksha* (Moore) and *scandina* (Fruhst.).

Underside of fore wing dark maroon. Hind wing with weak white dusting ; ocelli not well developed.

Expanse : ♂♀, 45–50 mm.

Habitat.—MURREE ; very common.

363 *e*. **Erebia nirmala scandina** (Fruhstorfer).

Callerebia nirmala scandina, Fruhstorfer, 1916, p. 24 (♂, Bashahr).
Erebia nirmala scandina, Evans, 1932 *a*, p. 118.

♂♀. Differs from the nominotypical form on the *underside*. Fore wing with apical area, and entire hind wing, overlaid with pale grey, resembling *scanda*.

Expanse : ♂♀, 50–55 mm.

Habitat.—BASHAHR and KUNAWUR ; not rare.

Erebia scanda Kollar.

♂♀. *Upperside* with distal area much paler. Fore wing of male with a discal obscure patch of modified scales.

Underside of fore wing with ocellus surrounded by an obscure pale broad ring, posteriorly produced. Hind wing without a submarginal brown band or line ; discal brown band or line obscure or obsolete ; white speckling very prominent, especially towards inner margin ; ocelli in areas 1 *c* and 2 very prominent, the former smaller ; no other ocelli present ; white dots prominent.

Distribution.—KASHMIR to KUMAON and SIKKIM. Two rather distinct subspecies.

364 *a*. **Erebia scanda scanda** Kollar.

Erebia scanda, Kollar, 1844, p. 452, ♂♀, t. xvii, figs. 3, 4 (♂, "Massuri").
Callerebia scanda, Moore, 1882 *b*, p. 236 (Kangra); Marshall & de Nicéville, 1883, p. 244, ♂; Doherty, 1886 *a*, p. 119 (N.W. Kumaon, 7,000 to 11,000 feet); Moore, 1893, p. 101, pl. cxvii, figs. 1, 1 *a*, *b* (♂♀); Mackinnon & de Nicéville, 1897, p. 220 (Mussooree).
Erebia scanda, Bingham, 1905, p. 151; Hannyngton, 1910, p. 136 (Kumaon, 7,000 to 11,000 feet).
Callerebia scanda, Seitz, 1908, p. 94, t. 35 *a*; Fruhstorfer, 1911, p. 301.
Erebia scanda scanda, Evans, 1932 *a*, p. 118.
Erebia scanda, Gough, 1935, p. 261 (Nepal).
Erebia scanda scanda, Peile, 1937, p. 97, pl. x, fig. 82 (♂) (Mussooree).

♂♀. *Upperside* dark velvety brown, broadly paler over distal areas. Fore wing with a bipupilled, very pale fulvous-ringed, oval, dark brown subapical ocellus.

Underside uniform brown. Fore wing with ocellus as on upperside; a submarginal, faint, darker brown band. Hind wing more or less dusted with white over posterior two-thirds; two small sub-basal, fulvous-ringed, white-pupilled black ocelli, and above them four minute white dots.

Antenna, head, thorax and abdomen brown.

Expanse: ♂♀, 50–60 mm.

Habitat.—Kashmir to Kumaon, and in Lower Sikkim; not rare.

Mackinnon (1897) records it as being very common in Mussooree from July to September. Gough (1935) records it as being very common in Nepal, at about 6,500 feet, in August and September.

Peile (1937) remarks:—"I found the most easily recognized character to be the light bluish-white powdering on the hind wing beneath as contrasted with the dense lichen-like mottling of *C. annada cæca*, the yellowish powdering and brown bands of *C. hybrida*, and the absence of the post-discal ocelli of *nirmala*."

364 *b*. **Erebia scanda opima** (Watkins).

Callerebia scanda opima, Watkins, 1927 *a*, p. 100 (Lachung, Upper Sikkim, 8,000 to 10,000 feet); *id*., 1927 *b*, p. 151 (Lachung).
Erebia scanda opima, Evans, 1932 *a*, p. 118.

♂♀. Distinguished from the nominotypical form by being larger and more richly marked. Both wings edged with a prominent marginal white line. Fore wing ocellus very large.

Expanse: ♂♀, 68–76 mm.

Habitat.—Upper Sikkim: Lachung; Eastern Bhutan, 7,500 feet; rare.

365. **Erebia hybrida** (Butler).

Callerebia hybrida, Butler, 1880 *a*, p. 147 (W. Himalayas); Moore, 1882 *b*, p. 237 (Kangra); Marshall & de Nicéville, 1883, pp. 244, 246, pl. xv, fig. 44 (♂); Doherty, 1886 *a*, p. 119 (Kumaon, 6,000 to 9,000 feet); Moore, 1893, p. 98, pl. cxvi, figs. 1, 1 *a* (♂♀); Mackinnon & de Nicéville, 1897, p. 220 (Mussooree).
Erebia annada hybrida, Bingham, 1905, p. 151; Seitz, 1908, p. 94, t. 35 *a*.
Callerebia annada annada f. *hybrida*, Fruhstorfer, 1911, p. 301.
Callerebia hybrida, Fruhstorfer, 1916, p. 24.
Erebia hybrida, Evans, 1932 *a*, p. 118.
Callerebia hybrida, Peile, 1937, p. 98, pl. x, fig. 80 (♀); Wynter-Blyth, 1940, p. 725 (Simla district).
Callerebia nada, Moore, 1881 *b*, p. 306 (♂♀, Kunawur).

♂♀. Fore wing narrow, rounded at apex, inner margin longer than costa. *Upperside* paler brown than in *scanda*, and ocelli yellow-ringed.

Underside of hind wing with prominent submarginal and discal lines, submarginal line not touching the ocelli; ocelli prominent.

Expanse: ♂♀, 50–60 mm.

Habitat.—Simla to Kumaon; not rare.

Peile (1937) records *hybrida* as having two broods at Mussooree, one from end of May to early July, and another in September. The males are found in rocky ravines, the females on grassy slopes, appearing a little later. The *egg* is nearly spherical, 1·5 mm. high and broad, considerably larger than the egg of *nirmala*; it is glossy, pearl-like, with no greenish tint.

Wynter-Blyth (1940) records the insect from the Simla district as favouring damp wooded localities from 5,500 to 8,500 feet. Two broods, one in middle of May and another in middle of August.

366. **Erebia baileyi** (South).

Callerebia baileyi, South, 1913, p. 350 (♂♀, S.E. Tibet).

♂. *Upperside* blackish. Marginal area of both wings whitish, sprinkled with blackish-brown, more broadly and thinly on hind wing. Fore wing with traces of a wavy, blackish, submarginal line towards costa; a subapical ocellus, ringed with tawny, enclosing two white dots set obliquely. Hind wing with tornal ocellus ringed with tawny, and white-pupilled. Cilia white.

Underside of fore wing as above; apical area whiter and ocellus larger. Hind wing chalky-white, freckled with brownish, chiefly over costal half; a small white-pupilled, yellow-ringed ocellus in area 6, and a smaller one, without pupil, in area 5; two larger subtornal ocelli, faintly yellow-

ringed and white-centred; traces of a submarginal brownish line.

♀. Browner than the male. Hind wing with anterior ocellus vestigial and no ocellus in area 5; two diffuse brownish lines, the outer bluntly dentate, represent the margins of a discal band.

Expanse: ♂♀, 60–67 mm.

Habitat.—MISHMI HILLS, 6,000 feet, to South-East Tibet, from 7,000 to 10,000 feet. The type came from Drowa Gompa, 10,000 feet, July.

Erebia annada Moore.

♂♀. Fore wing with costa longer than inner margin. Hind wing with produced anal lobe.

Underside of hind wing with prominent submarginal and discal bands; submarginal band runs into the ocelli; both bands widen anteriorly.

In dry-season forms the bands and ocelli tend to become obsolete.

Distribution.—KASHMIR to ASSAM and NORTHERN BURMA. Five subspecies are distinguished.

367 *a*. **Erebia annada annada** Moore.

Erebia annada, Moore, 1857, p. 226 (Bhutan).
Callerebia annada, Moore, 1882 *b*, p. 237 (Kangra); Marshall & de Nicéville, 1883, pp. 244, 245, ♂♀; Butler, **1886** *a*, p. 358 (Punjab); Doherty, 1886 *a*, p. 119 (Kumaon, 5,000 to 7,000 feet); Moore, 1893, p. 97, pl. cxv, figs. 3, 3 *a*, *b* (♂♀); de Nicéville, 1894 *a*, p. 128 (Sikkim & Bhutan); Mackinnon & de Nicéville, 1897, p. 220 (Mussoorie).
Erebia annada, Bingham, 1905, p. 150; Hannyngton, 1910, p. 136 (Kumaon, 6,000 to 8,000 feet).
Callerebia annada annada, Seitz, 1908, p. 93, t. 35 *a*; Fruhstorfer, 1911, p. 301 (=wet season form).
Callerebia annada, Fruhstorfer, 1916, p. 24.
Erebia annada annada, Evans, 1932 *a*, p. 119 (Nepal; Bhutan).

♂♀. *Upperside* ground-colour and ocelli as in *scanda*, but the latter ringed with deep brownish-orange, not pale fulvous; both wings with an obscure submarginal dark brown band.

Underside of fore wing deep ochraceous red-brown, inner margin broadly brown, apex and marginal area just below it dusted with greyish; ocellus and submarginal band as on upperside, the latter joining an oblique post-discal dark band below the ocellus. Hind wing dark umber-brown, thickly dusted with grey and marked with umber-brown striæ, the irroration becoming denser towards the costa; two subtornal fulvous-ringed, pupilled ocelli; post-discal and submarginal more or less incomplete sinuous umber-brown bands.

Antenna, head, thorax and abdomen brown.

Expanse: ♂♀, 60–70 mm.

Habitat.—BHUTAN; very rare.

367 *b*. **Erebia annada cæca** (Watkins).

Callerebia cæca, Watkins, 1925 *b*, p. 236 (Nepal).
Erebia annada cæca, Evans, 1932 *a*, p. 119 (Kashmir to Sikkim); Gough, 1935, p. 261 (Nepal); Peile, 1937, p. 99, pl. x, fig. 79 (♀) (Mussooree, 5,000 to 6,000 feet; Kumaon, 6,000 to 8,000 feet); Wynter-Blyth, 1940, p. 725 (Simla district).

♂♀. *Upperside* as in the nominotypical form.

Underside of fore wing earth-brown, very slightly reddish, the ocellate area somewhat red-brown. Hind wing with reduced white striation in proximal half, but distal white striated band prominent between the post-discal and submarginal lines; tornal ocelli without pupils or these vestigial.

Three specimens in the British Museum, taken by Lieut.-Col. Peile, have a complete chain of six linked ocelli on the underside of hind wings.

Expanse: ♂♀, 60–70 mm.

Habitat.—KASHMIR to NEPAL; not rare.

Peile (1937) records this insect as being common at Mussooree on rocky hillside paths near woods, and in wooded ravines, at from 5,000 to 6,000 feet, in two broods. The first brood appears from end of April to middle June, the second from middle of September to middle October.

Wynter-Blyth (1940) records the insect from the Simla district as favouring damp wooded localities from 5,500 to 8,500 feet. Two broods, one from mid-April to first week in May, and another in early October.

367 *c*. **Erebia annada orixa** (Moore).

Callerebia orixa, Moore, 1872, p. 555 (♂, Khasi Hills); Marshall & de Nicéville, 1883, pp. 244, 245, ♂; Butler, 1885 *a*, p. 301; Elwes, 1891, p. 269 (♂♀, Naga Hills); Moore, 1892 *b*, p. 96, pl. cxv, figs. 2, 2 *a* (♂♀).
Erebia annada orixa, Bingham, 1905, p. 151.
Callerebia annada orixa, Seitz, 1908, p. 93, t. 34 *f*.
Erebia orixa, Tytler, 1911, p. 54 (Naga Hills; 6,000 to 7,000 feet).
Callerebia annada orixa, Fruhstorfer, 1911, p. 301.
Erebia annada orixa, Evans, 1932 *a*, p. 119, pl. xiii, fig. D 13. 7 (♂).
Callerebia ophthalmica, Staudinger, 1887, p. 227, t. 81 (♂).
Callerebia annada ophthalmica, Seitz, 1908, p. 94.

♂♀. A smaller form than *annada*, with rounded apex to fore wing; ocelli on both sides with a much broader ring, especially on fore wing.

Upperside of fore wing usually without a submarginal band.

Underside of hind wing usually without post-discal and submarginal bands; ocelli less distinct than in *annada*; white striæ more distinct.

Expanse: ♂♀, 58–60 mm.

Form **ophthalmica** (Stgr.).—Hind wing with anal area dusted with white.

Habitat.—ASSAM to NORTH BURMA; not rare.

367 *d*. **Erebia annada suroia** (Tytler).

Callerebia suroia, Tytler, 1914, p. 219, ♂♀, pl. i, fig. 2 (♂) (Manipur, 6,000 feet).
Erebia annada suroia, Evans, 1932 *a*, p. 119.
Erebia suroia, Tytler, 1939 *a*, p. 247 (♂, N.E. Burma, Htawgaw, July).

♂♀. Resembles *orixa* (Moore). *Upperside* of fore wing with a much broader orange ocellar ring, especially on the distal side of ocellus.

Underside of fore wing similar to above. Hind wing with a sub-basal and discal reddish-brown band; tornal ocellus absent; white striae denser and more conspicuous than in *orixa*.

Expanse: ♂♀, 60–65 mm.

Habitat.—Manipur and North-Eastern Burma; rare. Taken at Suroi in Manipur, 6,000 feet, in July and August.

367 *e*. **Erebia annada watsoni** (Watkins).

Callerebia watsoni, Watkins, 1925 *b*, p. 237 (Chin Hills).
Erebia annada watsoni, Evans, 1932 *a*, p. 119.
Callerebia orixa, Watson (*non* Moore), 1897, p. 651 (Chin Hills, 3,500 to 5,500 feet); Adamson, 1905, p. 167 (Chin Hills).
Erebia orixa watsoni, Tytler, 1939 *a*, p. 247 (Chin Hills, September).

♂♀. Similar to *suroia* Tytler. *Underside* of hind wing with white dusting extended to apex; dark bands sharply defined, and traces of a sub-basal band.

Expanse:—♂♀, 52–56 mm.

Habitat.—Chin Hills; rare.

Tytler (1939 *a*, p. 247) notes that specimens, including the type, taken in May and June, differ from those taken in September in having the underside much paler, and the discal and marginal bands much more pronounced.

Hyagriva Group (*Dallacha* Moore).

♂♀. Wings rounded. *Upperside* brown. Fore wing in ♂ without a brand; ocellus with a pale yellow ring, and one of the two pupils absent or minute. Hind wing with a prominent ocellus in area 2.

Underside of fore wing pale brown. Hind wing pale brown, striated, no discal line; two large double ocelli in areas 1 *c* and 2; two continuous subapical ocelli in areas 5 and 6.

The only species is *hyagriva* (Moore), which resembles an *Ypthima*, but has very different genitalia.

368. **Erebia hyagriva** (Moore).

Ypthima hyagriva, Moore, 1857, p. 236; Marshall & de Nicéville, 1883, pp. 220, 226, ♂♀, pl. xvii, fig. 64 (♀, Kulu).
Yphthima (sic) *hyagriva*, Hewitson, 1865, p. 291, pl. xviii, fig. 11 (♂ ?), Darjeeling).

Callerebia hyagriva, Doherty, 1886 *a*, p. 119 (Kumaon, 3,000 to 7,000 feet).
Dallacha hyagriva, Moore, 1892 *b*, p. 95, pl. cxv, figs. 1, 1 *a* (♂♀); Mackinnon & de Nicéville, 1897, p. 219 (Mussooree).
Erebia hyagriva, Bingham, 1905, p. 150; Eiffinger, 1908, p. 110; Hannyngton, 1910, p. 136 (Kumaon, 3,000 to 7,000 feet).
Callerebia hyagriva, Fruhstorfer, 1911, p. 300.
Erebia hyagriva, Evans, 1932 *a*, p. 119, pl. xiii, fig. D 13. 8 (♂); Gough, 1935, p. 261 (Nepal, about 6,000 feet); Wynter-Blyth, 1940, p. 725 (Simla district).
Callerebia hyagriva, Peile, 1937, p. 100, pl. x, fig. 83 (♀) (Mussooree, 6,000 to 7,000 feet; Kumaon, 3,000 to 7,000 feet).

♂♀. *Upperside* rich dark brown. Fore wing with a well-defined submarginal darker band; a bipupilled, black, yellow-ringed, subapical ocellus. Hind wing with a submarginal dark band, less defined than on fore wing; a tornal ocellus, unipupilled, and smaller than on fore wing.

Underside ochraceous-brown; dark submarginal bands better defined than on upperside; a marginal dark slender line. Fore wing uniform, the costal and outer borders only with brown mottlings; ocellus as on upperside. Hind wing marked with short dark striæ; a post-discal series of four large, black, white-pupilled, yellow-ringed ocelli, two subapical, two subanal, somewhat as in *Ypthima*.

Antenna, head, thorax and abdomen dark brown.

Expanse: ♂♀, 42–46 mm.

Habitat.—KASHMIR to KUMAON; rare.

According to Mackinnon (1897) the insect is very common at Mussooree, on grassy hillsides, in August and September. Gough (1935) says it is very rare in Nepal, at about 6,000 feet, in September.

Peile (1937) says "it is on the wing only during the rains, in the intervals of sunshine between the frequent showers and passing clouds of mist."

Wynter-Blyth (1940) notes that the insect is usually scarce in the Simla district. It occurs on open hillsides and lightly wooded country, from 5,000 to 8,000 feet, at end of August and in September.

Narasingha Group (*Hemadara* Moore).

♂♀. Wings produced, especially the tornus of hind wing which is lobed. *Upperside* of fore wing of male with a prominent dark brown brand, from middle of vein 1 to base of vein 4, entering the cell; a subapical black ocellus, bipupilled, and with yellow ring very pale in Indian forms, the pupil in area 4 always smaller than the one in 5. Hind wing without ocelli on both sides.

Underside of fore wing with a prominent discal dark line from inside ocellus to vein 2; a submarginal line to vein 2; ground-colour paler between discal and submarginal lines.

The only Indian species is *narasingha* (Moore).

Erebia narasingha (Moore).

This species has the appearance of a *Ypthima*, especially resembling *megalomma* Butl.

The characters of the species are given under the description of the group.

Distribution.—SIKKIM to BURMA and South-East Tibet. Two Indian subspecies.

369 *a*. Erebia narasingha narasingha (Moore). (Fig. 87, ♂).

Ypthima narasingha, Moore, 1857, p. 236; Marshall & de Nicéville, 1883, pp. 220, 225.
Yphthima (sic) *narasingha*, Hewitson, 1865, p. 291, pl. xviii, fig. 19 (? ♂).
Hemadara narasingha, Moore, 1893, p. 107, ♂♀; pl. cxviii, figs. 3, 3 *a* (♂).
Erebia narasingha, Bingham, 1905, p. 148.
Callerebia narasingha, Fruhstorfer, 1911, p. 300.
Erebia narasingha narasingha, Evans, 1932 *a*, p. 119.

♂♀. *Upperside* greyish-brown. Fore wing with a very large subapical ocellus, black, bipupilled with white, and ringed with pale ochraceous-olive; a submarginal, incomplete, faint dark band. Hind wing with a curved series of obscure, very minute, pale ocelli; a more or less distinct marginal broad band.

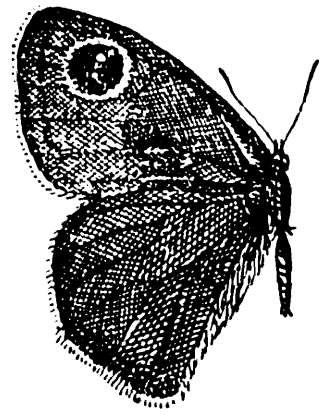


Fig. 87.—*Erebia narasingha narasingha* (Moore), (♂, Sikkim).

Underside of fore wing brown and, except for inner margin, thickly dusted with olivaceous scales; subapical ocellus as on upperside, but with a broader ring, bordered with brown above, below, and on inner side; discal and submarginal dark bands obscure and very short. Hind wing olivaceous grey, thickly irrorated with short, dark brown striæ; a post-discal curved series of obscure whitish dots.

Antenna, head, thorax and abdomen dark greyish-brown, paler beneath.

The male of this species is distinguished by the prominent dark brand on fore wing.

Expanse : ♂♀, 55 mm.

Habitat.—SIKKIM and ABOR VALLEY ; from 4,000 feet upwards ; very rare, especially the female, of which no specimen exists in the British Museum.

369 *b*. **Erebia narasingha dohertyi** Evans.

Erebia narasingha dohertyi, Evans, 1923, p. 785 ; *id.*, 1932 *a*, p. 119 ; Tytler, 1939 *a*, p. 247 (N.E. Burma, Htawgaw).
Ypthima narasingha, Elwes, *non* Moore, 1891, p. 268 (♂♀, Bernardmyo).

♂♀. Distinguished from the nominotypical form by the *underside* being paler, with an ochreous tinge. Hind wing not striated or uniform, and costa, apex, and tornus prominently darker.

Expanse : ♂♀, 55 mm.

Habitat.—NORTHERN BURMA to SHAN STATES ; very rare.

Genus **YPTHIMA** Hübner. (Figs. 88 to 91).

Ypthima, Hübner, 1818, p. 17 ; *id.*, 1819, p. 63 ; Moore, 1880 *a*, p. 24 ; Marshall & de Nicéville, 1883, pp. 96, 212, pl. xvii ; Moore, 1891, p. 155 ; *id.*, 1892 *b*, p. 75 (type, *hübneri* Kirby) ; Elwes & Edwards, 1893, pp. 1–8, *et seq.* (revision) ; Bingham, 1905, p. 130 (type, *philomela* Johannsen) ; Seitz, 1907, p. 79 ; Fruhstorfer, 1911, p. 286 ; Evans, 1932 *a*, pp. 95, 119 ; Hemming, 1934 *a*, p. 45 (type, *Ypthima philomela* Hübner, 1818, =*Papilio philomela* Linn., 1763) ; *id.*, 1937, p. 149 (type, *Ypthima philomela* Hübn.).
Yphthima, Doubleday, 1844, p. 138 ; Hewitson, 1865, pp. 281–293 (Monograph) ; Scudder, 1875, p. 289 (type, *philomela* Linn.).
Kolasa, Moore, 1891, p. 155 ; *id.*, 1892 *b*, pp. 57, 82 (type, *chenui* Guér.).
Thymipa, Moore, 1891, p. 155 ; *id.*, 1892 *b*, pp. 57, 58 (type, *baldus* Fabr.).
Nadiria, Moore, 1892 *b*, p. 85 (type, *bolanica* Marsh.).
Pandima, Moore, 1892 *b*, p. 86 (type, *nareda* Koll.).
Lohana, Moore, 1892 *b*, p. 92 (type, *inica* Hew.).
Shania, Evans, 1912, p. 564 (type, *Ypthima megalia* de Nicév.) (=subgenus).

Type of the genus, *Y philomela* Hübner.

♂♀. Fore wing triangular, costa widely arched ; apex rounded or subacute ; outer margin straight, tornus rounded, inner margin straight ; cell comparatively very broad, about half length of wing ; *udc* about half length of *mdc* ; *ldc* straight or incurved ; veins 10 and 11 emitted after apex of cell, 10 always from 7, 11 and median much swollen at base. Hind wing ovate, costa and outer margin arched, inner margin straight, slightly emarginate before tornus ; cell long, well over half length of wing ; discocellulars very oblique ; vein 8 bordering costa to apex of wing ; precostal vein short and knobbed.

Antenna slender, short, less than half length of fore wing, club very slight; palpus long, slender, oblique, with an anterior fringe of long hairs; eyes naked; mid and posterior femora scaled, not hairy beneath, longer than tibia; tarsus of male absent.

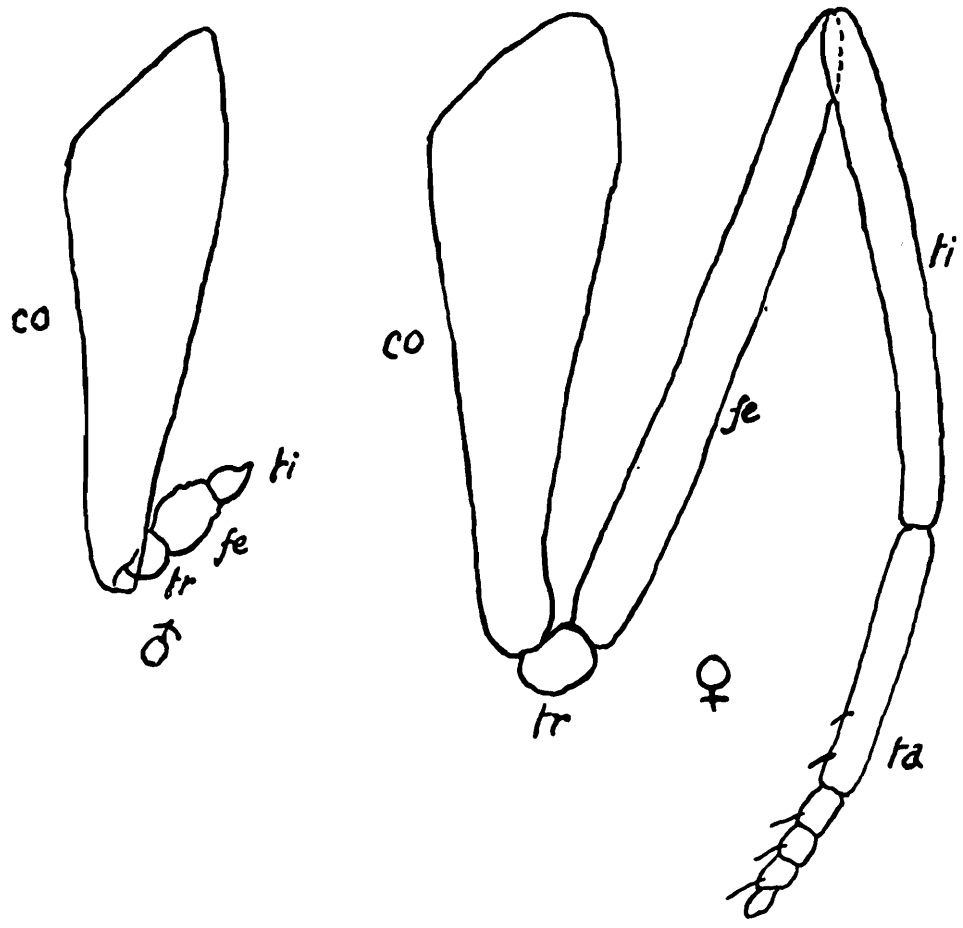


Fig. 88.— *Ypthima baldus horsfieldii* Moore.
Male and female fore-leg. (After *Roepke*, 1936).

The male of some species with a brand on fore wing upperside, lying below and above the median vein.

Habits.—The insects appear in the early and late evening, even on dull days. They keep low in the grass, and settle on the blades or leaves.

Distribution.—Chiefly in subtropical China and in INDIA, becoming less frequent eastwards, but reaching Australia; also in Africa.

Key to Groups and Species of Ypthima.

A. Hind wing underside without ocelli or at most a dot in area 2 ... . [p. 318. *Megalomma* Group,

B. Hind wing underside with ocelli, but often obsolete in dry-season forms; a single apical ocellus in area 6, none in 3 . . [p. 319. *Asterope* Group,

1. Fore wing underside without a loop round ocellus extending to veins 1 *b* or 2 .... 2.

Fore wing underside with discal band which forms a loop, below ocellus, with the submarginal band. No ♂ brand .... 4.

2. Fore wing underside without a prominent submarginal dark band, at least in wet forms. Fore wing upperside with ♂ brand. 3.
   Fore wing underside with a prominent submarginal dark band. No ♂ brand. No dry form . . . [p. 321. *nareda* (Koll.),
3. Hind wing underside with apical and tornal ocelli not in line, ocellus in area 2 shifted out . . . *inica*, Hew., p. 319.
   Hind wing underside with apical and tornal ocelli in line. No dry form .. [p. 320. *lycus*, de Nicév.,
4. Fore wing upperside with discal line free from ocellar ring. Underside with white striation. .. .. 5.
   Fore wing upperside with discal line touching ocellar ring. Underside pale ochraceous, no white striation *akbar* sp.nov., p. 324.
5. Large species. Underside striation coarse and wide. Hind wing ocelli very large in the wet form.. .. [p. 323. *pandocus*, Moore,
   Small species. Underside striation fine. 6.
6. Hind wing ocelli very small in the wet form; discal lines prominent in the dry form [p. 324. *asterope* (Klug.),
   Hind wing ocelli large in the wet form; discal lines obscure or absent in the dry form . . .. *burmana* Ev., p.325.

C. Hind wing underside with three tornal ocelli in areas 1, 2, 3. No ♂ brand. .. [p. 326. *Chenui* Group,
1. Hind wing underside with subtornal ocelli on a dark band. Seasonal forms not strongly marked . .. 2.
   Hind wing underside with subtornal ocelli not on a dark band. Seasonal forms strongly marked . . . . .. 3.
2. Fore wing upperside with dark bands not visible from below; ocellar ring obscure. [(Moore), p. 326. *yphthimoides*
   Fore wing upperside with prominent dark bands and ocellar ring ... . [p. 326. *chenui* (Guér.),
3. Hind wing upperside with tornal half white [Hew., p. 328. *ceylonica ceylonica*

   Hind wing upperside not white. . [Kirby, p. 329. *ceylonica hübneri*

D. Hind wing underside with more than one apical ocellus, the one in area 5 always prominent ... . [p. 331. *Philomela* Group,
1. Hind wing underside with tornal ocelli in a straight line or the one in area 2 slightly shifted out . .. . 2.
   Hind wing underside with tornal ocelli not in line, the ocellus in area 2 shifted in more or less .. .. . 3.
2. Hind wing underside with usually only two subtornal ocelli; ocellus in area 3 absent; three subapical ocelli in 4 to 6. No ♂ brand. No dry form. . . .. . [p. 331. *bolanica* Marsh.,
   Hind wing underside with three subtornal and two subapical ocelli .. [p. 332. *lisandra* (Cram.),
3. Hind wing underside with ocellus in area 6 minute; upperside without discal band. *philomela* (Linn.),
   Hind wing underside with ocellus in area 6 more or less prominent . .. [p. 334. 4.

4. Hind wing underside with two apical ocelli, not much larger than the others. . .. 5.
Hind wing underside with two apical ocelli much larger than others; tornal double ocellus with single iris. No dry form. *sakra* Moore, [p. 342.

5. Wing expanse less than 45 mm. 6.
Wing expanse more than 45 mm.. . 8.

6. ♂ fore wing upperside with a prominent brand; discal line not visible. Dry form well marked. .. .. . . 7.
♂ fore wing upperside without a brand, both wings with a discal line . . *similis*, Elw. & Edw., [p. 338.

7. Underside striation coarse; sub-basal and discal bands prominent. Hind wing upperside with discal line more or less well marked . *baldus* (Fabr.), [p. 336.
Underside striation fine and darker; sub-basal bands obsolete on both wings. Hind wing upperside discal band not visible. *indecora*, Moore, [p. 336.

8. Underside very pale, with dark prominent bands. Hind wing discal band straight. ♂ brand prominent. .... . . *savara*, Gr.-Sm., [p. 340.
Hind wing underside with discal band, if present, angled outwards beyond end of cell; bands not prominent. Dry form ocellate .. . .. . 9.

9. Hind wing underside with tornal double ocellus separated; apical pair of ocelli separate .. ... . *methora*, Hew., [p. 340.
Hind wing underside with a single iris to tornal double ocellus; apical ocelli with rings touching or coalescent . *dohertyi* (Moore), [p. 342.

Megalomma Group (*Shania* Evans).

♂♀. *Upperside* of fore wing of male without a brand. Hind wing with an ocellus in area 2.

Underside of fore wing without a band; no loop below the ocellus. Hind wing variegated; a post-discal, greyish-white, somewhat dusky band, with similar grey scaling over inner area and at base.

This group contains but one species.

Ypthima megalomma Butler, 1874.

♂♀. *Upperside* of fore wing with a large bipupilled ocellus. Hind wing with a single ocellus, placed in area 2.

Underside of hind wing with a grey distal area, angulate at apex of cell.

Distribution.—China to NORTHERN BURMA. A single subspecies in the Indian area.

The nominotypical form is figured by Seitz, 1908, t. 34 c.

370. **Ypthima megalomma megalia** de Nicéville.

Ypthima megalia, de Nicéville, 1897, p. 546, pl. i, fig. 5 (♂, North Shan States, 5,500 feet); Bingham, 1905, p. 146; Fruhstorfer, 1911, p. 294.

Ypthima megalomma megalia, Evans, 1932 *a*, p. 119; Tytler, 1939 *a*, p. 247 (♂, Bhamo Hills, February).

♂. *Upperside* of both wings shining hair-brown, with an indistinct submarginal fuscous band; cilia cinereous. Fore wing with subapical ocellus, deep black, bipupilled, its ring dull yellow. Hind wing with a similar small subanal ocellus, unipupilled.

Underside of fore wing pale brown, speckled with white and ochraceous, except narrowly along inner margin; ocellus larger than on upperside, with wider yellow ring, and with the pupils metallic blue. Hind wing without a trace of ocelli, and speckled like the fore wing; white and yellow striæ less intermixed, there being a discal, ill-defined, broad yellow band, from middle of costa to middle of inner margin; a post-discal, ill-defined, whitish band, broader than the discal one, and broadly interrupted in middle of outer margin by a large triangular patch of yellow striæ.

Expanse: ♂, 45 mm.

Habitat.—NORTHERN BURMA; very rare. The female of this form appears to be still unknown. There is a single male in the British Museum from Bhamo, 5,000 feet, March (ex Coll. Evans).

Asterope Group (*Pandima* Moore, *Lohana* Moore).

♂♀. *Upperside* of hind wing with a single ocellus, placed in area 2.

Underside of fore wing with discal line forming a loop round the ocellus; anterior part of wing striated grey. Hind wing with a single ocellus in area 6; two posterior ocelli in 1 *c* and 2; no ocellus in 3.

The Indian species are *inica* Hew., *lycus* de Nicév., *nareda* (Koll.), *pandocus* Moore, *asterope* (Klug), and *burmana* Evans; to these is added a new species, already known, but confused with another.

371. **Ypthima inica** Hewitson.

Yphthima (sic) *inica*, Hewitson, 1865, p. 284, pl. xvii, fig. 5 (♀, "East India").
Ypthima inica, Marshall & de Nicéville, 1883, pp. 220, 225, ♂♀; Elwes & Edwards, 1893, p. 13, pl. i, fig. 9 (genit.).
Lohana inica, Moore, 1892 *b*, p. 93, pl. cxiv, figs. 2, 2 *a* (♂♀, wet-season brood), figs. 2 *b*, *c*, *d*, *e* (♂♀, dry-season brood); Adamson, 1905, p. 167 (Bhamo).
Ypthima inica, Bingham, 1905, p. 145; Fruhstorfer, 1911, p. 286; Evans, 1932 *a*, p. 120.
Yphthima (sic) *ariaspa*, Moore, 1874 *b*, p. 568 (♂, Punjab).
Ypthima ariaspa, Marshall & de Nicéville, 1883, pp. 220, 224, ♂; Elwes & Edwards, 1893, p. 11.
Ypthima inica f. *ariaspa*, Fruhstorfer, 1911, p. 286 (wet-season form).
Ypthima rara, Butler, 1883, p. 145, pl. xxiv, fig. 1 (♀, Mhow).
Ypthima daedalia, Swinhoe, 1886, p. 422.
Ypthima alkibie, Swinhoe, 1886, p. 423.
Ypthima complexiva, Swinhoe, 1886, p. 423, pl. xl, fig. 2 (♀).
Ypthima inica f. *complexiva*, Fruhstorfer, 1911, p. 286.

Dry-season form **inica** Hew.—♂♀. *Upperside* uniform dark brown. Fore wing with a subapical black ocellus, comparatively large, rounded, bipupilled, and with usual yellow iris. Hind wing with a similar subtornal ocellus, but smaller and unipupilled.

Underside pale grey ; fine brown striæ very numerous and evenly spread. Fore wing with a submarginal, ochraceous, broad, and somewhat broken band. Hind wing crossed usually by four bands, similar to the band of the fore wing ; ocelli reduced to mere specks or obsolete.

Antenna, head, thorax and abdomen brown, paler beneath.

Wet-season form **ariaspa** Moore.—♂♀. *Upperside* as in dry form.

Underside light grey, very evenly and closely striated. Fore wing ocellus as on upperside. Hind wing with similar but smaller ocelli, an apical one and two posterior ones, the former not quite in line with the latter.

Expanse : ♂♀, 30–34 mm.

Habitat.—PUNJAB to BENGAL ; not rare.

A female was taken by Lieut.-Col. Peile at Bannu, on the North-West Frontier.

Ypthima lycus de Nicéville.

♂♀. Resembles *nareda* (Koll.), but both wings with a submarginal, dark, narrow band on underside. *Upperside* earth-brown. Fore wing ocellus small, the iris obscure and pale in male, pale yellow in female.

Underside paler than above ; fore wing with ocellus more prominent. Hind wing with apical and tornal ocelli in line.

Genitalia.—Valve with more than anterior half forming a slender curved rod which, at about a fifth from the apex, is bent sharply upwards and parallel to the uncus.

Distribution.—ASSAM to NORTHERN BURMA. Two subspecies.

372 *a*. **Ypthima lycus lycus** de Nicéville.

Ypthima motschulski, Marshall & de Nicéville (*non* Bremer & Grey, 1853), 1883, p. 214.
Ypthima lycus, de Nicéville, 1889, p. 165, pl. A, fig. 2 (♂, Khasi Hills) ; Elwes & Edwards, 1893, p. 19, pl. ii, fig. 39 (genit.).
Pandima lycus, Moore, 1892 *b*, p. 88, pl. cxiii, fig. 3 (♂).
Ypthima lycus, Bingham, 1905, p. 140 ; Fruhstorfer, 1911, p. 291.
Ypthima lycus lycus, Evans, 1932 *a*, p. 120, pl. xiii, fig. D 14. 3 (♂).

♂♀. *Upperside* glossy brown, perceptibly darker on the basal area in male. Fore wing with a subapical black ocellus, comparatively large, obliquely placed, oval, bipupilled, with obscure pale ring. Hind wing with a subtornal similar ocellus, but much smaller, round, and unipupilled.

Underside ground-colour similar to that of upperside, but covered with very delicate, fine and short, ochraceous striae, except on inner margin of fore wing. Fore wing with one subapical ocellus, and striation obsolete. Hind wing with three ocelli, a large subapical one, a smaller subtornal, and a tornal bipupilled one ; they are similar to those on upperside, but with broad and yellow rings.

Antenna, head, thorax and abdomen brown, slightly paler beneath.

Expanse : ♂♀, 37–40 mm.

Habitat.—ASSAM ; rare.

372 *b*. **Ypthima lycus lycoides** Watson.

Ypthima lycoides, Watson, 1897, p. 648 (♂♀, North Chin Hills) ; Evans, 1912, p. 565.

Ypthima lycus lycoides, Evans, 1932 *a*, p. 120.

♂♀. Differs from the nominotypical form in the *underside* being grey instead of ochreous, and with prominent striation on fore wing.

Expanse : ♂♀, 37–40 mm.

Habitat.—NORTHERN BURMA ; rare.

Ypthima nareda (Kollar).

♂♀. *Upperside* of fore wing of male without a brand.

Underside of fore wing with a submarginal band ; no discal band. Hind wing with a submarginal band.

Genitalia.—Valve much shorter, thicker, and less curved than in *lycus*, the apex narrowing to a point and curved outwards.

Distribution.—KASHMIR to SIKKIM, ASSAM, and BURMA, extending to Yunnan, South-East Tibet, and China. Three Indian subspecies.

373 *a*. **Ypthima nareda nareda** (Kollar).

Satyrus nareda, Kollar, 1844, p. 451 (Kashmir).

Yphthima (sic) *nareda*, Hewitson, 1865, p. 284, pl. xvii, figs. 6, 7 (♂♀).

Ypthima nareda, Moore, 1882 *b*, p. 238 (Kangra) ; Marshall & de Nicéville, 1883, pp. 220, 221, pl. xvii, fig. 63 (♂, Kulu) ; Butler, 1886 *a*, p. 359 (Murree) ; Doherty, 1886 *a*, p. 119 (Kumaon, to 9,000 feet) ; Butler, 1888, p. 137 (Punjab) ; Elwes & Edwards, 1893, p. 20, pl. i, fig. 2, pl. ii, fig. 40 (genit.).

Pandima nareda, Moore, 1892 *b*, p. 86, ♂♀, pl. cxiii, figs. 1, 1 *a* (♂).

Ypthima nareda, Mackinnon & de Nicéville, 1897, p. 219 (Mussooree) ; Bingham, 1905, p. 138 ; Seitz, 1908, p. 92 ; Hannyngton, 1910, p. 136 (Kumaon, 2,000 to 7,000 feet) ; Fruhstorfer, 1911, p. 290, t. 99 *g*.

Ypthima nareda nareda, Evans, 1932 *a*, p. 120 ; Peile, 1937, p. 100, pl. xii, fig. 100 (♂).

♂♀. *Upperside* pale vandyke-brown ; cilia of both wings whitish-brown, with an anticiliary dark line ; the broad submarginal band of underside shows through. Fore wing

with the usual subapical ocellus. Hind wing with a subtornal and sometimes a minute tornal ocellus.

Underside pale ochraceous, thickly marked with short dark brown striæ, evenly and uniformly spread; ocelli as on upperside, but tornal one bipupilled and always present; hind wing also with a large subapical ocellus. Both wings with submarginal, somewhat obscure, dark bands, that on the fore wing broadening posteriorly.

Antenna, head, thorax and abdomen, brown; abdomen pale beneath.

Expanse: ♂♀, 40–45 mm.

Habitat.—KASHMIR to KUMAON; not rare.

According to Mackinnon (1897) the insect is common at Mussooree from April to October. There is no dry-season non-ocellate form. Peile (1937, p. 101) records that the species is common in Kumaon at 2,000 to 7,000 feet, April to October, especially near Naini Tal in August.

373 *b*. **Ypthima nareda newara** Moore. (Fig. 89, ♂).

Yphthima (sic) *newara*, Moore, 1874 *b*, p. 567 (♂♀, Nepal).
Ypthima newara, Marshall & de Nicéville, 1883, pp. 220, 222, ♂♀.
Pandima newara, Moore, 1892 *b*, p. 87, pl. cxiii, figs. 2, 2 *a* (♂♀, Nepal).
Ypthima newara, Elwes & Edwards, 1893, p. 21, pl. ii, fig. 42 (genit.); de Nicéville, 1894 *a*, p. 128 (Sikkim, up to 5,000 feet, local); Watson, 1897, p. 648 (Chin Hills, 3,500 to 5,500 feet); Bingham, 1905, p. 139, fig. 33 (♂); Tytler, 1911, p. 54 (Naga Hills); South, 1913, p. 348 (Mishmi Hills, 4,000 feet).
Ypthima newara newara, Fruhstorfer, 1911, p. 291.
Ypthima nareda newara, Evans, 1932 *a*, p. 120 (Sikkim to Assam); Gough, 1935, p. 261 (Nepal, 4,500 feet, September).
Ypthima nareda, Hewitson (*non* Koll.), 1865, pl. xvii, fig. 7 (*non* fig. 6).
Yphthima (sic) *nareda*, de Nicéville (*non* Koll.), 1881, p. 53 (Sikkim, October).
Ypthima nareda, de Nicéville, 1882, p. 56 (Sikkim); Butler, 1885 *a*, p. 302 (Manipur, November).

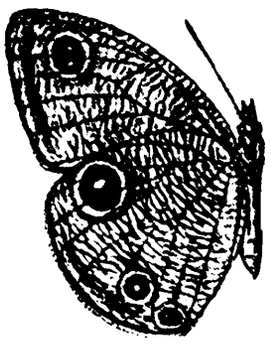


Fig. 89.—*Ypthima nareda newara* Moore, ♂.

♂♀. Very closely resembling the nominotypical form. *Underside* of fore wing with submarginal band of even width

throughout; striation slightly coarser and less uniform. Hind wing subapical ocellus much larger.

Expanse: ♂♀, 45–50 mm.

Habitat.—NEPAL to SIKKIM and ASSAM (extending to Chin and Mishmi Hills); not rare.

373 *c*. **Ypthima nareda sarcaposa** Fruhstorfer.

Ypthima newara sarcaposa, Fruhstorfer, 1911, p. 291 (Tungo, Tenasserim, ca. 3,000 feet).

Ypthima nareda sarcaposa, Evans, 1932 *a*, p. 120 (Assam to Shan States).

Ypthima (*Pandima*) *newara*, Adamson, (*non* Moore), 1905, p. 167 (Arakan Hills).

♂♀. Smaller than the nominotypical form; ocelli with broader and lighter yellow rings.

Underside lighter grey.

Expanse: ♂♀, 40–45 mm.

Habitat.—ASSAM to SHAN STATES; not rare.

Ypthima pandocus Moore, 1857

♂♀. A large species. *Upperside* of fore wing with ocellus relatively large, and placed within a large pale area which narrows posteriorly and usually reaches below vein 2; more strongly marked and striated in the female. Hind wing with a small tornal ocellus in area 1 *c* (except in the Indian subspecies), and a larger subtornal one in 2; female with a distal, broad, pale, striated area.

Underside of hind wing densely striated white (less so in the Indian subspecies); discal, post-discal, and submarginal bands usually well marked; an apical ocellus; two tornal ocelli, the one in area 1 *c* bipupilled.

Genitalia.—Valve very long and slender, anterior half a slender rod curving dorsad, the apex ending in a blunt point.

Distribution.—BURMA to Malaya, Sumatra, Java, Borneo, Philippines and Celebes. One subspecies in the Indian area.

374. **Ypthima pandocus watsoni** (Moore).

Pandima watsoni, Moore, 1892 *b*, p. 89, pl. cxiii, fig. 4 only (♂, wet-season brood) (Pegu; Bhamo; Chindwin; Shan States; Toungoo).

Ypthima watsoni, Watson, 1897, p. 649 (Upper Chindwin); Adamson, 1905, p. 167 (Upper Burma); Bingham, 1905, p. 139 (part.), Fruhstorfer, 1911, p. 291 (part.); Ellis, 1917, p. 105 (Pegu Yoma); Evans, 1932 *a*, p. 120 (Manipur to S. Burma).

Wet-season form.—♂♀. The name *watsoni* was founded upon this form. Closely resembles *nareda*, from which it differs chiefly on the underside in the very much sparser striation, in the presence and prominence of a discal, and on the hind wing also of a sub-basal band. Hind wing apical ocellus little larger than the one in area 2.

Dry-season form.—♂♀. *Underside* ground-colour greyish-white to ochraceous-white; sub-basal and discal bands well-defined. Hind wing ocelli represented by black dots.

Expanse: ♂♀, 40–45 mm.

Habitat.—MANIPUR to SOUTH BURMA; not rare.

The form identified by Elwes and Edwards (1893) as *watsoni*, and represented by Moore (1892 *b*) as the dry-season form, belongs to a distinct species, described hereafter.

375. **Ypthima akbar**, sp. nov.

Ypthima watsoni, dry-season form, Moore, 1892 *b*, p. 89, pl. cxiii, figs. 4 *a*, *b*, *c* (♂♀).

Ypthima watsoni, Elwes & Edwards (*non* Moore), 1893, p. 47, pl. i, fig. 25 (genit.) (Karen Hills).

♂♀. *Upperside* of fore wing paler than in *watsoni*. Fore wing of male without a brand; discal and submarginal lines distinct, joined in area 1 *b*; discal line very nearly touches ring of ocellus, but in *watsoni* it is well away from this; ocellar area, distally and posteriorly, more or less striated with greyish-white; apical ocellus much larger than in *watsoni*. Hind wing with discal line prominent and slightly angulate; a submarginal line, attenuate at both ends, and at the middle, thicker than discal line; tornal ocellus as in *watsoni*.

Underside pale ochraceous. Fore wing sparsely striated with brown; discal and submarginal lines as above. Hind wing with sub-basal curved line, more or less distinct; discal line very distinct, less angulate than in *watsoni*; submarginal line as above; ocelli represented in areas 1 *c*, 2, and 6 by black bluish-scaled dots. In the female all markings are more prominent.

Expanse: ♂♀, 40–45 mm.

Genitalia.—Valve short and broad, narrowing to the apex; ventral edge with two short projections; below apex, on inner side, a short lobate process, its edge finely toothed.

Habitat.—BURMA: Karen Hills, East Pegu, 4,000 to 5,000 feet, March to April, 1880 (W Doherty), 2 ♂♂, ♀ (ex. Coll. Elwes). ♂ type, the specimen No. 5 of which the valve is figured by Elwes and Edwards (1893). All in British Museum. No wet-season form detected, the species apparently very rare.

Ypthima asterope (Klug, 1832).

♂♀. A small species. *Underside* with fine striation. Hind wing, in wet-season form, with very small ocelli; in dry-season form with two more or less prominent discal lines.

Genitalia.—Valve comparatively short, broad, twisted above the middle, the apical edge broad.

Distribution.—Africa to Arabia, Syria, INDIA and China. One Indian subspecies.

376. **Ypthima asterope mahratta** Moore.

Ypthima mahratta, Moore, 1884, p. 16 (♂♀, Deccan); Butler, 1888, p. 137 (Punjab); Hampson, 1889, p. 350 (Nilgiri Hills, 3,500 feet, northern slopes).
Pandima mahratta, Moore, 1892 *b*, p. 90, pl. cxiv, figs. 1, 1 *a* (♂♀, wet-season brood), figs. 1 *b*, *c* (♂, dry-season brood).
Ypthima asterope mahratta, Fruhstorfer, 1911, p. 287; Evans, 1932 *a*, p. 120, pl. xiii, fig. D 14. 6 (♂); *id.*, 1932 *b*, p. 202 (Baluchistan).
Ypthima asterope, Marshall & de Nicéville (*non* Klug), 1883, pp. 220, 224, ♂♀; Elwes & Edwards, 1893, p. 11, pl. i, fig. 4, pl. iii, fig. 44 *b* (genit.); Mackinnon & de Nicéville, 1897, p. 219 (Dehra Dun); Watson, 1897, p. 650 (Chin Hills, 5,500 to 7,000 feet); Bingham, 1905, p. 145; Bell, 1909, p. 461, ♂♀; Hannyngton, 1910, p. 136 (Kumaon, about 3,000 feet, rare).
Yphthima (sic) *asterope*, Doherty (*non* Klug), 1886 *a*, p. 119 (Kumaon, 2,000 to 6,000 feet).
Ypthima asterope f. *alemola*, Swinhoe, 1885, p. 127; *id.*, 1886 p. 423.
Ypthima alemola, Butler, 1888, p. 137 (Punjab).
Ypthima asterope f. *alemola*, Fruhstorfer, 1911, p. 286 (dry-season form).

Wet-season form **mahratta** Moore.—♂♀. *Upperside* somewhat dull brown; cilia brownish-white. Fore wing with the usual subapical ocellus; in most specimens a pale ocellar area and a submarginal dark brown band. Hind wing uniform, with a single small subtornal ocellus.

Underside densely and minutely striated. Fore wing with ocellus as on upperside; discal and submarginal dark brown bands converging and meeting below the ocellus to form a loop. Hind wing more uniform; ocelli very small, a subapical, a subtornal, and a tornal one.

Antenna, head, thorax and abdomen dull brown; abdomen greyish-white beneath.

Dry-season form **alemola** Swinhoe.—♂♀. *Upperside* slightly paler than in the wet form.

Underside of hind wing with two more or less prominent discal lines; ocelli reduced to mere points or quite absent.

Expanse: ♂♀, 30–37 mm.

Habitat.—CHAMBA to ASSAM and southwards; common. Also in BALUCHISTAN.

In Baluchistan a single ♀ was taken by Evans at 4,000 feet, on the road between Ziarat and Loralai.

377 **Ypthima burmana** Evans.

Ypthima asterope burmana, Evans, 1923, p. 786 (Northern Burma).
Ypthima burmana, Evans, 1932 *a*, p. 120.

♂♀. A small species, resembling *mahratta* Moore. *Underside* of fore wing with ocellus rather large, with pale yellow ring; hind wing in wet-season form with large ocelli, in dry-season form with discal lines obscure or absent.

Expanse: ♂♀, 28–36 mm.

Genitalia.—Valve broad posteriorly, the slender anterior part less than half length of whole, straight, and slightly clubbed at apex.

Habitat.—Northern Burma; rare. In the British Museum from Maymyo and Toungoo.

Chenui Group (*Kolasa* Moore).

♂♀. *Upperside* of fore wing of male without a brand. Hind wing usually with ocelli in areas 2 and 3; often a pale, diffuse, distal area or, in one form, with distal half white.

Underside of hind wing with a single apical ocellus in area 6; three posterior ocelli, in 1 *c*, 2 and 3, placed in line, their rings contiguous.

In the Indian area this group contains the species *yphthimoides* (Moore), *chenui* (Guér.), and *ceylonica* Hew.

378. **Ypthima yphthimoides** (Moore).

Callerebia yphthimoides, Moore, 1881 *b*, p. 307 (♂♀, Travancore).
Ypthima yphthimoides, Marshall & de Nicéville, 1883, pp. 221, 230, ♂♀; Distant, 1885, p. 89, pl. iii, fig. 4.
Kolasa yphthimoides, Moore, 1892 *b*, p. 84, pl. cxii, figs. 4, 4 *a* (♂♀).
Ypthima ypthimoides (sic), Elwes & Edwards, 1893, p. 43; Bingham, 1905, p. 142; Evans, 1920, p. 382 (Palni Hills, above 5,000 feet); Fruhstorfer, 1911, p. 288, t. 99 *d*; Evans, 1932 *a*, p. 120.
Ypthima robinsoni, Distant, 1882 *b*, p. 406 (S. India: Palni, Khodaikanal).

♂♀. Resembles *chenui* (Guér.). *Upperside* slightly darker, ocellar ring obscure, and other markings not visible.

Underside ground-colour brown, or in some specimens very dull brownish-white, especially on the hind wing; often no short striæ. In most specimens there is no trace of a band on the fore wing, and on hind wing only obscure discal and submarginal broad bands; submarginal band bordered with obscure whitish bands on either side, and bears posteriorly three ocelli.

Antenna, head, thorax and abdomen brown.

Expanse: ♂♀, 40–55 mm.

Habitat.—Southern India; not rare.

Recorded by Evans (1910) as being extremely common in the Palni Hills, above 5,000 feet.

379. **Ypthima chenui** (Guérin).

Satyrus chenui, Guérin, 1843, p. 77, pl. xxi, fig. 2 (♀, Nilgiri Hills).
Ypthima chenui, Marshall & de Nicéville, 1883, pp. 221, 228, ♀; Hampson, 1889, p. 350 (Nilgiri Hills, 5,000 to 8,000 feet).
Kolasa chenui, Moore, 1892 *b*, p. 83, pl. cxii, figs. 3, 3 *a* (♂♀, wet-season brood).
Ypthima chenui, Elwes & Edwards, 1893, p. 43; Bingham, 1905, p. 141; Evans, 1910, p. 382 (Palni Hills, 2,000 to 5,000 feet, rare); Fruhstorfer, 1911, p. 288, t. 99 *d* (dry-season form); Evans, 1932 *a*, p. 121.

♂♀. *Upperside* vandyke-brown. Fore wing with a large subapical, bipupilled, yellow-ringed ocellus; a submarginal band, more or less obscure. Hind wing with two small submedian, unipupilled, black ocelli; no tornal ocellus.

Underside of fore wing dusky greyish-brown, covered with short brown striæ; discal and submarginal dark brown bands, very prominent, broad, and posteriorly convergent; submarginal band bordered with whitish on both sides; a subapical ocellus as on upperside. Hind wing white, with striæ as on fore wing; sub-basal, discal, and submarginal broad brown bands; a curved series of one apical and three postdiscal, laterally elongate ocelli.

Antenna, head, thorax and abdomen dull greyish-brown; abdomen paler beneath.

Expanse: ♂♀, 36–46 mm.

Habitat.—SOUTH INDIA; not rare.

The species has four broods. Recorded by Hampson (1889) as being common in the Nilgiri Hills on rocky hillsides.

Ypthima ceylonica Hewitson.

Under this name is now included *hübneri* Kirby. An examination of the genitalia of both forms reveals no appreciable difference. Specimens from Ceylon (*ceylonica*), the Nilgiris (*ceylonica* and *hübneri*), and North-West India (*kasmira*) were examined. In Burma and Malaya, however, a particular difference is seen in the form of the valve, but on facies the specimens cannot be separated from other Indian *hübneri*. The name *kasmira* Moore is retained for the form inhabiting the North-West Himalayas, but this form is of doubtful subspecific rank. The nominotypical *ceylonica* occurs as a form with *hübneri* in some parts of South India.

♂♀. To this small species, in addition to the characters noted for the group, may be added the following:—

Upperside of hind wing, in the nominotypical form, largely white, but otherwise more or less pale distally.

Underside of hind wing with posterior ocelli not placed on a dark band; the middle one of the three ocelli is usually somewhat larger than the others.

Genitalia.—Valve with apical half very narrow and slender, the apex clavate and directed ventrad. In two specimens from Burma and one from Malaya the valve, at about a fifth below apex, is bent distad and dorsad, with a short spine at the angle on the ventral side.

Distribution.—INDIA and CEYLON to BURMA, Annam, Tong-king, Malaya, Sumatra and Borneo.

Three Indian subspecies are distinguished.

380 *a*. Ypthima ceylonica ceylonica Hewitson. (Fig. 90, ♂).

Yphthima (sic) *ceylonica*, Hewitson, 1865 *a*, p. 288, pl. xviii, figs. 14, 15 (♂).
Ypthima ceylonica, Marshall & de Nicéville, 1883, pp. 221, 228; ♂♀; Taylor & de Nicéville, 1888, no. 21 (Orissa); Hampson, 1889, p. 350 (Nilgiri Hills, 2,000 to 4,000 feet, southern slopes); Moore, 1892 *b*, p. 81, pl. cxii, figs. 2, 2 *a* (♂♀, wet-season brood); Elwes & Edwards, 1893, p. 11, pl. i, fig. 8 (genit.).
Ypthima huebneri ceylonica, Bingham, 1905, p. 144, fig. 34 (♂).
Ypthima ceylonica, Bell, 1909, p. 462, ♂♀.
Ypthima huebneri ceylonica, Evans, 1910, p. 382 (Palni Hills, to 4,000 feet, common).
Ypthima ceylonica, Fruhstorfer, 1911, p. 287; Ormiston, 1918, p. 14 (Ceylon); Evans, 1932 *a*, p. 121; Peile, 1937, p. 101, pl. xii, fig. 97 (♂); Woodhouse & Henry, 1942, p. 46, pl. v, figs. 5 (♂), 6 (♀), pl. xlix, fig. 2 (egg).
Ypthima ceylonica f. *gellia*, Fruhstorfer, 1911, p. 287, t. 99 *e* (dry-season form).

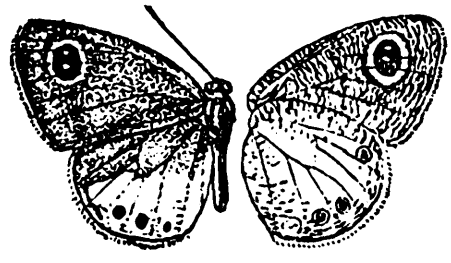


Fig. 90.—*Ypthima ceylonica ceylonica* Hew., ♂.

♂♀. *Upperside* vandyke-brown to dark sepia-brown. Fore wing uniform, with the usual single subapical ocellus. Hind wing with posterior half, or less, pure white; two or three small posterior ocelli; a submarginal, lunulate, incomplete brown line; a marginal, even, slender brown line.

Underside white, with somewhat sparse, short, delicate, fine brown striæ, becoming denser towards apex of fore wing. Fore wing ocellus with very broad brown ring, broadly and diffusely produced downwards; discal and submarginal bands obscure. Hind wing with four ocelli in a curve, anal one bipupilled; traces of a discal brown band, and of a lunulate submarginal brown line.

Antenna, head, thorax and abdomen brown; abdomen white beneath.

Expanse: ♂♀, 30–35 mm.

The name **gellia** Fruhstorfer can be used for the dry-season form.

Habitat.—Ceylon; South India to Bengal; common.

Recorded by Taylor (1888) as being extremely common in Orissa. Ormiston (1918) says of this species in Ceylon: "I have noticed swallows eating them."

Occurs as a form with *hübneri* Kirby in the Nilgiri and the Palni Hills.

380 *b*. Ypthima ceylonica hübneri Kirby.

Ypthima hübneri, Kirby, 1871 *a*, p. 95.
Ypthima huebneri, Marshall & de Nicéville, 1883, pp. 221, 226, pl. xvii, fig. 65 (♂, Barrackpore); de Nicéville, 1885 *a*, p. 42 (Calcutta); *id.*, 1886 *b*, p. 231, pl. xii, figs. 1 *a*, *b* (larva & pupa).
Ypthima hübneri, Moore, 1886, p. 32 (Mergui).
Ypthima huebneri, Wood-Mason & de Nicéville, 1887, p. 351 (Cachar); Taylor & de Nicéville, 1888, no. 20 (Orissa, not common); Hampson, 1889, p. 350 (Nilgiri Hills, 3,000 to 4,000 feet).
Ypthima hubneri (sic.), Moore, 1892 *b*, p. 77, pl. iii, fig. 1 (larva & pupa, Calcutta); figs. 1 *a*, *b* (♂, Calcutta), 1 *c* (♀, Nilgiris), wet-season brood.
Ypthima hübneri, Elwes & Edwards, 1893, p. 9, pl. i, fig. 5 (genit.).
Ypthima huebneri, de Nicéville, 1894 *a*, p. 128 (Sikkim, Terai).
Ypthima huebnerii, Watson, 1897, p. 648 (Upper Chindwin; Chin Hills, 5,500 feet).
Ypthima huebneri, de Rhé-Philipe, 1902, p. 483 (Lucknow, not common); Bingham, 1905, p. 142; Adamson, 1905, p. 167 (Burma, very common); Seitz, 1908, p. 91, t. 34 *a*; Bell, 1909, p. 461, ♂♀ (S. India); Evans, 1910, p. 382 (Palni Hills, to 4,000 feet).
Ypthima huebneri huebneri, Fruhstorfer, 1911, p. 287, t. 99 *e*; Tytler, 1911, p. 54 (♂, Naga Hills); Ellis, 1917, p. 105 (Pegu Yoma); Evans, 1932 *a*, p. 121; Gough, 1935, p. 261 (Nepal, Terai); Peile, 1937, p. 101, pl. x, fig. 87 (imago).
Ypthima hubneri (sic), Sevastopulo, 1940, p. 39 (early stages, Calcutta).
Ypthima howra, Moore, 1884, p. 17 (♂♀, Calcutta); de Nicéville, 1885 *a*, p. 42 (Calcutta).
Ypthima huebneri dry-season f. *howra*; Wood-Mason & de Nicéville, 1887, p. 351; Moore, 1892 *b*, p. 77, pl. iii, figs. 1 *d*, *e* (♂♀ types), fig. *f* (♂, Calcutta), figs. *g*, *h* (♂♀ types of *jocularia*, Swinh.).
Ypthima apicalis, Moore, 1884, p. 17 (♂, "Deyra Doon"); *id.*, 1892 *b*, p. 76 (♂, "Deyra Dhoon").
Ypthima catharina, Butler, 1886 *b*, p. 183 (Upper Burma).
Ypthima jocularia, Swinhoe, 1889, p. 396 (♂♀, Mahabalesvar); Elwes & Edwards, 1893, p. 50.
Ypthima huebneri jocularia, Fruhstorfer, 1911, p. 287.
Ypthima huebneri jocularia dry-season f. *honora*, Fruhstorfer, 1911, p. 287.
Ypthima philomela, Hübner, 1818, figs. 83, 84 (=type of *hübneri*, Kby.).

Wet-season form **hübneri** Kirby.—♂♀. *Upperside* greyish-brown. Fore wing with subapical ocellus comparatively large, black, bipupilled, with yellow ring. Hind wing usually with two unipupilled post-discal ocelli, sometimes with three, rarely all absent.

Underside greyish-white, not very densely covered with short brown striæ. Fore wing with subapical ocellus as on upperside; discal and submarginal obscure dull brown bands; ocellus with a narrow brown ring diffusely produced posteriorly. Hind wing with one apical and typically three posterior post-discal ocelli placed in a curve; traces of discal and submarginal brown bands in most specimens.

Antenna, head, thorax and abdomen greyish-brown; abdomen paler beneath.

Dry-season form **howra** Moore.—♂♀. Wings somewhat paler on both sides; discal and submarginal bands more pronounced. Hind wing *underside* with ocelli minute or absent.

Expanse: ♂♀, 30–40 mm.

Early stages.—(From Sevastopulo, 1940, p. 39).

Egg.—Spherical, base slightly flattened. Pale bluish-green; minutely punctate. Laid singly on blades of grass.

Larva.—1st instar.—At first pale buff marked laterally with purplish and clothed with short hairs. After feeding the colour changes to green, the head remaining buff. Rests with head and fore part of body curved downwards.

2nd instar.—Head and body pale green, body clothed with short hairs. A dorsal darker green line; a subdorsal and a lateral, slightly waved, white line, with a third line between them; venter paler; anal plate divided into two points.

3rd instar.—Similar to the 2nd but with a subspiracular pale stripe.

Final instar.—Head green. Body green, pubescent; a dorsal dark green stripe, becoming whitish on the first and second somites; a subdorsal, slightly waved, whitish line, with two more below it; a subspiracular pale stripe. Legs and prolegs green. Anal plate ending in two short pinkish processes. Length about seven-eighths of an inch.

Two larvæ, in a batch of fifty, bred from ova, were pale purplish instead of green, with a dorsal dark purplish stripe, and with the white lines more distinct.

The larvæ usually hang up for pupation during the night and change late the following evening.

Pupa.—" Green or brown, with the head rounded, the edges of the wing cases raised and angled anteriorly; thorax humped and marked like the abdominal segments, with some dark brown waved lines and spots " (de Nicéville, 1886 *b*).

The larva hatches in 4 days. Pupation lasts about 4 weeks, but in the November to December brood, only from 12 to 18 days.

Habitat.—Throughout PENINSULAR INDIA to ASSAM, BURMA, and Malaya; very common.

380 *c*. **Ypthima ceylonica kasmira** Moore.

Ypthima kasmira, Moore, 1884, p. 17 (♂♀, Kashmir); *id.*, 1892 *b*, p. 76, pl. cxii, figs. 1, 1 *a* (♂♀); Elwes & Edwards, 1893, p. 10, pl. i, fig. 6 (genit.).

Ypthima huebneri kasmira, Bingham, 1905, p. 143; Seitz, 1908, p. 91, t. 34 *a*; Fruhstorfer, 1911, p. 287; Evans, 1932 *a*, p. 121.

Ypthima huebneri, Doherty (*non* Kirby), 1886 *a*, p. 120 (Kumaon, 1,000 to 4,000 feet).

Ypthima huebneri, Mackinnon & de Nicéville (*non* Kirby), 1897, p. 219 (Dehra Dun); Hannyngton, 1910, p. 136 (Kumaon, 2,000 to 6,000 feet).

♂♀. *Upperside* differs from the nominotypical form in being darker and more uniform.

Underside dull brownish; bands usually absent, or with only the submarginal one on fore wing.

Expanse: ♂♀, 35–40 mm.

Habitat.—KASHMIR to KUMAON; not rare.

Philomela Group (*Thymipa* Moore, *Nadiria* Moore).

♂♀. *Upperside* of fore wing of male with a blackish brand, absent in some species, of variable extent, usually from vein 1 to the ocellus, with a stripe in the cell.

Underside with sub-basal, discal, and submarginal lines usually distinct; hind wing usually with prominent greyish-white striation. Hind wing with more than one apical ocellus, the one in area 5 always prominent; two tornal small ocelli; ocelli in 2 and 3 large.

Seasonal forms distinctly marked.

The following species are found in the Indian area.—*Y bolanica* Marsh., *lisandra* (Cram.), *philomela* (Linn.), *baldus* (Fabr.), *indecora* Moore, *similis* E. & E., *savara* Gr.-Sm., *methora* Hew., *dohertyi* (Moore), *sakra* Moore.

381. **Ypthima bolanica** Marshall.

Ypthima bolanica, Marshall, 1882 *b*, p. 759 (♂, Baluchistan); Marshall & de Nicéville, 1883, pp. 221, 231 (♂); Butler, 1888, p. 136 (N.E. Punjab).

Nadiria bolanica, Moore, 1892 *b*, p. 85, pl. cxii, figs. 5, 5 *a* (♂♀).

Ypthima bolanica, Elwes & Edwards, 1893, p. 48; Bingham, 1905, p. 144; Fruhstorfer, 1911, p. 288; Evans, 1932 *a*, p. 121; *id.*, 1932 *b*, p. 202 (Baluchistan); Peile, 1937, p. 102, pl. xii, figs. 98 (♀), 99 (♂) (N.W. Frontier: Waziristan).

♂♀. *Upperside* umber-brown. Fore wing with a large black ocellus, placed in a paler ocellar area, slightly oval, oblique, bipupilled, with fulvous ring; ocellus and surrounding area both defined outwardly by a broad darker brown line. Hind wing uniform, with a very much smaller but similar unipupilled ocellus. Cilia brown, with a distinct interior whitish line.

Underside brown, marked with minute, short, delicate white striæ. Fore wing with broad inner area free from striæ. Both wings with a discal curved band, and some very obscure basal, sub-basal and marginal narrow bands free from white striæ; ocelli as on upperside. Hind wing with subtornal ocellus, a single smaller geminate tornal ocellus, and three anterior similar ocelli.

Antenna, head, thorax and abdomen brown; antenna ringed with white, ochraceous towards apex.

Expanse : ♂♀, 35–40 mm.

Habitat.—BALUCHISTAN to KASHMIR ; rare.

Evans (1932 *b*) records it as being rare in Baluchistan, where it occurs from 3,000 to 6,000 feet in April and May.

Peile (1937) writes of its occurrence in the Tochi Valley, Waziristan, where it is found at 4,000 feet, and has three broods from end of March to early September. " It inhabits the arid stony hills . and it is curious that in such an arid locality the underside of the wings is ocellated at all seasons ; that is, there is no marked ' dry season ' form such as in other somewhat similar species."

Ypthima lisandra (Cramer), 1782.

♂♀. *Underside* of both wings with discal line usually strongly marked. Hind wing with three posterior and two subapical ocelli ; rarely an ocellus in area 4, but usually one in 6 ; tornal ocelli in straight line, or the one in 2 shifted slightly outwards.

Genitalia.—Valve of varying width, the apical part always rather narrow with rounded edge ; below the apex, and directed dorsad, a triangular, pointed, process, the apical part of valve appearing thus to be bifid. Tegumen broad, gradually narrowing to tip of uncus.

The width of valve and size of apical process varies with the subspecies.

Distribution.—CEYLON, INDIA and BURMA, to Malaya and Java, China, Formosa, and Hainan. Five subspecies in the Indian area.

382 *a*. **Ypthima lisandra avanta** Moore.

Yphthima (sic) *avanta*, Moore, 1874 *b*, p. 567 (" Cashemere ").
Ypthima avanta, Moore, 1882 *b*, p. 237 (Kangra) ; Marshall & de Nicéville, 1883, pp. 214, 218, pl. xvii, fig. 66 (♂, Kulu).
Yphthima avanta, Doherty, 1886 *a*, p. 120 (Kumaon, 2,500 to 5,000 feet).
Ypthima avanta, Butler, 1888, p. 135 (N.E. Punjab).
Thymipa avanta, Moore, 1892 *b*, p. 70, pl. cix, fig. 4 (♀, wet-season brood), fig. 4 *a* (♂, dry-season brood).
Ypthima avanta, Elwes & Edwards, 1893, p. 33, pl. i, fig. 27 (genit.) ; Mackinnon & de Nicéville, 1897, p. 219 (Mussooree, not common) ; Bingham, 1905, p. 140 ; Seitz, 1908, p. 92 ; Hannyngton, 1910, p. 136 (Kumaon, 2,000 to 6,000 feet).
Ypthima avanta avanta, Fruhstorfer, 1911, p. 288 (=dry-season form) ; Evans, 1932 *a*, p. 121 ; Gough, 1935, p. 261 (Nepal, about 4,500 feet, rare) ; Peile, 1937, p. 102 (Mussooree and Kumaon).
Ypthima avanta f. *ordinata*, Butler, 1880 *a*, p. 148, pl. xv, fig. 3 (Bengal).
Ypthima ordinata, Marshall & de Nicéville, 1883, pp. 214, 219 ; Butler, 1886 *a*, p. 358 (N.W. Punjab).
Ypthima avanta avanta wet-season f. *ordinata*, Fruhstorfer, 1911, p. 288.

Wet-season form **ordinata** Butler.—♂♀. *Upperside* umber-brown, with faint darker submarginal narrow bands. Fore wing with subapical black ocellus, bipupilled and yellow-ringed, in the male faint or absent. Hind wing with post-discal ocelli, two in the male and usually four in the female.

Underside dull brownish-white, closely and delicately striated with dark brown; both wings crossed by distinct discal and submarginal dark bands, and in the female also by a sub-basal band. Fore wing ocellus fully developed. Hind wing with six ocelli in a curve, or anterior two not quite in line with the others. Male brand usually prominent.

Antenna, head, thorax and abdomen brown.

Dry-season form **avanta** Moore.—♂♀.

Upperside differs only in being suffused with dull plumbeous.

Underside paler, with bands more distinct; hind wing ocelli smaller.

Expanse: ♂♀, 32–38 mm.

Habitat.—KASHMIR to SIKKIM; not rare.

Peile (1937) records this insect as occurring sparingly at Mussooree; in Kumaon the wet form is common at from 2,000 to 6,000 feet, from June to August; the dry form is common in the Terai in the cold season.

382 *b*. **Ypthima lisandra singala** R. Felder.

Yphthima (sic) *singala*, R. Felder, 1868, p. 283 (♂, Ceylon).
Ypthima singala, Marshall & de Nicéville, 1883, pp. 221, 230, ♂♀.
Thymipa singala, Moore, 1892 *b*, p. 72, pl. cx, figs. 1, 1 *a* (♂♀, wet-season brood), 1 *b* (♂, dry-season brood).
Ypthima singala, Elwes & Edwards, 1893, p. 31, pl. *i*, figs. 26, 26 *a* (genit.).
Ypthima avanta singala, Bingham, 1905, p. 141; Fruhstorfer, 1911, p. 288, t. 99 *c* (=wet-season form); Evans, 1932 *a*, p. 121; Woodhouse & Henry, 1942, p. 46, pl. v, figs. 3 (♂), 4 (♀).
Ypthima singala, Ormiston, 1918, p. 14 (Ceylon, to 5,000 feet).
Ypthima thora, Moore, 1880 *a*, p. 24, pl. xii, figs. 4, 4 *a* (♂); Marshall & de Nicéville, 1883, pp. 221, 231, ♂♀.
Ypthima avanta singala, dry-season f. *thora*, Fruhstorfer, 1911, p. 288.

♂♀. *Upperside* differs from *avanta* Moore in being slightly darker with a purplish tinge; male uniform or hind wing with one small post-discal ocellus; female with subapical ocellus on fore wing, and from two to four smaller ocelli on hind wing.

Underside whiter than in *avanta*; striæ and dark bands less distinct in the wet-season form, more prominent in the dry form.

Expanse: ♂♀, 30–35 mm.

The name for the dry-season form is **thora** Moore.

Habitat.—CEYLON, extending to SOUTH INDIA and the CENTRAL PROVINCES; not rare.

382 *c*. **Ypthima lisandra striata** Hampson.

Ypthima striata, Hampson, 1889, p. 349 (♂, Nilgiri Hills, wet-season form).
Thymipa striata, Moore, 1892 *b*, p. 73, pl. cx, figs. 3, 3 *a*, *b* (♂♀, wet-season, brood), fig. 3 *c* (♂, dry-season brood).
Ypthima striata, Elwes & Edwards, 1893, p. 34, pl. i, figs. 23, 24 (genit.).
Ypthima avanta striata, Bingham, 1905, p. 141 ; Fruhstorfer, 1911, p. 288 (Nilgiris) ; Evans, 1932 *a*, p. 121.

♂♀. *Upperside* differs from *avanta* Moore in the fore wing ocellus being always present in both sexes.

Underside purer white, the striation more open, slender and delicate ; discal and submarginal bands darker and more clearly defined ; ocelli with broader yellow rings. Male brand obscure.

Expanse : ♂♀, 35–45 mm.

Habitat.—South India : Nilgiri Hills ; not rare.

Hampson (1889) says that the wet-season form is common in August on the southern slopes at about 3,000 feet. The dry-season form occurs in December and January.

382 *d*. **Ypthima lisandra cerealis** Watson.

Ypthima cerealis, Watson, 1897, p. 646, pl. A, fig. 4 (♂, wet-season form), fig. 3 (♀, dry-season form) (Myingyan, Upper Burma) ; Adamson, 1905, p. 166 (Central Burma).
Ypthima avanta cerealis, Bingham, 1905, p. 141 ; Fruhstorfer, 1911, p. 288 ; Evans, 1932 *a*, p. 121.

♂♀. Smaller and paler than *avanta* Moore. *Upperside* of fore wing with a prominent ocellus. Male brand absent or vestigial.

Underside whiter, the bands obscure.

Expanse : ♂♀, 32–36 mm.

Genitalia.—Valve much narrower than in *avanta* Moore or *bara* Evans, strongly bent at the middle, being directed dorsad.

Habitat.—Central and Upper Burma, in the dry zone ; rare.

382 *e*. **Ypthima lisandra bara** Evans.

Ypthima avanta bara, Evans, 1923, p. 786 (Sikkim ; Burma) ; *id*., 1932 *a*, p. 121.
Ypthima avanta, Tytler (*non* Moore), 1911, p. 54 (Naga Hills).

♂♀. Resembles *avanta* Moore, but is larger, and the *underside* striation is coarser.

Expanse : ♂♀, 38–42 mm.

Habitat.—Sikkim to Burma ; not rare.

Ypthima philomela (Linnæus, 1764).

♂♀. *Upperside* of fore wing of male without a brand ; apical ocellus with sharply defined yellow ring. Hind wing with an ocellus in area 2 and one in 3.

Underside of fore wing without a discal band; submarginal band obscure; ocellus larger than above. Hind wing with two apical ocelli, in areas 5 and 6, the latter the smaller; four posterior ocelli, two in area 1 *c*, one in 2, and one in 3, the two former contiguous or enclosed by a single ring, the one in 2 shifted more or less inwards.

Seasonal forms well marked.

Distribution.—SOUTH INDIA and BURMA, to Malaya, Tongking, Sumatra, Java, and Sumbawa. Two subspecies in the Indian area.

383 *a*. **Ypthima philomela tabella** Marshall.

Ypthima tabella, Marshall, in Marshall & de Nicéville, 1883, pp. 221, 234 (♂, Wynaad, S. India); Hampson, 1889, p. 350 (Nilgiri Hills).

Thymipa tabella, Moore, 1892 *b*, p. 73, pl. cx, figs. 2, 2 *a* (♂, wet-season brood).

Ypthima philomela tabella, Evans, 1932 *a*, p 121.

Ypthima philomela, Taylor & de Nicéville (*non* Linn.), 1888, no. 19 (Orissa, rare); Davidson, Bell & Aitken, 1896, p. 243, pl. i, figs. 3, 3 *a* (N. Canara); Bingham, 1905, p. 133 (partim); Bell, 1909, p. 459, pl. F, fig. 39 (early stages, habits).

Ypthima baldus, Elwes & Edwards (*non* Fabr.), 1893, p. 14, pl. i, figs. 15, 16 (genit.).

Wet-season form.—♂♀. *Upperside* brown, outer margins broadly darker. Fore wing with a comparatively large ocellus, placed near the apex; ocellus black, slightly oblique, bi-pupilled, and with yellow ring. Hind wing usually with two smaller post-discal posterior ocelli.

Underside ochraceous-white, closely and delicately striated with brown; both wings with submarginal obscure brown bands, sometimes absent. Fore wing ocellus as on upperside, but yellow ring broader, and surrounded by an obscure brown ring. Hind wing with six unipupilled smaller ocelli, more or less in échelon in pairs; tornal ocellus geminate.

Antenna, head, thorax and abdomen brown, paler beneath.

Dry-season form.—♂♀. *Upperside* paler, the submarginal bands less distinct.

Underside more dusky ochraceous, the brown striæ somewhat diffuse; ocelli reduced to mere specks.

Expanse: ♂♀, 25–35 mm.

Genitalia.—Valve short and of moderate width; apical part broad, obtusely bifid.

Larva.—"Fusiform, with transverse rugose surface and two pointed processes on the last segment, but the usual horns on the head are represented in this species by two small tubercles, each surmounted by a single bristle. Pale pinkish, with darker longitudinal striæ, forming to the naked eye a dorsal band or stripe, and a broader dark lateral one with a pale line under it, but the colour is probably variable."

Pupa.—"Mottled brown or greenish" (*Davidson, Bell, & Aitken*, 1896).

Habitat.—SOUTH INDIA; not rare.

383 *b*. **Ypthima philomela peguana** Evans.

Ypthima philomela peguana, Evans, 1923, p. 786 (North Burma); *id.*, 1932 *a*, p. 122.

Ypthima philomela, de Nicéville (*non* Linn.), 1885 *a*, p. 42 (Calcutta); *id.*, 1886 *b*, p. 232, pl. xii, fig. 2 (larva, pupa, Calcutta); Wood-Mason & de Nicéville, 1887, p. 351 (Cachar).

? *Ypthima philomela indecora*, Ellis (*non* Moore), 1917, p. 105 (Pegu Yoma).

♂♀. Distinguished from *tabella* by the paler *underside*, with discal bands always visible.

Habitat.—NORTHERN BURMA; not rare.

384. **Ypthima indecora** Moore.

Ypthima indecora, Moore, 1882 *b*, p. 238, pl. xii, fig. 7 (♂) (♂♀, Kangra); Marshall & de Nicéville, 1883, pp. 214, 218.

Thymipa indecora, Moore, 1892 *b*, p. 63, pl. cvii, figs. 1, 1 *a* (♂, wet-season brood), fig. 1 *b* (♂, dry-season brood).

Ypthima indecora, Elwes & Edwards, 1893, p. 13, pl. i, figs. 10, 14 (genit.); Mackinnon & de Nicéville, 1897, p. 218 (Mussooree, not common).

Ypthima philomela indecora, Bingham, 1905, p. 133; Hannyngton, 1910, p. 136 (Kumaon, up to 6,000 feet, common); Fruhstorfer, 1911, p. 287.

Ypthima indecora, Evans, 1932 *a*, p. 122 (Kashmir to Kumaon); Peile, 1937, p. 103 (Mussooree, 7,000 feet).

♂♀. Resembles *tabella* Marsh., but is larger, with larger ocelli. *Upperside* of fore wing in male with brand clearly defined. Both wings with more or less distinct discal and submarginal dark bands.

Underside dull ochraceous-white in the wet form to almost dark ochraceous-brown in the dry form; both wings striated with dark brown. Hind wing ocelli in échelon of twos, and in the dry form reduced to mere specks. Both wings with more or less distinct discal, and submarginal brown bands, but sub-basal ones obsolete.

Antenna, head, thorax and abdomen brown, paler beneath.

Expanse: ♂♀, 35–40 mm.

Habitat.—KASHMIR to KUMAON; not rare.

This insect is here treated provisionally as a species, following Evans (1932 *a*). It seems probable that it represents *philomela* (Linn.).

Ypthima baldus (Fabricius), 1775.

♂♀. A small species, with a wing expanse of under 45 mm. *Upperside* of fore wing of male with a prominent brand; discal line not visible. Hind wing with discal line always more or less marked.

Underside striation coarse; sub-basal and discal bands prominent. Hind wing with the two apical ocelli not prominently larger than the others.

Seasonal forms well marked.

Genitalia.—Valve short and broad, the apical part broad, and more or less obtusely bifid.

Distribution.—INDIA and BURMA to Malaya, Java and Moluccas, Celebes, Philippines, Borneo, Formosa, Japan and China. Three subspecies in the Indian area.

385 *a*. **Ypthima baldus baldus** (Fabricius).

Papilio baldus, Fabricius, 1775, p. 829.
Ypthima baldus, Moore, 1865 *b*, p. 770 (Bengal); *id.*, 1879 *a*, p. 825 (Upper Tenasserim); *id.*, 1882 *b*, p. 237 (Kangra); *id.*, 1886, p. 32 (Mergui and islands).
Thymipa baldus, Moore, 1892 *b*, p. 58, pl. cvi, fig. 1 (larva and pupa, Calcutta), fig. *d* (♂, Calcutta), fig. *e* (♂, Assam), fig. *f* (♀, Calcutta), wet-season brood; fig. *i* (♂, Calcutta), dry-season brood.
Ypthima baldus, de Nicéville, 1894 *a*, p. 127 (Sikkim); Mackinnon & de Nicéville, 1897, p. 218 (Mussooree and Dehra Dun); Watson, 1897, p. 644 (Upper Chindwin; Chin Hills, to 3,500 feet); Adamson, 1905, p. 166 (Burma); Bingham, 1905, p. 134; Seitz, 1908, p. 91, t. 34 *a*, *b*; Hannyngton, 1910, p. 136 (Kumaon, to 5,000 feet); Tytler, 1911, p. 53 (Naga Hills, 4,600 feet).
Ypthima baldus baldus, Fruhstorfer, 1911, p. 289.
Ypthima baldus, South, 1913, p. 347 (Mishmi Hills, 3,000 to 3,500 feet); Ellis, 1917, p. 105 (Pegu Yoma).
Ypthima baldus baldus, Evans, 1932 *a*, p. 122, pl. xiii, figs. D 14. 15 (♂, dry-season form; ♂, wet-season form); Peile, 1937, p. 103, pl. x, fig. 88 (imago) (Kumaon, to 5,000 feet).
Ypthima philomela, Marshall & de Nicéville (*non* Linn.), 1883, pp. 214, 216, ♂♀.
Ypthima marshalli, Butler, 1882, p. 373 (Thaungyin Valley, Meplay); Marshall & de Nicéville, 1883, pp. 214, 217; de Nicéville, 1885 *a*, p. 42 (Calcutta).
Ypthima marshallii (sic), Moore, 1886, p. 32 (Mergui and islands); Butler, 1886 *b*, p. 183 (Upper Burma).
Ypthima marshalli, Elwes & Edwards, 1893, p. 25, pl. i, figs. 1, 1 *a*, 11.
Ypthima baldus baldus, dry-season f. *marshalli*, Fruhstorfer, 1911, p. 289, t. 99 *d*.
Ypthima humei, Elwes & Edwards, 1893, p. 32, pl. iii, fig. 46 (♂ genitalia) (Malewoon, Tenasserim).

Wet-season form **baldus** (Fabr.).—♂♀. *Upperside* brown; both wings with outer margins much darker, and usually with more or less distinct sub-basal and discal dark bands. Fore wing with a subapical ocellus, large, slightly oblique, oval, black, bipupilled, and yellow-ringed. Hind wing with two smaller post-discal ocelli, round and unipupilled; often one or two minute tornal ocelli.

Underside pale ochraceous-white, striated coarsely with brown; both wings with more or less distinctly defined

sub-basal, discal, and submarginal brown bands. Hind wing ocelli in échelon, two tornal, two median, and two subapical.

♀. *Upperside* of both wings with the area surrounding or bordering the ocelli paler, closely striated with brown; discal band usually clearly defined; very often both the tornal, and at least one of the apical, ocelli distinct.

Underside paler than the male, and sub-basal, discal, and submarginal bands clearly defined.

Dry-season form **marshalli** Butler.—♂♀. *Upperside* very similar to wet form, paler; ♀ often ochraceous-white closely striated with brown; ocelli on hind wing often without pupils.

Underside paler than in the wet form; sub-basal, discal, and submarginal bands on the whole more prominent; hind wing ocelli reduced to mere specks.

Expanse: ♂♀, 35–48 mm.

Habitat.—North-West Himalayas (Chamba) to Assam and Burma; very common.

385 *b*. **Ypthima baldus madrasa** Evans.

Ypthima baldus madrasa, Evans, 1923, p. 787 (S. India); *id.*, 1932 *a*, p. 122.
Ypthima baldus f. *marshalli*, Hampson (*non* Butler), 1889, p. 349 (Nilgiri Hills).
Thymipa baldus, Moore (*non* Fabr.), 1892 *b*, p. 58 (part.), pl. cvi, figs. 1 *a*, *b*, *c* (♂♀, Bombay), fig. *g* (♀, Bombay), fig. *h* (♂, Travancore).
Ypthima baldus, Evans (*non* Linn.), 1910, p. 382 (Palni Hills, to 6,000 feet).

♂♀. *Underside* of hind wing with the ocelli usually well separated. In the wet form the discal bands are often prominent on a pale ground.

Expanse: ♂♀, 36–43 mm.

Habitat.—South India; very common.

385 *c*. **Ypthima baldus satpura** Evans.

Ypthima baldus satpura, Evans, 1923, p. 787 (Pachmarhi); *id.*, 1932 *a*, p. 122.

♂♀. *Underside* of hind wing with the apical pair of ocelli, and also the middle pair, usually confluent; ground-colour pale, bands obscure.

Expanse: ♂♀, 32–36 mm.

Habitat.—Central Provinces: Pachmarhi; not rare.

Ypthima similis Elwes & Edwards.

♂♀. A small species, with a wing expanse not exceeding 45 mm. *Upperside* of fore wing of male without brand; ocelli placed in a lighter area, proximally bordered by a dark discal line which usually meets the similar submarginal line;

on vein 1. Hind wing with the discal and submarginal lines enclosing a pale striated area, forming a distal band.

Underside of hind wing with the two apical ocelli not prominently larger than the others.

Genitalia.—Valve of moderate width ; apical third narrower with rounded end, in the nominotypical form much more narrowed.

Distribution.—ASSAM to BURMA. Three subspecies.

386 *a*. **Ypthima similis similis** Elwes & Edwards.

Ypthima similis, Elwes & Edwards, 1893, p. 30, pl. i, fig. 19 (♂ genit.) (Karen Hills) ; Bingham, 1905, p. 135 ; Fruhstorfer, 1911, p. 289.
Ypthima similis similis, Evans, 1932 *a*, p. 122.

♂♀. Closely resembles *baldus* (Fabr.), but fore wing without a brand. *Upperside* with ocelli placed in a pale broad irrorate band crossing both wings ; this pale area bordered inwardly by a narrow, very much darker band. On female fore wing the discal and submarginal lines are widely separated posteriorly.

Underside striation more delicate and regular than in *baldus*, and without a sub-basal dark band.

Expanse : ♂♀, 40–45 mm.

Habitat.—BURMA : Karen Hills to Dawna Range ; male not rare, but female very rare.

386 *b*. **Ypthima similis affectata** Elwes & Edwards.

Ypthima affectata, Elwes & Edwards, 1893, p. 30, pl. i, fig. 20 (genit.) ; Bingham, 1905, p. 135 ; Tytler, 1911, p. 53 (Naga Hills, 2,000 feet) ; Fruhstorfer, 1911, p. 288.
Ypthima similis affectata, Evans, 1932 *a*, p. 122.

♂♀. *Upperside* umber-brown, darker than in *baldus* (Fabr.). Both wings crossed by distinct post-discal and submarginal dark bands, the space between them paler and more or less striated with dark brown. Fore wing with a large subapical ocellus. Hind wing with two minute tornal and two median ocelli ; a pale marginal line usually present.

Underside similar to dark specimens of *baldus*, the striæ more dense, delicate and uniform ; similar sub-basal and discal bands, but marginal band more diffuse ; ocelli as in *baldus*.

Expanse : ♂♀, 38–42 mm.

Habitat.— ASSAM ; rare.

386 *c*. **Ypthima similis yoma** Evans.

Ypthima similis yoma, Evans, 1923, p. 787 (Pegu) ; *id.*, 1932 *a*, p. 122.

♂♀. A very pale form. Outer margin of fore wing very straight.

Underside whitish, sparsely striated.

Dry-season form with ocelli; not strongly marked.
Expanse: ♂♀, 35–42 mm.
Habitat.—BURMA: Pegu Yoma; rare.

Ypthima savara Grose-Smith.

♂♀. *Upperside* of fore wing of male with distinct blackish-grey brand, sometimes obscure, forming a discal patch entering the cell. Hind wing ocelli in areas 2 and 3 large; usually two smaller apical ocelli, the one in area 5 the larger, both most prominently developed in the female.

Underside of fore wing very pale, with discal and post-discal dark bands prominent. Hind wing with post-discal band straight; ocelli placed in a dark band; tornal ocelli not forming one double ocellus but separate.

Seasonal forms strongly marked.

Distribution.—ASSAM to BURMA, Tong-king, Siam, and Malaya. One subspecies in the Indian area.

387. **Ypthima savara savara** Grose-Smith.

Ypthima savara, Grose-Smith, 1887, p. 267 (Upper Tenasserim).
Thymipa savara, Moore, 1892 *b*, p. 66, pl. cviii, figs. 2, 2 *a* (♂, wet-season brood), figs. 2 *b*, *c*, *d* (♂♀, dry-season brood).
Ypthima savara, Elwes & Edwards, 1893, p. 37, pl. ii, fig. 30 (genit.); Adamson, 1905, p. 166 (Upper Burma); Bingham, 1905, p. 137.
Ypthima savara savara, Fruhstorfer, 1911, p. 292.
Ypthima savara, Ellis, 1917, p. 105 (Pegu Yoma; Arakan Yoma to N. Shan States, common); Evans, 1932 *a*, p. 122.

♂♀. Resembles *methora* Hew. in both seasonal forms, but is very much paler, with dull white ground-colour.

Underside with well-defined sub-basal, discal, and sub-marginal dark bands.

Expanse: ♂♀, 45–50 mm.

Habitat.—MANIPUR to BURMA and Malaya; common.

Ypthima methora Hewitson.

♂♀. *Upperside* of fore wing resembles *savara* Gr.-Sm., but the male is without a brand. Hind wing usually only with an ocellus in area 5, and this may be absent; posterior ocelli in areas 2 and 3, and a small tornal one; similar to *savara* hind wing, but is darker.

Underside of hind wing without prominent bands; discal band, when present, angled outwards opposite end of cell; double tornal ocellus separated, as in *savara*; apical ocelli not continuous.

Dry-season form ocellate, ocelli minute.

Distribution.—SIKKIM to BURMA and North Yunnan. Two subspecies in the Indian area.

388 *a*. **Ypthima methora methora** Hewitson.

Yphthima (sic) *methora*, Hewitson, 1865, p. 291, pl. xviii, figs. 20, 21 (N. India).
Ypthima methora, Butler, 1885 *a*, p. 302 (near Assam).
Thymipa methora, Moore, 1892 *b*, p. 64, pl. cvii, figs. 2, 2 *a*, *b* (♂♀, wet-season brood), fig. 2 *c* (♂, dry-season brood).
Ypthima methora, Elwes & Edwards, 1893, p. 37, pl. ii, fig. 29 (genit.); de Nicéville, 1894 *a*, p. 127 (Sikkim, very rare); Watson, 1897, p. 645 (Upper Chindwin, and Chin Hills to 1,500 feet, very common); Bingham, 1905, p. 136; Tytler, 1911, p. 54 (Naga Hills).
Ypthima methora methora, Fruhstorfer, 1911, p. 291; Evans, 1932 *a*, p. 122.
Ypthima methora methora, dry-season f. *gela*, Fruhstorfer, 1911, p. 292, t. 99 *g*.

Wet-season form **methora** Hew.—♂. *Upperside* dark vandyke-brown, outer margins somewhat narrowly and evenly darker. Fore wing with a very large subapical, bipupilled, yellow-ringed, black ocellus. Hind wing with from three to five small, unipupilled, post-discal ocelli; ocellar area on both wings, in many specimens, distinctly paler and striated. Hind wing with a discal, indistinct band; a marginal, pale, somewhat obscure yellow line.

Underside pale yellowish-brown, closely, evenly, and delicately striated with dark brown. Fore wing with ocellus as on upperside. Hind wing with six ocelli in pairs in échelon; obscure discal and marginal dark brown bands.

Antenna, head, thorax and abdomen dark brown.

♀. Larger and paler than the male. Both wings more or less striated on both sides.

Dry-season form **gela** Fruhst.—♂♀. *Upperside* similar to the wet form.

Underside paler, the discal and marginal dark bands more distinct; a sub-basal band indicated in some specimens. Hind wing ocelli much reduced.

Expanse: ♂♀, 50–55 mm.

Habitat.—SIKKIM and ASSAM; rare.

388 *b*. **Ypthima methora sobrina** Elwes & Edwards.

Ypthima sobrina, Elwes & Edwards, 1893, p. 29, pl. i, figs. 17, 18 (genit.) (Burma); Bingham, 1905, p. 135; Fruhstorfer, 1911, p. 288.
Ypthima methora sobrina, Evans, 1932 *a*, p. 122.
Yphthima (sic) *methora*, Moore (*non* Hew.), 1879 *a*, p. 825 (Upper Tenasserim).

♂♀. *Upperside* of fore wing of male with an obscure brand. Smaller and rather paler than the nominotypical form, and bands on *underside* very faint.

Expanse: ♂♀, 43–52 mm.

Habitat.—BURMA: Karen Hills; rare.

Ypthima dohertyi (Moore).

♂♀. *Upperside* of fore wing of male, with a prominent brand, but otherwise most nearly resembles *methora* Hew.

Underside with bands obscure. Hind wing with sub-basal line not marked; discal band less distinctly angulate than in *methora*; tornal double ocellus with a single iris; apical ocelli with their rings touching or coalescent.

Distribution.—ASSAM to BURMA. Two subspecies in the Indian area.

389 *a*. **Ypthima dohertyi dohertyi** (Moore).

Thymipa dohertyi, Moore, 1892 *b*, p. 65, pl. cviii, figs. 1, 1 *a* (♂, Moolayet, Upper Tenasserim).
Ypthima dohertyi, Elwes & Edwards, 1893, p. 38, pl. ii, fig. 31 (genit.); Bingham, 1905, p. 137; Fruhstorfer, 1911, p. 292; Ellis, 1917, p. 105 (Pegu Yoma, 2,640 feet).
Ypthima dohertyi dohertyi, Evans, 1932 *a*, p. 123.
Ypthima methora, Elwes (*non* Hew.), 1891, p. 267, pl. xxvii, fig. 1 (♂, East Pegu).

♂♀. Closely resembles *methora* Hew., but ♂ fore wing with a prominent brand. *Upperside* paler brown than *methora*, the pupils to the ocelli less prominent, often wanting; tornal ocelli on hind wing present and geminate.

Underside much paler, dull white with dark brown short striæ; dark bands usually obscure and sometimes absent. Hind wing with five ocelli; two tornal ocelli confluent, having the appearance of one bipupilled ocellus; yellow rings to ocelli very broad.

Expanse: ♂♀, 52–56 mm.

Habitat.—BURMA: Shan States to Dawna Range; rare.

389 *b*. **Ypthima dohertyi persimilis** Elwes & Edwards.

Ypthima persimilis, Elwes & Edwards, 1893, p. 39 (Manipur).
Ypthima methora var. *persimilis*, Bingham, 1905, p. 136.
Ypthima methora persimilis, Fruhstorfer, 1911, p. 292.
Ypthima dohertyi persimilis, Evans, 1932 *a*, p. 123; Tytler, 1939 *a*, p. 247 (♂, N.E Burma, Sadon, October).

♂♀. Darker than the nominotypical form, and fore wing more produced; ♂ without a brand.

Underside with bands obscure on fore wing, absent on hind wing; hind wing ocellus in area 5 shifted in.

Expanse: ♂♀, 50–55 mm.

Habitat.—MANIPUR and NORTH-EASTERN BURMA; very rare.

Ypthima sakra Moore.

♂♀. *Upperside* of fore wing of male with a rather obscure brand.

Underside yellowish-brown. Hind wing with the two apical

ocelli much larger than the others, and usually enclosed by a single yellow ring; tornal double ocellus with a single ring; bands absent or faint; a submarginal line or submarginal dark border present.

No dry-season form.

Distribution.—NORTH-WEST HIMALAYAS to ASSAM and BURMA, and in South-Eastern Tibet. Three subspecies in the Indian area.

390 *a*. **Ypthima sakra sakra** Moore. (Fig. 91, ♂).

Ypthima sakra, Moore, 1857, p. 236.
Yphthima (sic) *sakra*, Hewitson, 1865, p. 290, pl. xviii, fig. 18 (? ♂, N. India); de Nicéville, 1881, p. 53 (Sikkim).
Ypthima sakra, de Nicéville, 1882, p. 56 (Sikkim); Elwes 1882, p. 406 (♂♀, Sikkim).
Thymipa sakra, Moore, 1892 *b*, p. 69, pl. cix, figs. 2, 2 *a*, *b* (♂♀).
Ypthima sakra, Elwes & Edwards, 1893, p. 40; de Nicéville, 1894 *a*, p. 127 (Sikkim, 2,000 to 8,000 feet); Bingham, 1905, p. 137, fig. 32 (♂); Seitz, 1908, p. 93, t. 34 *e*.
Ypthima sakra sakra, Fruhstorfer, 1911, p. 292; Evans, 1932 *a*, p. 123; Gough, 1935, p. 261 (Nepal, 4,500 to 7,000 feet); Peile, 1937, p. 104, pl. xii, fig. 101 (♂).

♂♀. *Upperside* umber-brown, outer margins distinctly darker. Fore wing with a large, slightly oval and oblique, bipupilled, yellow-ringed ocellus, with a dark brown outer ring. Hind wing with four similar unipupilled round ocelli; subapical and tornal ocelli frequently absent or faintly marked, the latter, when present, always minute.

Underside ochraceous-brown, thickly striated with dark brown. Fore wing with subapical ocellus as on upperside, but yellow ring broader, and outer brown ring more clearly

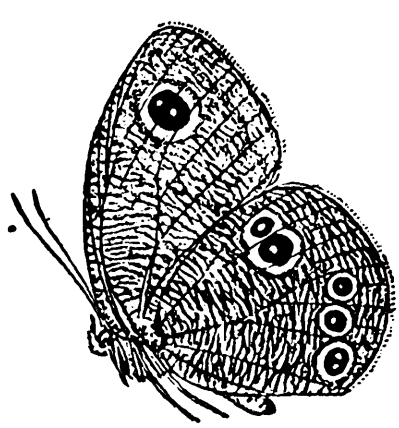


Fig. 91—*Ypthima sakra sakra* Moore, ♂.

defined. Some specimens have a second, very much smaller, obscure median ocellus, and others have dark discal and submarginal broad brown bands. Hind wing with five prominent similar ocelli; the two subapical ocelli large, geminate, encircled in a common yellow ring; the posterior three ocelli

in échelon with the latter, and with distinct irides; tornal ocellus bipupilled; hind wing ocelli typically bordered on both sides with a narrow brown line; surrounding area concolorous with rest of wing, but in many specimens more or less pale.

Antenna, head, thorax and abdomen umber-brown, paler beneath.

Expanse: ♂♀, 48–55 mm.

Habitat.—SIKKIM; common.

390 *b*. **Ypthima sakra nikæa** Moore.

Yphthima (sic) *nikæa*, Moore, 1874 *b*, p. 567 (N.W. Himalayas).
Ypthima nikæa, Moore, 1882 *b*, p. 237 (Kangra); Marshall & de Nicéville, 1883, pp. 221, 232, ♂♀.
Thymipa nikæa, Moore, 1892 *b*, p. 68, pl. cix, figs. 1, 1 *a* (♂).
Ypthima sakra ab *nikæa*, Seitz, 1908, p. 93.
Ypthima sakra nikæa, Fruhstorfer, 1911, p. 292; Evans, 1932 *a*, p. 123; Gough, 1935, p. 261 (Nepal, about 6,500 feet); Peile, 1937, p. 104 (Mussooree; Kumaon, 2,000 to 7,000 feet).
Yphthima (sic) *sakra*, Doherty (*non* Moore), 1886 *a*, p. 119 (Kumaon, 3,000 to 11,000 feet).
Ypthima sakra, Butler, 1886 *a*, p. 359 (Punjab); *id.*, 1888, p. 136 (Punjab); Mackinnon & de Nicéville, 1897, p. 219 (Mussooree); Hannyngton, 1910, p. 136 (Kumaon, 2,000 to 7,000 feet).
Ypthima sakra matinia, Fruhstorfer, 1911, p. 292.

♂♀. Smaller and darker than the nominotypical form, and ocelli small. ♂ brand prominent or obscure. *Underside* of hind wing with apical ocelli separated by the iris, the irides coalescent; both wings without bands.

Expanse ♂♀, 45–50 mm

Habitat.—NORTH-WEST HIMALAYAS: Murree to Kumaon; common.

390 *c*. **Ypthima sakra austeni** (Moore).

Thymipa austeni, Moore, 1892 *b*, p. 69, pl. cix, figs. 3, 3 *a* (♂♀) (Khasi Hills, Naga and Lushai Hills).
Ypthima austeni, Tytler, 1911, p. 53 (Naga Hills).
Ypthima sakra austeni, Fruhstorfer, 1911, p. 292; Evans, 1932 *a*, p. 123, pl. xiii, fig. D 14. 21 (♂).
Ypthima sakra, Marshall & de Nicéville (*non* Moore), 1883, pp. 221, 232, pl. xvii, fig. 67 (♂, Shillong); Elwes, 1891, p. 268 (Naga Hills; Bernardmyo); Watson, 1897, p. 645, pl. A, fig. 2 (♂) (North Chin Hills, 5,000 to 5,500 feet; Manipur); South, 1913, p. 348 (Mishmi Hills, 5,000 feet).

♂♀. Paler than the nominotypical form.

Underside of fore wing with obscure discal and submarginal bands, rarely present on hind wing.

Expanse: ♂♀, 48–55 mm.

Habitat.—ASSAM to the KAREN HILLS; common.

Genus **ZIPŒTIS** Hewitson.

Zipœtis, Hewitson, 1863, p. 100.
Zipœtes (sic), Marshall & de Nicéville, 1883, pp. 97, 248, pl. xvii.
Zipœtis, Moore, 1891, p. 155.
Zipætis (sic), Moore, 1893, p. 108 (type, *saitis* Hew.).
Zipœtis, Bingham, 1905, p. 104 ; Fruhstorfer, 1911, p. 300 ; Evans, 1932 *a*, pp. 95, 123.

Type of the genus, *Z. saitis* Hewitson.

♂♀. Wings comparatively broad. Fore wing with costa widely arched, apex broadly rounded, outer margin very convex, inner margin straight ; cell broad, its length very little more than half length of wing ; *udc* minute ; *mdc* slightly incurved ; *ldc* oblique, excurved, longer than *mdc* ; vein 5 closer to 6 than to 4, 6 and 7 from a point or very closely approximate, 10 and 11 from before apex of cell, 12 swollen at base to nearly half its length. Hind wing broadly pear-shaped ; outer margin somewhat scalloped, perceptibly angulate at apex of veins 2, 3, 4 and 6 ; inner margin comparatively short, not emarginate, tornus rounded ; cell comparatively both broad and long, over half length of wing ; discocellulars oblique ; vein 3 from before apex of cell, 6 closer to 7 than to 5, precostal vein directed basad. Antenna slender, less than half length of fore wing, club very long and gradual. Palpus moderately long, with stiff hairs anteriorly ; third segment short and stout ; eye naked ; mid and hind femur scaled, not hairy.

Distribution.—South India ; Sikkim to Assam and Shan States. Two species known.

Key to Species of Zipœtis.

1. Upperside of both wings crossed by post-discal broad white bands . . . . . *saitis*, Hew., p. 345.
2. Upperside of both wings without white bands. *scylax*, Hew., p. 346.

391. **Zipœtis saitis** Hewitson. (Fig. 92, ♀).

Zipœtis saitis, Hewitson, 1863, p. 100, Satyridæ, *Zipœtis*, i, fig. 6 ; Marshall & de Nicéville, 1883, p. 249, pl. xvii, fig. 58 (♀, Travancore) ; Hampson, 1889, p. 350 (Nilgiri Hills, 2,000 to 3000 feet).
Zipætis (sic) *saitis*, Moore, 1893, p. 108, pl. cxix, figs. 1, 1 *a*, *b* (♂♀).
Zipœtis saitis, Davidson, Bell & Aitken, 1896, p. 244, pl. i, figs. 4, 4 *a* (Kanara) ; Bingham, 1905, p. 105, fig. 24 (♀) ; Fruhstorfer, 1910, p. 300 ; Evans, 1932 *a*, p. 123, pl. xiii, fig. D 15. 1 (♂).

♂♀. *Upperside* velvet-black, or brown to light brown in the female. Fore wing with a post-discal, broad, oblique, snow-white band from middle of costa to vein 2, incurved below vein 3. Hind wing with a post-discal, broad, white band, from vein 1 *b* to vein 6, narrowed above vein 4, its outer edge emarginate between the veins.

Underside paler than above, with white bands as on upperside; both wings with a submarginal sinuous pale line. Hind wing with a row of five ocelli enclosed in a common silvery narrow band, on inner side of white band; each ocellus with a white centre, an inner ochraceous ring, and an outer blackish-brown ring; subapical ocellus very large, bipupilled.

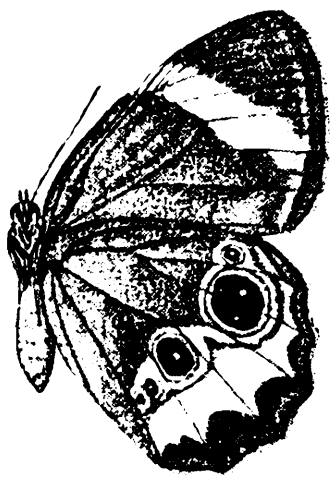


Fig. 92.—*Zipœtis saitis* Hew., ♀.

Antenna ochraceous-red; head, thorax and abdomen dark brown.

Expanse: ♂♀, 60–65 mm.

Early stages (from *Davidson, Bell, & Aitken*, 1896):—

Larva.—Very like that of *Mycalesis mineus* (Linn.), but the head is not so distinctly marked off from the neck, the horns point forward, and the caudal processes are longer. The young larva is green, the head brown. After the last moult the larva is brown, light on the back and darker on the sides, with an ill-defined dusty dividing line, and a dorsal row of dark spots with diverging dusky lines.

Pupa.—More like that of the genus *Junonia* (*Precis*) than the Satyrinæ generally, having three or four pairs of small tubercles on the abdominal segments, a slight lateral expansion of the wing-cases, and a hump on the thorax; colour vitreous or whitey-brown.

Habitat.—SOUTH INDIA; rare.

Hampson (1889) records it as not uncommon on the western slopes of the Nilgiris, and a brood emerges at end of September.

Davidson, Bell, & Aitken (1896) say it is rare in north Kanara, and appears late in the evening.

392. **Zipœtis scylax** Hewitson.

Zipœtis scylax, Hewitson, 1863, p. 100, *Zipœtis*, fig. 7.
Zipaëtis (sic) *scylax*, Moore, 1865 *b*, p. 770 (Bengal); de Nicéville, 1882, p. 56 (Sikkim).
Zipœtes (sic) *scylax*, Marshall & de Nicéville, 1883, p. 249, pl. xvii, fig. 62 (♀, Great Runjit Valley, Sikkim).

Zipætis (sic) *scylax*, Moore, 1893, p. 109, pl. cxix, figs. 2, 2 *a*, *b* (♂♀).
Zipætis (sic) *scylax*, de Nicéville, 1894 *a*, p. 128 (Sikkim); Watson, 1897, p. 651 (Upper Chindwin and foot of Chin Hills).
Zipœtis scylax, Adamson, 1905, p. 167 (Burma); Bingham, 1905, p. 105.
Zipœtis scyllax (sic), Fruhstorfer, 1911, p. 300, t. 94 *c*.
Zipœtis scylax, Tytler, 1911, p. 53 (Naga Hills); Evans, 1932 *a*, p. 123, pl. xiii, fig. D 15. 2 (♂).

♂♀. *Upperside* dark velvety brown, paler towards apex and outer margins; conspicuous, but very pale, submarginal and marginal lines.

Underside paler than above; cilia very pale brownish-white; submarginal and marginal lines as on upperside only broader. Fore wing with a post-discal row of five more or less subequal, small, fulvous-ringed, white-pupilled ocelli, beginning in area 2, the row bordered inwardly by a sinuous silvery line and outwardly by a broader pale band. Hind wing with ocelli similar to those of *saitis*, but enclosed by a silvery line in the male and by a white line in the female.

Antenna, head, thorax and abdomen as in *Z. saitis*.

Expanse: ♂♀, 55–62 mm.

Habitat.—SIKKIM to the SHAN STATES; not rare.

Watson (1897) records the species as common, but very local, in the Upper Chindwin.

Adamson (1905) records it as rare in Burma.

Genus **ORSOTRIŒNA** Wallengren.

Orsotriœna, Wallengren, 1859, p. 79.
Orsotriœna (sic), Moore, 1880 *b*, p. 159 (type, *O. medus* Fabr.); Marshall & de Nicéville, 1883, pp. 104, 111.
Orsotriœna, Moore, 1891, pp. 153, 168 (type, *O. medus* F.); Bingham, 1905, p. 69.
Orsotriœna (sic), Fruhstorfer, 1911, p. 358.
Orsotriœna, Evans, 1920, p. 354, pl. ii (♂ venation); *id.*, 1932 *a*, pp. 95, 123.

Type of the genus, *O. medus* (Fabricius).

♂. *Upperside* of fore wing with a fold above vein 1 *b*, bearing a black or yellow tuft of hairs. Hind wing with a tuft of long bristles in and beyond cell between veins 1 *a* and 1 *b*, covering a patch of modified scales on each side of median vein.

♂♀. Fore wing broadly triangular; costa arched; apex rounded; outer and inner margins nearly straight; tornus well marked; vein 12 swollen only at base, 11 and 10 emitted before apex of cell, *ldc* bent inwards; cell about half or not half length of wing. Hind wing broadly ovate, costa and outer margin slightly arched, apex distinct, inner margin nearly straight; veins 3 and 4 closely approximate, vein 4 emitted before lower angle of cell.

Head, thorax and abdomen slender; antenna gradually clavate; eye naked; palpus erect; third segment rather long and cylindrical, bare; second and basal segments with long stiff porrect hairs.

Larva.—Compared with *Mycalesis* it is more slender, and with longer anal processes.

Distribution.—Throughout the Indo-Australian Region. Not more than two species are recognised, and one inhabits the Indian area.

Orsotriœna medus (Fabricius).

♂♀. *Upperside* dark brown with a post-discal pale line.

Underside with a post-discal, white, and fairly straight line; ocelli conspicuous in the wet-season form, more or less reduced in the dry-season form.

Early stages and habits (from *Bell*, 1909):—

Larva.—Anal segment with two long processes, finely conical, and as long as segments 12 to 14 together. Head with two divergent, fine, tapering horns, one on the vertex of each lobe, and as long as segments 2 to 4 together. Body covered with minute hairs, giving it the appearance of being transversely lined. Colour of body and head rose; horns dark red, inner and outer sides dark; a subspiracular white band; a lateral light line; a dorsal faint bluish line on the middle segments; venter dark rose.

The colour is sometimes white-green, yellowish on the sides, with a dorsal dark bluish line, and a similar lateral line on segments 2 to 4; horns and tips of anal processes rose; head light dirty yellow.

Length 41 mm. over all; horn 5 mm.; anal processes 2.25 mm.; breadth 4 mm.

Pupa.—Dirty white with, occasionally, an iridescent golden gloss on wings; inner margins of wings, ventral middle line, and head processes somewhat dark.

Length 18 mm.; breadth 5 mm.; length of head processes 4 mm.

Habits.—The egg is laid on the underside of a blade of grass, and the larva lives there, falling to the ground if alarmed. It is rather shy, and is not a great eater. The pupa is generally found low down near the earth.

The butterfly is probably the weakest flier of all the Satyrines. It flutters very near to the ground, and always settles with wings closed.

Distribution.—Ceylon, India, Burma, the Nicobar and Andaman Islands, and throughout the Indo-Australian Region. Three subspecies occur in the Indian area.

393 *a*. **Orsotriœna medus medus** (Fabricius). (Fig. 93, ♂).

Papilio medus, Fabricius, 1775, p. 488.
Mycalesis medus, Marshall & de Nicéville, 1883, p. 111; de Nicéville, 1885 *a*, p. 41 (Calcutta).
Orsotriæna (sic) *medus*, Moore, 1886, p. 32 (Mergui Is.).
Mycalesis medus, Wood-Mason & de Nicéville, 1887, p. 348 (Cachar); Taylor & de Nicéville, 1888, no. 12 (Orissa, not common).
Orsotriæna (sic) *medus*, Moore, 1891, p. 168, pl. lviii, figs. 1, 1 *a*, *b* (♂♀, wet brood), fig. 2 (♀, dry brood).
Mycalesis medus, de Nicéville, 1894 *a*, p. 120 (Sikkim); Mackinnon & de Nicéville, 1897, p. 214 (Dehra-Dun and Umballa); Watson, 1897, p. 641 (Upper Chindwin, common); de Rhé-Philipe, 1902, p. 483 (Lucknow, not common); Adamson, 1905, p. 163 (Burma, common).
Orsotriœna meda, Bingham, 1905, p. 69, fig. 19 (♂); Hannyngton, 1910, p. 134 (Kumaon); Tytler, 1911, p. 50 (Naga Hills, 5,000 feet).
Orsotriæna (sic) *medus medus*, Fruhstorfer, 1911, p. 358 (=wet-season form).
Mycalesis meda, Ellis, 1917, p. 106 (Pegu Yoma, very common).
Orsotriœna medus medus, Evans, 1932 *a*, p. 123, pl. xiii, fig. D 16. 1 (♂); Gough, 1935, p. 261 (Nepal).
Papilio hesione, Cramer, 1775, p. 16, pl. xi, figs. C, D.
Mycalesis hesione, Moore, 1865 *a*, p. 770 (Bengal).
Orsotriæna (sic) *medus medus* f. *hesione*, Fruhstorfer, 1911, p. 358.
Papilio doris, Stoll, 1781, p. 141, pl. ccclxii, fig. C.
Mycalesis runeka, Moore, 1857, p. 234; *id.*, 1865 *a*, p. 770 (Bengal); *id.*, 1879 *a*, p. 825 (Upper Tenasserim); de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 111, 112, pl. xvi, fig. 56 (♂, Calcutta); de Nicéville, 1885 *a*, p. 41 (Calcutta, in cold and dry weather).
Orsotriæna (sic) *runeka*, Butler, 1886 *b*, p. 183 (Upper Burma).
Mycalesis runeka, Elwes & de Nicéville, 1887, p. 418 (Tavoy); Wood-Mason & de Nicéville, 1887, p. 348 (Cachar); Taylor & de Nicéville, 1888, no. 13 (Orissa, very common).
Orsotriæna (sic) *medus medus* f. *runeka*, Fruhstorfer, 1911, p. 358 (=dry-season form).
Orsotriæna (sic) *medus medus* f. *turbata*, Fruhstorfer, 1908 *c*, p. 214 (=extreme dry form); *id.*, 1911, p. 358.

Wet-season form **medus** (Fabr.).—♂♀. *Upperside* uniform vandyke-brown to blackish-brown. Fore wing with a marginal, hind wing with a submarginal line and marginal slender whitish lines.

Underside darker than above; both wings with distinct submarginal and marginal slender lines as above; a post-discal, pure white band, straight and narrow, attenuate at both ends; ocelli black, white-pupilled, with ochraceous and silvery rings; anterior ocellus smaller than the others; fore wing with two ocelli, hind wing with three, the anterior two of the latter most often enclosed in the same inner and outer rings.

Antenna, head, thorax and abdomen brown; antenna speckled with white, apex ochraceous.

Dry-season form **runeka** (Moore) (=*turbata* Fruhst.).—♂♀.

Differs in the markings being obsolescent, including sometimes the post-discal white band.

Expanse : ♂♀, 45–55 mm.

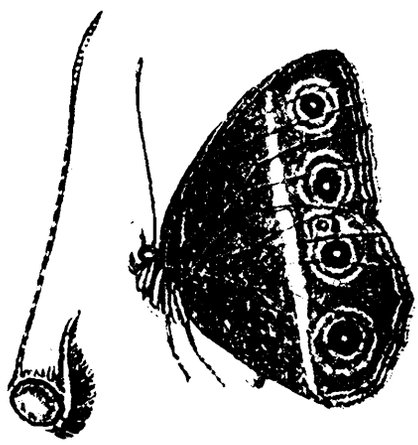


Fig. 93.—*Orsotriæna medus* (Fabr.), ♂.

Habitat.—NEPAL and SIKKIM to BURMA and ANDAMAN ISLANDS ; common. Also found in Tong-king and Hainan, and extends southwards to Australia and New Guinea.

393 *b*. **Orsotriœna medus mandata** (Moore).

Mycalesis mandata, Moore, 1857, p. 234 ; Marshall & de Nicéville, 1883, pp. 111, 113 ; Hampson, 1889, p. 348 (Nilgiri Hills, 3,000 feet, common).

Orsotriæna (sic) *mandata*, Moore, 1891, p. 171, pl. lviii, fig. 3 (larva and pupa), figs. 3 *a*, *b*, *c* (♂♀, wet brood), fig. 4 (♀, dry brood).

Orsotriœna meda mandata, Bingham, 1905, p. 70.

Orsotriœna mandata, Bell, 1909, p. 462, pl. i, fig. 1 (larva, pupa) (early stages and habits).

Orsotriæna (sic) *meda mandata*, Evans, 1910, p. 382 (Palni Hills).

Orsotriæna (sic) *medus mandata*, Fruhstorfer, 1911, p. 358.

Orsotriœna mandata, Ormiston, 1918, p. 9 (Ceylon, except in the northern or north-central provinces).

Orsotriœna medus mandata, Evans, 1932 *a*, p. 123 ; Peile, 1937, p. 104 ; Woodhouse & Henry, 1942, p. 47, pl. ix, fig. 1 (♂), pl. xl, fig. 3 (larva, pupa).

Mycalesis gamaliba, Butler, 1867 *a*, pl. ii, figs. 3, 3 *a*, *b* (♂, Ceylon) (figure only ; no text).

Mycalesis mandosa, Butler, 1868, p. 139, pl. iii, fig. 9 (imago, S. India) ; Marshall & de Nicéville, 1883, pp. 111, 113 ; Hampson, 1889, p. 348 (Nilgiri Hills) (=dry-season form of *mandata*).

Orsotriæna (sic) *medus mandata* f. *mandosa*, Fruhstorfer, 1911, p. 358 (=dry-season form).

Wet-season form **mandata** (Moore) (=*gamaliba* Butl.).—♂♀. *Underside* with post-discal band broader, and proportionately more attenuate anteriorly, than in the nominotypical form ; apical ocellus on both wings often smaller.

Dry-season form **mandosa** (Butl.).—♂♀. *Underside* with

yellowish-white scaling over distal margins ; ocelli reduced, the rings faintly marked or absent ; white band tinged with yellow.

Expanse : ♂♀, 42–52 mm.

Habitat.—CEYLON and SOUTH INDIA ; common.

According to Ormiston (1918) the insect occurs in Ceylon with little seasonal variation. It has been taken at 5,000 feet, and sometimes comes to sugar.

In the Nilgiri Hills it occurs at 3,000 feet, from June to September, the dry form from October to May (Hampson, 1889).

393 *c*. **Orsotriœna medus nicobarica** Evans.

Orsotriœna medus nicobarica, Evans, 1932 *a*, p. v (Car Nicobar) ; *id.*, *l. c.*, p. 124 (Nicobar Is.).

Mycaleis medus, Moore, 1877 *b*, p. 583 ; Wood-Mason & de Nicéville, 1881 *a*, p. 230 ; *id.*, 1882, p. 16.

♂♀. Larger and paler than the nominotypical form. *Underside* with ocelli larger, and with paler ochraceous rings ; the two anterior ocelli on hind wing conjoined ; submarginal lines more prominent ; post-discal band narrower.

Habitat.—NICOBAR ISLANDS ; occurs on all the islands, and is not rare. There is no dry-season form.

Genus **ERITES** Westwood.

Erites, Westwood, 1851 *a*, p. 392 ; Marshall & de Nicéville, 1883, pp. 97, 235, pl. xvi ; Moore, 1891, p. 155 ; *id.*, 1893, p. 113 (type, *madura* (sic) Horsf.) ; de Nicéville, 1893, pp. 1–7 ; Bingham, 1905, p. 152 ; Fruhstorfer, 1911, p. 301 ; Evans, 1932 *a*, pp. 95, 124 ; Hemming, 1941 *b*, p. 416 (type, *Hipparchia medura* Horsfield, 1829).

Type of the genus, *E. medura* (Horsfield), from Java.

♂♀. Fore wing triangular, costa widely arched, outer margin oblique, inner margin straight, apex rounded and slightly produced ; one species with outer margin angulate just below apex ; cell long, well over half length of wing ; *udc* minute ; *mdc* a little more than half longer, the two together forming a single incurved line ; *ldc* straight ; veins 4, 5, and 6 parallel, 10 and 11 from before angle of cell, 12 swollen at base. Hind wing pear-shaped, costa and inner margin nearly straight ; outer margin deeply scalloped, more or less produced at end of vein 4 ; cell about half length of wing ; discocellulars oblique, *mdc* incurved ; veins 3 and 4 well apart at their origin ; vein 3 from before angle of cell, 6 closer to 7 than to 5 ; precostal vein directed basad.

Antenna slender, about half length of fore wing, club very gradual ; palpus erect, fringed anteriorly with long porrect hairs, third segment of moderate length ; eye naked ; mid femur longer than tibia, scaled, not hairy ; otherwise leg of

male short and hairy, of female longer, more slender, and without hair.

The forms of *Erites* all have more or less transparent delicate wings.

The butterfly has a weak and low flight, with frequent intervals of rest.

Distribution.—The Indo-Malayan Region. Three species are known from the Indian area.

Key to Species of Erites.

1. Fore wing upperside with a large ocellus in area 2, the others not marked; apex of wing produced	2
Fore wing upperside with all ocelli marked; apex of wing not produced ..	[p. 354. *argentina*, Butl.,
2. Hind wing underside with inner as well as discal band, sharply angled in the middle.	*angularis*, Moore, [p. 352.
Hind wing underside with inner band straight or slightly curved, discal band sharply angled . . .	[de Nicév., p. 353. *falcipennis*, W.-M. &

Erites angularis Moore.

♂♀. Distinguished by the hind wing *underside* having the inner band sharply angled at the middle.

Two seasonal forms occur, that of the dry season having the ocelli reduced or partly obsolete.

Distribution.—The KAREN HILLS to SOUTHERN BURMA, Siam, Malaya and Sumatra. One subspecies in the Indian area.

394. **Erites angularis angularis** Moore. (Fig. 94, ♂).

Erites angularis, Moore, 1879 *a*, p. 825 (♂, Tavo, Upper Tenasserim); Marshall & de Nicéville, 1883, p. 236, pl. xvi, fig. 50 (♀, Meplay Valley, Upper Tenasserim); Moore, 1893, p. 115, pl. cxxi, figs. 2, 2 *a*, *b* (♂♀); de Nicéville, 1893, p. 4 (Burma; Malay Pen.); Adamson, 1905, p. 168 (Burma); Bingham, 1905, p. 154, fig. 35 (♂); Martin, 1909, p. 146.

Erites angularis angularis, Fruhstorfer, 1911, p. 303.

Erites angularis, Evans, 1932 *a*, p. 124, pl. xiii, fig. D 17. 1 (♂).

Erites medura, Elwes (*non* Horsf.), 1891, p. 268 (♂♀, East Pegu, 1,500 feet).

Erites angularis angularis f. *pseudofalcipennis*, Fruhstorfer, 1911, p. 303 (West Siam, near Kanburi) (=dry-season form).

♂♀. Resembles *argentina* Butl., but differs as follows:—Fore wing comparatively longer and narrower, apex more produced, outer margin more oblique. Hind wing with outer margin more deeply scalloped, decidedly caudate at vein 4.

Upperside of hind wing with ocelli better defined.

Underside ground-colour much paler. Fore wing with dark discal and post-discal bands, and series of small anterior ocelli

ill-defined; tornal large ocellus elongate, with a large blue centre. Hind wing discal bands outwardly angulate in the middle; discal and submedian bands more ochraceous, the curved series of ocelli much smaller.

The name **pseudofalcipennis** Fruhstorfer, may be used for

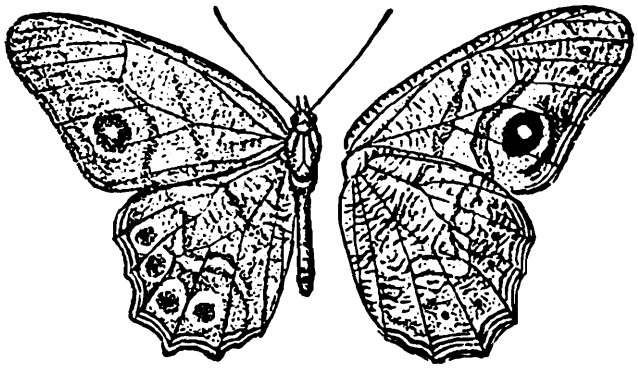


Fig. 94.—*Erites angularis angularis* Moore, ♂.

the dry-season form; in this the ocellus in area 2, on fore wing upperside, is obscure.

Expanse: ♂♀, 50–60 mm.

Habitate.—KAREN HILLS to SOUTHERN BURMA, Siam, and Malaya; not rare.

Erites falcipennis Wood-Mason & de Nicéville.

♂♀. Differs from *angularis* Moore on *underside* of hind wing by having the inner band straight or slightly curved.

Distribution.—CACHAR to SOUTHERN BURMA. Two subspecies.

395 *a*. **Erites falcipennis falcipennis** Wood-Mason & de Nicéville.

Erites falcipennis, Wood-Mason & de Nicéville, 1883, pp. 236, 237 (♂, Cachar); *id.*, 1887, p. 351, pl. xvi, fig. 2 (♂, Cachar); Moore, 1893, p. 116, pl. cxxi, figs. 3, 3 *a* (♂); Watson, 1897, p. 651 (Upper Chindwin); Bingham, 1905, p. 155; Martin, 1909, p. 147; Tytler, 1939 *a*, p. 247 (♂, Karen Hills).

Erites medura falcipennis, Fruhstorfer, 1911, p. 302, t. 93 *e*.

Erites falcipennis falcipennis, Evans, 1932 *a*, p. 124 (Cachar to Chin Hills).

♂♀. Fore wing with outer margin incurved at vein 5. *Upperside* of fore wing with the ocellus in area 2 pupilled. Hind wing without visible bands; ocelli small and with narrow ring.

Underside of hind wing with ocelli small; bands broad and dark.

Expanse: ♂♀, 50–55 mm.

Habitat.—CACHAR to the CHIN HILLS; rare. Also found in Tong-king.

Tytler (1939 *a*, p. 247) records a male from the Karen Hills.

395 *b*. **Erites falcipennis rotundata** de Nicéville.

Erites rotundata, de Nicéville, 1893, p. 4 (♂♀, Burma); Adamson, 1905, p. 167 (Chindwin); Bingham, 1905, p. 154; Tytler, 1939 *a*, p. 248 (♂♀, Maymyo).
Erites medura rotundata, Martin, 1909, p. 149.
Erites medura falcipennis f. *rotundata*, Fruhstorfer, 1911, p. 302, t. 93 *e* (=wet-season form).
Erites rotundata, Ellis, 1917, p. 105 (Pegu Yoma).
Erites falcipennis rotundata, Evans, 1932 *a*, p. 124 (Karen Hills to South Burma).
Erites beelinga, Moore, 1893, p. 114 (♂, Upper Tenasserim)

♂♀. Fore wing with outer margin even. *Upperside* of fore wing with ocellus not pupilled. Hind wing ocelli with broad rings; bands showing through from below.

Expanse: ♂♀, 50–60 mm.

Habitat.—Northern Shan States, KAREN HILLS to SOUTHERN BURMA; common.

Ellis (1917) records it as local in the Pegu Yoma where it frequents bamboo jungle.

Erites argentina Butler, 1868.

♂♀. Distinguished from the two other Indian species by all the ocelli being marked on *upperside* of fore wing.

Distribution.—BURMA to Malaya, Borneo, Sumatra, Banka, and Java. One Indian subspecies.

396. **Erites argentina delia** Martin.

Erites delia, Martin, 1909, p. 150 (♂♀, Deli, N. Sumatra).
Erites argentina delia, Fruhstorfer, 1911, p. 302; Evans, 1932 *a*, p. 124.
Erites argentina, Moore (*non* Butl.), 1893, p. 113, pl. cxxi, figs. 1, 1 *a* (♂, Upper Tenasserim); Adamson, 1905, p. 167 (Burma); Bingham, 1905, p. 153.

♂♀. *Upperside* ferruginous-brown; bands and ocelli on underside of both wings showing through by transparency; a subtornal ochraceous-ringed black ocellus in area 2, and pale, sinuous, slender, submarginal and marginal lines on hind wing being the only definite markings; ocellar ring of female broader than in male.

Underside rich purplish; basal half of both wings delicately striated with brown; a basal, obscure, dark band; a discal and a post-discal dark band, both with an ochraceous stripe down the middle, in female on both wings, in male only on hind wing; post-discal band on hind wing strongly angulate outwards at vein 4, and edged externally with ochraceous; fore wing with an anterior series, margined with dark brown on both sides, of four or five, small, silvery-centred, purple-ringed, black ocelli, and a very large, similar ocellus at tornus, only encircled with a very broad ochraceous ring. Hind wing with a slightly curved series of five similar ocelli, the posterior

two ringed with ochraceous, the anterior three with purplish. Both wings with very slender, sinuous submarginal and marginal dark lines.

Antenna, head, thorax and abdomen pale brown, whitish beneath; antenna annulated with white, club ochraceous.

Expanse: ♂♀, 50–55 mm.

Habitat.—TAVOY to SOUTHERN BURMA; very rare. Also found in Malaya, Sumatra, and Banka.

Genus **RAGADIA** Westwood.

Ragadia, Westwood, 1851 *a*, p. 376 (*crisia* Geyer); Marshall & de Nicéville, 1883, pp. 97, 234, pl. xv; Moore, 1891, p. 155; *id.*, 1893, p. 110 (type, *crisia* Hübn.); Bingham, 1905, p. 155; Fruhstorfer, 1911, p. 360; Evans, 1932 *a*, pp. 95, 124; Hemming, 1934 *a*, p. 29 (type, *Euptychia crisia* Geyer, 1832); *id.*, 1941 *b*, p. 419.

Type of the genus, *R. crisia* Geyer.

♂♀. Fore wing with costa arched; outer margin straight, of the female slightly excurved; inner margin straight; apex and tornus distinct, but more or less rounded; cell long, over half length of wing; *udc* and *mdc* inclined very obliquely inwards, *ldc* strongly bent inwards; vein 5 closer to 6 than to 4 at base, 10 emitted well beyond apex of cell, 11 from just before apex, 12 much swollen at base. Hind wing pear-shaped; outer margin strongly arched, entire; cell very short, much less than half length of wing, very narrow, apex acute; veins 6 and 7 forked well beyond origin of vein 5; vein 5 arising shortly after origin of vein 8; ♂ with a cavity above *ldc* on underside, forming a fissure on upperside, covered by a recumbent tuft of black hairs; ♀ with *udc* and *mdc* absent, *ldc* long; veins 3 and 4 stalked.

Antenna short, about half length of fore wing, club gradual, long and slender; palpus moderately long, third segment slender; eye very slightly hairy; mid femur and tibia subequal, not hairy.

Distribution.—Western China; NORTH-EASTERN HIMALAYAS to BURMA, Tong-king, Malaya, Sumatra, Java, Borneo and Philippines. One species in the Indian area.

Ragadia crisilda Hewitson.

♂♀. *Upperside* of both wings with a post-discal creamy-white band, and usually a similar, narrower, submarginal band on hind wing, and sometimes on fore wing.

Underside of both wings with sub-basal, discal, and post-discal creamy-white bands; usually also submarginal and antemarginal lines. Fore wing with a distal series of seven or eight small ocelli. Hind wing with six ocelli in four groups, the apical and two posterior ocelli smaller than the others.

Distribution.—SIKKIM to BURMA, Siam, and Malaya. Four subspecies in the Indian area.

397 *a*. **Ragadia crisilda crisilda** Hewitson. (Pl. I, fig. 4, ♂).

Ragadia crisilda, Hewitson, 1862, *Ragadia* pl., figs. 5, 6 (♀); Marshall & de Nicéville, 1883, p. 235, pl. xv, fig. 36 (♀, Cachar); Moore, 1893, p. 110, pl. cxx, figs. 1, 1 *a*, *b* (♂♀); Bingham, 1905, p. 156, pl. iii, fig. 23 (♂).

Ragadia crisilda crisilda, Fruhstorfer, 1911, p. 360, t. 90 *e*; Evans, 1932 *a*, p. 124.

♂♀. *Upperside* dull brownish-black; post-discal white band attenuate at apex, broader in female than in male; white bands showing through from underside. Hind wing with a submarginal, curved, narrow white band.

Underside of both wings with five white bands, the submarginal and antemarginal ones on hind wing curved. Fore wing with an oblique series of eight silvery-centred, fulvous-ringed, black ocelli. Hind wing with a series of seven ocelli similar to those on fore wing, the middle three encircled by a single fulvous ring.

Antenna, head, thorax and abdomen brownish; antenna ringed with white; antennal club and abdomen beneath more or less ochraceous.

Expanse: ♂♀, 42–46 mm.

Habitat.—CACHAR to ASSAM; not rare. Occurs in Southern Assam to Shillong.

397 *b*. **Ragadia crisilda crito** de Nicéville.

Ragadia crito, de Nicéville, 1890 *a*, p. 199, pl. D, figs. 1 (♂), 2 (♀) (Bhutan); Elwes, 1891, p. 266 (Upper Assam; Margharita); Moore, 1893, p. 111, pl. cxx, figs. 2, 2 *a*, *b* (♂♀); de Nicéville, 1894 *a*, p. 128 (Bhutan); Bingham, 1905, p. 156.

Ragadia crisilda crito, Fruhstorfer, 1911, p. 360, t. 90 *e*; Evans, 1932 *a*, p. 124.

♂♀. Distinguished from the nominotypical form on *upperside* by having all four bands dusky.

Expanse: ♂♀, 42–46 mm.

Habitat.—BHUTAN to the NAGA HILLS and MANIPUR; rare.

397 *c*. **Ragadia crisilda critolaus** de Nicéville.

Ragadia critolaus, de Nicéville, 1892 *c*, p. 322, pl. H, fig. 1 (♂, Burma, Dawna Range); Moore, 1893, p. 112, ♂♀; Adamson, 1905, p. 167 (Upper Tenasserim and Tavoy); Bingham, 1905, p. 157.

Ragadia crisilda critolaus, Fruhstorfer, 1911, p. 360, t. 90 *e*; Evans, 1932 *a*, p. 124.

♂♀. *Upperside* of both wings with post-discal bands broader than in the nominotypical form; fore wing with a submarginal, narrow white band; hind wing submarginal band broader than in nominotypical form.

Expanse: ♂♀, 42–46 mm.

Habitat.—BURMA: Karen Hills to the Dawna Range, and in Western Siam; rare.

397 *d.* **Ragadia crisilda critolina** Evans.

Ragadia crisilda critolina, Evans, 1923, p. 789, pl. xiii, fig. D 18 (♂, Dawna Range) ; *id.*, 1932 *a*, p. 124, pl. xiii, fig. D 18. 1 (♂).

♂♀. Smaller and darker than the nominotypical form, the white bands narrower.

Upperside of fore wing with submarginal band sometimes obsolete.

Expanse : ♂♀, 37–42 mm.

Habitat.—BURMA : Dawna Range to Southern Burma ; rare. Malaya and Siam.

Genus **CŒLITES** Westwood.

Cœlites, Westwood, 1850, pl. lxvi, fig. 2 ; *id.*, 1851, p. 368 ; Marshall & de Nicéville, 1883, pp. 96, 100, pl. xiii ; Moore, 1891, pp. 153, 228 (type, *nothis* Westw.) ; Bingham, 1905, p. 70 ; Fruhstorfer, 1911, p. 328 ; Evans, 1932 *a*, pp. 95, 125 ; Hemming, 1941 *b*, p. 416 (type, *Cœlites nothis*, Westw., 1850).

Type of the genus, *C. nothis* Westw., from Siam.

♂♀. Wings comparatively broad. Fore wing triangular, costa evenly arched, apex somewhat produced but rounded ; outer margin in male strongly, in female slightly incurved ; inner margin straight or slightly incurved ; cell over half length of wing ; *udc* short, *mdc* directed obliquely inwards, *ldc* obliquely outwards ; veins 10 and 11 from before apex of cell, vein 12 swollen at base. Hind wing very broadly oval ; outer margin with anterior half incurved, posterior half excurved ; inner margin excurved ; tornus rounded ; cell a little over half length of wing ; discocellulars oblique ; veins 3 and 4 stalked from a point well beyond apex of cell.

Antenna slender, a little over half length of fore wing, club very long and gradual ; palpus short, anteriorly densely scaled, without porrect hairs ; eye naked ; mid femur long, longer than tibia, not hairy beneath.

♂ (in Indian species), on hind wing upperside, subapically on vein 1 *b*, with a patch of androconia covered by a tuft of long hairs.

Habits.—According to Fruhstorfer (1911) the butterfly rests on the ground, and sits with wings closed ; it is scarcely distinguishable from the decaying leaves which cover the ground.

Distribution.—ASSAM to BURMA, Malaya, Siam, Tong-king, Sumatra, Borneo, and Celebes. Two species in the Indian area.

Key to Species of Cœlites.

1. Hind wing underside with ocelli in areas 4 and 5 much smaller than those in 2, 3, and 6 ; no discal band ; a post-discal dark line, angled outwards . . . . . *nothis* Westw., [p. 358.
2. Hind wing underside with all ocelli small and equal ; a discal, prominent, pale, straight band ; no post-discal dark line *epiminthia* Westw. [p. 358.

Cœlites nothis Westwood, 1850.

♂♀. In addition to characters given in the key, the *upperside* has a dark glossy blue reflection. ♂ scent-patch long, black, and glossy.

Distribution.—Siam, Tong-king, ASSAM and UPPER BURMA. One Indian subspecies.

398. **Cœlites nothis adamsoni** Moore.

Cœlites adamsoni, Moore, 1891, p. 229, pl. lxxv, figs. 1, 1 *a* (♂♀, Bhamo); Bingham, 1905, p. 72.
Cœlites nothis adamsoni, Fruhstorfer, 1911, p. 329; Evans, 1932 *a*, p. 125.
Cœlites nothis, Elwes (*non* Westw.), 1891, p. 259 (Bhamo).

♂♀. *Upperside* ground-colour rich purplish-brown; proximal area, to well beyond cell, dark glossy blue.

Underside proximal area, to well beyond cell, rich purplish-brown; distal area paler, with a pinkish gloss. Fore wing with a waved post-discal line; and two submarginal dark lines. Hind wing with post-discal dark line excurved opposite end of cell; two submarginal lines as on fore wing.

Expanse: ♂♀, 75–85 mm.

Habitat.—UPPER BURMA (Bhamo), and ASSAM; very rare.

Cœlites epiminthia Westwood, 1851.

♂♀. *Upperside* similar to *nothis* Westw. ♂ brand dark steel-blue, oval, and posteriorly pointed.

Underside characters as in key.

Distribution.—LOWER BURMA to Malaya, Sumatra, Borneo, and Celebes. Three subspecies in the Indian area.

399 *a*. **Cœlites epiminthia epiminthia** Westwood.

Cœlites epiminthia, Westwood, 1851, p. 368, no. 2, note (Sumatra).
Cœlites epiminthia epiminthia, Fruhstorfer, 1911, p. 329, t. 94 *a* (♂); Tytler, 1939 *a*, p. 248 (♂, "Mergui").

♂♀. Fore wing strongly falcate. *Upperside* of fore wing with a large discal blue area.

Underside dark brown, blackish in basal areas; post-discal band whitish, sharply defined, narrow, and on hind wing posteriorly attenuate. Fore wing with two subapical small ocelli. Hind wing ocelli ochraceous, the one in area 4 smaller than the others.

Expanse: ♂♀, 75–85 mm.

Habitat.—MERGUI. Recorded by Tytler (1939) from a single ♂ obtained by the late Mr. Cooper, presumably on the mainland. Also in Malaya, Sumatra, and Borneo.

399 *b*. Cœlites epiminthia binghami Moore.

Cœlites binghami, Moore, 1891, p. 230, pl. lxxv, figs. 3, 3 *a* (♂, Burma); de Nicéville, 1899, p. 329 (Tenasserim); Adamson, 1905, p. 165 (Upper Tenasserim); Bingham, 1905, p. 72.

Cœlites epiminthia binghami, Fruhstorfer, 1911, p. 329; Evans, 1932 *a*, p. 125, pl. xiv, fig. D 19. 2 (♂).

Cœlites epiminthia, Marshall & de Nicéville, (*non* Westw.), 1883, p. 101, pl. xiii, fig. 31 (♂, Moulmein).

♂. *Upperside* rich purplish-blue. Fore wing with costal apex broadly, outer margin below apex narrowly, rich hair-brown, slightly tinged with purplish over apex. Hind wing with outer margin narrowly, and anal fold rich hair-brown.

Underside brown, basal four-fifths of both wings darker; a post-discal, broad, oblique, diffuse, pale purplish band; submarginal and marginal lines dark brown. Hind wing with a curved row of five small subequal black ocelli, each ocellus minutely white-pupilled, with ochraceous iris and outer dark brown ring.

Antenna, head, thorax and abdomen brown.

♀. Similar to the male. *Upperside* of fore wing with a subapical conspicuous lavender band, narrowing and fading out posteriorly along outer margin.

Expanse: ♂♀, 75–85 mm.

Habitat.—Burma, Dawna Range; rare.

De Nicéville notes that the butterfly "flies only in the evening along open paths through evergreen jungle."

399 *c*. Cœlites epiminthia calverti Tytler.

Cœlites epiminthia calverti, Tytler, 1939 *a*, p. 248 (Arakan).

♂. Differs from *binghami* on *underside* of fore wing in the submarginal band being narrower, with sharper edges, and placed closer to margin; hind wing band much narrower and not extended beyond vein 2; violet gloss almost absent.

Habitat.—Burma, Arakan; rare.

Described from several specimens collected by Mr. Calvert.

Genus **NEORINA** Westwood.

Neorina, Westwood, 1850, pl. lxv, fig. 2; *id.*, 1851, p. 365; Marshall & de Nicéville, 1883, pp. 96, 133, pl. xiv; Moore, 1891, pp. 153, 224 (type, *hilda* Westwood); Bingham, 1905, p. 167; Fruhstorfer 1911, p. 326; Evans, 1932 *a*, pp. 95, 125; Hemming, 1934 *a*, p. 32 (type, *Neorina hilda* Westwood, 1851): *id.*, 1941 *b*, p. 418.

Hermianax, Fruhstorfer, 1911, p. 326 (type, *latipicta* Fruhstorfer) (=subgenus).

Type of the genus, *N hilda* Westwood.

♂♀. Wings comparatively very broad. Fore wing with costa strongly arched, outer and inner margins nearly straight, apex and tornus slightly rounded but distinct; cell not half

length of wing; *udc* and *mdc* very short; *ldc* bent inwards near base, then straight; veins 10 and 11 from before apex of cell; vein 12 not at all, or very slightly, swollen at base. Hind wing oval; costa and outer margin strongly arched, the latter scalloped, sometimes produced at vein 4; cell not half length of wing; discocellulars short, oblique, curved outwards, *ldc* long; veins 3 and 4 from angle of cell; veins 4, 5, 6 and 7 subequally distant from each other; precostal vein directed basad, and arising far beyond origin of vein 8.

Antenna about half length of fore wing, slender, gradually thickening to apex, but without a distinct club; eye naked; palpus somewhat broad, furnished with porrect hairs, third segment short; mid femur longer than tibia, scaled, not hairy.

Distribution.—Western China; NORTH-EASTERN HIMALAYAS to BURMA, Malaya, Sumatra, Java, Borneo, and Palawan. Three species in the Indian area.

Key to Species of Neorina.

1. Hind wing without a tail at vein 3. Fore wing upperside with discal broad yellow band. .	*hilda* Westw., p. 360.
Hind wing with a tail at vein 3.. .	2.
2. Fore wing upperside with discal broad white band. Hind wing upperside without ocelli.	*patria* Leech, p. 361.
Fore wing upperside with discal broad yellow band. Hind wing upperside with ocelli in areas 2 and 3 ..	*crishna* Westw., p. 361.

400. **Neorina hilda** Westwood.

Neorina hilda, Westwood, 1850, pl. lxv, fig. 2 (♂); *id.*, 1851, p. 370 (E. India, Darjeeling); Elwes, 1882, p. 405 (♂, Sikkim); Marshall & de Nicéville, 1883, p. 134; Moore, 1891, p. 74, figs. 1, 1 *a* (♂♀); de Nicéville, 1894 *a*, p. 121 (Sikkim, 7,000–9,000 feet); Bingham, 1905, p. 168; Tytler, 1911, p. 54 (Naga Hills, 6,500 feet); Fruhstorfer, 1911, p. 326, t. 94 *d*; Evans, 1932 *a*, p. 125, pl. xiv, fig. D 20. 1 (♀); Hemming, 1941 *c*, p. 455.

♂♀. *Upperside* very dark vandyke-brown. Fore wing with a discal, oblique, yellow band, with irregular margins, from costa nearly to tornus; in area 5 a large black ocellus, faintly centred paler; a white spot above, and another smaller one below ocellus. Hind wing with margins near apex somewhat narrowly yellow; cilia yellow; submarginal and marginal lines, incomplete, pale and faint, somewhat broad as on fore wing.

Underside ground-colour similar to above. Fore wing with discal yellow band, black ocellus and white spots as on upperside; ocellus white-centred and fulvous-ringed, with an outer black ring. Hind wing with yellow markings as on upperside;

diffuse yellowish scaling towards inner margin; a subapical ocellus, much smaller than that on fore wing; similar, somewhat obsolescent, ocelli in areas 2, 3, and 4. Both wings with two submarginal lunular dark lines, bordered by lilacine on the inner side and between the lines towards tornus of hind wing.

Antenna rufescent brown; palpus with a lateral yellow stripe; head, thorax, and abdomen dark vandyke-brown.

Expanse: ♂♀, 80–95 mm.

Habitat.—SIKKIM to ASSAM and MISHMI HILLS, at from 2,000 to 8,500 feet; rare, especially the female.

Neorina patria Leech, 1891.

♂♀. Sufficiently characterized by the key.

Distribution.—Western China, ASSAM, and NORTHERN BURMA. One Indian subspecies.

401. **Neorina patria westwoodii** Moore.

Neorina westwoodii, Moore, 1891, p. 226, pl. lxxiv, figs. 2, 2 *a* (♂♀, Assam, Cachar).
Neorina westwoodi (sic), Bingham, 1905, p. 168.
Neorina patria westwoodi (sic), Fruhstorfer, 1911, p. 327, t. 94 *d* (♂); Evans, 1932 *a*, p. 125; Tytler, 1939, p. 248 (♂, Bhamo and Loimwe).
Neorina cristina, Marshall & de Nicéville (*non* Westw.), 1883, pp. 134, 135, pl. xiv, fig. 34 (♀, Cherra-Punji); Wood-Mason & de Nicéville, 1887, p. 350 (Cachar).

♂♀. Closely resembles *hilda*, but differs chiefly as follows.—*Upperside* ground-colour darker. Fore wing band whiter, much broader, entering upper third of cell, and narrowing towards tornus; discocellulars marked with brown. Hind wing broadly caudate at vein 4; apex and cilia white.

Underside of hind wing with discal and posterior areas powered with lilacine grey; ocellus in area 2 larger and more distinct.

Expanse: ♂♀, 100–110 mm.

Habitat.—ASSAM to NORTHERN and NORTH-EASTERN BURMA; rare.

Neorina crishna Westwood, 1851.

♂♀. Sufficiently characterized by the key.

Distribution.—SOUTHERN BURMA and Java. One Indian subspecies.

402. **Neorina crishna archaica** Fruhstorfer.

Neorina crishna archaica, Fruhstorfer, 1911, p. 327 (Ataran Valley; Lé Valley).
Neorina chrishna (sic) *archaica*, Evans, 1932 *a*, p. 125.
Neorina crishna, de Nicéville (*non* Westw.), 1899, p. 329 (Tenasserim, very rare).

♂♀. Much larger than the nominotypical form from Java. *Upperside* of hind wing with costal yellow spot more extended;

submarginal band somewhat wider and dusted with brown on inner side.

Expanse : ♂♀, 95–105 mm.

Habitat.—SOUTHERN BURMA ; very rare.

Genus **ETHOPE** Moore.

Ethope, Moore, 1865 *a*, p. 770 (olim *Theope*) (*himachala* Moore) (=nom. nov. pro *Theope* Moore, nom. præocc.).

Theope, Moore, 1857, p. 234 (*himachala* Moore).

Anadebis, Butler, 1867 *a*, p. 50, pl. ii, figs. 1, 1 *a*, *b* (type, *himachala* Moore) (=nom. nov. pro *Theope* Moore) ; Marshall & de Nicéville, 1883, pp. 96, 99, pl. xiv ; Moore, 1891, pp. 152, 157 ; Bingham, 1905, p. 165 ; Fruhstorfer, 1911, p. 328 ; Evans, 1932 *a*, pp. 96, 125.

Euplœamima, Holland, 1887, p. 113 ; Moore, 1891, pp. 152, 155 (type, *henrici* Holland).

Type of the genus, *E. himachala* (Moore).

♂♀. Fore wing very broadly triangular, costa arched from base, outer margin excurved or straight, inner margin slightly sinuous, apex and tornus well-marked ; cell very broad and short, not half length of wing ; discocellulars oblique, *udc* and *mdc* subequal, *ldc* very long ; vein 12 and median scarcely thickened towards base ; veins 10 and 11 free. Hind wing broadly ovate ; cell short, not half length of wing ; vein 3 from just before angle of cell, 4 from the angle, 6 closer to 5 than to 7

Antenna filiform, about half length of fore wing ; club indistinct, very gradual ; palpus long, subporrect, with appressed hairs, third segment long, distinct ; eye naked ; mid and hind femur long, not hairy beneath. Sexes alike ; male without secondary sexual characters.

Distribution.—SIKKIM to BURMA, Hainan, Tong-king, and Siam. Two species known, both occurring in the Indian area.

Key to Species of Ethope.

1. Both wings on both sides with a complete post-discal row of ocelli. — *himachala* (Moore), p. 362.
2. Both wings on both sides with a complete post-discal row of white spots, these spots very large on hind wing — *diademoides* (Moore), p. 363.

403. **Ethope himachala** (Moore).

Theope himachala, Moore, 1857, p. 234.

Ethope himachala, Moore, 1865 *a*, p. 770 (Bengal).

Anadebis himachala, Butler, 1867 *a*, p. 50, pl. ii, fig. 1 (♀) ; de Nicéville, 1882, p. 55 (Sikkim) ; Marshall & de Nicéville, 1883, p. 99, pl. xiv, fig. 35 (♀, Sibsagar) ; Butler, 1885 *a*, p. 301 (near Assam) ; Wood-Mason & de Nicéville, 1887, p. 348 (Cachar) ; Moore, 1891, p. 157, pl. liv, figs. 2, 2 *a* (♂♀) ; de Nicéville, 1894 *a*, p. 119 (Sikkim) ; *id.*, 1899, p. 329 (Chin Hills) ; Adamson,

1905, p. 162 (Arakan and Upper Burma); Bingham, 1905, p. 166; Tytler, 1911, p. 54 (Naga Hills); Fruhstorfer, 1911, p. 328, t 94 *a*; Evans, 1932 *a*, p. 125, pl. xiv, fig. D 21. 1 (♂).
Neorina sita, C. Felder, 1859, p. 403.

♂♀. *Upperside* dark umber-brown, somewhat paler in the female; outer margin broadly paler, the paler shade on fore wing being produced angularly inwards along costa. Fore wing, within the pale area, with a row of seven (occasionally only six) white-pupilled black ocelli, each with a ring of pale fulvous and an outer brown ring, these latter rings touching each other on the veins; two submarginal, somewhat waved lines, parallel to margin and curving inwards opposite apex; margin and cilia brown, touched with pale fulvous. Hind wing similar to fore wing, with similar ocelli and submarginal lines, but with only six ocelli; apical ocellus very large, but obscure and faintly marked, the middle one of the other ocelli the largest, the anal one bipupilled.

Underside similar to above; ground-colour on each side of inner submarginal line pinkish; apical ocellus on hing wing very large and distinct.

Antenna, head, thorax and abdomen brown.

Expanse: ♂♀, 60–85 mm.

Habitat.—SIKKIM to NORTHERN BURMA; not rare, but less frequent in SIKKIM.

Ethope diademoides (Moore).

♂♀. Both wings without ocelli, but with a post-discal and two submarginal rows of spots; the post-discal spots on hind wing rather large and sharply defined.

Distribution.—SOUTHERN BURMA, Siam, Tong-king, and Hainan. Only the nominotypical form occurs in the Indian area.

404. Ethope diademoides diademoides (Moore). (Fig. 95, ♂).

Zethera diademoides, Moore, 1879 *a*, p. 824, pl. li, fig. 3 (♂, Upper Tenasserim: Taoo, 3,000–5,000 feet, March; Moulai, 3,000–6,000 feet); Marshall & de Nicéville, 1883, p. 98, pl. xiv, fig. 33 (♂, Upper Tenasserim); Elwes, 1891, p. 259 (Eastern Pegu, abundant).
Euplœamima diademoides, Moore, 1891, p. 156, pl. liv, figs. 1, 1 *a*, (♂); Adamson, 1905, p. 162 (Upper Tenasserim).
Anadebis diademoides, Bingham, 1905, p. 166, fig. 37 (♂).
Anadebis diademoides diademoides, Fruhstorfer, 1911, p. 328.
Anadebis diademoides, Ellis, 1917, p. 107 (Pegu Yoma, in wet places); Evans, 1932 *a*, p. 125, pl. xiv, fig. D 21. 2 (♀).

♂♀. *Upperside* sepia-brown to dark blackish-brown. Fore wing with a post-discal row of white spots decreasing in size towards the costa; a submarginal row of smaller, more or less obscure, white spots, and between the two series a faint row of white lunules. Hind wing with a post-discal row of white

spots, very large, broadly oval, decreasing in size anteriorly; two submarginal rows of much smaller spots, subequal in size.



Fig. 95.—*Ethope diademoides diademoides* (Mooro), ♂.

Underside rather pale vandyke-brown, with white spots as on upperside.

Antenna, head, thorax and abdomen brown; palpus at the sides, and abdomen beneath, streaked with white.

Expanse: ♂♀, 80–90 mm.

Habitat.—Karen Hills to Southern Burma, and in Western Siam; rare.

Genus **MELANITIS** Fabricius.

Melanites, Fabricius, 1807, p. 282; Butler, 1867 *e*, p. 194 (type, *leda* Linn.); Marshall & de Nicéville, 1883, pp. 97, 250, pls. i, xii; Moore, 1891, p. 155; *id.*, 1893, p. 117; Bingham, 1905, p. 157; Fruhstorfer, 1908 *a* (revision); *id.*, 1911, p. 361; Evans, 1932 *a*, pp. 96, 125; Hemming, 1934 *a*, p. 32 (type, *Papilio leda* Linn., 1758).

Hipio, Hübner, 1819, p. 56; Butler, 1867 *d*, p. 279 (type, *constantia* Cramer); Hemming, 1934 *a*, p. 33 (type, *Papilio constantia* Cramer, 1777) (=*Melanitis* Fabr.).

Cyllo, Boisduval, 1832, p. 151; Westwood, 1851, p. 360 (type, *leda* Linn.); Hemming, 1934 *a*, p. 32 (type, *Papilio leda* Linn., 1758) (=*Melanitis* Fabr.).

Type of the genus, *M. leda* (Linn.), 1758.

♂♀. Fore wing short, broad, triangular, costa very strongly arched; apex obtuse, acute or falcate, very falcate in the dry-season form; outer margin otherwise straight, very slightly scalloped; tornus distinct but rounded; inner margin straight,

cell well over half length of wing; *udc* and *mdc* very short, subequal, *ldc* incurved; veins 5, 6, and 7 closely approximate at base; veins 10 and 11 from well before apex of cell. Hind wing irregularly oval; costa arched; outer margin incurved or straight to vein 4, and more or less produced at vein 4, and to a less degree at veins 3 and 2 and at the tornus; inner margin straight; cell short, much less than half length of wing; discocellulars oblique, *udc* and *mdc* of nearly equal length; vein 3 from well before angle of cell; costal margin very broad at base of wing; vein 8 produced along costa to apex.

Antenna about half length of fore wing, slender, club very gradual, blunt at tip; palpus long, compressed, with dense, appressed hair; eye naked; mid and hind femur long, not hairy beneath; tarsal claws on mid and hind legs cleft.

Genitalia.—Uncus without side-lobes, and ending in a sharp point. Valve long, apex narrowed and obtuse, furnished with long bristles.

Variation.—On the upperside the Indian forms of *Melanitis* resemble each other a good deal. On the underside there is considerable individual variation, whilst seasonal forms are strongly marked. The wet-season form has the underside ocellate and closely striated. In the dry-season form the striæ are not so prominent, and the ocelli are often reduced to mere specks. Both forms are often found flying together.

In the dry-season form, more especially, the underside exhibits every shade and gradation of ochraceous-brown, yellow, grey-black and ochraceous-red, arranged in spots, blotches, lines and striæ in an endless variety of patterns, but in all specimens closely approximating in shade and markings to the dead and dying leaves among which they are found.

Habits.—The butterfly is on the wing at dawn, at dusk, and often at night. It settles on the bare ground or on the roots of trees. Usually restricted to the lowlands.

Distribution.—Africa; Malagassic Region; throughout the Indo-Australian Region.

Key to Species of Melanitis.

1. *Wet form*: underside with large prominent ocelli. *Dry form*: fore wing falcate, upperside with a sharply defined ochraceous bar bordering a black white-centred spot on inner side . .	*leda* (Linn.), p. 366.
Wet form: underside with small ocelli or spots. *Dry form*: fore wing upperside with ochraceous markings more extended and less defined ..	2.

2. *Wet form*: underside with small ocelli; fore wing not produced; hind wing produced only at vein 4. *Dry form*: upperside with outer borders ashy, especially in ♂; hind wing more produced at vein 3 than at vein 1 *b* . . . . *phedima* (Stoll.), p. 369.
Wet form: underside with small white spots. *Dry form*: upperside with outer borders not ashy. *zitenius* (Herbst.), p. 373.

Melanitis leda (Linnæus), 1758.

The various subspecies of *leda* are not very strongly marked, and the species is sufficiently characterized in the the key.

Distribution.—Southern Japan, Corea, Southern China, and the whole of the Indo-Australian Region and Aethiopian Region. One subspecies in the Indian area.

405. Melanitis leda ismene (Cramer). (Figs. 96, ♂; 97, larva and pupa).

Papilio ismene, Cramer, 1775, p. 40, pl. xxvi. figs. A, B (♂, China).
Melanitis ismene, Moore, 1879 *a*, p. 824 (Upper Tenasserim); Wood-Mason & de Nicéville, 1882, p. 16 (♂♀, Camorta); de Nicéville, 1882, p. 56 (Sikkim); Moore, 1882 *b*, p. 235 (Kangra); Marshall & de Nicéville, 1883, pp. 251, 256, pl. xii, fig. 28 (♂, Calcutta); de Nicéville, 1885 *a*, p. 43 (Calcutta) (dry-season form); Forsayeth, 1884, p. 382, pl. xiv, figs. 2, 2 *a* (larva), 2 *b* (pupa) (early stages, Mhow); Moore, 1886, p. 32 (Mergui and islands); *id.*, 1893, p. 118, pl. cxxii, figs. 1, 1 *a* (larva and pupa), figs. 1 *b*, *c*, *d*, *e* (♂♀, wet-season brood), pl. cxxiii, figs. 1 *a*, *b*, *c*, *d*, *e* (♂♀, dry-season brood); de Nicéville, 1894 *a*, p. 128 (Sikkim, up to 7,000 feet); Mackinnon & de Nicéville, 1897, p. 220 (Mussooree); Watson, 1897, p. 651 (Upper Chindwin); de Rhé-Philipe, 1902, p. 483 (Lucknow); Adamson, 1905, p. 168 (Burma); Bingham, 1905, p. 159, fig. 36 (♂).
Melanitis leda ismene, Fruhstorfer, 1908 *a*, p. 86.
Melanitis ismene, Bell, 1909, p. 454, pl. D, fig. 22; Hannyngton, 1910, p. 136 (Kumaon, to 7,000 feet); Evans, 1910, p. 382 (Palni Hills); Tytler, 1911, p. 54 (Naga Hills).
Melanitis leda ismene, Fruhstorfer, 1911, p. 362; Ellis, 1917, p. 106 (Pegu Yoma).
Melanitis ismene, de Rhé-Philipe, 1917, p. 137 (Lahore); Ormiston, 1918, p. 15 (Ceylon).
Melanitis leda ismene, Evans, 1932 *a*, p. 125, pl. xiv, figs. D 22.1 (♂, wet form, ♂, dry form); Gough, 1935, p. 261 (Nepal, 4,500 to 7,000 feet); Peile, 1937, p. 105, pl. xi, figs. 93 (♂, dry form), 94 (♂, wet form); Woodhouse & Henry, 1942, p. 47, pl. v, figs. 7 (♂), 8, 9 (♀), pl. xxxviii, fig. 5 (larva, pupa).
Papilio mycena, Stoll, 1782, p. 7, pl. ccxci, fig. F.
Melanitis leda ismene f. *mycena*, Fruhstorfer, 1908 *a*, p. 86; *id.*, 1911, p. 362.
Melanitis determinata, Butler, 1885 *b*, pl. vi; Moore, 1886, p. 32 (Mergui).
Melanitis leda ismene f. *determinata*, Fruhstorfer, 1908 *a*, p. 86; *id.*, 1911, p. 362 (=wet-season form).
Papilio leda, Drury (*non* Linn.), 1773, pl. xv, figs. 5, 6.
Satyrus leda, Kollar (*non* Linn.), 1844, p. 451 (Simla).

Cyllo leda, Moore (*non* Linn.), 1865 *a*, p. 769 (Bengal).
Melanitis leda, Moore (*non* Linn.), 1877 *b*, p. 583 (Andaman Is.); Wood-Mason & de Nicéville, 1880 *a*, p. 226 (Andaman Is.); *id.*, 1881 *a*, p. 244 (Andaman Is.); de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 251, 252, pl. i (structure, after Horsfield); de Nicéville, 1885 *a*, p. 42 (Calcutta); *id.*, 1886 *b*, p. 237, pl. xii, fig. 4 (larva, pupa, Calcutta); Doherty, 1886 *a*, p. 120 (Kumaon, to 4,000 feet); Wood-Mason & de Nicéville, 1887, p. 352 (Cachar); Elwes & de Nicéville, 1887, p. 417 (Tavoy); Taylor & de Nicéville, 1888, no. 22 (Orissa); Hampson, 1889, p. 351 (Nilgiri Nills).

Dry-season form **ismene** (Cram.).—♂♀. Fore wing with apex obtuse and more or less falcate; outer margin below vein 5 straight or sinuous. *Upperside* brown; markings, especially the ochraceous lunules inwardly bordering the black subapical spots on fore wing, larger than in the wet form, and more extended below and above the black costa. Hind wing without an ocellus in area 2, but posteriorly replaced by three or four minute white submarginal spots.



Fig. 36.—*Melanitis leda ismene* (Cram.), ♂.

Underside very variable, as noted previously.

Wet-season form **determinata** Butler.—♂♀. Fore wing with apex subacute; outer margin slightly angulate just below apex, or is straight. *Upperside* brown. Fore wing with two large subapical black spots, each with a small pure white spot in its distal part, the inner edge of this black patch bordered narrowly with ochraceous, interrupted in area 4; costal margin narrowly pale. Hind wing, in area 2, with a submarginal, dark, white-centred, fulvous-ringed ocellus; apical ocellus, and sometimes others, showing through from below.

Underside paler, densely striated with dark brown. Fore wing with a discal, curved, dark brown, narrow band; a post-discal similar band; a row of four ocelli, that in area 3 the largest. Hind wing with a row of six ocelli, the apical and subtornal the largest.

Antenna, head, thorax and abdomen in both forms brown or greyish-brown; antenna ringed with white, the tip ochraceous.

Expanse: ♂♀, 60–80 mm.

Early stages and *habits* (from *Bell*, 1909):—

Larva.—Body spindle-shaped, though approaching cylindrical; anal processes as long as the horns on the head, squarely separated at the base, and set with hair-bearing tubercles like the body. Head finely rugose, shiny, covered thickly with fine white hairs; darker green than the body, sometimes suffused more or less with black; a broad white cheek-stripe, flanked in front by a narrow black line; horns dark vinous-red. Body bright yellowish grass-green; a dorsal

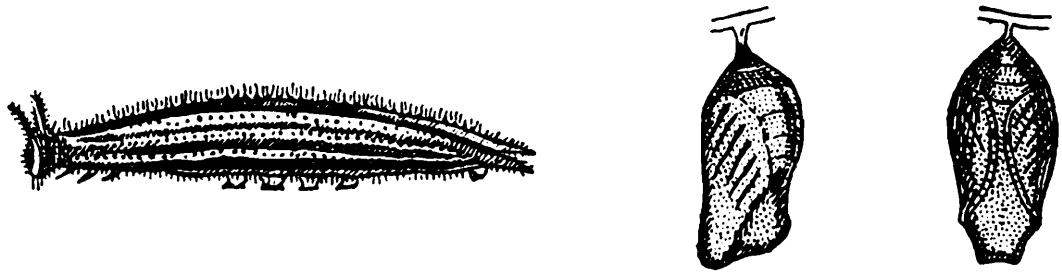


Fig. 97.—*Melanitis leda ismene* (Cram.).
Larva and pupa. (After *Moore*, 1893).

dark green line; an indistinct lateral yellow line; venter slightly glaucous-green; spiracles oval, small, red-brown; surface of body covered with transverse rows of smooth, round, white, hair-bearing tubercles, about six rows to each segment. Length, 39 mm. over all; breadth, 6 mm.; length of horns, 2 mm.

Pupa.—Similar to that of *Lethe* but not at all angulate. Surface of body very finely transversely lined, naked, shiny. Colour a uniform watery grass-green; wings veined darker; cremaster bluish. Length, 21 mm.; breadth, at segment 8, 7·75 mm., at shoulders, 7 mm., at front of head, 3 mm.; height, at thorax-apex, 7·2 mm.

Habits.—The egg is laid on the underside of a blade of grass or rice, either singly or in a row of from two to seven. The larva lives constantly on the underside, closely applied to the surface. Pupa suspended by the tail from underside of a leaf, twig, etc., hanging free but firm.

The butterfly has a somewhat weak jerky flight, and rarely, except in the early morning or in the evening, stays on the wing more than a few seconds at a time, settling always on the ground, generally sideways with wings closed. In the monsoon months it may be seen flying over the rice-fields in the morning and evening, most probably in quest of a mate.

Habitat.—Ceylon, India, Burma, Andaman and Nicobar Islands. Also extending to Japan and Formosa, and to Malaya, Sumatra and Borneo.

Very common, except in the desert parts of Western India, the Nicobar Islands and Japan.

Both seasonal forms may be found flying together. In Ceylon the insect was observed coming readily to sugar up to about 9 p.m. (*Ormiston*, 1918).

Melanitis phedima (Stoll), 1782.

Wet-season form.—♂♀. *Upperside* markings variable, usually similar to those of *leda*, but some forms without markings other than the pale border. Fore wing with apex not produced; outer margin straight or only slightly angled below vein 5. Hind wing with outer margin, below the tail at vein 4, straight or only slightly scalloped.

Underside of hind wing with small ocelli which are usually of about equal size.

Dry-season form.—♂♀. *Upperside* with outer borders ashy-grey, especially in the male. Fore wing with ochraceous markings more extended than in *leda*. Hind wing with the tooth at vein 1 *b* much shorter than that at vein 3.

Early stages and *habits* (from *Bell*, 1909) :—

Larva.—Very similar to *ismene*. Body covered by transverse rows of white, conical tubercles, each bearing a white hair or seta, there being six such rows to each segment. Colour bright grass-green washed with yellow; a dorsal dark green line; a lateral and a subspiracular faint yellow line; head bluish-green; a white band from base of horn to jaw, with a brown line parallel to it and in front of it; horns reddish-yellow. Some larvæ may have the head black, the cheek-stripe black or red-brown with head green. Length, 38 mm.; breadth, 4.5 mm.; length of anal processes 4 mm.

Pupa.—Narrower at head than elsewhere, broadest and deepest at segment 7; abdomen very convex dorsally; constriction wide and rather pronounced; thorax humped, and front slope of pupa very sudden; cremaster of moderate length, oblong, thickened at end. Colour watery grass-green. Length, 39 mm.; breadth, 6 mm.

Habits.—Eggs always laid in twos, threes and fours, generally on the underside of the blades of soft grasses in the jungles. When touched or alarmed the larva curls up and falls to the ground. Pupa firmly attached, but hangs very free. The butterfly is a much weaker flier than *ismene*; it never at any time rises far from the ground, and has a very fluttering flight; it is a jungle species, and affects the evergreens more than the deciduous forests.

Distribution.—Western China; CEYLON, INDIA, and BURMA to Malaya, Sumatra, Java, Celebes, the Philippines, and Formosa.

Numerous subspecies are distinguished, and six are found in the Indian area.

406 *a*. **Melanitis phedima tambra** Moore.

Melanitis tambra, Moore, 1880 *a*, p. 15, pl. ix, figs. 2, 2 *a*, *b*, *c* (♂♀, larva, pupa); Marshall & de Nicéville, 1883, pp. 251, 255, ♂♀; Moore, 1893, p. 125, pl. cxxiv, figs. 1, 1 *a*, *b*, *c* (larva and pupa, ♂♀, wet-season brood), figs. 1 *d*, *e*, *f* (♂♀, dry-season brood).
Melanitis bela tambra, Bingham, 1905, p. 161.
Melanitis phedima tambra, Fruhstorfer, 1908 *a*, p. 82; *id.*, 1911, p. 364.
Melanitis tambra, Ormiston, 1918, p. 15 (Ceylon).
Melanitis phedima tambra, Evans, 1932 *a*, p. 126; Woodhouse & Henry, 1942, p. 48, pl. v, figs. 10 (♂), 11 (♀).

Wet-season form.—♂♀. *Upperside* of male very dark and without markings. Fore wing paler at apex; female with black spots prominent, white spots small or absent.

Underside of male very dark purplish-brown, of female ferruginous; ocelli somewhat obsolescent.

Dry-season form.—♂♀. *Upperside* of fore wing without ochraceous markings; black and white spots more or less prominent, also a pale costal bar.

Expanse: ♂♀, 70–80 mm.

Habitat.—CEYLON; not rare.

Ormiston (1918) says that the wet-season form is much rarer than the dry form, but can be taken at sugar.

406 *b*. **Melanitis phedima varaha** Moore.

Melanitis varaha, Moore, 1857, p. 224; Marshall & de Nicéville, 1883, pp. 251, 256; Moore, 1893, p. 131, pl. cxxvii, figs. 1, 1 *a*, *b*, *c* (♂♀, wet-season brood), pl. cxxviii, figs. 1 *e*, *f*, *g*, *h*, *i* (♂♀, dry-season brood); Davidson, Bell & Aitken, 1896, p. 245 (N. Canara).
Melanitis phedima varaha, Fruhstorfer, 1908 *a*, p. 82.
Melanitis bela varaha, Bingham, 1905, p. 159.
Melanitis varaha, Bell, 1909, p. 456 (early stages and habits).
Melanitis bela varaha, Evans, 1910, p. 382 (Palni Hills).
Melanitis phedima gokala f. *varaha*, Fruhstorfer, 1911, p. 364.
Melanitis phedima varaha, Evans, 1932 *a*, p. 126.
Melanitis ampa, Swinhoe, 1890, p. 353.
Melanitis varaha wet form *ampa*, Moore, 1893, p. 131, pl. cxxvii, fig. 1 *d* (♀ type).
Melanitis phedima gokala f. *ampa*, Fruhstorfer, 1911, p. 364 (=wet-season form).
Melanitis bela, Hampson (*non* Moore), 1889, p. 350 (Nilgiri Hills, one specimen).
Melanitis aswa var. *tristis*, Marshall & de Nicéville (*non* Felder), 1883, p. 253, pl. xii, fig. 27 (♂, Wynaad, S. India).
Melanitis aswa, Hampson (*non* Moore), 1889, p. 350 (Nilgiri Hills, 3,000–4,000 feet).

This subspecies is smaller than the other Indian ones, and is similar to but less dark than *tambra*.

Dry-season form **varaha** Moore.—♂♀. *Upperside* as in the wet form, but outer borders purplish-grey ; ♀ with ochraceous markings fairly distinct, the ground-colour paler than in the male.

Wet-season form **ampa** Swinhoe.—♂♀. *Upperside* of fore wing with black spots vestigial.

Underside with ocelli well developed ; discal line prominent and ferruginous.

Expanse : ♂♀, 60–70 mm.

Habitat.—SOUTH INDIA ; not rare.

Hampson (1889) records it as common on the lower slopes of the Nilgiri Hills, flying round the trees at dusk.

406 *c*. **Melanitis phedima bethami** de Nicéville.

Melanitis bethami, de Nicéville, 1887 *b*, p. 451 (♂♀, wet and dry forms, Pachmarhi, 3,500 feet) ; Moore, 1893, p. 127, pl. cxxv, figs. 1, 1 *a*, *b* (♂♀ types, wet-season brood), figs. 1 *c*, *d*, *e* (♂♀, dry-season brood) ; Bingham, 1905, p. 162.
Melanitis phedima bethami, Fruhstorfer, 1908 *a*, p. 80.
Melanitis bethami, Bell, 1909, p. 458.
Melanitis phedima bethami, Fruhstorfer, 1911, p. 364 ; Evans, 1932 *a*, p. 126.

Wet-season form.—♂♀. *Upperside* very dark blackish-brown, paler along outer margins. Fore wing without black or white spots ; a costal ochraceous bar beyond cell ; ♀ with apical area ochraceous, with a small pupilled ocellus in area 3, and above this an indistinct black spot and two small apical black spots.

Underside purplish-brown, somewhat closely and evenly striated with dark brown. Fore wing with four obscure ocelli ; hind wing with six post-discal small ocelli.

This is the typical form.

Dry-season form.—♂♀. Fore wing more falcate than in the wet form. *Upperside* a warmer richer brown ; outer margins broadly ashy. Fore wing apical area broadly ochraceous, in female entering cell and reaching outer margin ; subapical black spots, bearing a distal white spot, always present and prominent though small, within the ochraceous area. Hind wing with one or two white spots near tornus.

Antenna brown, marked with ochraceous in the male ; head, thorax and abdomen dull brown.

Expanse : ♂♀, 75–85 mm.

Habitat.—CENTRAL PROVINCES : Pachmarhi ; not rare.

406 *d*. **Melanitis phedima galkissa** Fruhstorfer.

Melanitis phedima galkissa, Fruhstorfer, 1911, p. 364 (Kulu, dry-season form) ; Evans, 1932 *a*, p. 126 (Kashmir to Kumaon) ; Peile, 1937, p. 106, pl. xi. fig. 95 (♀, dry-season form).

Melanitis bela, Moore (*non* Moore, 1857), 1882 *b*, p. 235 (Kangra); Doherty, 1886 *a*, p. 120 (Kumaon, 2,500 feet, rare); Mackinnon & de Nicéville, 1897, p. 221 (Mussooree); Hannyngton, 1910, p. 137 (Kumaon, 2,000–4,000 feet, not common).

♂♀. *Upperside* similar to *bela* Moore, grey marginal borders indistinct. ♀, in dry-season form, fore wing with a costal, ill-defined ochraceous bar as in *ismene*, but extending along outer margin.

Underside of male, in wet-season form, with bands ill-defined. In dry-season form pale grey.

Expanse: ♂♀, 60–75 mm.

Habitat.—KASHMIR to KUMAON; not rare.

This subspecies is not very distinct, and was described from the dry-season form.

Peile (1937) records the butterfly as common at Mussooree at 7,000 feet, but the wet-season form seemed scarce.

406 *e*. **Melanitis phedima bela** Moore.

Melanitis bela, Moore, 1857, p. 223.
Cyllo bela, Moore, 1865 *a*, p. 769 (Bengal).
Melanitis bela, Moore, 1879 *a*, p. 824 (Upper Tenasserim); Marshall & de Nicéville, 1883, pp. 251, 254; Elwes & de Nicéville, 1887, p. 417 (Tavoy); Moore, 1893, p. 128, pl. cxxvi, figs. 1, 1 *a*, *b* (♂♀, wet-season brood), figs. 1 *c*, *d*, *e* (♂♀, dry-season brood); de Nicéville, 1894 *a*, p. 129 (Sikkim, rather rare); Watson, 1897, p. 651 (Upper Chindwin, common); Adamson, 1905, p. 168 (Burma); Bingham, 1905, p. 159.
Melanitis phedima bela, Fruhstorfer, 1908 *a*, p. 80, fig. (♂ genit.).
Melanitis bela, Tytler, 1911, p. 54 (Naga Hills, to 6,000 feet).
Melanitis phedima bela, Fruhstorfer, 1911, p. 364.
Melanitis bela, South, 1913, p. 347 (Mishmi Hills, 2,000–3,500 feet).
Melanitis phedima bela, Ellis, 1917, p. 107 (Pegu Yoma, not common); Evans, 1932 *a*, p. 126.
Cyllo aswa, Moore, 1865 *a*, p. 769 (♂, N.E. Bengal).
Melanitis phedima bela f. *aswa*, Fruhstorfer, 1911, p. 364 (=wet-season form).
Cyllo tristis, C. & R. Felder, 1867, p. 463, ♂.

Dry-season form **bela** Moore.—♂♀. Fore wing strongly falcate. *Upperside* with outer margins broadly ashy-grey, especially in the male. Fore wing with a subapical, reddish-brown, prominent square patch; black spot with the distal white spots prominent; ♀ apical area broadly reddish-brown; black spot larger, and with similar, but indistinct accessory spots above and below it.

Underside of male marbled with grey; ocelli blind, grey; of female largely reddish-brown, with darker bands.

Wet-season form **aswa** (Moore).—♂♀. *Upperside* similar to *ismene*, and without apical ferruginous markings; subapical black spots small and obscure, the smaller white spot absent,

♀ with the black spots in a dull greyish area. Hind wing without ocelli, except sometimes an indistinct one in area 2.

Underside, of male blackish, finely marbled with grey. Fore wing ocelli reduced to dots or clearly formed. Hind wing with six well formed ocelli. ♀ pale reddish-brown, with broad brown bands; outer margins sharply edged with reddish-brown.

This subspecies is larger and darker than *galkissa*, especially in the dry-season form.

Expanse: ♂♀, 65–80 mm.

Habitat.—SIKKIM to NORTHERN BURMA; common.

406 *f*. **Melanitis phedima ganapati** Fruhstorfer.

Melanitis phedima ganapati, Fruhstorfer, 1908 *a*, p. 80, fig. (♂ genit.) (Tong-king, Annam, Tenasserim); *id.*, 1911, p. 363; Evans, 1932 *a*, p. 126.

Melanitis phedima ganapati f. *aswina*, Fruhstorfer, 1908 *a*, p. 80 fig. (genit.)(=wet-season form); *id.*, 1911, p. 364.

Dry-season form **ganapati** Fruhst.—♂♀. Similar to *bela*.

Upperside of fore wing with reduced ochraceous markings.

Underside with the spots smaller than in *bela*.

Wet-season form **aswina** Fruhst.—♂♀. *Underside* of hind wing with outer margin edged with rich reddish-brown; ocelli smaller than in *bela*.

Expanse: ♂♀, 65–75 mm.

Habitat.—KAREN HILLS to SOUTHERN BURMA, Tong-king, and Assam; common.

Melanitis zitenius (Herbst), 1796.

♂♀. *Upperside* with margins not ashy. Fore wing with a subapical ochraceous patch, more extended in female; subapical black spots large, usually confluent, in area 4 produced to join a black patch beyond end of cell. Hind wing with two white, black-edged dots, in areas 2 and 3, in place of ocelli.

Underside, in wet-season form, usually with small white spots in place of ocelli, and ocelli very small when present.

Early stages and *habits* (from *Bell*, 1909):—

Larva.—Body rugose, with five transverse rows of minute, white, setiferous tubercles to each segment; light grass-green; a dorsal dark green band; two lateral dark green lines; a spiracular white band, bordered above narrowly with dark green. Head bluish-green, with minute white and black hairs; face rough, and covered with black hairs; horns yellow, with black tips, and set with short black hairs. Length, 50 mm., of which the tails are 2 mm.; breadth, 5 mm.; length of horns, 2·25 mm.

Pupa.—This is "not to be distinguished from that of *ismene* in anything but its superior size."

Habits.—The eggs are laid in batches of from 4 to 25 on the underside of a bamboo leaf. Larvæ gregarious until the last moult when each goes its own way. When newly-hatched the larva has a shiny black head without horns, these appearing with the first moult.

The habits of the butterfly are exactly the same as for *ismene* except that it is only found in jungle country.

Distribution.—INDIA to HIMALAYAS, BURMA, Tong-king, Malaya, Borneo (rare), Sumatra, Java, and Sumbawa. Five subspecies are distinguished in the Indian area.

407 *a*. Melanitis zitenius zitenius (Herbst). (Pl. I, fig. 5, ♂).

Papilio zitenius, Herbst., 1796, p. 5, pl. clxxxii, figs. 1, 2 (? ♀, Coromandel).

Melanitis zitenius, de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 251, 258, pl. xii. fig. 29 (♀, Sikkim); Doherty, 1886 *a*, p. 120 (Kumaon, 2,000–4,000 feet); Taylor & de Nicéville, 1888, no. 24 (Orissa, rare); Moore, 1893, p. 135, pl. cxxx, figs. 1, 1 *a*, *b*, *c*, *d* (♂♀, wet-season brood), pl. cxxxi, figs. 1, 1 *a*, *b*, *c* (♂♀, dry-season brood); de Nicéville, 1894 *a*, p. 129 (Sikkim); Watson, 1897, p. 651 (Upper Chindwin); Adamson, 1905, p. 168 (Burma); Bingham, 1905, p. 161, pl. iii, fig. 24 (♂).

Melanitis zitenius zitenius, Fruhstorfer, 1908 *a*, p. 83.

Melanitis zitenius, Hannyngton, 1910, p. 137 (Kumaon, rare).

Melanitis zitenius zitenius, Fruhstorfer, 1911, p. 366; Evans, 1932 *a*, p. 127, pl. xiv, fig. D 22. 3 (♀).

Cyllo vamana, Moore, 1857, p. 223,; *id.*, 1865 *a*, p. 769.

Cyllo duryodana, C. & R. Felder, 1867, p. 464.

Melanitis zitenius zitenius f. *decolorata*, Fruhstorfer, 1908 *a*, p. 83; *id.*, 1911, p. 366 (=dry-season form).

Melanitis zitenius zitenius f. *semifasciata*, Fruhstorfer, 1908 *a*, p. 83; *id.*, 1911, p. 366 (=wet-season form)(=Moore, 1893, pl. cxxx, figs. 1, 1 *a*. *b*, *c*, *d*).

Melanitis zitenius anisakana, Tytler, 1939 *a*, p. 248 (♂♀, Anisakan, near Maymyo; Manipur).

Dry-season form **zitenius** (Herbst.).—♂♀. *Upperside* of fore wing with ochraceous markings wider than in the wet form; black and white spots prominent, and enclosed by the ochraceous area which, in the female, reaches outer margin.

The names *duryodana* Felder, and *vamana* Moore, are synonyms of this form.

Wet-season form **semifasciata** Fruhst.—♂♀. *Upperside* of fore wing with black spots obscure, and white spots usually absent; costal ochraceous bar prominent and, more usually in female, often continued distally to tornus.

Underside of male dark sandy-grey; of female, fore wing apical area, and hind wing costal and outer borders yellowish, with post-discal prominent red-brown bands.

Form **decolorata** Fruhst.—♂. *Upperside* of fore wing without an ochraceous band. This is a dry-season form from Sikkim.

Form **anisakana** Tytler.—♂♀. Much smaller than the

nominotypical form. *Upperside* of fore wing with the ochraceous patch smaller and not nearly so conspicuous.

Described as a subspecies, but the evidence for this is not apparent. A large series was taken at Anisakan, near Maymyo, Burma, in July and September; a ♂ recorded from Sabong, Manipur, taken in July.

Expanse: ♂♀, 80–95 mm.

Habitat.—KUMAON to KAREN HILLS; not rare.

407 *b*. **Melanitis zitenius gokala** Moore.

Melanitis gokala, Moore, 1857, p. 224 (Kanara); Marshall & de Nicéville, 1883, pp. 251, 256; Moore, 1893, p. 133, pl. cxxix, figs. 1, 1 *a* (♂, wet-season brood); Davidson, Bell & Aitken, 1896, p. 245 (N. Kanara, not common).

Melanitis bela varaha var. *gokala*, Bingham, 1905, p. 160.

Melanitis phedima gokala, Fruhstorfer, 1908 *a*, p. 82.

Melanitis gokala, Bell, 1909, p. 457 (early stages and habits).

Melanitis phedima gokala, Fruhstorfer, 1911, p. 364 (=wet-season form).

Melanitis zitenius gokala, Evans, 1932 *a*, p. 126.

Melanitis aculeata, Hampson, 1889, p. 351 (Nilgiri Hills, northern slopes and Mysore forests, 3,000 feet).

Melanitis gokala f. *aculeata*, Moore, 1893, p. 134, pl. cxxix, figs. 1 *b*, *c*, *d*, *e* (♂♀ types).

Melanitis phedima gokala f. *aculeata*, Fruhstorfer, 1911, p. 364 (=dry-season form).

♂♀. Seasonal forms not very marked. *Upperside* of fore wing with black spots more or less prominent, the white spot in particular; subapical costal bar pale ochraceous in male, more dull in female. Outer margin prominently angled below vein 5, in female strongly falcate.

Underside of fore wing, in wet-season form, with discal line prominent; male with apical area yellowish; dry-season form pale smoky-grey, with basal black patches which are more prominent in the male.

The name **aculeata** Hampson can be used to denote the dry-season form.

Expanse: ♂♀, 75–85 mm.

The early stages are described in the introduction to *zitenius*.

Habitat.—SOUTH INDIA; not common, and usually rare.

407 *c*. **Melanitis zitenius kalinga** Moore.

Melanitis kalinga, Moore, 1883, p. 137, pl. cxxxi, figs. 2, 2 *a* (♂, Upper Godaveri District).

Melanitis zitenius kalinga, Fruhstorfer, 1908 *a*, p. 83; *id*., 1911, p. 366; Evans, 1932 *a*, p. 126.

♂♀. Very similar to nominotypical *zitenius*. *Upperside* of fore wing with the ochraceous band very wide, narrowing posteriorly to below vein 2, its outer edge well defined and less

sharply angled than margin of wing; a rounded black spot, with white dot in area 4, very prominent.

Underside purplish-brown or dusky ochraceous; bands indistinct; ocelli represented by minute, almost obsolete, spots.

A form of the dry-season.

Expanse: ♂♀, 75–85 mm.

Habitat.—SOUTH INDIA. Only known from the upper Godaveri District where it is rare.

407 *d*. **Melanitis zitenius auletes** Fruhstorfer.

Melanitis zitenius auletes, Fruhstorfer, 1908 *a*, p. 83 (♀, Tong-king, Tenasserim); *id.*, 1911, p. 366; Evans, 1932 *a*, p. 127 (Dawna Range to S. Burma).

Melanitis zitenius, Bingham (*non* Herbst) (part.), 1905, p. 162 (♀, Tenasserim).

♂♀. The name is founded upon the wet-season form, but seasonal forms not very marked. *Upperside* of male dull ferruginous, without markings; of female, fore wing with costal ochraceous bar forming a broad even band to tornus, becoming dusky posteriorly; no black spots or, at most, two dots in areas 3 and 4.

Specimens of the dry season are smaller but otherwise only differ in that the female has the *upperside* ochraceous markings more restricted.

Expanse: ♂♀, 75–85 mm.

Habitat.—DAWNA RANGE to SOUTHERN BURMA, Tong-king, and Malaya; rare in the Indian area.

407 *e*. **Melanitis zitenius andamanica** Evans.

Melanitis zitenius andamanica, Evans, 1923, p. 791; *id.*, 1932 *a*, p. 127 (Andaman Is.).

Melanitis zitenius, Wood-Mason & de Nicéville (*non* Herbst), 1881 *b*, p. 244 (♂, Andaman Is.).

Wet-season form.—♂. *Upperside* of fore wing with costal ochraceous bar restricted to areas 5 and 6; black spots and white dots absent.

♀. Resembles this sex of *auletes*.

Expanse: ♂♀, 70–85 mm.

Habitat.—ANDAMAN ISLANDS; rare, especially the female.

Genus **CYLLOGENES** Butler.

Cyllogenes, Butler, 1868, p. 6; Marshall & de Nicéville, 1883, pp. 97, 260, pl. xiii; Moore, 1891, p. 155; *id.*, 1893, p. 137 (type, *suradeva* Moore); Bingham, 1905, p. 162; Fruhstorfer, 1911, p. 369; Evans, 1932 *a*, pp. 96, 127.

Type of the genus, *C. suradeva* (Moore).

♂♀. Differs from *Melanitis* in both wings being broader,

with a much broader cell. Fore wing of male with vein 1 very short, terminating shortly before the middle of inner margin; vein 2 ends at the tornus; one species with a black discal brand of modified scales on upperside in male. Hind wing broadly caudate at vein 4; vein 7 produced to apex of wing; vein 8 terminates on basal half of costa. In other respects the venation is similar to that of *Melanitis*.

Underside of wings with cryptic markings and colouring.

Antenna less than half length of fore wing; club shorter and broader than in *Melanitis*; palpus as in *Melanitis*; eye naked; mid and hind femur scaled, slightly longer than tibia.

Distribution.—SIKKIM to BHUTAN and ASSAM. Two species, both rare.

Key to Species of Cyllogenes.

1. Fore wing upperside with a narrow yellow band, not reaching outer margin; ♂ with a black brand.	*suradeva* (Moore), p. 377.
2. Fore wing upperside with a broad yellow band, reaching outer margin; ♂ without a brand	*janetæ* de Nicév., p. 378.

408. **Cyllogenes suradeva** (Moore).

Melanitis suradeva, Moore, 1857, p. 225.
Cyllo suradeva, Moore, 1865 *a*, p. 770 (Bengal).
Cyllogenes suradeva, Marshall & de Nicéville, 1883, p. 260, pl. xiii, fig. 30 (♂♀, Sikkim); Moore, 1893, p. 138, pl. cxxxii, figs. 1, 1 *a*, *b* (♂♀); de Nicéville, 1894 *a*, p. 129 (Sikkim, 2,000 feet); Bingham, 1905, p. 163; Fruhstorfer, 1911, p. 369, t. 96 *c*; Evans, 1932 *a*, p. 127, pl. xiv, fig. D 23. 1 (♂).

♂♀. *Upperside* vandyke-brown, with a strong purple tinge. Fore wing with a subapical, narrow, yellow band from costa to a little below vein 5, but not reaching outer margin. Hind wing without markings.

Underside dull ochraceous-white, somewhat closely striated with brown; both wings with a post-discal, dark, slightly diffuse band; a post-discal series of obscure, incomplete, small, white, ocellate spots; post-discal band broader in female, and in male bordered outwardly by a broad diffuse purplish band.

Antenna, head, thorax and abdomen pale brown, dull ochraceous-white beneath; antenna tipped with bright ochraceous.

♂ with a large black brand on fore wing upperside, occupying the basal parts of areas 2 to 5 and end of cell.

Expanse: ♂♀, 75–85 mm.

Habitat.—SIKKIM and BHUTAN; rare.

409. **Cyllogenes janetæ** de Nicéville.

Cyllogenes janetæ, de Nicéville, 1887 *b*, p. 453 (♂♀, Bhutan); Elwes, 1891, p. 269 (Naga Hills); Moore, 1893, p. 139, pl. cxxxii, figs. 2, 2 *a* (♂); de Nicéville, 1894 *a*, p. 129 (Bhutan, very rare); Bingham, 1905, p. 163; Tytler, 1911, p. 54, pl. A, fig. 7 (♀) (Naga Hills, 6,000 feet); Fruhstorfer, 1911, p. 369; Evans, 1932 *a*, p. 127.

♂♀. Fore wing with outer margin angulate below apex. *Upperside* without a purple tinge in male, a faint one in female. Fore wing with subapical yellow band broader than in *suradeva*, and more curved, continued along outer margin narrowly to tornus; male without a sex-patch. Hind wing with outer margin broadly, but very obscurely, yellow.

Underside very much darker than in *suradeva*, the striæ coalescing in places and shading the wings irregularly with brown.

Antenna, head, thorax and abdomen as in *suradeva*, but much darker.

Expanse: ♂♀, 90–95 mm.

Habitat.—BHUTAN and ASSAM; very rare.

Genus **PARANTIRRHŒA** Wood-Mason.

Parantirrhœa, Wood-Mason, 1880 *a*, p. 248 (Travancore); Marshall & de Nicéville, 1883, pp. 97, 261, figs. A, B, C (structure); Moore, 1891, p. 155; *id.*, 1893, p. 139 (type *marshalli* W.-M.); Bingham, 1905, p. 164; Fruhstorfer, 1911, p. 369; Evans, 1932 *a*, pp. 96, 127.

Type of the genus, *P marshalli* Wood-Mason.

♂♀. Fore wing triangular; costa gently arched, apex acute, outer margin nearly straight, inner margin strongly excurved at the middle; cell short and broad; *ldc* long, slightly incurved; *mdc* less than half length of *ldc*; *udc* rudimentary; veins 2, 3, and 4 well separated; vein 5 from above middle of cell; vein 6 from close to upper angle; veins 7 and 8 on a long stalk; vein 12 very long, terminating well distad of the fork of 7 and 8, and appearing to emit four branches; vein 9 arises nearer to the fork of 7 and 8 than to the cell, and after anastomosing with 12 reaches costa midway between 12 and 10; vein 10 arises just beyond end of cell, and after anastomosing with 12 reaches costa well beyond vein 11; vein 11 arises just before end of cell, and after anastomosing with 12, reaches costa well beyond end of cell; veins 1 *a* and 1 *b* (the single submedian vein) strongly recurved to the inner margin near base, then curved upwards in a longer distal curve, terminating well before the tornus. The lobe of inner margin is folded back on underside where it is adherent to the wing; this lobe is thickly clothed with modified scales, the whole being rich dark brown, with a satiny lustre; the outline of the turned-up lobe is indicated on upperside by

a curvilinear groove. Hind wing subquadrate ; costa strongly and irregularly arched ; outer and inner margins nearly straight, the former produced to a tail at vein 4 ; cell short and narrow, less than half width of wing from base to outer margin ; veins 3 and 4 approximate from lower angle of cell, 5 from upper angle, 6 from midway between 5 and 7, 7 from about midway between 6 and 8 ; vein 8 shorter than 7, and stalked with the short precostal which is directed basad. Male with an oval black brand on vein 1 *b* near tornus.

Antenna rather slender and short, about a third length of costa of fore wing, club distinct ; eye naked ; palpus clothed with short hairy scales ; abdomen slender.

Distribution.—South India. Only a single rare species known of this remarkable genus.

410. **Parantirrhœa marshalli** Wood-Mason.

Parantirrhœa marshalli, Wood-Mason, 1880 *a*, p. 250 ; Marshall & de Nicéville, 1883, p. 262, fig. (♂) ; Moore, 1893, p. 140, pl. cxxxii, figs. 3, 3 *a* (♂) ; Bingham, 1905, p. 165 ; Fruhstorfer, 1911, p. 369, ♂.

Parantirrhœa marshallii (sic), Evans, 1932 *a*, p. 127 (Travancore ; Coorg).

♂. *Upperside* dark brown, suffused with deep violet. Fore wing with a post-discal, oblique, slightly curved, pale violet band, from vein 12 to near margin at vein 2, narrowing posteriorly ; three small white spots, within the band, in areas 2 to 4. Hind wing with costal area broadly pale ochraceous.

Underside pale ochraceous, striated with brown. Fore wing with a post-discal, broad, ill-defined, somewhat diffuse ochraceous-brown band, parallel with outer margin. Hind wing with a similar post-discal band to that of fore wing, but curved outwards from costa to the tail, below which it merges in a broad diffuse patch of similar colour.

♀. Similar to male, but *upperside* of fore wing with two post-discal, narrow, yellow bands, and a series of post-discal white dots.

Expanse : ♂♀, 55–65 mm.

Habitat.—South India : Travancore and Coorg ; rare, especially the female.

Genus **ELYMNIAS** Hübner.

Elymnias, Hübner, 1818, figs. 37, 38 (*jynx* Hübner) ; *id.*, 1819, p. 37 ; Scudder, 1875, p. 161 (type, *E. lais* Cram.) ; Marshall & de Nicéville, 1883, p. 264, pl. xvii ; Moore, 1893, p. 144 (type, *undularis* Drury) ; Bingham, 1905, p. 169 ; Fruhstorfer, 1907, p. 157 (monograph) ; *id.*, 1911, p. 370 ; Evans, 1932 *a*, pp. 96, 127.

Dyctis, Boisduval, 1832, p. 138 ; Butler, 1871 *b*, p. 523 ; Marshall & de Nicéville, 1883, p. 275, pl. xvii.

Melynias, Moore, 1893, pp. 144, 156 (type, *lais* Cramer).
Bruasa, Moore, 1893, pp. 144, 164 (type, *penanga* Westwood).
Mimadelias, Moore, 1893, pp. 144, 165 (type, *vasudeva* Moore).
Mimidelias (sic), Fruhstorfer, 1911, p. 391 (=subgenus).
Agrusia, Moore, 1893, pp. 144, 169 (type, *esaca* Westwood).

Type of the genus, *E. nesæa* (Linn.) (=*lais* Cram.) from Java.

♂♀. Wings ample; outer margins uneven, generally scalloped, entire only in a few forms. Fore wing short and broad or elongate, moderately narrow; cell broad, short, well under half length of wing; *udc* very short, outwardly oblique; *mdc* vertical, not half length of *ldc*; *ldc* strongly incurved; veins 3 and 4 from lower angle of cell, vein 4 curved strongly upwards; veins 10 and 11 from before upper angle of cell; vein 12 swollen at base. Hind wing short and broad, oval, generally more or less caudate at vein 4, sometimes also shortly caudate at veins 1 *b* to 3; cell very short and broad; *udc* nearly horizontal, *mdc* vertical, *ldc* incurved; a distinct precostal cell present, veins 3 and 4 from lower angle of cell; vein 8 very short.

Antenna short, less than half length of fore wing, club gradual; palpus obliquely porrect, tufted posteriorly, with somewhat thickset adpressed hairs in front; eye naked and prominent; mid and hind femur longer than tibia, scaled, not hairy.

Male of some species with a brand, covered by a tuft of long hair, placed below vein 1 on fore wing; a similar scent-organ on hind wing, placed within cell near base. These scent patches are, in the majority of Indian forms, present only on hind wings.

Underside of all species closely striated, the pattern essentially cryptic; ocelli rarely present.

Genitalia.—Valve broad, anteriorly slightly narrowed, sparsely dentate or not at all, feebly spinose. Side lobes very slender.

Early stages (from Fruhstorfer, 1911):—

Egg.—Spherical, whitish.

Larva.—Green, centrally somewhat thickened, finely pubescent; head narrow, yellow or brown; body with dorsal and lateral longitudinal stripes; middle segments with a few red, blue-ringed spots. Feeds only on species of Palm.

Pupa.—Green, with red or yellow streaks and spots; head with two pointed horns; attached firmly by cremaster in a horizontal position.

Habits.—The butterfly frequents wooded areas up to about 2,000 feet usually. It prefers the shade, and flies only in the morning.

This genus is remarkable for the mimetic character of most, if not all, of the species. Both sexes have developed these mimetic patterns, but particularly the female. The models

belong chiefly to the Danaidæ, but forms of *Chilasa* (Papilionidæ), of *Delias* (Pieridæ), and of *Euthalia* (Nymphalidæ) are also resembled. The female of a New Guinea species strongly resembles *Tenaris* (Amathusiidæ).

This genus was formerly considered as representing a separate subfamily, and as such was divided by Moore into five "genera." These divisions represent no more than species-groups at most, just as in the case of *Mycalesis* and *Lethe*. Only two of these groups can be said to possess sufficiently distinctive characters, and these are retained here as species-groups.

Distribution.—INDIA and BURMA to Tong-King, Hainan, and Formosa, and throughout the Indo-Australian Region to the Papuan area and North Australia. An allied genus occurs in Africa. Twelve species are found in the Indian area.

Key to Groups and Species of Elymnias.

1. ♂. Fore wing upperside without a brand. Hind wing upperside with a brand at base of area 6, extending to cell and area 7, and covered by one or two hair-pencils	2. (HYPERMNESTRA Group).	
♂. Fore wing upperside with a brand at middle of vein 1, covered by a hair-pencil. Hind wing with a brand as in first group, covered by one hair-pencil ..	12. (ESACA Group).	
2. Fore wing with apex not produced.	3.	
Fore wing with apex produced. .	6.	
3. ♂ hind wing with two hair-pencils.	4.	
♂ hind wing with one hair-pencil; caudate at vein 4	5.	
4. Fore wing upperside with outer margin not chestnut; usually with blue or white spots. ♀ tawny; fore wing upperside with subapical white band..		*hypermnestra* (Linn.), p. 383.
Fore wing upperside with outer margin chestnut. Upperside without spots, except rarely in ♀, sexes alike. ..		*cottonis* (Hew.), p. 387.
5. Hind wing underside with prominent ocelli; also in ♀ on upperside, on a pale outer border ...		*panthera* (Fabr.), p. 389.
Hind wing underside without ocelli, but with small ocellate spots; ♂♀ upperside dark brown; both wings with a broad white band..		*dara* Dist., p. 390.
6. Outer margin of both wings scalloped.	7.	
Outer margin of both wings entire. Fore wing apex acute, outer margin incurved; discal broad blue streaks		*penanga* (Westw.), p. 398.

7.	Fore wing upperside dark brown, without discal markings. Hind wing caudate	8.
	Upperside marked with streaks or spots	9.
8.	Fore wing upperside with outer margin narrowly pale. Hind wing distal third pale yellowish-white, striated with dark brown	*singhala* Moore, p. 391.
	Fore wing upperside with outer margin broadly dull blue. Hind wing of ♂ dull chestnut at tornus, of ♀ bright chestnut at tornus. Hind wing underside with white spot in area 7 prominent. . .	*pealii* W.-M., p. 392.
9.	Upperside dull greenish-blue, all veins broadly black. Hind wing caudate	*nesæa* (Linn.), p. 392.
	Upperside dark brown, with discal blue or white markings. Fore wing apical area shot with blue. Hind wing only caudate in *casiphone*.	10.
10.	Fore wing upperside markings consisting of spots; two in area 3, and often in area 2. ♀ more or less striped	11.
	Fore wing upperside markings consisting of broad blue or purple stripes, single in areas 3 and 2. Hind wing with a post-discal row of small white spots. Sexes alike.	*patna* (Westw.), p. 397.
11.	♂ fore wing upperside with a spot in cell and in basal half of area 2. ♀ not blue at apex	*malelas* (Hew.), p. 394.
	♂ fore wing upperside without cell-spot; ♀ apical area deep blue. ♂ hind wing with one hair-pencil. Underside dark and much mottled	*casiphone* Geyer, p. 396.
12.	Fore wing upperside bluish-white, veins broadly black. Hind wing inner two-thirds white or yellowish; underside with inner half yellow, and usually with a black-edged red area at base of areas 1 *b* and 1 *c*	*vasudeva* Moore, p. 400.
	Upperside dark brown; outer margins broadly bluish-green. Fore wing apex not produced; costa not longer than inner margin	*esaca* (Westw.), p. 401.

Hypermnestra Group.

(*Elymnias* Hübn., *Dyctis* Boisd., *Melynias* Moore, *Bruasa* Moore).

This group represents the true *Elymnias*, and the characters are sufficiently described in the key. Only two species in the whole genus do not belong to this group.

Elymnias hypermnestra (Linnæus), 1763.

Sexes usually different. ♂. *Upperside* dark brown. Fore wing with a subapical blue or bluish-green band; a submarginal row of similarly coloured spots, usually prominent. Hind wing more or less caudate at vein 4; an outer chestnut border.

Underside brown, grey, or ochraceous; outer margins with a narrow, well-defined, dark border.

♀. *Upperside*, except in *caudata*, largely reddish-brown. Fore wing with a subapical white band; three submarginal white spots. Hind wing, except in *caudata*, with outer dark border bearing three or four white spots.

Underside similar to male.

The female is a good mimic of *Danaus plexippus* (Linn.) and *D. chrysippus* (Linn.).

Early stages and habits: see under *E. hypermnestra caudata* Butl.

Distribution.—CEYLON, INDIA, BURMA, Tong-king, Siam, Annam, Malaya, Java, and Bali. Four subspecies in the Indian area.

411 *a*. **Elymnias hypermnestra fraterna** Butler.

Elymnias fraterna, Butler, 1871 *b*, p. 520, pl. xlii, fig. 3 (♂); Marshall & de Nicéville, 1883, pp. 265, 268, ♂♀; Moore, 1893, p. 149, pl. cxxxiv, fig. 1 (larva, pupa), figs. 1 *a*, *b*, *c*, *d*, *e* (♂♀).
Elymnias hypermnestra fraterna, Fruhstorfer, 1907, p. 179; *id.*, 1911, p. 375.
Elymnias fraterna, Ormiston, 1918, p. 16 (Ceylon).
Elymnias undularis fraterna, Bingham, 1905, p. 172.
Elymnias hypermnestra fraterna, Evans, 1932 *a*, p. 128; Peile, 1937, p. 108, pl. xii, fig. 103 (♀); Woodhouse & Henry, 1942, p. 48, pl. vi, figs. 1 (♂), 2 (♀), pl. xxxix, fig. 5 (larva, pupa).
Elymnias merula, Swinhoe, 1915, p. 171 (♂, Kandy).

♂. *Upperside* blackish-brown. Fore wing with two or three subapical small blue spots. Hind wing with outer broad bright chestnut border, bearing four small white spots.

Underside dark, with reddish-brown striation. Fore wing with two costal, triangular, whitish patches; a white cell-dot. Hind wing with a white dot in area 7

♀. *Upperside* of fore wing with proximal posterior area tawny; costal border, apical half, distal border, and inner margin blackish-brown; a subapical broad, white band, from costa to vein 4; three submarginal white spots. Hind wing with proximal two-thirds tawny, its edge well-defined; a submarginal row of four prominent, rounded, white spots; an outer marginal tawny line.

Underside paler than male. Fore wing with a large, costal, whitish, triangular patch. Hind wing with submarginal, diffuse, white spots.

Expanse : ♂♀, 60–80 mm.

Habits (from Ormiston, 1918) :—The butterfly is common in the coconut districts, and occurs up to 3,000 feet. Its flight is slow, and it settles low down. On the wing the female is a good mimic of *D. plexippus*, as it is seen from above.

Habitat.—CEYLON ; common.

411 *b*. **Elymnias hypermnestra caudata** Butler. (Pl. I., fig. 6, ♂ ; fig. 98, larva and pupa).

Elymnias caudata, Butler, 1871 *b*, p. 520, ♂♀, pl. xlii, fig. 4 (♀) (Kanara) ; Marshall & de Nicéville, 1883, pp. 265, 270, ♂♀ ; Hampson, 1889, p. 351 (Nilgiri Hills, 1,000 feet) ; Moore, 1893, p. 150, pl. cxxxv, figs. 1, 1 *a* (larva, pupa), figs. 1 *b*, *c*, *d* (♂♀) ; Bingham, 1905, p. 173, pl. iii, fig. 25 (♂) ; Bell, 1909, p. 465, pl. i, figs. 2, 2 *a* (larva, pupa) ; Evans, 1910, p. 382 (Palni Hills, 3,000 feet, rare) ; Fruhstorfer, 1907, p. 183 ; *id.*, 1911, p. 376, t. 87 *a*, *b* (♂♀).

Elymnias hypermnestra caudata, Evans, 1932 *a*, p. 128 ; Peile, 1937, p. 108.

♂♀. Wings longer than in other forms of the species, and hind wing with a longer tail at vein 4.

♂. *Upperside* differs from *undularis* Drury as follows :—Fore wing submarginal and subapical spots white, with a slight dark suffusion. Hind wing distal half tawny, more or less

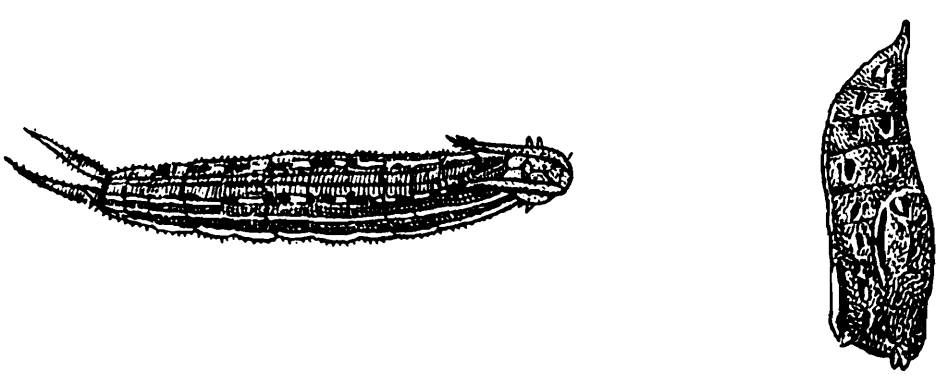


Fig. 98.—*Elymnias hypermnestra caudata* Butl. Larva and pupa. (After *Davidson & Aitken*, 1891).

suffused with dusky black which, in some specimens, forms a distinct marginal border.

Underside differs from *undularis* on fore wing in the more conspicuous broadly-triangular white subapical patch ; on hind wing in the pale, sometimes pinkish-brown, distal area.

♀. Similar to *undularis*, but the black area more extended. Hind wing with veins 2, 3, and 4 broadly bordered with black.

Antenna, head, thorax and abdomen brown, paler beneath, and much paler in female.

Expanse : ♂♀, 65–80 mm.

Early stages and habits (from *Bell*, 1909) :—

Larva.—Head rugose, bearing two stout blunt horns; dark chocolate, face marked with white bands. Body and anal processes covered with small tubercles, each bearing a short hair; bright emerald-green; a subdorsal yellow line; a lateral yellow line, formed by triangles, one to each segment, each centred with red, and sometimes edged with black anteriorly; a submarginal and a marginal yellow line; a lateral row of dark green dots sometimes present near hind margin of each segment, but generally obsolescent, especially on the posterior abdominal segments; anal processes reddish-yellow above, black beneath. Length 55 mm.; breadth, 6 mm.; length of anal processes 5 mm., of horns, nearly 3 mm.

Pupa.—Bright velvety grass-green; carina on segments 2 to 4 yellow; head processes white, with a dorsal black line; apex of thoracic carina marked with rose on each side; thorax with a lateral yellow spot, touched with rose; inner margin of wings more or less broadly yellow; segment 4 with a yellow rose-centred spot in its anterior angles; a subdorsal row of rose and yellow spots on segments 6 to 10, that on segment 8 having a black centre; a similar lateral spot on segments 8 to 10; segment 13 with a subdorsal black and yellow spot on front margin, and a black spot on each side of ventral line; cremaster with two black spots at base. Length 22 mm; breadth 6 mm.

Habits.—The egg is laid on underside of a leaf of a palm in a cool place. The larva lives on the underside of the leaf, fully extended, with venter closely applied to surface of leaf. Owing to its bright colours it is not difficult to see. It generally pupates on the last leaf it has been eating. Pupa attached very firmly, sometimes fixed so that its longitudinal axis is parallel to leaf surface. The pupa is a conspicuous object, and would be very easy to find were it not that it is generally placed near the ground, in a dark or very shady place, on the underside of a drooping leaf.

The butterfly is never found in the open, venturing at most on to the borders of small clearings in its native jungles. The male is fond of sitting on a leaf about ten or twelve feet off the ground, sunning itself in the chequered light that filters through the dense canopy overhead. It sits with wings closed, very rarely partially opened, for a considerable period at a time. It is fairly strong on the wing, and does not descend to the ground. The female is not often seen except when engaged in laying eggs.

Habitat.—South India; not rare.

411 *c*. **Elymnias hypermnestra undularis** (Drury).

Papilio undularis, Drury, 1773, pl. x, figs. 1, 2 (♂).
Melanitis undularis, Moore, 1865 *a*, p. 770 (Bengal).
Elymnias undularis, de Nicéville, 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 265, 266, pl. xvii, fig. 59 (♂♀, Calcutta); de Nicéville, 1885 *a*, p. 43 (Calcutta, common); Doherty, 1886 *a*, p. 120 (Kumaon, 1,000 feet); Elwes & de Nicéville, 1887, p. 419 (Tavoy); Wood-Mason & de Nicéville, 1887, p. 352 (Cachar); Taylor & de Nicéville, 1888, no. 25 (Orissa, not common); Moore, 1893, p. 145, pl. cxxxiii, fig. 1 (larva), figs. 1 *a*, *b*, *c* (♂♀); de Nicéville, 1984 *a*, p. 129 (Sikkim, common at low elevations); MacKinnon & de Nicéville, 1897, p. 221 (Mussooree and Dehra Dun, below 3,000 feet, not common); Watson, 1897, p. 651 (Upper Chindwin, common); Bingham, 1905, p. 171; Bell, 1909, p. 464; Hannyngton, 1910, p. 137 (Kumaon, 2,000 to 5,000 feet, ♂ common, ♀ scarce); Tytler, 1911, p. 54 (Naga Hills, common).
Elymnias hypermnestra undularis, Fruhstorfer, 1907, p. 176; *id.*, 1911, p. 375; Evans, 1932 *a*, p. 128, pl. xiv, figs. D 25. 1 (♂♀); Peile, 1937, p. 108, pl. xii, fig. 102 (♂).

♂. *Upperside* blackish-brown. Fore wing with a submarginal series of blue or sometimes slightly green elongate spots, curving strongly inwards and becoming more elongate near apex, forming almost an oblique bar to costa. Hind wing with outer margin broadly bright chestnut, sometimes with a submarginal paler spot or spots.

Underside pale brown, the basal two-thirds of both wings densely, the outer third more sparsely, striated with dark ferruginous. Fore wing with a subapical, broadly triangular, pale purplish-white marking; both wings with a submarginal broad purplish-white area. Hind wing with a small white spot at about middle of area 7; a more or less complete series of submarginal, obscure, whitish spots.

Antenna, head, thorax and abdomen brown; abdomen paler beneath.

♀. *Upperside* tawny, veins black. Fore wing with inner margin broadly black; apical area, beyond a line curving from tornus, round apex of cell, and a little beyond it to base of costa, also black; a subapical, broad, oblique white band; three submarginal white spots.

Underside tawny, markings similar to those of male, the pale whitish markings more extensive; inner margin broadly without striæ.

Expanse: ♂♀, 72–86 mm.

Early stages (*Sevastopulo*, 1935, p. 18):—

Larva.—" Head square, pinkish-brown outlined with yellow, and divided into a pair of horns. Skin rough and pubescent. Body bright apple-green with a fine double yellow dorsal line, a subdorsal yellow line bearing a red spot on the 8th, 9th and 10th somites and a blue dot on the 8th and 9th. A thin yellow

line running along just above the spiracles with another below it. The last somite produced into a pair of processes about ¼ inch long, yellow at the base and shading into reddish at the apex. In some examples the red dorsal spots are obsolete.

Pupa.—" Apple-green. Head divided into two short horn marked at the base with pink. Upper edge of wing-case marked with pink and with a pink spot in the cell. Thorax keeled, the keel yellow outlined in pink, with two subdorsal pink spots Abdomen with a subdorsal line broken up into yellow and pink spots. Trace of a similar lateral line. The last abdominal somites strongly curved so that the pupa, instead of hanging, lies parallel to the leaf to which it is attached. Fixed to the underside of a leaf of the foodplant by the cremaster.

Foodplant.—" Palms of various species."

(In the above description the 1st somite is the first thoracic somite).

Habitat.—BENGAL, and from DUN to NORTHERN BURMA; common.

Wood-Mason (1887) records that the males emit a strong odour resembling vanilla.

411 *d*. **Elymnias hypermnestra tinctoria** Moore.

Elymnias tinctoria, Moore, 1879 *a*, p. 826 (♂, Meetan, Upper Tenasserim, 3,000 feet; Moolai, 3,000–6,000 feet); Marshall & de Nicéville, 1883, pp. 265, 267, ♂♀; Moore, 1886, pp. 32–33, ♀ (Mergui and King Island); *id*., 1893, p. 148, pl. cxxxiii, figs. 2, 2 *a*, *b* (♂♀); Adamson, 1905, p. 168 (Burma, very common).

Elymnias hypermnestra tinctoria, Fruhstorfer, 1907, p. 177; *id*., 1911, p. 375; Ellis, 1917, p. 107 (Pegu Yoma, not common); Evans, 1932 *a*, p. 128.

Elymnias hypermnestra tinctoria ♀ f. *paraleuca*, Fruhstorfer, 1911, p. 375; Evans, 1932 *a*, p. 128.

♂. Differs from *undularis* on *upperside* of fore wing in the blue spots being more strongly developed and contiguous, extending often to apical part of hind wing.

♀. Outer dark borders broader than in *undularis*.

♀ *form* **paraleuca** Fruhstorfer.—Hind wing upperside with discal area white.

Expanse: ♂♀, 72–86 mm.

Habitat.—SOUTHERN BURMA and MERGUI ISLANDS; common.

Elymnias cottonis (Hewitson).

♂♀. Sexes similar. *Upperside* velvety black; outer margins bordered with chestnut-brown.

Underside thickly striated with very dark ferruginous.

Distribution.—KAREN HILLS to SOUTHERN BURMA, MERGUI and ANDAMAN ISLANDS. Two subspecies.

412 *a*. **Elymnias cottonis cottonis** (Hewitson).

Melanitis cottonis, Hewitson, 1874, p. 358 (Andaman Is.).
Elymnias cottonis, Moore, 1877 *b*, p. 583; Wood-Mason & de Nicéville, 1880 *a*, p. 226 (♂♀, Andamans); *id.*, 1881 *b*, p. 245; Marshall & de Nicéville, 1883, pp. 265, 268, ♂♀; Moore, 1893, p. 151, pl. cxxxvi, figs. 1, 1 *a*, *b* (♂♀); Bingham, 1905, p. 173.
Elymnias cottonis cottonis, Fruhstorfer, 1907, p. 183; *id.*, 1911, p. 376, t. 87 *b*; Evans, 1932 *a*, p. 128.

♂. *Upperside* rich velvety black; both wings with outer margins broadly chestnut-brown.

Underside dull brown, thickly striated and blotched with very dark ferruginous, more dense over proximal areas; fore wing with a prominent subcostal, subtriangular, pale patch; hind wing with a subcostal white spot.

Antenna brown; head, thorax and abdomen darker velvety brown.

♀. Similar to the male. *Upperside* dark smoky brown; outer margins paler chestnut-brown, with a series of diffuse white spots, sometimes more or less obsolescent.

Underside similar to male, but the ferruginous striæ more scattered and open.

Expanse: ♂♀, 70–80 mm.

Habitat.—ANDAMAN ISLANDS; not rare.

412 *b*. **Elymnias cottonis obnubila** Marshall. (Pl. I, fig, 7, ♂).

Elymnias obnubila, Marshall, 1883, pp. 265, 272 (♂♀, Upper Tenasserim; Mergui); Moore, 1886, p. 33 (King Island); Elwes, 1891, p. 269 (Karen Hills, 2,000 feet); Moore, 1893, p. 153, pl. cxxxvii, figs. 1, 1 *a* (♂ type), 1 *b* (♀).
Elymnias cottonis obnubila, Bingham, 1905, p. 173, pl. iii, fig. 26 (♂); Fruhstorfer, 1907, p. 184; *id.*, 1911, p. 376; Evans, 1932 *a*, p. 128.

♂. Closely resembles the nominotypical form, but hind wing is more prominently caudate at vein 4. *Upperside* slightly paler; outer chestnut borders much broader and paler. Fore wing brown at the apex, the chestnut border being continued as an oblique subapical band to costa.

Underside distally paler, with a pinkish tint. Fore wing with paler subapical patch. Hind wing with a post-discal series of six black dots with inward specks of diffuse white.

♀. Larger and paler, with chestnut borders much broader. *Upperside* of hind wing with two or three post-discal black spots.

Expanse: ♂♀, 65–75 mm.

Habitat.—KAREN HILLS to SOUTHERN BURMA and MERGUI ISLANDS; rare.

Elymnias panthera (Fabricius), 1787.

♂. *Upperside* dark smoky brown, with outer pale borders. Hind wing with a single hair-pencil; caudate at vein 4.

Underside coarsely striated with brown. Hind wing with six small but prominent ocelli.

♀. Both sides paler than the male. *Upperside* with outer borders dusky white. Hind wing with two or more ocelli.

Early stages (from Fruhstorfer, 1911) :—

Egg.—Spherical, milk-white, a few black spots on the pole, and slightly flattened where it rests on the upper side of a palm leaf. Larva emerges in four days.

Larva.—Yellowish-white upon emergence; after feeding, yellow-green, with a black head; head with two black spines inclined backwards, from each of which runs a dorsal pale line to the blackish anal spines. After the first moult the larva has in addition, two subdorsal yellowish stripes, and the body is covered with small yellowish tubercles. After the fourth moult the full-grown larva is 30 mm. long, and sap-green like the palm leaves on which it feeds; two dorsal yellow stripes, running into the anal spines, and between them two finer yellow median lines; each dorsal stripe with a blue spot on segment 3, a red and blue spot on 4, and a red spot on 5; entire body covered with delicate, apically knobbed hairs, and shows fine transverse ridges. Head red-brown, with a frontal marking like two arms of a Greek cross, beneath which are two yellow protuberances; the black horns are directed backwards, and end in three points; on temples, below insertion of horns, a broad yellow streak, in centre of which are two small yellow cones.

Pupa.—Head with two spines. Thorax with a pointed, nasute, yellow, red-bordered prominence. Green, all the angles yellow, with red streaks; four white, black-margined spots.

Imago appears in eight days.

Distribution.—NICOBAR ISLANDS; Malaya to Sumatra, Java, Bali, Borneo, Sulu, and Palawan. One subspecies in the Indian area.

413. **Elymnias panthera mimus** Wood-Mason & de Nicéville.

Elymnias mimus, Wood-Mason & de Nicéville, 1881 *a*, p. 230 (♂, Car Nicobar; ♀, Pulo Kondul); *id.*, 1882, p. 16, pl. iii, figs. 3, 4 (♂♀); Marshall & de Nicéville, 1883 .pp. 265, 271, ♂♀; Moore, 1893, p. 152, pl. cxxxvi, figs. 2, 2 *a*, *b* (♂♀ types); Bingham, 1905, p. 178.

Elymnias panthera mimus, Fruhstorfer, 1907, p. 217; *id.*, 1911, p. 371; Evans, 1932 *a*, p. 128, pl. xiv, fig. D 25. 3 (♂).

♂. *Upperside* dark vandyke-brown, outer borders paler. Hind wing with one or two post-discal dusky black spots.

Underside brighter brown ; basal two-thirds or more of both wings coarsely striated with brown. Hind wing with the usual subcostal, prominent, white spot, but placed on a black background ; a series of six oval, lilac-centred, pale-ringed black ocelli, the subapical and subtornal two the largest.

♀. Both sides much paler than male ; outer borders of both wings very broadly dusky white. Fore wing with marginal whitish band bent inwards opposite apex, forming a comparatively narrow subapical band which reaches costa.

Antenna, head, thorax and abdomen in both sexes brown.

Expanse : ♂♀, 65–75 mm.

Habitat.– NICOBAR ISLANDS ; not rare.

Elymnias dara Distant, 1887

♂♀. *Upperside* purplish-black. Both wings with a post-discal white band which, on hind wing, bears a row of small, black, ocellate spots. ♂ hind wing with one hair-pencil.

Underside with dark proximal areas and paler distal ones.

Distribution.—BURMA and Siam to Malaya, Sumatra, Java, Borneo, and Palawan. One subspecies in the Indian area.

414. **Elymnias dara dædalion** (de Nicéville).

Dyctis dædalion, de Nicéville, 1890 *a*, pp. 202–3, pl. D, fig. 4 (♀, Myittha, Burma).

Elymnias dædalion, Moore, 1893, p. 154, pl. cxxxvii, figs. 2, 2 *a* (♀) ; Adamson, 1905, p. 168 (♀, Tavoy).

Elymnias dara dædalion, Fruhstorfer, 1907, p. 214 ; *id.*, 1911, p. 373 ; Evans, 1932 *a*, p. 128, pl. xiv, fig. D 25. 4 (♀) ; Tytler, 1939 *a*, p. 248 (♂, Karen Hills).

Elymnias dara, Bingham (*non* Dist.), 1905, p. 178.

♂. *Upperside* purplish-black. Fore wing with a post-discal, curved, white band, from costa to below vein 2, not reaching margin. Hind wing with a post-discal, slightly curved, white band, from costa to inner margin, bearing two or more small, diffuse, rounded black spots.

Underside of both wings with proximal half dark purplish-brown, striated with paler brown ; distal half white, suffused with very pale lavender, and striated with dark purple-brown, becoming denser towards the margin ; both wings with post-discal white bands as on upperside, that on fore wing reaching tornus ; band of hind wing bearing a curved series of purple-black, blue-centred spots.

Antenna, ochraceous; head, thorax and abdomen brown.

♀. Similar to male, but larger, much paler on both sides, and post-discal bands broader and purer white.

Expanse : ♂♀, 60–65 mm.

Habitat.—KAREN HILLS to SOUTHERN BURMA and SIAM ; rare.

415. Elymnias singhala Moore. (Fig. 99, ♂).

Elymnias singhala, Moore, 1874 *b*, p. 568 (♀, Colombo, Ceylon).
Dyctis singhala, Marshall & de Nicéville, 1883, pp. 276, 277, ♂♀.
Melynias singala (sic), Moore, 1893, p. 156, pl. cxxxviii, figs. 1, 1 *a*, *b* (♂♀).
Elymnias singhala, Bingham, 1905, p. 174, fig. 38 (♂); Fruhstorfer, 1907, p. 224; *id.*, 1911, p. 384, t. 88 *d*; Ormiston, 1918, p. 17.
Elymnias singala (sic), Evans, 1932 *a*, p. 128, pl. xiv, fig. D 25. 5 (♂); Woodhouse & Henry, 1942, p. 49, pl. vi, figs. 3 (♂), 4 (♀).

This species appears to be closely allied to *panthera* (Fabr.). It differs especially in the hind wing having a longer tail and being without ocelli.

♂. *Upperside* dark purplish-brown. Fore wing with outer margin broadly speckled with greenish-white, the specks

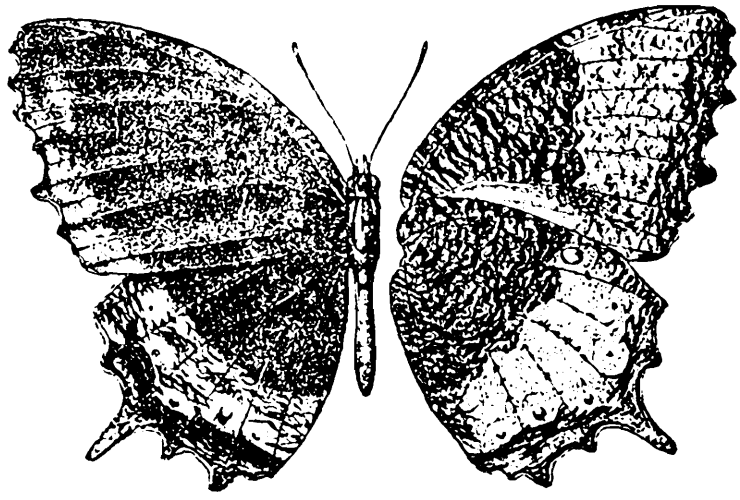


Fig. 99.—*Elymnias singhala* Moore, ♂.

confluent and prominent on posterior half; costa marked with a few spots and specks of similar colour. Hind wing with a long narrow tail at vein 4; outer margin dentate at veins 1 *b*, 2, and 3; a submarginal, broad, irregular band, composed of striæ and blotches of same colour as markings on fore wing.

Underside light brown, striated and speckled with much darker brown, most dense on proximal halves of wings; a submarginal, irregular, very broad, pinkish-brown band, on which the dark striæ and speckles are more scattered; a marginal, more or less darker border. Hind wing, in addition, with a conspicuous subcostal white spot, and a curved series of six or seven small black spots surrounded by white areas.

Antenna brown; head, thorax and abdomen velvety dark brown; abdomen paler beneath.

♀. Similar to male, but brighter and paler.

Expanse: ♂♀, 75–90 mm.

Habitat.—CEYLON; not rare.

Ormiston (1918) reports the species as rare, occurring at Peradeniya and sparingly elsewhere. On the wing it looks very like a *Euplœa*. Evans (1932 *a*) says that the species is not rare.

416. **Elymnias peali** Wood-Mason.

Elymnias peali, Wood-Mason, 1883, p. 62, pl. ii, figs. A, B (♂, Sibsagar, Assam).
Dyctis peali, Marshall & de Nicéville, 1883, p. 276, ♂.
Elymnias peali, Elwes, 1891, p. 269 (Assam : Margherita).
Melynias peali, Moore, 1893, p. 157, pl. cxxxviii, figs. 2, 2 *a*, *b* (♂♀).
Elymnias peali, Bingham, 1905, p. 175 ; Fruhstorfer, 1907, p. 214 ; *id.*, 1911, p. 384 ; Tytler, 1914, p. 227 (♂♀, Manipur ; Naga Hills).
Elymnias pealii (sic), Evans, 1932 *a*, p. 128 ; Tytler, 1939 *a*, p. 248 (♂♀, Putao Road, N.E. Burma).

♂♀. Shape of wings as in *singhala* Moore, with a similar tail to hind wing.

♂. *Upperside* deep velvety purple-black. Fore wing outer margin broadly suffused with pale blue, costa with transverse flecks of the same colour. Hind wing apical area suffused faintly with pale blue, darkening posteriorly to a short post-discal band ; a red spot at tornus ; one hair-pencil.

Underside rich dark ferruginous-brown ; distal area striated diffusely with purplish-lilac. Hind wing with a subcostal, prominent, white spot ; a tornal reddish spot.

Antenna, head, thorax and abdomen velvety brown.

♀. *Upperside* pale purple-brown. Fore wing much darker over area of cell. Hind wing much darker over area of cell and posterior half of wing ; tornal red spot quadrate, larger than in male.

Underside much paler than in male. Fore wing with the dark ferruginous colour restricted to the cell, rest of wing dull white, closely striated with purplish-brown. Hind wing with dark area restricted to the disc posteriorly, and to outer margin ; rest of wing paler as on fore wing.

Expanse : ♂♀, 75–85 mm.

Habitat.—ASSAM to NORTHERN BURMA ; very rare.

Tytler (1939) records that 5 ♂ and 1 ♀ were obtained on the Putao Road, N.E. Burma.

Elymnias nesæa (Linnæus).

♂♀. *Upperside* with a bluish or greenish striped Danaid-like pattern.

Underside densely striated, usually with darker basal areas.

The species is said to mimic *Danaus aglea* (Stoll) and allied forms.

Distribution.—SIKKIM to BURMA, Siam, Malaya, Sumatra, Java, and Borneo. Three subspecies in the Indian area.

417 *a*. Elymnias nesæa timandra Wallace. (Pl. I, fig. 8, ♂).

Elymnias timandra, Wallace, 1869, p. 326 (♂♀, Sylhet); Marshall & de Nicéville, 1883, pp. 265, 275, ♂♀.
Melynias timandra, Moore, 1893, p. 158, pl. cxxxix, figs. 1, 1 *a*, *b*, *c*, (♂♀).
Elymnias timandra, de Nicéville, 1894 *a*, p. 129 (Sikkim, very rare).
Melynias timandra, Adamson, 1905, p. 168 (part.) (Burma).
Elymnias timandra, Bingham, 1905, p. 177, pl. iii, fig. 27 (♂).
Elymnias nesæa timandra, Fruhstorfer, 1907, p. 201; *id.*, 1911, p. 379, t. 87 *c* (♀, *non* ♂); Ellis, 1917, p. 107 (Pegu Yoma, 2,640 feet, rare); Evans, 1932 *a*, p. 128, pl. xv, fig. D 25. 7 (♂).

♂. *Upperside* black, with bluish-green markings. Fore wing with long stripes in areas 1 *a* to 5, and posterior half of cell; some transverse short striæ on basal half of costa; apical area with four or five spots; the stripes cut off short before outer margin, that in area 1 *b* clavate proximally, in area 5 clavate distally. Hind wing with similar stripes to those on fore wing; posterior areas with lunate, white, submarginal markings.

Underside purplish-white, profusely and somewhat irregularly striated, blotched, and speckled with rich dark brown, more scattered over costal area of fore wing, and over posterior median area of hind wing.

Antenna, head, thorax and abdomen dark brown; antenna somewhat ochraceous towards apex; thorax streaked and mottled with greenish-white above; abdomen beneath suffused with greenish-white.

♀. Differs from male on *upperside* in the stripes, especially on hind wing, being suffused with ochraceous; *underside* with mottlings more uniform.

Expanse: ♂♀, 75–85 mm.

Habitat.—Sikkim to Northern Burma; not rare.

417 *b*. Elymnias nesæa cortona Fruhstorfer.

Elymnias nesæa cortona, Fruhstorfer, 1911, p. 379 ("Burma and Tenasserim"); Evans, 1932 *a*, p. 128 (South Burma).

♂. *Upperside* of fore wing with the stripes more blue than green; stripes in 1 *b*, 2 and 3 more or less marked with white; a white spot in 4 outside end of cell. Similarly marked specimens occur amongst *timandra*.

Underside of hind wing paler than in *timandra*.

♀. Very similar to *timandra*. *Upperside* of fore wing with the stripes narrower.

Habitat.—Southern Burma: Tavoy; male not rare.

417 *c*. Elymnias nesæa lioneli Fruhstorfer.

Elymnias nesæa lioneli, Fruhstorfer, 1907, p. 203 (nom. nov. pro *saueri* ♀, de Nicéville); *id.*, 1911, p. 379 (♂♀, Malaya).
Elymnias lais, Distant (*non* Cramer), 1882 *a*, p. 62, pl. ix, fig. 2 (♂).

Elymnias saueri, de Nicéville (*non* Dist.), 1900, p.164, pl. D, fig. 8 (♀, Perak).

♂. *Upperside* resembles *laisides* de Nicéville, from Sumatra. Fore wing with broader black apical border; markings darker green. Differs from *cortona* on fore wing in the discocellulars appearing shorter and less incurved; costal black border narrower. Hind wing tail at vein 4 shorter and less pointed; outer black border narrower; post-discal black spots less heavily marked.

Underside of hind wing with post-discal area darker.

♀. *Upperside* of fore wing with outer margin bordered with chestnut; stripes, excepting that in area 1 *b*, blue more or less, but to a greater extent than in *cortona*; veins 1 *a*, 2, 3, and 4, broadly chestnut-brown; costal black border narrow as in male; black discocellular mark shorter and less incurved than in *cortona*. Hind wing somewhat as in *apelles* Fruhst. from Siam; outer margin only distinctly bordered with chestnut above vein 4; veins narrowly striped with chestnut; cell-stripe narrower than in *cortona*; outer black border narrow as in male.

Underside darker than in *cortona* or *timandra*; fore wing especially more freckled with black.

Habitat.—Malaya to the MERGUI district of Burma; rare.

There is not a male in the British Museum, but there is a female from Hungpru, one from King Island, and two from Malaya. In the King Island specimen, the chestnut colouring and blue markings are more strongly developed.

Elymnias malelas (Hewitson).

♂. *Upperside* dark brown. Fore wing with a distal, large glossy blue area; post-discal and submarginal blue spots; a blue cell-spot. Hind wing either without markings or with submarginal pale spots; two hair-pencils, the basal one black, the outer one cinereous.

Underside light brown. Fore wing with distal area, and hind wing entirely, densely striated with pale ochraceous.

♀. *Upperside* of fore wing with blue area restricted; spots bluish-white; two posterior whitish stripes. Hind wing marked with whitish stripes.

Underside light brown, densely striated with white.

Distribution.—THE HIMALAYAS from Kumaon to Bhutan; ASSAM, BURMA, Malaya, Siam, and Tong-king. Two subspecies in the Indian area.

The larva feeds on banana. The male is said to mimic *Euploea sylvester harrisii* Feld., and the female *Euplœa mulciber* (Cram.).

418 *a*. **Elymnias malelas malelas** (Hewitson).

Melanitis malelas, Hewitson, 1863, *Melanitis*, pl. i, figs. 6, 7 (♂); Moore, 1865 *a*, p. 770 (Bengal).
Melynias malelas, Moore, 1893, p. 159, pl. cxl, figs. 1, 1 *a*, *b* (♂♀).
Elymnias malelas, de Nicéville, 1894 *a*, p. 129 (Sikkim).
Melynias malelas, Adamson, 1905, p. 168 (Burma).
Elymnias malelas, Bingham, 1905, p. 175, pl. iii, fig. 27 (♂); Tytler, 1911, p. 54 (Naga Hills).
Elymnias casiphone malelas, Fruhstorfer, 1907, p. 207.
Elymnias malelas malelas, Fruhstorfer, 1911, p. 381, t. 87 *e*; Evans, 1932 *a*, p. 129, pl. xv, fig. D 25. 8 (♂).
Dyctis leucocyma, Moore (*non* Godart), 1879 *a*, p. 826 (Upper Tenasserim).
Elymnias leucocyma, de Nicéville (*non* Godart), 1882, p. 56 (Sikkim); Marshall & de Nicéville, 1883, pp. 265, 273, pl. xvii, fig. 60 (♂, Sylhet; ♀, Sibsagar); Butler, 1885 *a*, p. 302 (near Assam); Wood-Mason & de Nicéville, 1887, p. 352 (Cachar).
Elymnias malelas malelas, ♀ f. *subdecorata*, Fruhstorfer, 1911, p. 381.

♂. *Upperside* dark brown. Fore wing with a distal glossy blue area; a blue cell-spot; two post-discal blue spots; a submarginal, curved series of larger blue spots. Hind wing very dark chestnut-brown, suffused with fuscous.

Underside dark chestnut-brown; both wings speckled with delicate white striæ towards distal half; fore wing with the usual pale subapical patch.

Antenna, head, thorax and abdomen fuscous-black, paler beneath.

♀. Similar to the male. *Upperside* of fore wing with blue area restricted to apical half; spots whitish; an obscure whitish stripe along inner margin, and a broader similar stripe in area 1 *b*. Hind wing with whitish intraneural stripes, not reaching outer margin, somewhat broken and interrupted in areas 2 to 5, and crossed subapically by a very incomplete row of round black spots; outer margin broadly and evenly dark brown.

Underside much paler than in male, far more closely striated with white.

Antenna, head, thorax and abdomen dusky brown; thorax and abdomen suffused with whitish beneath.

Expanse: ♂♀, 80–100 mm.

♀ *form* **subdecorata** Fruhstorfer.—*Upperside* of hind wing with a prominent submarginal series of yellowish-white spots; normally these spots are usually present, but are small and indistinct.

Habitat.—SIKKIM to BURMA (Dawna Range); not rare. The form *subdecorata* scarce.

Adamson (1905) notes that the butterfly is fairly common in plantain gardens, during the rains, about Moulmein, and also in Upper Burma during the wet season.

418 *b*. Elymnias malelas nilamba Fruhstorfer.

Elymnias malelas nilamba, Fruhstorfer, 1911, p. 381 (Kumaon); Evans, 1932 *a*, p. 129.
Elymnias leucocyma, Doherty (*non* Godart), 1886 *a*, p. 120 (Kumaon, 2,500–3,000 feet).
Elymnias malelas, Hannyngton (*non* Hewitson), 1910, p. 137 (Kumaon).
Elymnias malelas malelas, Gough, 1935, p. 262 (Nepal, 4,500 feet).

♂. Smaller than the nominotypical form. *Upperside* of hind wing with a submarginal series of irregular whitish spots.

Underside more broadly striated with white than the nominotypical form.

♀. Smaller, but otherwise similar to the nominotypical form.

Expanse: ♂♀, 75–85 mm.

Habitat.—KUMAON to NEPAL; rare.

Hannyngton (1910) notes that the butterfly is fairly common on the Nepal border.

Elymnias casiphone Geyer, 1827.

Allied to *malelas*, but apparently not conspecific with it as both occur together in Burma, in the same place.

♂. *Upperside* of fore wing with or without a distal blue area; submarginal blue or bluish-white spots; one or two similar post-discal spots usually present; cell spot usually absent. Hind wing without or with submarginal markings; tail at vein 4 more strongly developed than in *malelas*.

Underside markings rather different from those of *malelas*, much darker, and much mottled with black and brown.

♀. *Upperside* similar to the male, or with a striped pattern resembling *nesæa*.

Underside as in the male.

Distribution.—SOUTHERN BURMA, Malaya, Java, Bali, and Lombok. One Indian subspecies.

419. Elymnias casiphone saueri Distant.

Elymnias saueri, Distant, 1882 *a*, p. 65, pl. ix, fig. 3 (♂); Marshall & de Nicéville, 1883, pp. 265, 274, ♂.
Melynias saueri, Moore, 1893, p. 161, ♂, pl. cxl, fig. 2 (♂).
Elymnias malelas saueri, Bingham, 1905, p. 176; Fruhstorfer, 1911, p. 381, ♂.
Elymnias casiphone saueri, Fruhstorfer, 1907, p. 208; Evans, 1932 *a*, p. 129; Corbet, 1941 *b*, p. 807 (a *casiphone* form).
Elymnias malelas saueri, Corbet, 1937 *a*, p. 97 (♀, Malaya).

♂. *Upperside* of fore wing similar to *malelas*, with distal blue area; cell-spot absent; a post-discal spot in area 3 and one in 5, or these absent; submarginal blue spots more rounded than in *malelas*, the one in 3 placed more distad. Hind wing without markings.

Underside similar to *nesæa*, highly variegated, and much mottled and striated. Fore wing anteriorly suffused with pale lilacine blue ; costa flecked and blotched with a paler shade of the same.

Antenna, head, thorax and abdomen dark brown.

♀. *Upperside* resembles *nesæa hypereides* Fruhstorfer (1911, t. 87 *d*) from Borneo. Differs from this on fore wing in the apical half being deep blue, the intraneural stripes being darker and less prominent, terminating distally in pale spots, forming a submarginal series ; the pale triangular spot beyond end of cell is blue ; basal half of wing chocolate-brown. Hind wing as in *hypereides*, except that the submarginal spots are placed nearer the stripes, their proximal ends deeply incurved.

Underside similar to the male, but paler.

Expanse : ♂♀, 80–82·5 mm.

Habitat.—KAREN HILLS to SOUTHERN BURMA, Siam, and Malaya ; very rare.

The female is very scarce, and still may not be known from Burma. It has been variously but wrongly identified by authors, and was first correctly identified by Corbet (1937 *a*) from Malaya. Males of this species and of *malelas*, both collected in the Karen Hills, and in the Dawna Range, are in the British Museum (ex Coll. Evans).

A female, said to belong to *saueri*, is recorded by Ollenbach (1921, p. 886) from Tavoy. The upperside is described as very like *malelas* female, with a prominent tooth near middle of outer margin of fore wing ; underside resembling *timandra* Wall.

Elymnias patna (Westwood).

♂♀. *Upperside* dark brown. Fore wing with a distal series of broad blue or purple stripes. Hind wing with a post-discal row of small white spots.

Underside paler brown, very slightly striated ; both wings with a post-discal series of bluish-white spots.

This species is said to mimic *Euplœa harrisii* Felder, and *E. midamus* Linn.

Distribution.—THE HIMALAYAS, from Kumaon to Bhutan ; ASSAM, BURMA, Tong-king, and Malaya. Two subspecies in the Indian area.

420 *a*. **Elymnias patna patna** (Westwood).

Melanitis patna, Westwood, 1851, p. 405, pl. lxviii, fig. 2 (East India) ; Moore, 1865 *a*, p. 770 (Bengal) ; Hemming, 1941 *c*, p. 459.

Dyctis patna, de Nicéville, 1882, p. 56 (Sikkim) ; Marshall & de Nicéville, 1883, pp. 276, 277, ♂♀ ; Doherty, 1886 *a*, p. 120 (Kumaon, 2,500 feet) ; Wood-Mason & de Nicéville, 1887, p. 352 (Cachar).

Melynias patna, Moore, 1893, p. 162, pl. cxli, figs. 1, 1 *a* (♂).
Elymnias patna, de Nicéville, 1894 *a*, p. 129 (Sikkim); Watson, 1897, p. 651 (Upper Chindwin); Bingham, 1905, p. 177; Tytler, 1911, p. 54 (Naga Hills).
Elymnias patna patna, Fruhstorfer, 1907, p. 227; *id.*, 1911, p. 374; Evans, 1932 *a*, p. 129.

♂. *Upperside* dark velvety brown, paler towards outer margins. Fore wing with a distal series of glossy blue streaks, increasing in length towards the costa. Hind wing with a post-discal, curved, series of four to seven small white spots.

Underside umber-brown. Fore wing with three post-discal bluish-white spots; discal area, ocassionally, with short, transverse, pinkish-white striæ and minute spots. Hind wing with seven post-discal bluish-white spots; posterior half of outer margin broadly striated as on part of fore wing.

Antenna, head, thorax, and abdomen brown.

♀. Similar to the male, larger; sometimes an obscure blue distally pointed spot beyond end of cell on fore wing.

Expanse: ♂♀, 80–100 mm.

Habitat.—KUMAON to NORTHERN BURMA; not rare.

420 *b*. **Elymnias patna patnoides** (Moore).

Melynias patnoides, Moore, 1893, p. 163, pl. cxli, figs. 2, 2 *a* (♂ type, Kathapa, Burma); Adamson, 1905, p. 168.
Elymnias patna var. *patnoides*, Bingham, 1905, p. 177.
Elymnias patna f. *patnoides*, Fruhstorfer, 1911, p. 374 (=dry-season form).
Elymnias patna patnoides, Evans, 1932 *a* p. 129 (Karen Hills to Dawna Range).
Elymnias patna, Elwes (*non* Westw.), 1891, p. 270 (Karen Hills, 4,000 feet).

♂♀. Only slightly different from the nominotypical form. Smaller; hind wing with apex acute, and outer margin straight. Fore wing with paler and shorter blue stripes.

Expanse: ♂♀, 75–90 mm.

Habitat.—BURMA: Karen Hills to the Dawna Range; rare.

Elymnias penanga (Westwood), 1851.

♂. Fore wing produced at apex which is strongly acute. *Upperside* of fore wing glossed with dark blue, and bearing post-discal blue streaks. Hind wing uniform in the Indian subspecies.

Underside reddish-brown, striated with purplish-brown and white. Both wings with a post-discal dark line, more or less edged with white striæ on fore wing; distal area paler than proximal area.

♀. Dimorphic or trimorphic, but only one form known from the Indian area. This form on *upperside* is plumbeous-blue. Fore wing with a broad white band.

Underside brown, striated with white, much paler in distal areas.

Distribution.—ASSAM to BURMA, Peninsular Siam, Malaya, Sumatra, and Borneo. One subspecies in the Indian area.

421. **Elymnias penanga chelensis** de Nicéville.

Elymnias chelensis, de Nicéville, 1890 *a*, pp. 200–2, pl. D, fig. 3 (♂, Khasi Hills).
Bruasa chelensis, Moore, 1893, p. 164, pl. cxli, fig. 3 (♂ type), fig. 3 *a* (♂, Burma).
Elymnias chelensis, de Nicéville, 1899, p. 330 (Taungoo and Dawna Range).
Bruasa chelensis, Adamson, 1905, p. 169 (♂, Tenasserim).
Elymnias penanga chelensis, Fruhstorfer, 1907, p. 225,; *id.*, 1911, p. 384, t. 88 *c*; Tytler, 1914, p. 227 (West Manipur Hills); Evans, 1932 *a*, p. 129, pl. xv, fig. D 25. 10 (*non* 11); Tytler, 1939 *a*, p. 248 (♂, East Dawna Range).
Elymnias penanga, Marshall & de Nicéville, (*non* Westw.) 1883, pp. 265, 269, ♂♀; Elwes, 1891, p. 269 (Pegu); Bingham, 1905, p. 180.

♂. *Upperside* dark chocolate-brown. Fore wing richly glossed with dark blue; post-discal streaks of glistening silvery blue. Hind wing uniform.

Underside reddish-brown, speckled with diffuse white striæ; a post-discal, very broad, striated band from below vein 4 on fore wing, and across whole width of hind wing. Fore wing with subapical costal area closely marked with purer white striae, continued as an ill-defined, inwardly oblique band. Hind wing with a subcostal white spot; a post-discal series of minute white dots.

Antenna, head, thorax and abdomen brown.

♀. *Upperside* plumbeous-blue. Fore wing with a post-discal, broad, white, oblique band, not quite reaching outer margin.

Underside fuscous-brown, very finely striated with white, the striæ more dense and broader over apical half of fore wing, giving it a whitish appearance. Hind wing markings as in male.

Expanse: ♂♀, 70–75 mm.

Habitat.—ASSAM to BURMA (Dawna Range) and Peninsular Siam; very rare, especially the female.

The male is said to mimic *Euplœa mazares* Moore.

Esaca Group.

(*Mimadelias* Moore, *Agrusia* Moore).

♂♀. Wings more rounded than in the true *Elymnias*; cell shorter; hind wing with *ldc* longer.

♂. Fore wing with inner margin convex, its middle part folded over on to upperside, covering a brand, with a hair-pencil arising from within the fold. Hind wing with a single hair-pencil.

This group contains two species, both occurring in the Indian area.

Both sexes mimic forms of the Pierine genus *Delias*, this likeness becoming closer on the hind wing underside.

Elymnias vasudeva Moore.

♂♀. *Upperside* black. Fore wing with bluish-white stripes and spots. Hind wing with posterior area, more or less extended, white or yellowish, unmarked; broad costal and outer borders.

Underside of hind wing with posterior half yellow, and usually at base of areas 1 *b* and 1 *c*, a red patch bordered with black.

Distribution.—SIKKIM, ASSAM, BURMA, and Peninsular Siam. Three Indian subspecies.

422 *a*. **Elymnias vasudeva vasudeva** Moore.

Elymnias vasudeva, Moore, 1857, p. 238.
Melanitis vasudeva, Moore, 1865 *a*, p. 770 (Bengal).
Dyctis vasudeva, de Nicéville, 1882, p. 57 (Sikkim); Marshall & de Nicéville, 1883, pp. 276, 278, pl. xvii, fig. 61 (♂, Sikkim).
Mimadelias vasudeva, Moore, 1893, p. 166, pl. cxlii, figs. 1, 1 *a*, *b*, *c* (♂♀).
Elymnias vasudeva, de Nicéville, 1894 *a*, p. 130 (Sikkim, rather rare); Bingham, 1905, p. 178.
Elymnias vasudeva vasudeva, Fruhstorfer, 1911, p. 391; Evans, 1932 *a*, p. 129.
Elymnias thycana, Wallace, 1869, p. 323, ♂♀ ("India").
Elymnias vasudeva var. *thycana*, Bingham, 1905, p. 179.
Mimadelias vasudeva thycana, Fruhstorfer, 1907, p. 247.
Elymnias vasudeva vasudeva ♀ f. *thycana*, Fruhstorfer, 1911, p. 392, t. 90 *b*, *c*.

♂♀. *Upperside* black. Fore wing with broad bluish-grey stripes, including one in the cell; costa flecked with transverse spots of similar colour to stripes; male usually with a submarginal series of short stripes. Hind wing creamy-white; costal and outer margins broadly black, the latter narrowing posteriorly; cell with a bluish-grey streak in its lower half; vein 4 broadly lined with black on both sides.

Underside mottled black and white. Fore wing markings on posterior half diffuse. Hind wing with posterior inner area uniform chrome-yellow; a conspicuous red spot, covering bases of areas 1 *b* and 1 *c*; anteriorly the wing is mottled as on fore wing; four elongate, inwardly rounded, white spots, in bases of areas 3 to 6; beyond the spots the mottled area decreases gradually in width to the tornus.

Antenna, head, thorax and abdomen brown; abdomen above suffused with bluish-grey, paler beneath.

Expanse: ♂♀, 80–90 mm.

♀ form **thycana** Wallace.—*Upperside* with veins more broadly bordered with black; fore wing subapical spots smaller.

Underside of fore wing more extensively striated with black.

Habitat.—SIKKIM and BHUTAN, from 2,000 to 6,000 feet; rare. Resembles the common *Delias aglaia* (Linn.).

422 *b*. **Elymnias vasudeva deva** (Moore).

Mimedelias deva, Moore, 1893, p. 167, pl. cxlii, figs. 2, 2 *a* (♂♀, Khasi Hills).
Elymnias vasudeva var. *deva*. Bingham, 1905, p. 179.
Elymnias vasudeva vasudeva f. *deva*, Fruhstorfer, 1911, p. 392 (=dry-season form).
Elymnias vasudeva deva, Evans, 1932 *a*, p. 129, pl. xv, fig. D 25. 12 (♀).
Elymnias vasudeva, Tytler (*non* Moore), 1911, p. 54 (Naga Hills, 1,700 feet, ♂).

This subspecies occurs in two seasonal forms of which that of the wet season is not distinguishable from *burmensis*.

Dry-season form.—♂. *Upperside* with more extended light areas than in the nominotypical form. Fore wing stripes greenish-yellow. Hind wing light area yellow; costal and outer borders more or less dusted with yellow.

♀. Similar to male, but fore wing bluish-white, with narrow black vein-streaks.

Expanse: ♂♀, 80–90 mm.

Habitat.—ASSAM; rare.

422 *c*. **Elymnias vasudeva burmensis** (Moore).

Mimadelias burmensis, Moore, 1893, p. 168, pl. cxliii, figs. 1, 1 *a*, *b*, *c* (♂♀); Adamson, 1905, p. 169 (♂, Chindwin district).
Elymnias vasudeva var. *burmensis*, Bingham, 1905, p. 179.
Elymnias vasudeva burmensis, Fruhstorfer, 1907, p. 248; *id.*, 1911, p. 392,; Evans. 1932 *a*, p. 129.
Elymnias vasudeva, Moore (*non* Moore, 1857), 1879 *a*, p. 826 (Upper Tenasserim).

♂. *Upperside* of fore wing with the stripes more green than in the nominotypical form.

♀. *Upperside* of fore wing with veins broadly black, obliterating the stripes in the post-discal area, leaving a broad cell-stripe, three short posterior stripes, and a submarginal row of short stripes.

Underside of hind wing without a red spot, but with extended yellow area.

Expanse: ♂♀, 80–90 mm.

Habitat.—BURMA, up to 5,000 feet; rare.

Elymnias esaca (Westwood), 1851.

♂. *Upperside* dark brown. In the Indian subspecies, fore wing with submarginal large bluish-green spots. Hind wing outer margin bluish-green.

Underside dark brown, with pale striation. Hind wing with submarginal small ocellate spots; usually a red spot in basal posterior area.

♀. *Upperside* of fore wing with posterior broad whitish stripes; a post-discal series of similar spots. Hind wing largely white as in *vasudeva*.

Underside of hind wing with basal large red spot; a large posterior yellowish patch.

Distribution.—MERGUI to Malaya, Sumatra, Java, Borneo, and Philippines.

The various subspecies are all rare, and only one is found in the Indian area.

The male resembles, on the upperside, certain forms of the Nymphaline genus *Euthalia*. The female resembles certain *Delias*.

423. **Elymnias esaca andersonii** (Moore).

Dyctis andersonii, Moore, 1886, p. 33, pl. iii, fig. 5 (♂, Mergui: Minthantoung).
Agrusia andersonii, Moore, 1893, p. 169, pl. cxliii, figs. 2, 2 *a* (♂).
Elymnias esaca andersoni (sic) Fruhstorfer, 1907, p. 249; *id.*, 1911, p. 392, ♂.
Elymnias esaca andersonii, Evans, 1932 *a*, p. 129.
Dyctis esaca, Marshall & de Nicéville (*non* Westw.), 1883, pp. 276, 278, ♂.
Elymnias esaca, Bingham (*non* Westw.), 1905, p. 179.

♂. *Upperside* velvety black, in certain lights tinged with olive-green. Fore wing with a submarginal, curved, series of large bluish-green spots; outer dark border narrow. Hind wing with an outer marginal row of contiguous, large, bluish-green spots, becoming slightly narrower anteriorly.

Underside fuscous-brown, with pale striation, these striæ wider and closer over apical area of fore wing, giving it a distinctly white or lilacine-white appearance. Fore wing with a subapical, small, white-centred, black ocellus. Hind wing with five or six submarginal, minute, white-centred ocelli; a comparatively large red spot near base.

Antenna, head, thorax and abdomen dark brown, slightly paler beneath.

♀. *Upperside* dull black; both wings with base bluish. Fore wing with obscure, diffuse, broad, whitish streaks in areas 1 *a* to 3; a post-discal series of spots of similar colour. Hind wing with a large posterior white patch, filling all but the bases and distal ends of areas 1 *a* to 4.

Underside of fore wing white, densely striated with fuscous, more sparsely so posteriorly. Hind wing with a large red spot near base; basal third fuscous-brown; a large posterior white patch as on upperside, but suffused with chrome-yellow from inner margin to vein 3, and extending nearly to costa; a submarginal series of six minute ocelli; apical area and outer margin closely striated with fuscous.

Antenna ochraceous; head, thorax and abdomen greyish-brown; abdomen paler beneath.

Expanse: ♂♀, 65–76 mm.

Habitat.—The MERGUI district of Burma. Only a few specimens are known. There is a single male in the British Museum from Tavoy.

Family AMATHUSIIDÆ.

Amathusiidæ, Stichel, 1902 *a*, p. 59; Fruhstorfer, 1911, p. 403; Rothschild, 1916 *a*, p. 299; Evans, 1932 *a*, pp. 40, 130; Stichel, 1933, p. 1.
Morphinæ, Marshall & de Nicéville, 1883, p. 281; Bingham, 1905, p. 181.
Amathusiinæ, Moore, 1893, p. 170.
Morphidæ, Stichel, 1909, p. 155.

Egg.—Resembles that of the Satyridæ, but is flatter, the surface more or less marked with lines, more or less facetted, or smooth.

Larva.—Cylindrical, hairy, and sometimes (*Amathusia*) with lateral palmate processes; head slightly bifid, and often with a pair of horns; two divergent anal processes; coloration brown or green.

Pupa.—Suspended; boat-shaped; head drawn out into two long points which enclose the palpi.

Imago.—Wings proportionately to length very broad. Fore wing cell closed; vein 11 free; vein 10 arising from 7 well beyond apex of cell, sometimes entirely absent; vein 11 commonly anastomosing with 12, and 10 with 11; a tendency to a crowding of the veins towards costal margin; *ldc* strongly curved. Hind wing cell open; precostal vein simple, curved slightly basad.

Eye large, naked or hairy. Palpus comparatively short, with densely-set short hairs, more or less convergent towards middle line of palpus. Seen from the front the palpus often has the appearance of being longitudinally ridged. Antenna of moderate length, usually less than half length of fore wing, thin, gradually thickening towards apex, with an elongate club. Fore leg of male vestigial, hairy, the tarsus of one segment; female leg not hairy, the tarsus of five segments, and spinose.

A. S. Corbet has observed that this family can be distinguished from the Nymphalidæ by certain characters of the fore wing as follow.—In Amathusiidæ the cell is short and broad, lower angle strongly and acutely produced. In Nymphalidæ the cell is not remarkably broad, lower angle not produced.

♂ hind wing usually provided with scent-organs in the form of brushes and brands, and these attain a development exceeding that of any Satyridæ. In *Zeuxidia* the scent-organs are the most strongly developed of any known butterfly genus.

♂ *genitalia.*—"Valvæ simple, broad; apical process long; costal margin irregular, produced into an inner process. Tegumen broad, usually with a long beak-like uncus; a pair of lateral processes sometimes arise from the tegumen. Saccus

long. Penis very long. Juxta plate well developed." (*Mehta*, 1933).

Habits.—Larva on species of Palm; usually gregarious, and sometimes so numerous as to become a pest on coconut.

Imago shade-loving, usually flying at dusk and frequenting woods. The species of some genera (*Faunis*, *Xanthotænia*, *Thaumantis*) rest upon the ground, and upon dead leaves, the underside pattern harmonizing with the surroundings; others (*Discophora*) rest with closed wings in the denser thickets of bamboo. The butterfly is fond of rotting fruit. Flight strong and swift but not continuous.

Distribution.—The Indo-Australian Region, from China to the Papuan area.

Key to Subfamilies.

1. Fore wing with *dc* veins tubular throughout. Hind wing with vein 1*a* longer than abdomen. ♂ abdomen not compressed. *Amathusiinæ*, p. 404.
2. Fore wing with *mdc* absent. Hind wing with vein 1*a* not longer than abdomen. ♂ abdomen basally ventrally compressed. *Discophorinæ*, p. 445.

Subfamily **AMATHUSIINÆ.**

Amathusiinæ, Moore, 1895, p. 170 (part.); Stichel, 1906, p. 1; *id.*, 1909, p. 155; Fruhstorfer, 1911, p. 403; Stichel, 1933, p. 9.

♂♀. Fore wing with discocellular veins complete. Hind wing with vein 1 *a* longer than abdomen. Eye naked or hairy.

♂ *genitalia* without lateral processes to the tegumen.

Larva.—Finely pubescent; head without horns; anal processes short.

Distribution.—Same as for the family. Thirteen genera are known of which nine occur in the Indian area.

Key to Indian genera of Amathusiinæ.

1. Hind wing cell completely open. 2.
   Hind wing cell more or less closed; tornus produced, more or less lobed 7.
2. Fore wing with vein 3 arising about midway between veins 2 and 4; vein 4 not strongly curved proximad 3.
   Fore wing with vein 3 arising much nearer vein 4 than to 2; vein 4 strongly curved or bent proximad. 5.
3. Fore wing with veins 11 and 12 free. 4.
   Fore wing with veins 11 and 12 anastomosed. *Æmona* Hew., p. 411.
4. Fore wing with vein 10 arising before half-way along vein 7, far from origin of vein 9; *udc* long, *ldc* nearly straight; ♂ upperside with small hair-pencil at middle of vein 1 *b* . . . . . *Xanthotænia* Westw., p. 406.

Fore wing with vein 10 arising beyond half-way along vein 7 ; 8, 9, and 10 arise close together ; *udc* very short, *ldc* strongly incurved at upper end. Hind wing in ♂ on upperside with basal brand in area 6 ; basal hair-pencil below median. *Faunis* Hübn., p. 407.

5. Fore wing with veins 11 and 12 free, 10 absent ; underside with a basal brand in area 1 *b*. ♂ hind wing upperside with a brand above origin of vein 7 ; a hair-pencil at base of cell . ... . [C. & R. Feld., p. 416. *Stichophthalma*

Fore wing with veins 10 and 11 anastomosed with 12. .. 6.

6. Fore wing with veins 5 and 6 well separated at base, 6 much nearer 7; ♂ underside with bases of areas 1 *a* and 1 *b* polished. Hind wing with vein 4 approximating to and nearly touching vein 5 ; ♂ upperside with hair-pencils from cell near base *Thaumantis* Hübn., p. 425.

Fore wing with veins 5 and 6 approximate at base, far from vein 7. Hind wing with vein 5 curved, not angled, well removed from 4 ; ♂ upperside with small hair-pencil on vein 1 *b* ; with or without a large black brand having its centre at base of vein 7, and covered by a tuft of hairs arising at base of cell, with a second tuft from base of area 6 ; ♂ abdomen with a lateral prominent hair-pencil . . *Thauria* Moore, p. 430.

7. Fore wing with lower edge of cell not produced beyond the *dc* vein 8.

Fore wing with lower edge of cell produced beyond the *dc* vein ; veins 10 and 11 anastomosed with 12. ♂ hind wing upperside with three tufts overlying brands : at base of area 7, near base of cell, and near end of cell ; basal erectile tuft on vein 1 *b*, this vein much distorted. *Zeuxidia* Hübn., p. 440.

8. Fore wing with veins 11 and 12 free. ♂ hind wing upperside with a fold or tuft in area 1 *b*, and long erect hairs along base of vein 1. Abdomen with lateral tufts . *Amathusia* Fabr., p. 432.

Fore wing with veins 11 and 12 anastomosed. ♂ hind wing upperside with a large dark brand in area 2, extending to bases of areas 1 *c* and 2 ; a prominent basal hair-pencil below vein 1 *b*, this vein hairy and distorted at base . *Amathuxidia* Stgr., p. 438.

Genus **XANTHOTÆNIA** Westwood.

Xanthotænia, Westwood, 1858, p. 187; Marshall & de Nicéville, 1883, pp. 282–3; Moore, 1893, p. 173,; *id.*, 1895, p. 216 (type, *X. busiris* Westw.); Bingham, 1905, p. 185; Stichel, 1906, p. 56, t. ii, fig. 10 (venation); Fruhstorfer, 1911, p. 407; Evans, 1932 *a*, p. 131.

Type of genus, *X. busiris* Westw., from Malaya.

♂♀. Fore wing broadly triangular, costa slightly arched, apex rounded, outer margin convex, tornus well-marked, inner margin straight; cell broad, about half length of fore wing; *udc* minute; *mdc* short, vertical; *ldc* long, very oblique, slender at base; veins 8, 9, 10 arising from 7, 10 from well beyond upper angle of cell, 11 free, 12 terminating about midway on costa. Hind wing more or less subquadrate, costa straight, apex rounded, outer margin straight, tornus and inner margin strongly convex; cell open or very obscurely and slenderly closed; vein 8 long, running close along costa nearly to apex.

Antenna very long, much over half length of fore wing, slender, filiform, club scarcely formed; palpus compressed, small, oblique, third segment short, slender and acute.

♂ sex-mark on hind wing upperside, a tuft of erect hairs placed about one-third from apex of vein 1 *b*, covering a small brand.

Distribution.—The genus comprises a single species distributed from BURMA and Siam to Malaya, Sumatra, and Borneo.

Xanthotænia busiris Westwood.

♂♀. *Upperside* dark chestnut, female paler; fringes black, spotted with ochraceous or grey between the veins. Fore wing with an oblique yellow band from costa to near margin in area 2; a subapical white spot. Hind wing without markings.

Underside of fore wing deep ochraceous, paler basally and along outer margin; a yellow band as on upperside, white in the female; a small ocellus in area 5; an angulate cell-mark. Hind wing ochraceous, more or less shaded with chestnut; a sub-basal, a discal, and a post-discal chestnut line, all very irregular and angulate; a submarginal, heavier, and somewhat diffuse dark line; two round conjoined ocelli in areas 6 and 7; a smaller ocellus in area 2; more or less vestigial ocelli in areas 4, 5, and 1 *c*.

Distribution.—As given for the genus.

424. **Xanthotænia busiris busiris** Westwood. (Pl. I, fig. 9, ♂).

Xanthotænia busiris, Westwood, 1858, p. 187 (Malacca); Marshall & de Nicéville, 1883, p. 284, fig (♂, Upper Tenasserim); Elwes & de Nicéville, 1887. p. 419 (Tavoy); Moore, 1895, p. 216, pl. clxvi, figs. 1, 1 *a*, *b*, *c* (♂♀); Adamson, 1905, p. 170 (Burma, not common); Bingham, 1905, p. 185, pl. iii, fig. 28 (♂).

Xanthotænia busiris busiris, Stichel, 1906, p. 57 ; Fruhstorfer, 1911, p. 407.

Xanthotænnia (sic) *busiris*, Ollenbach, 1919 *b*, p. 870 (habits in Tavoy).

Xanthotænia busiris, Evans, 1932 *a*, p. 131, pl. xv, fig. E 1. 1 (♂) (Pan ; Dawnas to S. Burma).

♂♀. *Upperside* dark chestnut-red. Fore wing apical half obliquely dusky black ; a discal, broad, very oblique yellow band, from near middle of costa to near distal end of area 2, not reaching margin ; a subapical white spot. Hind wing uniform.

Underside ochraceous-red, shaded with a darker tint of same. Fore wing with a discal oblique yellow band as on upperside ; a discal, highly sinuous line, crossing cell ; a post-discal, similar line, from costa to end of discal band ; a submarginal, less sinuous, dark chestnut-brown line ; apical area, between discal band and post-discal dark line, chestnut-red, bearing an ocellus and four spots in line ; a large and a small white spot above the ocellus, and two minute white spots below it. Hind wing with sub-basal, discal, post-discal, and submarginal highly sinuous dark chestnut-brown lines ; a discal, broad, diffuse, chestnut-brown band ; a discal, strongly-curved series of seven ocelli, the subapical the largest, apical and subtornal equal, the others much smaller.

Antenna chestnut-red ; head, thorax and abdomen chestnut-red, ochraceous-red beneath.

Expanse : ♂♀, 60–70 mm.

Habits.—Ollenbach (1919) observed this species in Tavoy flying in a deep nullah, and says : "This insect is crepuscular, but occasionally flies by day. It was always to be found in the bog during day-time, sitting on dead leaves, and when flushed would fly a short distance and settle. Its flight is very like that of *Mycalesis visala*. The insect is most difficult to spot when sitting, as the colours of the underside harmonize with its surroundings. It is a wary creature and needs some stalking to bring it to bay."

Habitat.—The Dawna Range to Southern Burma, Malaya, and Northern Sumatra.

Adamson (1905) says that the butterfly frequents thick-wood evergreen hills in Tavoy and Tenasserim in September.

Genus **FAUNIS** Hübner.

Faunis, Hübner, 1819, p. 55 ; *id.*, 1819–1827, pl. lxxxii ; Stichel, 1906, p. 31, t. ii, fig. 8 (venation) ; *id.*, 1909, p. 156 ; Fruhstorfer, 1911, p. 404 ; Evans, 1932 *a*, p. 131 ; Hemming, 1933 *c*, p. 198 (type, *eumeus* Drury) ; *id.*, 1934 *a*, p. 51 (type, *eumea* Drury (Cramer, 1777), =*eumeus* Drury, 1773).

Clerome, Westwood, 1850, pl. liv, fig. 5 (*C. arcesilaus* Fabr.) ; *id.*, 1851, p. 333 ; Scudder, 1875, p. 143 (type. *arcesilaus* Fabr.) ; Marshall & de Nicéville, 1883, pp. 282, 312 ; Moore, 1893, pp. 173, 206 ; Bingham, 1905, p. 182 ; Hemming, 1934 *a*, p. 52 (type, *Papilio arcesilaus* Fabr., 1787) ; *id.* 1941 *b*, p. 420.

Melanocyma, Westwood, 1858, p. 186; Marshall & de Nicéville, 1883, p. 315 (=subgenus); Moore, 1895, p. 210 (type, *M. faunula* Westw.); Bingham, 1905, p. 184; Hemming, 1934 *a*, p. 51 (type, *Thaumantis faunula* Doubleday, 1849).

Type of genus, *F eumæus* (Drury).

♂♀. Wings rounded, broad. Fore wing with costa strongly arched, outer margin slightly convex; inner margin of male incurved, of female nearly straight, slightly convex; cell moderately broad, rather short, not half length of wing, upper angle rounded, lower angle much produced; *udc* and *mdc* very short, *ldc* very long, incurved anteriorly, then abruptly and strongly produced distad; vein 10 just before upper angle of cell, 11 from a third before the angle, 12 swollen at base. Hind wing broadly oval; cell open; veins 3 and 4 from a point; vein 8 terminates before apex.

Antenna more than half length of fore wing, filiform, club slightly developed or not thicker than shaft; eye naked; palpus obliquely porrect, clothed with dense short hairs in front, longer posteriorly, third segment long.

♂ sex-marks on hind wing upperside a basal brand in area 6, and hair-pencil at base of wing below median vein.

Distribution.—The Indo-Malayan Sub-Region, as far as SIKKIM in the Indian area. The Indian area has three out of the thirteen species known.

Key to Species of Faunis.

1. Upperside fulvous-brown, no dark markings showing through	2.
Upperside smoky-grey with dark bands showing through from below. Hind wing tornal area broadly yellow	*faunula* (Doubl.), p. 410.
2. Underside with discal small yellow spots and obscure dark lines; discal line not joined to outer line.	*canens*, Hübn., p. 408.
Underside with discal large yellow spots and prominent dark lines; discal line of both wings posteriorly joined to outer line	*eumeus*, (Drury), p. 409.

Faunis canens Hübner, 1826 (=*arcesilaus* auct.).

♂♀. *Upperside* dark ochraceous-brown without markings. *Underside* earth-brown; a sub-basal, post-discal, and submarginal darker line, the post-discal line well-marked and on fore wing strongly curved; between the post-discal and submarginal lines a series of five or six white or pale ochraceous *dots*, not spots as in *eumeus*, those on hind wing forming a curved series.

Distribution.—SIKKIM to BURMA, Siam, Tong-king, Malaya, Sumatra, Java, and Borneo. One subspecies in the Indian area.

425. **Faunis canens arcesilas** Stichel.

Faunis canens arcesilas, Stichel, 1933, p. 73 (nom. nov. pro *arcesilaus* Fabricius, 1787, *non* Sulzer, 1776).
Clerome arcesilaus, Marshall & de Nicéville, 1883, p. 313, ♂♀; Elwes & de Nicéville, 1887, p. 419 (Tavoy); Moore, 1893, p. 207, pl. clxii, figs. 1, 1 *a*, *b*, *c* (♂♀); de Nicéville, 1894 *a*, p. 131 (Sikkim); Adamson, 1905, p. 170 (Burma); Bingham, 1905, p. 183; Tytler, 1911, p. 154 (Naga Hills).
Faunis arcesilaus arcesilaus, Stichel, 1906, p. 35; Fruhstorfer, 1911, p. 404.
Clerome arcesilaus, Ellis, 1917, p. 107 (Pegu Yoma, not common).
Faunis arcesilaus, Evans, 1932 *a*, p. 131, pl. xv, fig. E 2. 1 (♂).
Faunis caneus (sic) *subpallida*, Tytler, 1939 *a*, p. 249 (♂♀, Southern Shan States).

♂♀. *Upperside* ochraceous; ♂ uniform, ♀ with apex of fore wing and outer margin of both wings slightly darker.

Underside slightly ochraceous-brown; sub-basal and discal narrow dark bands crossing both wings, strongly curved on hind wing; a post-discal line of minute yellow spots, six on the fore wing, seven on the hind wing, and on the latter posteriorly abruptly curved; a submarginal dark sinuous line.

Antenna, head, thorax and abdomen concolorous with the upperside of wings.

Expanse: ♂♀, 65–75 mm.

Form **subpallida** Tytler.—♂♀. *Underside* of fore wing with distal apical third conspicuously paler than the rest of the wing. Described from 3 ♂, 1 ♀ taken in December and May at Loimwe, Southern Shan States.

Habitat.—SIKKIM to BURMA, Siam, Tong-king, Malaya and Sumatra; common in some places.

According to de Nicéville (1894 *a*) the insect is very rare in SIKKIM, but common in Bhutan. Adamson (1905) says it occurs on well-wooded hills throughout Burma during the cold season, and is not common.

Faunis eumeus (Drury), 1773.

♂♀. *Upperside* chestnut-brown to pure ochraceous. Fore wing with or without a subapical ochraceous-yellow band. Hind wing not marked.

Underside earth-brown to chestnut-brown; a sub-basal, post-discal, and submarginal black line, the post-discal one less irregular than the others; between the post-discal and submarginal lines a series of round, white, or pale ochraceous spots, five or six on the fore wing, seven on the hind wing, the spot in area 2 of fore wing, and the one in 6 of hind wing, larger than the others.

Distribution.—ASSAM to BURMA, Siam, Annam, Tong-king, Hainan, and Southern China. Three subspecies in the Indian area.

426 *a*. **Faunis eumeus assama** (Westwood).

Clerome assama, Westwood, 1858, p. 185; Marshall & de Nicéville, 1883, p. 314, fig. (♀, Khasi Hills); Moore, 1893, p. 208, pl. clxiii, figs. 1, 1 *a b*, *c* (♂♀); Bingham, 1905, p. 184.
Faunis assamus, Stichel, 1906, p. 36.
Faunis assama, Fruhstorfer, 1911, p. 406.
Faunis eumeus assama, Evans, 1932 *a*, p. 131.
Clerome eumeus, Bingham (*non* Drury), 1905, p. 183.

♂♀. Larger than the nominotypical form. *Upperside* ground-colour of male uniform ochraceous; fore wing without a subapical band. ♀ more ochraceous-brown than maroon; fore wing with a subapical bright ochraceous band, broader and more diffuse than in the nominotypical form.

Underside similar to the nominotypical form, but ground-colour slightly darker and more uniform.

Expanse: ♂♀, 85–95 mm.

Habitat.—Assam and Northern Burma; rare.

426 *b*. **Faunis eumeus burmana** Tytler.

Faunis eumeus burmana, Tytler, 1939 *a*, p. 248 (♂, Sadon, N.E. Burma).

♂. Both wings on both sides dark sepia-brown and not fulvous-brown as in *assama* Westw.

Underside of fore wing with discal and submarginal lines well apart and parallel, not converging to meet at vein 1 as in *assama*; spots between these two bands much smaller than in *assama*.

Habitat.—North-Eastern Burma, Sadon, 6,000 feet. Described from one male obtained in September, 1926.

426 *c*. **Faunis eumeus incerta** (Staudinger).

Clerome eumeus var. *incerta*, Staudinger, 1887, p. 302.
Faunis eumeus incerta, Fruhstorfer, 1911, p. 406, t. 100 *a*; Evans, 1932 *a*, p. 131 (Shan States); Tytler, 1939 *a*, p. 249 (♂, Southern Shan States).

♂. *Upperside* of fore wing without a subapical yellow band or this is vestigial.

Underside of fore wing with discal line anteriorly curved; pale spots on both wings white.

♀. *Upperside* of fore wing with subapical band narrower than in allied forms and anteriorly not reaching the cell.

Underside similar to that of the male.

Habitat.—Southern Burma (very rare); Tong-king; Annam.

Faunis faunula (Westwood), 1850.

♂♀. *Upperside* dark grey, the underside markings showing through. Fore wing triangular, outer margin straight. Hind wing with apex produced, outer margin straight, tornus rounded. Wings somewhat more rounded in the female.

Hind wing with posterior area yellow, more extended in the female.

Underside ground-colour as above; sub-basal, post-discal, and submarginal lines black, heavy, strongly angulate, sharply defined Fore wing with a rounded cell-spot and bar crossing cell, black. Hind wing with a basal bar; an antemarginal line, more or less distinct; posterior yellow area as above.

Distribution.—BHUTAN to NORTHERN BURMA, Malaya, Siam, and Cambodia. One Indian subspecies.

427 Faunis faunula faunuloides (de Nicéville).

Melanocyma faunuloides, de Nicéville, 1895 *a*, p. 259, pl. N, fig. 2 (♀, North Chin Hills); Moore, 1895, p. 210, pl. clxvii, figs. 1, 1 *a* (♀); Watson, 1897, p. 652 (Chin Hills, 3,500 feet); Bingham, 1905, p. 184.
Faunis faunuloides, Stichel, 1906, p. 37; Fruhstorfer, 1911, p. 406; Evans, 1932 *a*, p. 131, pl. xv, fig. E 2. 3 (♂, Chin Hills).
Melanocyma faunula, Marshall & de Nicéville (*non* Westw.), 1883, p. 315.

♂. Hind wing with a small black brand placed near tornus in area 1 *b*. The fringe of grey hair, extending more or less over inner area of wing, extends also over the brand.

♂♀. *Upperside* of fore wing as in the nominotypical form. Hind wing with posterior yellow area reduced proximally, confined chiefly to areas 1 *a* and 1 *b*, and to the distal part of 1 *c*.

Underside of fore wing with a cell-spot, and a bar across the cell; edges of cell up to this bar, and a post-discal and discal narrow band black; discal band irregularly sinuous, post-discal nearly straight, and only distinctly dentate on vein 2. Hind wing with basal, sub-basal, discal, and post-discal narrow black bands; basal and sub-basal bands straight, others highly sinuous, the post-discal one noticeably less dentate on vein 4; a submarginal, slightly sinuous, black line; yellow area as on upperside.

Expanse: ♂♀, 100–112 mm.

Habitat.—BHUTAN (south-east); NORTHERN BURMA (Chin Hills). Taken at 3,000 to 3,500 feet, in June. Very rare, only a few specimens in collections.

Genus **ÆMONA** Hewitson.

Æmona, Hewitson, 1868, *Æmona* pl., figs, 3, 4; Marshall & de Nicéville, 1883, pp. 283, 302; Moore, 1893, p. 173; *id.*, 1895, p. 212 (type *A. amathusia* Hew.); Bingham, 1905, p. 196; Stichel, 1906, p. 29, t. ii, fig. 7 (venation).
Amœna (sic). Stichel, 1909, p. 156.
Æmona, Fruhstorfer, 1911, p. 406; Evans, 1932 *a*, p. 131.

Type of the genus, *A. amathusia* (Hewitson).

♂♀. Fore wing broadly triangular; costa arched; apex acutely produced; outer margin straight; cell short, broad,

not half length of fore wing; *udc* and *mdc* short, subequal; *ldc* strongly incurved; veins 8, 9, 10 arising from 7; 11 from well before upper angle of cell, anastomosed with 12; 12 terminating about midway on costa. Hind wing pear-shaped; outer margin somewhat obtusely angulate at vein 4; cell open; vein 8 terminating on costal margin before apex.

Antenna about half length of fore wing, club very long and gradual; eye large, naked; palpus slender, obliquely porrect, third segment short; legs slender, long, mid and posterior femora and tibiæ subequal.

♂ sex-mark on hind wing upperside, a row of fine hairs along vein 1 *b*, at termination overlapping a fold in the membrane.

Distribution.—SIKKIM to BURMA, Siam, Tong-king, Yunnan, and China. Two of the three known species occur in the Indian area.

Key to Species of Æmona.

1. Upperside with veins not darkened. Fore wing post-discal line obscure.	*amathusia* (Hew.), p. 412.
2. Upperside of fore wing with veins darkened on distal half; post-discal line black, prominent .	*lena* Atks., p. 413.

Æmona amathusia (Hewitson).

♂. *Upperside* pale brownish-ochraceous. Fore wing with small apical area and outer narrow border, blackish-brown. Hind wing with a post-discal, strongly dentate, blackish-brown line.

Underside paler or with more brown colouring, markings dark brown. Fore wing with a strongly marked, post-discal, oblique line, from costa before apex, to inner margin; a sub-basal, sinuous, distinct line, crossing cell near origin of vein 2; a submarginal, indistinct, sinuous line; a series of small distal ocelli in areas 1 *b*, 2, 3, 4 and 5, all usually minute and rarely all present. Hind wing with sub-basal, post-discal, and submarginal distinct lines, the former straighter than on fore wing; ocelli as on fore wing, but more distinct, usually five to six present.

♀. *Upperside* dark brown. Fore wing usually with a subapical diffuse band; post-discal dark line, as on underside of male, more or less prominent. Hind wing similar to male.

Underside ground-colour a warm brown; markings as in the male, the lines more strongly defined.

Distribution.—SIKKIM to BURMA, Tong-king, and Southern China. One Indian subspecies.

428. Æmona amathusia amathusia (Hewitson).

Clerome amathusia, Hewitson, 1867, p. 566, ♀.
Æmona amathusia, Hewitson, 1868, *Æmona* pl., figs. 3, 4; Wood-Mason & de Nicéville, 1880 *b*, p. 176, pl. vi, figs. 3, 4 (♂, Naga Hills); Marshall & de Nicéville, 1883, p. 303, frontisp., figs. 2, 2 *a* (♂); de Nicéville, 1894 *a*, p. 130 (Bhutan); Moore, 1895, p. 212, pl. clxiv, figs. 1, 1 *a*, *b*, *c*, (♂♀ Khasi Hills), figs. *d*, *e* (♀ type, after Hew.); Bingham, 1905, p. 196.
Æmona amathusia amathusia, Stichel, 1906, p. 30; Fruhstorfer, 1911, p. 407.
Æmon (sic) *amathusia*, Tytler, 1911, p. 55 (Naga Hills).
Æmona amathusia, Tytler, 1914, p. 228 (Manipur); Evans, 1932 *a*, p. 131; Tytler, 1939 *a*, p. 250 (♀, N.E. Burma).
Æmona pealii, Wood-Mason, in W.-M. & de Nicéville, 1880 *b*, p. 177, pl. vi, figs. 5, 6 (♂, Sibsagar, Assam); Marshall & de Nicéville, 1883, p. 303, frontisp., figs. 3, 3 *a* (♂, Sibsagar); Moore, 1895, p. 214, figs. 1, 1 *a*, (♂ after Wood-Mason); Stichel, 1906, p. 30.
Æmona amathusia var. *pealii*, Bingham, 1905, p. 197.
Æmona amathusia amathusia f. *peali* (sic), Fruhstorfer, 1911, p. 407 (=wet-season form).

Dry-season form **amathusia** (Hew.).—♂. *Upperside* ochraceous-yellow. Fore wing with basal area, and hind wing entirely, suffused with a dusky light brownish tint. Fore wing apical area dusky brown. Markings of underside showing through faintly on both wings.

Underside slightly darker, without the brownish tint. Both wings with a sub-basal and a discal darker ochraceous band from apex of fore wing to tornus of hind wing; a post-discal row of ocelli, mostly faint and incomplete; a submarginal zigzag line, very faint on fore wing; posterior three ocelli prominently silvery centred.

Antenna, head, thorax and abdomen ochraceous.

♀. *Upperside* with darker brownish suffusion.

Underside ground-colour less bright ochraceous, markings better defined, ocelli with white centres, submarginal lines on both wings straight.

Expanse: ♂♀, 75–90 mm.

Wet-season form **pealii** W.-M.—♂♀. Fore wing with apex less produced, outer margin straighter and slightly convex; underside markings showing through above more strongly than in the nominotypical form.

Habitat.—Sikkim to Assam and Northern Burma. Rare, especially the female.

Tytler (1914) says that the butterfly is extremely local in Manipur, and frequents dense shady nullahs. There are two broods, one in May and June, the other in September and October; these do not differ.

Æmona lena Atkinson.

♂♀. *Upperside* of fore wing white, more or less scaled with smoky-grey or ochraceous; a post-discal prominent blackish

line, more or less heavily marked, from costa before apex to about middle of inner margin; veins more or less margined with black; ♂ with veins 1 *a*, 2 and 3 not blackened proximally of post-discal line; veins less darkened in ochraceous forms. Hind wing posteriorly ochraceous-yellow to veins 4 or 5, and in some forms entirely pale ochraceous; an anterior submarginal blackish band, usually only reaching vein 4, enclosing three or four spots of white ground-colour.

Underside of male very pale ochraceous, of female grey-brown with greyish-white distal areas. Fore wing with a sub-basal curved brown line; a post-discal oblique brown line, placed as on upperside; two to four small, pale, blind ocelli in the distal pale area, the one in area 2 the larger and always distinct. Hind wing with a sub-basal straight brown line, and a post-discal brown line almost parallel to it; six small ocelli in the distal area, similar to those on fore wing.

Distribution.—B RMA, Siam, Yunnan to Southern China. Six subspecies are said to occur in Burma, but as these are mostly founded upon few specimens they may not prove to be more than individual or seasonal forms.

429 *a*. **Æmona lena lena** Atkinson.

Æmona lena, Atkinson, 1871, p. 215, pl. xii, fig. 1 (♂, West Yunnan); Marshall & de Nicéville, 1883, p. 302, ♂; Moore, 1895, p. 215, pl. clxv. figs. 2, 2 *a* (♂, after Atkinson); Bingham 1905, p. 197; Stichel, 1906, p. 31 (*non* t. iv, fig. 10); Fruhstorfer, 1911, p. 407, t. 102 *b* (♀).
Æmona lena lena, Tytler, 1939 *a*, p. 249.

♂♀. *Upperside* of fore wing and anterior half of hind wing creamy white; posterior half of hind wing bright canary-yellow. Fore wing apical area broadly dusky brown; a dusky brown band, slightly oblique proximally, from apex to vein 1 *b*; broad dusky brown vein-streaks from outer margin to the band. Hind wing with a brown band similar to that on fore wing, placed anteriorly, not entering the yellow area.

Underside proximal area yellow, limited by a discal narrow dark ochraceous band from apex of fore wing to tornus of hind wing; a sub-basal ochraceous broad line; outer borders of both wings paler; an indistinct series of ocelli.

Antenna ochraceous; head and thorax dusky creamy-white; abdomen yellow, paler beneath.

Expanse: ♂, 40 mm.; ♀, 46–48 mm.

Habitat.—BURMA, Bhamo district, Yunnan; rare.

429 *b*. **Æmona lena haynei** Tytler.

Æmona lena haynei, Tytler, 1926, p. 260. pl. iii, fig. 9 (♂, Maymyo); Evans, 1932 *a*, p. 132, pl. xvi, fig. E 3. 2 (♀); Tytler, 1939 *a*, pp. 249–50.

♂. *Upperside* of fore wing yellow with distal paler patches; apical area dusted with smoky brown. Hind wing yellow;

area between the double marginal lines in areas 4, 5, and 6 sometimes, but not always, paler than the ground-colour.

Underside as in the nominotypical form. ♀ apparently not differing from the nominotypical form.

Habitat.—NORTHERN SHAN STATES, Maymyo.

"A fair number of both sexes were obtained in April and May and again in September, in dense shade and near water. The insects as a rule keep to the low undergrowth, a foot to three feet above the ground, and on being disturbed fly a short distance and settle down again. On one occasion I saw about half a dozen males sitting on the stem of a tree twenty feet up. It is not rare but appears to be very local." (*Tytler*, 1926).

429 *c*. **Æmona lena kalawrica** Tytler.

Æmona lena kalawrica, Tytler, 1939 *a*, pp. 249–50 (♂♀, Kalaw, S. Shan States).

♂. Not different from the Karen Hills form.

♀. Both wings suffused with grey as in the nominotypical form, but all dark markings, along the veins and along the outer margins of both wings, are almost black, contrasting with the distal white interspaces.

Habitat.—SOUTHERN SHAN STATES, Kalaw.

Described from one male and two females of the dry-season form.

429 *d*. **Æmona lena karennia** Tytler.

Æmona lena karennia, Tytler, 1939 *a*, pp. 249–50 (♂♀, Karen Hills).

Æmona lena, Elwes (*non* Atkinson), 1891, p. 271 (Karen Hills, 2,000 feet); de Nicéville, 1899, p. 330 (Taungoo Hills, 4,000 feet, May).

Æmona lena lena, Evans, 1932 *a*, p. 132.

♂♀. *Upperside* of fore wing lighter and less suffused with grey than in *lena lena*.

Habitat.—BURMA, Karen Hills; rare.

429 *e*. **Æmona lena kentunga** Tytler.

Æmona lena kentunga, Tytler, 1939 *a*, pp. 249–50 (♂♀, Loimwe, S. Shan States).

♂♀. Smaller than the nominotypical form from Bhamo. *Upperside* of fore wing more suffused with grey which, in some males, covers the whole wing.

Wet-season form rather darker.

Habitat.—SOUTHERN SHAN STATES, Loimwe.

Described from 11 ♂, 4 ♀ of the dry-season form, and 11 ♂, 3 ♀ of the wet-season form.

429 *f*. Æmona lena salweena Tytler.

Æmona lena salweena, Tytler, 1939 *a*, pp 249–50 (♂, Salween District, Upper Tenasserim ; Siam).

♂. *Upperside* with all the pale markings reduced, though less so than in *haynei* Tytl.

Habitat.—Upper Tenasserim, Salween District, Papun, Mal-hong-song ; Siam, Bangkok ; Western Siam, Melamung.

Described from three males in the British Museum.

Genus **STICHOPHTHALMA** C. & R. Felder.

Stichophthalma, C. & R. Felder, 1862, p. 271 (*S. howqua* Westw.) Marshall & de Nicéville, 1883, pp. 283, 308 ; Moore, 1893, pp. 173, 202 (type, *S. howqua* Westw.) ; Bingham, 1905, p. 191 ; Stichel, 1906, p. 26, t. i, fig. 6 (venation) ; *id.*, 1909, p. 156 ; Fruhstorfer, 1911, p. 424.

Sticopthalma (sic) Evans, 1932 *a*, p. 132.

Stichophthalma, Hemming, 1934 *a*, p. 51 (type, *Thaumantis howqua* Westwood, 1851).

Type of the genus, *S. howqua* Westwood.

♂♀. Fore wing very broadly triangular, costa arched ; outer margin straight, slightly convex on posterior half ; tornus rounded, inner margin straight ; cell very broad, short, not half length of fore wing ; *udc* and *mdc* short, subequal ; *ldc* strongly incurved, oblique in its lower portion ; vein 4 from lower angle of cell, obtusely angulate at a third from base ; vein 10 absent. Hind wing broadly ovate ; costa arched ; outer margin slightly scalloped ; apex rounded ; inner margin nearly straight along basal half, then slightly emarginate ; cell open ; vein 8 terminating on costa.

Antenna filiform, not quite half length of fore wing, club gradual ; palpus erect, projecting above level of head ; eye naked ; mid and posterior femora longer than tibiæ.

♂ sex-mark on hind wing upperside, a brand above origin of vein 7, and a hair-pencil from base of cell.

Distribution.—Sikkim to Burma, Cambodia, Siam, Tongking, Hainan, Formosa, and China. Nine or ten species are known of which four are found in the Indian area.

The word *Stichophthalma* is composed of two Greek words meaning series and ocellus.

Key to Species of Stichophthalma.

1. Hind wing upperside with outer marginal border ochraceous, submarginal markings small .	*nourmahal* (Westw.), p. 417.
Hind wing upperside with submarginal markings large and prominent	2.
2. Hind wing upperside with no dark spots inside the submarginal broad dark line ; submarginal dark band on a bluish-white marginal border.	*camadeva* (Westw.), p. 418.

Hind wing upperside with a post-discal series of conspicuous black spots adjacent to submarginal dark line . .	3.
3. Hind wing upperside without a conspicuous series of pale discal spots inside the post-discal row	*louisa* (W.-M.), p. 421.
Hind wing upperside with a conspicuous series of diamond-shaped greenish-white spots inside a post-discal band of conjoined spots, forming three distal pale bands. Fore wing with a large subapical greenish-white patch	*godfreyi*, Roths., p. 425.

Stichophthalma nourmahal (Westwood).

♂♀. *Upperside* with proximal area, to well beyond the cell, deep ochraceous-brown; a submarginal ochraceous-yellow band bordering the proximal area. Fore wing with apical area and outer margin to tornus broadly black. Hind wing with outer margin narrowly black; an antemarginal ochraceous line.

Underside deep ochreous-yellow, distally paler; a subbasal, black, irregular line, its inner edge more or less heavily bordered with greenish-white; a post-discal, black, irregular line, running from costa to vein 1 *a* on fore wing, and from costa to vein 2 on hind wing, its outer edge more or less heavily bordered with greenish-white; two submarginal, very strongly waved, black lines. Fore wing with two ocelli, in areas 2 and 5, ochreous-brown, black-ringed, and white-centred. Hind wing with three ocelli in areas 2, 4, and 6, similar to those on fore wing; sometimes incomplete accessory ocelli on both wings.

Distribution.—SIKKIM and BHUTAN to BURMA and Hainan. Two Indian subspecies.

430 *a*. **Stichophthalma nourmahal nourmahal** (Westwood).

Thaumantis nourmahal, Westwood, 1851, p. 337; *id.*, 1858, p. 178, pl. xviii, figs. 1, 1 *a* (♀).

Stichophthalma nourmahal, Marshall & de Nicéville, 1883, p. 312, ♂♀; Moore, 1893, p. 205, pl. clx, figs, 1, 1 *a*, *b* (♂♀, Native Sikkim); de Nicéville, 1894 *a*, p. 131 (Sikkim, very rare); Bingham, 1905, p. 192.

Stichophthalma nourmahal nourmahal, Stichel, 1906, p. 29; Fruhstorfer, 1911, p. 424.

Sticophthalma (sic) *nourmahal*, Tytler, 1914, p. 227 (♂♀, Naga Hills, 6,000 feet, July–September).

Sticopthalma (sic) *nourmahal nourmahal*, Evans, 1932 *a*, p. 132, pl. xv, fig. E 4. 1 (♂).

♂. *Upperside* bright chocolate-brown. Fore wing with a subapical, very broad, curved band from costa to outer margin; apex and outer margin narrowly dark brown; a submarginal

series of delicate, brown, trident-shaped marks. Hind wing with a marginal yellow border, bearing paired, lunular, brown marks between the veins.

Underside dark ochraceous, paler towards apex of fore wing; sub-basal and basal sinuous dark brown lines, bordered, the former on the inside, the latter on the outside, by narrow bands of greenish-blue; a discal series of obscure ocelli, some defined only as pale spots; a post-discal and a submarginal strongly sinuate dark line, the former ending in a tornal black spot outwardly margined with pink.

Antenna, head, thorax and abdomen chocolate-brown above, ochraceous beneath.

♀. *Upperside* similar to that of the male. Fore wing with a subapical white spot.

Underside marked much as in the male. Basal area chocolate-brown. Fore wing distal area, from costa to vein 4, light ochraceous, inwardly paling to white below vein 1 *b*. Hind wing with a diffuse dark brown band; ocelli as in male; a post-discal, dull, ochraceous-brown area; outer margin broadly brown, defined by strongly sinuate dark lines.

Expanse: ♂♀, 95–105 mm.

Habitat.—SIKKIM; ASSAM, Naga Hills; NORTH-EASTERN BURMA; rare.

430 *b*. **Stichophthalma nourmahal nurinissa** de Nicéville.

Stichophthalma nurinissa, de Nicéville, 1890 *c*, p. 131, pl. C (♂♀, Bhutan); Moore, 1893, p. 206, pl. clxi, figs. 1, 1 *a*, *b* (♂♀, Bhutan); de Nicéville, 1894 *a*, p. 131 (Bhutan, not rare).
Stichophthalma nourmahal nurinissa, Bingham, 1905, p. 193; Stichel, 1906, p. 29; Fruhstorfer, 1911, p. 424.
Sticopthalma (sic) *nourmahal nurinissa*, Evans, 1932 *a*, p. 132

♂♀. *Upperside* of fore wing with subapical yellow band narrower than in the nominotypical form, and continued along outer margin to tornus; apex more broadly brown, with a row of obscure brown spots instead of the trident-shaped marks. Hind wing with yellow band broader than in the nominotypical form.

Underside almost as in the nominotypical form.

Habitat.—BHUTAN; rare.

Stichophthalma camadeva (Westwood).

♂♀. *Upperside* of fore wing with basal area dark chestnut-brown; distal area milky-white or violaceous-white; a submarginal row of black, somewhat diamond-shaped spots; apical area black; outer margin black, bearing an antemarginal waved white line; distal rounded black spots, representing the centres of underside ocelli, in areas 2, 4, and 6, sometimes reduced to dots in the ♂. Hind wing with proximal

half dark chestnut-brown ; a submarginal, prominent, bluish-white or violaceous band, its inner edge strongly dentate ; an antemarginal, strongly-waved, bluish-white line.

Underside with proximal half ochraceous-brown, distal half dull ochreous-yellow ; a sub-basal and a post-discal black line, the latter curved proximad at the fold in area 1 *c*, and usually meeting the sub-basal line in the female. Fore wing with post-discal line broadly bordered with white distally, and this outwardly defined by a dark brown band ; three to five ocelli, those in areas 3 and 4 tending to be reduced ; two submarginal dark lines, the inner one strongly waved. Hind wing with five ocelli in areas, 2 to 6, those in 2 and 6 the larger ; post-discal line bordered by a narrow greenish band, bordered outwardly with dark brown ; submarginal lines as on fore wing.

Distribution.—SIKKIM to BURMA and Siam. Six Indian subspecies are distinguished.

431 *a*. **Stichophthalma camadeva camadeva** (Westwood).

Morpho camadeva, Westwood, 1848, p. 9, pl. iv, figs. 1, 2 (Sikkim) : *id.*, 1851, p. 337, pl. lv, fig. 2.

Stichophthalma camadeva, Marshall & de Nicéville, 1883, p. 309, fig. (♀, Sikkim) ; Moore, 1893, p. 203, pl. clviii, figs. 1, 1 *a* (♂♀) ; de Nicéville, 1894 *a*, p. 131 (Sikkim) ; Bingham, 1905, p. 192.

Stichophthalma camadeva camadeva, Stichel, 1906, p. 27 ; Fruhstorfer, 1911 p. 426.

Sticophthalma (sic) *camadeva camadeva*, Evans, 1932 *a*, p. 132.

♂♀. *Upperside* of fore wing with basal third chocolate-brown, shading into pale bluish-white over rest of wing ; a discal, broad, irregular, pure white bar, bounded on each side by sinuate pale blue lines ; a post-discal series of two or three large brownish spots ; a second post-discal series of quadrate dark brown spots touching an outer series of broad lunules of the same colour ; a submarginal row of narrow, whitish, crescentic marks ; a marginal dark brown line. Hind wing dark chocolate-brown, paler towards base ; a post-discal, broad, bluish-white, curved band, formed of paired, large, inwardly angular spots between the veins ; a second post-discal continuous series of broad brown lunules ; a submarginal row of narrow, crescentic, white marks ; a marginal brown line.

Underside ochraceous, speckled with green over the basal area, and on the discal bar of hind wing. Both wings with a sub-basal and discal sinuate dark brown line ; a discal, straw-coloured bar ; a brownish diffuse band ; a very dark ochraceous series of partly ocelli and partly obscure spots ; an outer post-discal, broad, diffuse, dark brown band, ending posteriorly in a black spot at tornus of hind wing.

Antenna, head, thorax and abdomen chocolate-brown.

Expanse : ♂♀, 125–150 mm.

Habitat.—SIKKIM ; not rare, occurring in forests at low elevations.

431 *b*. **Stichophthalma camadeva nicévillei** Röber.

Stichophthalma camadeva var. *nicévillei*, Röber, 1900, p. 203 (♂♀, Assam).
Stichophthalma camadeva nicévillei, Fruhstorfer, 1911, p. 426.
Sticopthalma (sic) *camadeva nicévillei* (sic), Evans, 1932 *a*, p. 132.
Stichophthalma camadeva, Wood-Mason & de Nicéville (*non* Westw.), 1887, p. 353 (Cachar).

♂♀. *Upperside* with the white areas more or less tinged with violet ; on fore wing chiefly over proximal part of the area, on hind wing over the submarginal band and antemarginal line.

Habitat.—ASSAM ; not rare.

431 *c*. **Stichophthalma camadeva aborica** Tytler.

Stichophthalma camadeva aborica, Tytler, 1939 *a*. p. 250 (♂, Abor Hills).

♂. *Upperside* similar to *nicévillei* Röb. from the Khasi Hills. Hind wing post-discal band very small and spots narrow.

Underside resembling *nicévillei* but ground-colour of a warmer brown.

Habitat.—ABOR HILLS.

Described from a single male taken during the expedition made in July, 1913.

431 *d*. **Stichophthalma camadeva nagaensis** Rothschild.

Stichophthalma camadeva nagaensis, Rothschild, 1916 *a*, p. 308 (♂. Naga Hills).
Sticopthalma (sic) *camadeva nagaensis*, Evans, 1932 *a*, p. 132.
? *Thaumantis camadeva*, Butler, (*non* Westw.) 1885 *a*, p. 303 (Manipur).

♂. *Upperside* much paler than either *c. camadeva* or *c. camadevoides* de Nicév. Fore wing with costa conspicuously golden yellow, and marked with very small chevrons.

Underside more uniform rufous ; all transverse lines and bands much straighter, less zigzag, and less crenulate than in the two allied subspecies.

Habitat.—ASSAM : Naga Hills. Described from a single ♂. No other specimen is known to the author.

431 *e*. **Stichophthalma camadeva camadevoides** de Nicéville.

Stichophthalma camadevoides, de Nicéville, 1899, p. 330 (Katha, Upper Burma).
Stichophthalma camadeva camadevoides, Stichel, 1906, p. 27 ; Fruhstorfer, 1911, p. 426, t. 103 *b*.
Sticopthalma (sic) *camadeva camadevoides*, Evans, 1932 *a*, p. 132.

♂♀. *Upperside* of fore wing with white area proximally

violaceous as in *nicévillei* ; antemarginal spots larger and not violet-tinged ; basal area paler brown than in allied forms. Hind wing with proximal area paler brown and more sharply defined than in allied forms ; submarginal band broader (about 8 mm.) than in allied forms, and but slightly tinged with violet ; a marginal white band of prominent triangular spots which are connected at the vein ends.

Habitat.—NORTHERN BURMA ; rare.

431 *f.* **Stichophthalma camadeva burmana** Tytler.

Stichophthalma camadeva burmana, Tytler, 1939 *a,* p. 250 (♂♀, Hthawgaw, Upper Burma).

♂♀. Somewhat similar to *nicévillei* Röb., but *upperside* much darker, especially in the male. Fore wing with four, instead of three, post-discal black spots. Hind wing with the post-discal purple spots darker, smaller, and narrower.

Underside ground-colour darker and of a richer brown than in *nicévillei.* Fore wing discal band much narrower, especially towards the costa, and not continued below vein 2.

Habitat.—NORTH-EASTERN BURMA, Htawgaw.

Described from 2 ♂, 1 ♀ taken in July, 1927

Stichophthalma louisa (Wood-Mason).

♂♀. *Upperside* of fore wing either entirely ochraceous, or proximal half ochraceous and distal half white ; a submarginal row of five or six sagittate black spots ; a second submarginal row of crescentic spots, sometimes forming a heavy crenulate line, the two rows connected ; apex blackish-brown ; outer margin white or ochraceous. Hind wing either entirely ochraceous, or proximal two-thirds ochraceous and distal third white ; submarginal rows of spots as on fore wing, but much larger and heavier.

Underside ochraceous, but paler and markings very much as in *camadeva* ; series of ocelli variable, in some forms weak and incomplete, in others very large and all present.

Distribution.—ASSAM, BURMA, Siam, and Tong-king. Six subspecies in the Indian area, including *sparta* de Nicév., formerly regarded as a species.

432 *a.* **Stichophthalma louisa louisa** (Wood-Mason).

Thaumantis louisa, Wood-Mason, 1877, p. 163 ; *id.,* 1878, p. 175, p. xii (♂, Taoo, Tenasserim).

Stichophthalma louisa, Marshall & de Nicéville, 1883, p. 311, ♂♀ ; Moore, 1893, p. 204, pl. clix, figs. 1, 1 *a* (♂♀) ; Bingham, 1905, p. 194.

Stichophthalma louisa louisa, Stichel, 1906, p. 28 ; Fruhstorfer, 1911, p. 425.

Sticopthalma (sic) *louisa louisa,* Evans, 1932 *a,* p. 133.

♂♀. *Upperside* of fore wing with basal half from pale to

rich ochraceous, distal half white tinged with lilacine; a submarginal series of inwardly pointed, large, hastate black marks; a marginal series of black angular lunules, coalescent with the submarginal series. Hind wing similar to the fore wing, the basal area broader.

Underside of fore wing with basal half pale dull ochraceous, powdered with green; distal half white; outer border broadly dull ochraceous; a sub-basal and discal sinuate dark brown line; post-discal irregular, white, and suffused dark brown bands; a series of five pale brown ocelli, the apical and posterior ones the largest. Hind wing markings similar to those of the fore wing; post-discal area suffused with green; distal border darker; sub-basal and discal lines crossing near tornus; ocelli ochraceous-red, with black irides; a tornal, suffused, large black spot.

Expanse: ♂♀, 125–150 mm.

Habitat.—BURMA: Tavo Plateau, Ataran, Dawna Range, Haungtharaw Valley; not rare.

432 *b*. **Stichophthalma louisa tytleri** Rothschild.

Stichophthalma tytleri, Rothschild, 1918, p. 310, ♂♀ (♂♀, Sebong, Manipur) (♂, Kindat, Burma).

Sticopthalma (sic) *sparta tytleri*, Evans, 1932 *a*, p. 132, pl. xv, fig. E 4. 3 (♂).

Stichophthalma howqua wilhelma, Röber, 1926, pp. 22, 23, figs. 5, 6 (♂♀, Assam).

Stichophthalma howqua, Bingham (*non* Westw.), 1905, p. 193 (part.).

Stichophthalma howqua sparta, Fruhstorfer, 1911 (*non* de Nicéville), p. 425 (♂, Manipur).

? *Stichophthalma howqua*, South (*non* Westw.), 1913, p. 352 (Mishmi Hills, 2,500 feet).

Sticophthalma (sic) *sparta*, Tytler, 1914, p. 227 (♂♀, Eastern Manipur Hills, April to June).

Stichophthalma sparta, Rothschild, 1916 *a*, p. 307, pl. iv, fig. 6 (♂, Kindat, Upper Burma).

Stichophthalma sparta archbaldi, Tytler, 1928, pp. 15, 16 ("Goteik, N. Shan States," recte Katha).

Sticopthalma (sic) *sparta archbaldi*, Evans, 1932 *a*, p. 133.

♂♀. *Upperside* similar to the nominotypical form; fore wing with similar pale distal half, but tinged with yellowish-brown. Hind wing with post-discal spots somewhat as in *sparta* de Nicév., but narrower; submarginal spots as in *sparta* but connected with the post-discal ones by narrower bars as in the nominotypical form.

Underside paler than in *sparta*. Fore wing distal area suffused with white; discal lines bordered with white.

Habitat.—ASSAM: Mishmi Hills; Abor Hills; Naga Hills; Manipur. BURMA: Kindat; Katha; not rare.

The name *archbaldi* Tytl. was founded upon specimens taken at Katha, not at Goteik. This is upon the authority

of Brigadier W. H. Evans who was so informed by the late Mr. Cooper. The specimens are in the British Museum, and when compared with a good series of *tytleri* it is obvious that no distinction can be made.

432 *c*. **Stichophthalma louisa sparta** de Nicéville.

Stichophthalma sparta, de Nicéville, 1894 *b*, p. 2, pl. i, fig. 4 (♂, "Manipur"); Moore, 1895, p. 217, pl. clxvii, figs. 2, 2 *a*, (♂).
Stichophthalma howqua sparta, Stichel, 1906, p. 28.
Sticopthalma (sic) *sparta sparta*, Evans, 1932 *a*, p. 133 (Htawgaw, N.E. Burma).

♂♀. *Upperside* ochraceous-brown, much darker than the nominotypical form. Fore wing either distally paler, or with a subapical diffuse white band, not proximally defined; submarginal spots as in the nominotypical form but with stronger proximal projections; antemarginal spots sublunate and heavy, only separated from the margin by a fine pale line. Hind wing post-discal spots broader than in the nominotypical form and only separated by the veins; submarginal spots sublunate and heavy, joined to the post-discal spots by broad bars.

Underside ochraceous-brown. Fore wing slightly paler in apical area; ocelli larger than in the nominotypical form; discal line not bordered with white except where it defines the anterior pale suffusion. Hind wing discal line not bordered with white; ocelli in areas 3 to 5 more developed than in the nominotypical form; post-discal black line, separating the black submarginal band, twice as wide as in the nominotypical form.

Habitat.—North-Eastern Burma; very rare. Only known from Htawgaw, north of Sadon, close to the Chinese frontier. Collectors for the late General Tytler obtained six males in July. The type is in the Calcutta Museum. It was purchased by de Nicéville from a Telegraph Signaller at Manipur, but no similar specimen has been found in that area, and it is possible that the collector was at one time stationed at Htawgaw. Tytler (1914, p. 227) pointed out that de Nicéville's figure of the type "is very good excepting that on the upperside the apical area of the fore wing is not pale enough."

S. louisa sparta is easily distinguished from *tytleri* by upperside of fore wing in the latter having the outer half creamy-white, and in the former by this colouring occupying only a small apical area. Also on underside of hind wing in *tytleri* and *evansi* Tytler the dark discal line is bordered with white distally, this white border being absent or vestigial in *sparta*.

432 *d*. Stichophthalma louisa evansi Tytler.

Stichophthalma sparta evansi, Tytler, 1928, p. 16 (Sadon, N.E. Burma).
Sticopthalma (sic) *sparta evansii*, Evans, 1932 *a*, p. 133 (Sadon, N.E. Burma).

♂♀. *Upperside* of fore wing with apical area paler than in *sparta* de Nicév.

Underside markings all darker and not so uniform as in *sparta* ; submarginal line on both wings placed closer to outer margin than in *sparta*.

Habitat.—North-Eastern Burma, Sadon, about 5,000 feet. Sadon is in the hills due east of Myitkyina (pronounced Mitchinar).

Described from a series of males and seven females, taken in July.

432 *e*. Stichophthalma louisa fruhstorferi Röber.

Stichophthalma fruhstorferi, Röber, 1903 *a*, p. 153 (♂♀, Cent. Tong-king).
Stichophthalma louisa fruhstorferi, Stichel, 1906, p. 28 ; Fruhstorfer, 1911, p. 425, t. 103 *a* (" N. Tonkin ").
Sticopthalma (sic) *louisa fruhstorferi*, Evans, 1932 *a*, p. 133 (N. Shan States).

♂♀. *Upperside* dull ochraceous-brown, somewhat darker than in the nominotypical form. Fore wing with distal half white, narrower below vein 4, and inner edge more defined than in *l. louisa* ; antemarginal spots larger than in allied forms. Hind wing submarginal spots somewhat smaller than in the nominotypical form ; antemarginal spots form a broad band which is only narrowly separated from the submarginal spots.

Underside ground-colour somewhat darker than in the nominotypical form, and discal lines similarly bordered with white. Fore wing with an ocellus at least in areas 2 and 5, the former the larger. Hind wing with an ocellus in area 4 well developed, in addition to those in 2 and 5 ; submarginal black line narrowly separated from the somewhat dusky marginal border, as in the nominotypical form.

Habitat.—Northern Shan States ; Tong-king ; rare.

432 *f*. Stichophthalma louisa antonia Röber.

Stichophthalma louisa antonia, Röber, 1926, pp. 18, 19, ♂♀, fig. 4 (♂, " Moulmain," Burma).
Sticopthalma (sic) *louisa antonia*, Evans, 1932 *a*, p. 133 (Karen Hills).
Stictophthalma (sic) *louisa*, Elwes (*non* Wood-Mason), 1891, p. 271 (Karen Hills, not rare).

♂♀. *Upperside* of fore wing with distal area tinged with ochraceous. Both wings with ground-colour darker than in

the nominotypical form, the black markings much the same.

Underside similar to the nominotypical form; ocelli well developed.

Habitat.—BURMA: Karen Hills; not rare.

433. **Stichophthalma godfreyi** Rothschild.

Stichophthalma godfreyi, Rothschild, 1916 *b*, p. 474 (♂, Siam, near Kambusi).

Stichopthalma (sic) *godfreyi*, Ollenbach, 1919 *a*, pp. 867–8, fig. (♂, Tavoy: Taungshum Taung); *id.*, 1921, p. 887 (Tavoy).

Sticopthalma (sic) *godfreyi*, Evans, 1932 *a*, p. 133 (Dawnas to S. Burma).

♂♀. *Upperside* of both wings with the ground-colour deep bluish-black, the proximal half greenish; markings white, tinged with pale green to blue. Fore wing with a large, sharply defined, costal, triangular patch, its apex reaching to vein 4 or nearly so, and its base placed between apex and cell; a post-discal row of three large more or less rounded spots in areas 1 *b* to 3; a submarginal row of larger sagittate spots, on veins 1 *a*, 2 to 6, more or less connected at their outer edges, and each with a distal narrow prolongation; six antemarginal, broadly triangular, spots in areas 1 *b*, 2 to 6, becoming larger posteriorly, the anterior one indistinct, and all with a faint violet tinge. Hind wing with a post-discal row of five spots similar to those of fore wing; a submarginal, strongly sagittate band formed of conjoined spots similar to those of fore wing, but narrower; antemarginal spots as on fore wing, but larger.

Underside much as in *louisa tytleri* Roths., and in markings very like *cambodia* (Hew.) from Siam; dark ochraceous-brown, with the usual sub-basal, post-discal, and submarginal lines. Fore wing with two ocelli, in areas 2 and 5. Hind wing with three ocelli, in 2, 4, and 6; post-discal band bordered outwardly with greenish-black, sharply defining its greenish-white colour.

Expanse: ♂♀, 125–140 mm.

Habitat.—SOUTHERN BURMA and MERGUI ISLANDS.

A handsome and distinctive species, very rare in Burma, more frequent in Siam. According to Ollenbach (1921), the butterfly keeps to heavy jungle, and is attracted by over-ripe fruit.

Genus **THAUMANTIS** Hübner.

Thaumantis, Hübner, 1819–1827, pl. lxi; Marshall & de Nicéville, 1883, pp. 283, 304; Moore, 1893, p. 184 (type, *Morpho odana* Godart); Bingham, 1905, p. 189; Stichel, 1906, p. 16, pl. i, fig. 3 (venation); Fruhstorfer, 1911, p. 437; Evans, 1932 *a*, p. 133; Hemming, 1934 *a*, p. 51 (type, *Thaumantis oda* Hübner, 1819–1826, =*Morpho odana* Godart, 1824).

Nandogea, Moore, 1893, pp. 173, 182 (type, *Thaumantis diores* Doubleday).
Kringana, Moore, 1893, p. 185 (type, *Thaumantis noureddin* Westwood).

Type of the genus, *T. odana* (Godart), from Java.

♂♀. Wings very broad in proportion to length. Fore wing with costa very strongly arched; apex well marked; outer margin slightly convex; tornus rounded; inner margin straight; cell short, not half length of fore wing, very broad; *udc* very short, about half length of *mdc*; *mdc* slightly oblique; *ldc* incurved, posteriorly oblique; vein 4 obtusely angled upwards; vein 11 from one-third before apex of cell, anastomosed with 12; vein 10 arising from 7 well beyond apex of cell, anastomosed with 11; veins 9 and 8 not anastomosing. Hind wing with costa and outer margin widely arched, tornus rounded, inner margin more slightly arched; cell open, vein 4 strongly obtusely angulate upwards.

Antenna long and slender, club long and gradual; palpus suberect, pointed, narrow in front, densely clothed with short hairs; eye large; legs scaled.

Distribution.—SIKKIM and Southern Tibet to BURMA, Siam, Malaya, Sumatra, Java, and Borneo. Four species are known of which two are found in the Indian area.

Key to Species of Thaumantis.

1. Upperside dark brown. Both wings with a prominent, discal, metallic-blue band. ♂ hair-pencil small, no brand	*diores* Doubl., p. 426.
2. Upperside brilliant metallic blue to base; no discal band. ♂ with hair-pencil and brand	*klugius* (Zink.), p. 428.

Thaumantis diores Doubleday.

♂♀. *Upperside* blackish-brown. Both wings with a large distal iridescent purplish-blue patch. Fore wing with outer edge of blue area bordered by a band of paler blue. Hind wing with a distal pale blue patch, lying within the iridescent area, from areas 3 to 5.

Underside very dark chestnut-brown; outer borders broadly dusted with grey-white. Fore wing with a post-discal oblique line, joining the submarginal line below vein 2; a second submarginal, strongly waved, line limiting a marginal border free from grey scaling. Hind wing submarginal lines as on fore wing; post-discal line similarly joined to submarginal line; a black ocellus in area 2, and a smaller pale ochraceous one in 5.

Distribution.—SIKKIM to Southern Tibet, BURMA, Siam, Tong-king and Hainan. Two subspecies in the Indian area.

434 *a*. Thaumantis diores diores Doubleday. (Pl. II, fig. 1, ♂).

Thaumantis diores, Doubleday, 1845, p. 234; Marshall & de Nicéville, 1883, p. 304, ♂♀; Butler, 1885 *a*, p. 302 (Manipur); Wood-Mason & de Nicéville, 1887, p. 353 (Cachar).
Nandogea diores, Moore, 1893, p. 182, pl. cxlviii, figs. 1, 1 *a*, *b* (♂♀).
Thaumantis diores, de Nicéville, 1894 *a*, p. 131 (Sikkim, low elevations); Watson, 1897, p. 652 (Chin Hills, 3,500 feet).
Nandogea diores, Adamson, 1905, p. 170 (Bhamo).
Thaumantis diores, Bingham, 1905, p. 190, pl. iv, fig. 32 (♂).
Thaumantis diores diores, Stichel, 1906, pp. 17, 59.
Thaumantis diores, Tytler, 1911, p. 55 (Naga Hills).
Thaumantis diores diores, Fruhstorfer, 1911, p. 438.
Nandogea diores, South, 1913, p. 352 (Mishmi Hills, 2,000 feet).
Thaumantis diores, Evans, 1932 *a*, p. 133, pl. xvi, fig. E 5. 1 (♂).
Thaumantis ramdeo, Moore, 1857, p. 215; Marshall & de Nicéville, 1883, p. 305, fig. (♂, Sibsagar).
Thaumantis diores f. *ramdeo*, Stichel, 1906, p. 17; Fruhstorfer, 1911, p. 438, t. 104 *a* (=dry-season form).

♂♀. *Upperside* dusky brown. Fore wing with a discal, broad, iridescent blue band from below vein 8 to inner margin, extending posteriorly towards base, outwardly suffused with a brilliant silvery gloss. Hind wing with a discal, somewhat rounded, patch, the outward silvery gloss very brilliant, in fresh specimens the blue spreading towards the base.

Underside rich silky brown; outer margins broadly paler, sprinkled with lilacine near a submarginal well-defined very pale brownish-yellow sinuous line; proximal area of both wings darkening distad. Fore wing with two pairs of sinuous dark narrow bands across the cell; a similar discal oblique band, from costa to area 1 *b*. Hind wing with two bands similar to those on fore wing, divergent posteriorly; an oval, yellowish-white, spot in areas 2 and 6 respectively; a tornal dark spot; spot in area 2 shaded with brown.

Antenna red; head, thorax and abdomen brown. Male hind wing bearing a small erectile tuft of hair, placed near base of subcostal vein on upperside.

Expanse: ♂♀, 95–115 mm.

Form **ramdeo** Moore.—This only differs in having the iridescent blue areas lighter, and extending farther into the cell. *Underside* of hind wing paler, ocelli smaller. Probably a dry-season form.

Habitat.—Sikkim to Burma; not rare.

"Nearly always seen in couples or more in dense jungle, flying short distances when disturbed, and sitting with wings closed" (de Nicéville, 1894 *a*).

434 *b*. Thaumantis diores splendens Tytler.

Thaumantis diores splendens, Tytler, 1939 *a*, p. 251 (♂♀, Karen Hills; Dawna Range).
Thaumantis diores, Elwes (*non* Doubl.), 1891, p. 271 (Karen Hills); Adamson, 1905, p. 170 (Arakan).

♂♀. *Upperside* of fore wing with blue suffusion more vivid and extensive than in the nominotypical dry-season form, reaching outer margin ; the pale outer whitish area on the blue patch is more silvery and wider, especially in area 3.

Habitat.—BURMA : Karen Hills and Dawna Range.

Described from a series of the dry-season form.

Thaumantis klugius (Zinken-Sommer).

♂. *Upperside* blackish-brown. Fore wing glossed with dark blue over proximal two-thirds. Hind wing glossy blue over the anterior area to vein 2, not reaching outer margin ; an oval brand, bearing a tuft of smoky-brown hair, is placed at base of area 7, and reaches into upper part of cell.

Underside similar to that of *diores* Doubl., but with distal grey-white scaling weakly developed.

♀. *Upperside* similar to that of the male, but blue gloss restricted to basal areas. Fore wing with blue area reaching a post-discal, pale, maculate line ; a submarginal, strongly waved, oblique line. Hind wing with blue area smaller than on fore wing, covering an area between veins 2 and 7 ; a submarginal, blackish, waved line.

Underside with strongly developed grey-white scaling over proximal areas and outer borders.

Distribution.—SOUTHERN BURMA and Malaya to Sumatra, Java, and Borneo. A doubt as to the occurrence of the nominotypical subspecies in Java has been removed by the rediscovery of the insect there in recent years.

435. **Thaumantis klugius lucipor** Westwood.

Thaumantis lucipor, Westwood, 1851, p. 337 ; Marshall & de Nicéville, 1883, p. 306 (Malay Pen.) ; Bingham, 1905, p. 190.

Thaumantis lucipor lucipor, Fruhstorfer, 1911, p. 438, t. 104 *b* (Borneo).

Thaumantis lucipor, Evans, 1932 *a*, p. 133 (S. Burma) ; Tytler, 1939 *a*, p. 251 (♂♀, Mergui).

♂. *Upperside* dark brown. Fore wing, except costal margin narrowly, apex and outer margin more broadly, suffused with the most brilliant metallic, somewhat iridescent blue. Hind wing similar to fore wing, but outer and inner margins more broadly uniform dark brown.

Underside of fore wing with proximal three-fourths very dark maroon-brown ; inner and outer margins broadly paler ; a basal pale oblique bar from costa to vein 2, pale specklings in the cell, on apical area and on the outer broad pale border. Hind wing similar to fore wing, but without the bar ; pale specklings on the basal dark area, and on the lighter brown outer border, forming an irregular band on the latter ; two black ocelli placed close to outer edge of the dark area, with inner half of the irides pure white.

Antennæ red; head, thorax and abdomen dark brown. Male hind wing, on upperside, with a small brand above base of subcostal vein, covered by a tuft of long hair.

♀. Similar to male. *Upperside* with blue restricted to basal area. Fore wing with a discal curved band of whitish spots from costa to vein 2; a submarginal, narrow, zigzag, very dark brown band.

Underside paler than in the male. Hind wing with a discal, slightly sinuous, dark brown band in addition to the other markings.

Expanse: ♂♀, 100–110 mm.

Early stages (from *Martin*, in Borneo, recorded by Fruhstorfer, 1911, p. 438):—

Egg.—Spherical, dull white, somewhat transparent, and covered with deep red markings resembling Hindustani characters. Larva emerges in four or five days, and does not eat the egg-shell.

Larva.—At first it is rufescent, with two red anal processes; head transparent and shining, with two black spots resembling eyes and thus recalling the head of a *Culex* larva.

1st instar.—A dorsal double silvery line bordered with claret-red; venter whitish; anal process black.

2nd instar.—Hairy and brown-yellow; a dorsal double black line; head shining brown-red; two frontal head processes standing close together, reddish, obtuse, truncate and setose; short anal spines, coloured like the body, and strongly divergent; a spiracular line of black dots; segments 8 and 9, on either side of dorsal line, with paler yellowish kidney-shaped spots, their concavity towards dorsal line. General appearance velvety, strongly pubescent, and fusiform in shape.

3rd instar.—Brown, and very hairy; head blackish, furnished with two coral-red, fleshy, clavate, finely toothed horns, standing close together; anal spines short, stout and plump, with grey-white apices; the longer hairs, which stand out above the general pubescence, have rosy points.

4th instar.—Full-fed in about 26 days and now about 5 to 6 cm. long, Very hairy; dull greenish-brown; dorsal dark line indistinct; head strongly setose, with two lateral black spots between which is a frontal yellow triangle; head processes set very close together, rufescent, short and stout, clavate, with a ring of points, and strongly setose.

Pupa.—Slender and elongate, resembling a leaf in shape, with a short stalk (cremaster) and very long double points (palpi). At first light reddish, becoming olive-green in a few hours; abdomen with six spiracular white spots, and a similar spot on thorax; thorax and abdomen dotted with black; wing-sheaths finely striated brown; head-points blackish;

near the cremaster a short yellow line continuous with the series of lateral yellowish-white spots.

The pupation period is twelve days when the pupa becomes blackish and the butterfly emerges in the early morning.

Habitat.—SOUTHERN BURMA to Malaya and Borneo; very rare in Burma.

Genus **THAURIA** Moore.

Thauria, Moore, 1893, pp. 173, 185 (type, *T. aliris* Westwood); Bingham, 1905, p. 195; Stichel, 1906, p. 24, t. i, fig. 5 (venation); Fruhstorfer, 1911, p. 441; Rothschild, 1916 *b*, p. 475; Evans, 1932 *a*, p. 133; Corbet, 1941 *b*, p. 808 (*T. aliris* and *T. lathyi* conspecific).

Morphindra, Röber, 1903 *b*, p. 337 (type, *Thaumantis aliris* Westwood).

Type of genus, *T aliris* Westwood, from Borneo.

♂♀. Closely allied to *Thaumantis* Westw., but fore wing with vein 7 arising well before apex of cell instead of at the apex, veins 10 and 11 not anastomosing but placed close together, and 11 not anastomosing with 12; *udc* oblique and much longer than *mdc* which is minute; veins 5 and 6 closely approximate at base. Hind wing with vein 4 curved upward, not angulate; cell open as in *Thaumantis*, but bases of veins 6 and 7 closer together.

♂ hind wing, with areas 1 *a*, and 1 *b* as far as the fold, not scaled, and with a small brown hair-pencil placed in 1 *a* at about the middle.

Distribution.—ASSAM to BURMA, Malaya, Borneo, Siam and Tong-king.

It may be debated whether the genus contains two or only one species. Only one species is recognized here, a conclusion reached after considering the distribution, the genitalia, and the underside facies.

Thauria aliris (Westwood), 1858.

♂♀. *Upperside* deep purplish-brown. Fore wing basal area dark chocolate-brown, more or less pronounced; a post-discal white oblique band; two subapical, small, bluish-white spots. Hind wing with a posterior large marginal ochraceous-yellow patch; an anterior marginal narrow ochraceous-yellow border, usually separated from the posterior patch.

Underside with basal areas grey, distal areas ochraceous-brown. Fore wing with an oblique band as on upperside. Hind wing with a posterior large ocellus in area 2, and a smaller one in 6.

The forms differ chiefly on upperside in width of band of fore wing, and in the male in the presence or absence of androconia on hind wing. Underside very similar in all forms.

The male genital armature, in forms with and without androconia, does not show any apparent difference.

Distribution.—ASSAM to SOUTHERN BURMA, Malaya, and Siam. Four subspecies.

436 *a*. **Thauria aliris amplifascia** Rothschild.

Thauria lathyi amplifascia, Rothschild, 1916 *b*, p. 475 (♂♀, Toungoo); Evans, 1932 *a*, p. 134, pl. xv, fig. E 6.1 (♀).

♂♀. Resembles *lathyi* Fruhst.; differs in its much larger size, and in the fore wing pale band being much wider, about 16 mm. in the male, and 17 mm. in the female; in *lathyi* the band is about 6 mm. in the male and 11 mm. in the female.

Expanse: ♂♀, 126–140 mm.

Habitat.—ASSAM (Manipur) to NORTHERN BURMA (Bhamo district); rare.

436 *b*. **Thauria aliris lathyi** Fruhstorfer.

Thauria aliris lathyi, Fruhstorfer, 1901, p. 177 ("Tonkin"); Stichel, 1906, p. 25; Fruhstorfer, 1911, p. 441, t. 102 *b* (♂) ("North and Central Tonkin").

Thauria lathyi lathyi, Rothschild, 1916 *b*, p. 475; *id.*, 1916 *a*, p. 309; Tytler, 1939 *a*, p. 251 (♂, Loimwe, S. Shan States).

♂♀. *Upperside* of fore wing with post-discal band narrowing to costa, the spot below vein 2 much smaller than the spot in area 2; the band is about 4 mm. wide at costal vein, and about 7 mm. along vein 2. Hind wing posterior patch about 16 mm. wide along vein 2, not reaching above vein 4; anterior border, from apex to below vein 6, not reaching vein 5. ♂ without androconia and hair-pencil.

Underside brown markings paler than in allied forms, especially the hind wing post-discal band.

Expanse: ♂♀, 112–128 mm.

Habitat.—SOUTHERN SHAN STATES (Loimwe); Tong-king; very rare in Burma.

436 *c*. **Thauria aliris intermedia** Crowley.

Thauria intermedia, Crowley, 1896, p. 66 (♂, Burma).

Thauria aliris intermedia, Stichel, 1906, p. 25; Fruhstorfer, 1911, p. 441; Tytler, 1914, p. 227 (♂♀, Eastern Manipur Hills, March and April); Rothschild, 1916 *a*, p. 309 (N. Burma); Ellis, 1917, p. 107 (Pegu Yoma, not common); Evans, 1932 *a*, p. 134.

Thaumantis pseudaliris, Elwes (*non* Butler), 1891, p. 271 (Karen Hills); Watson (*non* Butler), 1897, p. 652 (Chin Hills); Bingham, 1905, p. 195.

Thauria aliris pseudaliris, Evans (part.), 1932 *a* p. 134.

♂♀. *Upperside* dark vandyke-brown. Fore wing basal area to end of cell clothed with dense, short, dark ochraceous hairs; two subapical white spots; a discal broad white band, on vein 3, 9–10 mm. wide in the male and 10–12 mm. in the

female, tinged with yellow, extending from costa to outer margin just above tornus. Hind wing with costal and apical areas broadly, and a large posterior area bright ochraceous; dark ground-colour between veins 5 and 6 produced broadly to outer margin.

♂ with strongly developed scent-organs; cell of hind wing with a black patch of androconia extending into bases of areas 4 to 6; this is covered by a tuft of smoky-brown hairs arising in basal area of cell.

Underside of both wings with basal third greyish, somewhat densely clothed with short woolly ochraceous hairs, and marked with spots and lines of dark chestnut-red; a basal irregular chestnut-red band, broadest posteriorly on fore wing, and anteriorly on hind wing. Fore wing with discal white band as on upperside; a distal brown subtriangular area; inner margin broadly brown; apex and outer margin to outer end of white band very broadly chestnut-red, defined inwardly by an obscure dark line and a subcostal white spot. Hind wing with the median dark chestnut-red band narrowed and sub-interrupted in the middle by a white patch; two large discal ocelli, oval, ochraceous-brown, dark-ringed, and inwardly lined with white; distal area very broadly bright ochraceous-orange; a submarginal, waved, narrow, chestnut-red band; a marginal, obscure, incomplete dark line.

Antenna chestnut-red; head, thorax and abdomen brown.

Expanse: ♂♀, 110–120 mm.

Habitat.—BURMA, Karen Hills to Dawna Range; Peninsular and Western Siam; very rare in Burma.

436 *d.* **Thauria aliris merguia** Tytler.

Thauria aliris merguia, Tytler, 1939 *a*, p. 251 (♂, Mergui: ♀, Ataran Valley).

♂♀. Differs from *intermedia* Cwly. in having the band on fore wing narrower, being about 7 mm. wide along vein 3.

Habitat.—SOUTHERN BURMA, Dawna Range to Mergui; very rare.

Genus **AMATHUSIA** Fabricius.

Amathusia, Fabricius, 1807, p. 279 (*phidippus* Linn.); Marshall & de Nicéville, 1883, pp. 282, 288; Moore, 1893, pp. 173, 178 (type, *A. phidippus* Johanssen); Bingham, 1905, p. 187; Stichel, 1906, p. 7, pl. *i*, fig. 1 (venation); Fruhstorfer, 1911, p. 426; Evans, 1932 *a*, p. 134; Hemming, 1934 *a*, p. 50 (type, *Papilio phidippus* Linn., 1763); Corbet & Pendlebury, 1936, p. 141; *id.*, 1938, p. 240.

Mitocerus, Billberg, 1820, p. 79.

Thoræssa, Westwood, 1850, p. 326; Hemming, 1939, p. 133 (type, *Papilio phidippus* Linn., 1763); *id.*, 1941 *b*, p. 421 (=*Amathusia* Fabr.).

Type of the genus, *A. phidippus* (Linn.).

♂♀. Wings very broad and ample. Fore wing triangular, costa strongly arched, apex well marked but not acute, outer margin straight, tornus more or less rounded, inner margin straight or slightly convex; cell short, broad, less than half length of fore wing; *udc* minute; *mdc* short, nearly vertical, *ldc* long, incurved at upper third, otherwise straight and very oblique; vein 10 arising from basal half of vein 7 well beyond apex of cell; veins 8, 9, and 10 short and subequal, not anastomosed; vein 11 anastomosed with or running very close to 12 towards apex. Hind wing subquadrate; cell partially closed by a fold; costa widely arched, outer margin arched; tornus produced, broadly caudate, inner margin widely arched.

Antenna about half length of fore wing, club long and gradual; palpus long, suberect, reaching above vertex of head, with a sharp margin anteriorly clothed with dense short hairs; legs scaled.

It has been shown by Corbet & Pendlebury (1936) that the species of this genus cannot be separated by the hair-pencils on the hind wing, nor by genitalia, nor by scales. In most species it is the upperside, rather than the underside, which bears the constant characters.

Distribution.—BURMA to Siam, Malaya, Sumatra, Java, Celebes, Borneo, and the Philippines. Seven species are known of which two are found in the Indian area.

Key to Species and Subspecies of Amathusia.

Male.

1. Upperside ochraceous-brown; submarginal bands very obscure — [Fruhst., p. 436. *phidippus andamanensis*
   Upperside dark purplish-brown; submarginal bands more or less prominent. — 2.
2. Fore wing submarginal band with inner edge even or weakly crenulate. Underside of both wings with post-discal dark bands at costa, from 4 to 6 mm. wide. — [Fruhst., p. 435. *phidippus chersias*
   Fore wing submarginal band with inner edge strongly dentate. Underside of both wings with post-discal dark bands at costa, from 6 to 7 mm. wide — 3.
3. Fore wing submarginal band strongly marked, yellow-brown; subapical band strongly marked . . . . . — [Fruhst., p. 436. *friderici friderici*
   Fore wing submarginal band not strongly marked; subapical band very obscure. — [Corb. & Pend., p. 437. *friderici holman-hunti*

Female.

1. Upperside yellowish-brown. Fore wing subapical band not posteriorly narrowed. — [Fruhst., p. 436. *phidippus andamanensis*
   Upperside pale brown. Fore wing subapical band posteriorly narrowed — 2.

2. Upperside of fore wing with subapical band distinctly separated from submarginal band.	3.
Upperside of fore wing with subapical band broad, only separated from the submarginal band by a dark line.	[Fruhst., p. 436. *friderici friderici*
3. Upperside of fore wing with spots of the submarginal band more or less lunulate.	[Fruhst., p. 435. *phidippus chersias*
Upperside of fore wing with spots of submarginal band not lunulate *	[Corb. & Pend., p. 437. *friderici holman-hunti*

Amathusia phidippus (Linnæus), 1763. (Fig. 100, larva and pupa).

♂. *Upperside* deep coffee-brown. Fore wing slightly paler over basal area; a submarginal, narrow, paler band, from costa to tornus, slightly curved proximad, narrowing to a point at tornus, its inner edge more or less crenulate or dentate;

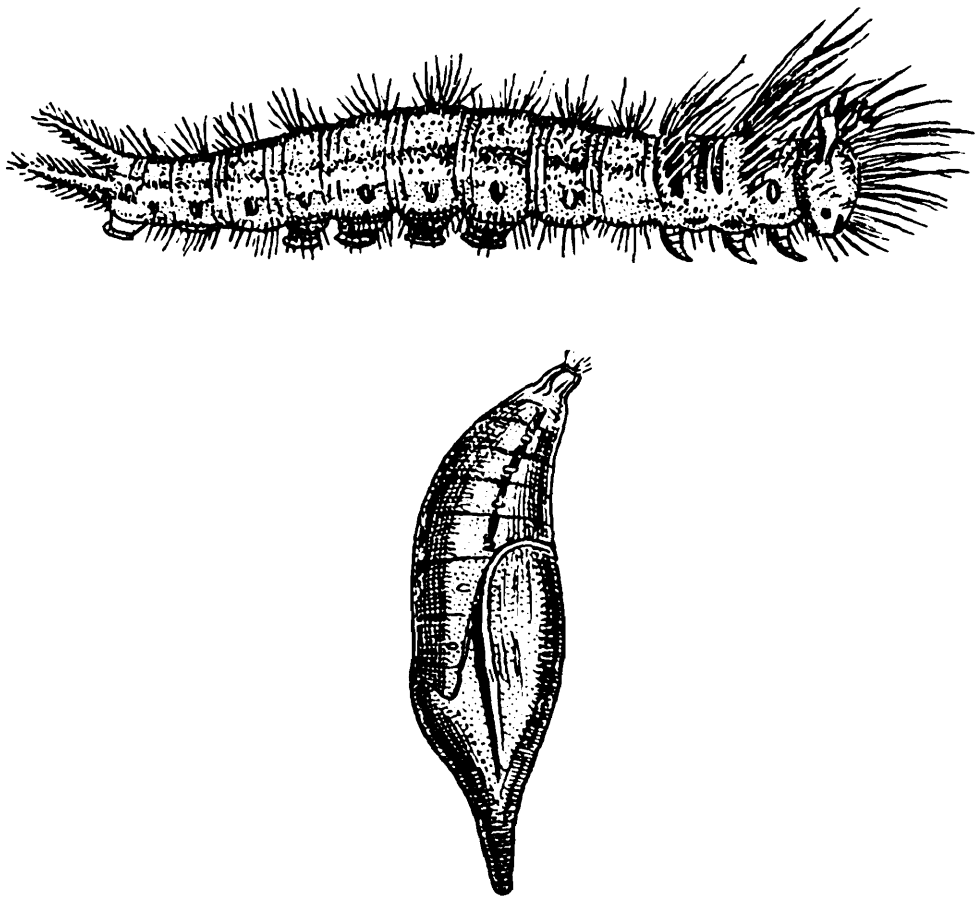


Fig. 100.—*Amathusia phidippus phidippus* (L). Larva and pupa. (After *Horsfield & Moore*, 1857).

an antemarginal pale line; sometimes a subapical, diffuse, ill-defined, indistinct pale bar. Hind wing with a submarginal band, darker and wider than on fore wing, even and sharply defined; anal lobe short and broad, bearing two semi-ocellate black spots with white iris.

* ♀ very rare, this character based upon one specimen.

Underside coffee-brown, marked with sharply defined lines and bands which are usually white or grey, but may be tinged with ochraceous; a short basal costal bar; a sub-basal bar reaching lower edge of cell.

Distribution.—ANDAMAN ISLANDS and BURMA, to Malaya, Siam, Sumatra, Java, Borneo, Palawan, Philippines, and Celebes. Two subspecies in the Indian area.

437 *a*. **Amathusia phidippus chersias** Fruhstorfer.

Amathusia phidippus chersias, Fruhstorfer, 1911, p. 427 (♂, Malaya); Corbet & Pendlebury, 1936, pp. 142, 143 (Malaya).
Amathusia phidippus, Moore (*non* Linn.), 1893, p. 179, pl. cxlvi, figs. 1, 1 *a*, *b* (♂♀, Burma); Bingham, 1905, p. 187.

♂. *Upperside* dark purple-brown to ochraceous-brown. Fore wing narrowly fulvous near apex, crossing towards outer margin, forming a subapical obscure band; a submarginal fulvous band, joining the subapical one, its inner edge serrate. Hind wing uniform; a submarginal band as on fore wing, its edge straight.

Underside markings and colouring variable. Ground-colour usually pale brown, with pale lilac-white bands. A sub-basal and discal band of equal width, meeting above tornus in a V-shape; fore wing with two shorter similar bands crossing the cell, and a similar one on hind wing, from costa to median vein; a post-discal band; submarginal and marginal broad bands. Hind wing submarginal band bent upwards above tornal area, and continued halfway up inner margin; tornus broadly produced, bearing a dark brown spot; a large ochraceous ocellus in area 2, and a smaller similar one in 6.

Antenna reddish; head, thorax, and abdomen umber-brown.

♀. Ground-colour on both sides paler than in the male. *Upperside* of fore wing with costal fulvous area widening into a subapical patch. Pale bands of underside usually showing through as pale fulvous bands.

Expanse: ♂♀, 100 mm. or a little less.

Early stages (from *Moore*, 1893):—

Larva.—Cylindrical, light brown above; fifth to anal segment with rows of short fine hairs; anterior segments and head with longer, anteriorly projecting, hairs; head with a pair of lateral palmate processes; anal segment with two backward-projecting setose processes. Colour light pinkish-brown above, ochraceous beneath; lateral and dorsal dark brown lines; a black transverse band on segments 3 and 4.

Pupa.—Green; head bifid, elongate boat-shaped.

Habitat.—SOUTHERN BURMA to Malaya, Siam, and Indo-China; rare in Burma.

The figure of this butterfly given by Moore (1893) is not good; the submarginal bands are too strongly emphasized.

437 *b*. Amathusia phidippus andamanensis Fruhstorfer.

Amathusia tænia andamanensis, Fruhstorfer, 1899 *b*, p. 76.
Amathusia phidippus andamanensis, Fruhstorfer, 1904 *a*, p. 156; Stichel, 1906, p. 11; Fruhstorfer, 1911, p. 427.
Amathusia phidippus andamanica (sic), Evans, 1932 *a*, p. 134.
Amathusia phidippus, Wood-Mason & de Nicéville (*non* Linn.), 1881 *b*, p. 245.
Amathusia phidippus form, Moore, 1893, p. 181, pl. cxlvii, (♀, Andaman Islands).

♂. *Upperside* ochraceous-brown. Both wings with a submarginal, very slightly paler, indistinct band.

Underside paler ochraceous, with the usual markings; ocelli more strongly dusted with black than in allied forms.

♀. *Upperside* as in *chersias* Fruhst. Fore wing with yellow markings well developed; costal bar sharply defined, reaching vein 4. Hind wing submarginal band well defined, its inner edge less even than in *chersias*.

Underside resembles *chersias*. Both wings with marginal dark border narrower.

Habitat.—ANDAMAN ISLANDS; rare.

Amathusia friderici Fruhstorfer.

♂. Both wings produced. Fore wing with apex pointed, distal margin straight. Hind wing more elongate than in other species; distal margin serrate, the vein endings more pointed than usual.

Upperside purple-brown, with hind wing costal area paler. Fore wing with markings similar to those of *phidippus*; submarginal fulvous band more dentate on inner edge, and more distinctly marked.

Underside reddish-brown, with markings similar to those of *phidippus*, the discal band broader.

♀. Fore wing with apex produced; distal margin incurved. Hind wing elongate; tornus produced, apex sharply angled, distal margin serrate.

Upperside reddish-brown. Fore wing with a submarginal prominent fulvous band, its inner and outer edges crenulate; a subapical, fulvous band. Hind wing with a marginal, narrow, fulvous band; a submarginal, obscure evenly edged fulvous band.

Underside similar to the male, markings more contrasted, ground-colour paler; discal band rather broad, and ocelli on hind wing rather large.

Distribution.—SOUTHERN BURMA to Malaya; rare. Two subspecies known, both occurring in Burma.

438 *a*. Amathusia friderici friderici Fruhstorfer.

Amathusia phidippus friderici, Fruhstorfer, 1904 *a*, p. 153; Stichel, 1906, p. 11 (=a form); Fruhstorfer, 1911, p. 427 (Tenasserim); Evans, 1932 *a*, p. 134, pl. xvi, fig. E 7. 1 (♂).

Amathusia phidippus friderichi (sic), Corbet & Pendlebury, 1936, pp. 144, 146 (Burma).
Amathusia friderichi (sic), Corbet & Pendlebury, 1938, p. 240.
Amathusia phidippus, Moore (*non* Linn.), 1893, pl. cxlvii, fig. 1 (♂, E. Pegu).

♂. *Upperside* resembles *phidippus chersias* Fruhst. Fore wing with submarginal pale band more distinctly dentate, somewhat narrower, and more strongly narrowed posteriorly to tornus.

Underside not constantly different from that of *chersias*, but usually very strongly marked, with the pale bands much whitened. Post-discal dark bands broader than in *chersias*; at costa of fore wing, 7 mm. wide, and at costa of hind wing, 6·5 to 7 mm.; in *chersias* the former measures only 4 to 6 mm., and the latter 5 to 6 mm.

♀. *Upperside* of fore wing pale ochraceous; subapical band broader than in *chersias*, not distinctly separated from the submarginal band; submarginal band with inner edge more strongly dentate than in *chersias*, outer edge crenulate, whereas in *chersias* it is almost even.

Underside similar to that of the male.

Expanse: ♂♀, 100–125 mm.

Habitat.—BURMA: Karen Hills; East Pegu; rare, the female very rare.

438 *b*. **Amathusia friderici holman-hunti** Corbet & Pendlebury.

Amathusia holman-hunti, Corbet & Pendlebury, 1936, pp. 142, 150, pl. v, figs. 2, 3, 4 (♂♀, Perak).
Amathusia friderichi (sic) *holman-hunti*, Corbet & Pendlebury, 1938, p. 241 (Malaya).
Amathusia phidippus binghami, Tytler (*non* Fruhstorfer), 1926, p. 579 (Mergui); Evans, 1932 *a*, p. 134 (Mergui).

♂. *Upperside* purple-brown, the hind wing costal area paler. Fore wing with a distal marginal faint orange-brown band; an antemarginal, irregular, line of the ground-colour; a submarginal, broader, orange-brown band, outwardly more or less evenly edged, its inner edge serrate as in *phidippus*; both edges of the submarginal band rather diffuse and indistinctly defined; costal narrow brown edging continued as a subapical, diffuse, band about 4 mm. broad. Hind wing with a marginal paler orange-brown band, about 1·5 mm. broad; an antemarginal line of ground-colour; a submarginal orange-brown band, about 3 mm. broad at widest part, narrowing from apex to tornus, its inner edge regularly and clearly defined, its outer edge rather sinuate and diffuse; anal lobe with the usual two black spots, outwardly fringed with white; two hair-pencils, rather poorly developed.

Underside reddish, with the usual *phidippus* markings; discal roan-coloured band much broader, being 8 mm. at the

widest part, tapering to 4 mm. at the anal ocellus on hind wing, its outer edge rather irregular; longitudinal white line on inner edge of discal band broader; hind wing ocelli larger, their greatest length being 6 and 8 mm. respectively.

♀. *Upperside* reddish-brown. Fore wing distal margin brown; an antemarginal, narrow, orange-brown line, most prominent at tornus; a submarginal brown line, increasing slightly in width from tornus to apex where it becomes obsolete; a submarginal, bright orange band, about 4 mm. wide, its inner and outer edges even; a subapical, broad orange band, extending from middle of costa to the submarginal band, from which it is separated by a narrow brown line; veins crossing subapical and submarginal orange areas are slightly darkened. Hind wing with marginal orange-brown band, about 1 mm. wide; an antemarginal, dark brown line; a submarginal, obscure, evenly edged, dull, orange-brown band, about 4·5 mm. wide; orange-brown markings brighter in apical area; anal lobe with the usual pair of pale-edged black spots. The broad discal band of underside is visible on both wings, and its outer edge is darkened.

Underside resembles the male. Ground-colour paler, with more contrasted reddish-brown and white markings; discal band broad, being on fore wing 10 mm. at widest part; hind wing ocelli large, their respective greatest lengths being 7 and 10 mm. (from *Corbet & Pendlebury*, 1936).

Expanse: ♂♀, 104–123 mm.

Habitat.—SOUTHERN BURMA: Mergui district and Archipelago; Bassein; Malaya; rare.

Genus **AMATHUXIDIA** Staudinger.

Amathuxidia, Staudinger, 1887, p. 188; Moore, 1893, pp. 172, 176 (type, *A. amythaon* Doubleday); Stichel, 1906, p. 13, pl. i, fig. 2 (venation); Fruhstorfer, 1911, p. 431; Evans, 1932 *a*, p. 134.

Type of the genus, *A. amythaon* (Doubl.).

♂. Hind wing with a prominent tuft of hair near base of area 1 *b*, placed in a fold below vein 1 *b* where this vein is bent distad; basal part of area 1 *c*, base of area 2, and most of the cell covered with black scent-scales.

♂♀. Fore wing with vein 4 bent anteriorly, and without the spur found in *Zeuxidia*; vein 5 arises well away from vein 6, *mdc* being about half *ldc*. Hind wing anal lobe more strongly produced than in *Zeuxidia*.

Distribution.—SIKKIM to BURMA, Malaya, Siam, Sumatra, Java, Borneo, Philippines, Celebes and Sula Islands. Two species are known.

Amathuxidia amythaon (Doubleday).

♂. *Upperside* blackish-brown, with a purple tinge. Fore wing with a broad blue band, more or less curved, across middle of wing, from costal margin to near outer margin which it does not touch, its posterior edge being almost parallel with outer margin. Hind wing without markings. Fringes of both wings white.

Underside pale coffee-brown to ochraceous, fore wing more grey. Both wings with a basal, a sub-basal, discal, submarginal, and antemarginal strongly marked dark brown line; fore wing in addition with a post-discal line. Hind wing with two ocelli, in areas 2 and 6, each with a prominent white centre, the anterior ocellus the larger.

♀. *Upperside* paler brown, without a purple tinge. Fore wing with an ochraceous-yellow subapical band not entering cell as in male, narrower than in male, posteriorly below vein 2 somewhat pointed, and usually touching outer margin. Hind wing with margin at apex often narrowly and diffusely ochraceous.

Underside as in male, but ground-colour deeper brown, and without grey scaling.

Distribution.—SIKKIM to BURMA and Malaya; Northern Siam. One Indian subspecies.

439. **Amathuxidia amythaon amythaon** (Doubleday).

Amathusia amythaon, Doubleday, 1847 *b*, p. 175 (♂♀, Sylhet); Marshall & de Nicéville, 1883, p. 291 (♂♀, Sylhet); Elwes, 1891, p. 270 (Karen Hills).

Amathuxidia amythaon, Moore, 1893, p. 176, pl. cxlv, figs. 1, 1 *a* (♂♀); Adamson, 1905, p. 169 (♂, Thaungyin River, Burma).

Amathusia amythaon, Bingham, 1905, p. 188.

Amathuxidia amythaon amythaon, Stichel, 1906, p. 14; Fruhstorfer, 1911, p. 432.

Amathusia amythaon, Tytler, 1911, p. 54 (Naga Hills).

Amathuxidia amythaon, Evans, 1932 *a*, p. 134, pl. xvi, fig. E 8. 1 (♂).

Amathusia portheus, C. & R. Felder, 1867, p. 461; Marshall & de Nicéville, 1883, p. 293, fig. (♂, Sibsagar, Upper Assam); Wood-Mason & de Nicéville, 1887, p. 353 (Cachar); de Nicéville, 1894 *a*, p. 130 (Sikkim, rare).

Amathusia westwoodi, Butler, 1869, p. 55; Marshall & de Nicéville, 1883, p. 292 (♂♀, Sylhet).

♂. *Upperside* brownish-black, fringes white. Fore wing with a discal, very broad, curved, pale blue band, extending from costa to near apex of vein 1. Hind wing immaculate.

Underside pinkish-buff marked with dark brown lines. A basal line, extending to little beyond the middle of vein 2 on hind wing; a sub-basal line crossing from subcostal of fore wing to median vein of hind wing; a discal line from costa of fore

wing to near tornus of hind wing; a post-discal line from costa of fore wing to tornus of hind wing, and angled upwards along inner margin of hind wing; a submarginal line, somewhat indistinct on fore wing, well-defined and broadening towards tornus of hind wing. Fore wing, in addition, with a short brown line crossing cell near apex; a discal line from costa to vein 2. Hind wing, in addition, with a post-discal, large, ochraceous ocellus in area 2, and another in area 6.

Antenna brown; head, thorax and abdomen dark brown.

♀. *Upperside* umber-brown. Fore wing with a discal, curved, bright yellow band, narrower than in the male, reaching tornus, and with its inner edge very irregularly zigzag and sinuous; a spot below the band in the middle. Hind wing with apex bright yellow.

Underside as in the male, but with paler ground-colour.

Expanse: ♂♀, 110–130 mm.

Habitat.—SIKKIM to BURMA and Malaya; rare.

Genus **ZEUXIDIA** Hübner.

Zeuxidia, Hübner, 1819–1827, t. 270 (*Z. luxerii*); Marshall & de Nicéville, 1883, pp. 282, 285; Moore, 1893, pp. 172, 173 (type, *Z. luxerii* Hübner); Bingham, 1905, p. 186; Stichel, 1906, p. 19, t. 1, fig. 4 (venation); Fruhstorfer, 1911, p. 433; Evans, 1932 *a*, p. 134.

Type of genus, *Z. luxerii* Hübn., from Java.

♂♀. Fore wing with costa arched, apex pointed and produced; outer margin slightly incurved below apex, excurved posteriorly; tornus rounded; inner margin slightly convex; cell broad, moderately long, about half length of fore wing; *udc* very short, *mdc* short and vertical, *ldc* slightly incurved, long and oblique; vein 1 *b* angled upwards at base; vein 4 angled upwards a third from base, with median vein (lower edge of cell) produced as a spur beyond *ldc*; vein 11 from about a third before apex of cell, anastomosed with 12 but distally free; vein 12 terminates a little beyond middle of costa. Hind wing with cell open; vein 4 angulate, with a spur as in fore wing; vein 8 terminates on costal margin.

Antenna long, over half length of fore wing; palpus slender, third segment long, porrect.

♂ hind wing with a small elongate patch of specialized hairs above subcostal vein, a similar patch in cell, both overlapped by long hair-pencils, and a fold in area 1 *b* with a similar overlapping tuft of hair.

Distribution.—BURMA to Java, Borneo, and the Philippines. Eight species known, three occurring in the Indian area.

Key to Species of Zeuxidia.

Males.

1. Hind wing upperside with a prominent blue border	2.
Hind wing upperside without a blue border. . . .	*aurelius* (Cram.), p. 444.
2. Hind wing blue border not reaching above vein 4, and widening to tornus	*amethystus* Butl., p. 441.
Hind wing blue border continued to costa and narrowing to tornus	*doubledaii* Westw., p. 443.

Females.

1. Upperside markings white	2.
Upperside markings violaceous	*doubledaii* Westw., p. 443.
2. Fore wing discal band and spots becoming yellow outwardly. Hind wing upperside with distal margin obscurely yellow .	*amethystus* Butl., p. 441.
Fore wing discal band and spots pure white. Hind wing upperside with distal margin white at apex	*aurelius* (Cram.), p. 444.

Zeuxidia amethystus Butler, 1865.

♂. *Upperside* blackish-brown with a purple tinge. Fore wing with a subapical blue band, which does not enter the cell, broad on costa, and narrowing posteriorly; an apical, indistinct, bluish-white spot. Hind wing with a posterior marginal blue patch. Fringes of both wings white.

Underside dark reddish-brown, slightly variegated with white. Both wings with a post-discal darker brown line, and with dull greyish-white bands crossing the cell. Fore wing posteriorly dark grey to vein 3, and strongly glossy below vein 2; a distal costal, curved, greyish-white band, diffuse and irregular, reaching vein 5. Hind wing with an ocellus in area 2 and one in 6, the anterior one slightly larger, ringed with pale yellow and dark brown, and centred with white.

♀. *Upperside* much paler than the male. Fore wing with a larger distal smoky-brown area, and a smaller basal paler area; markings creamy-white; a post-discal band, consisting of an irregular costal bar reaching vein 5, or vein 4 if joined to the spot in area 4, an elongate spot in 4, and two smaller spots in 3 and 2; two discal spots in areas 3 and 2, the former the smaller; two submarginal spots in areas 3 and 2, the former the larger; an apical spot as in the male but more distinct. Hind wing of same shade of brown as basal area of fore wing; a marginal, indistinct, paler and more or less ochraceous border, its inner edge crenulate.

Underside paler than the male, ochraceous-brown, strongly variegated with paler and darker brown; markings as in the male, and a submarginal, irregularly dentate, line strongly

developed; fore wing with a distal costal, somewhat triangular grey-white patch, more or less defined.

Distribution.—BURMA to Malaya, Sumatra, Borneo, and the Philippines. One Indian subspecies.

440. **Zeuxidia amethystus masoni** Moore. (Pl. II, fig. 2, ♂).

Zeuxidia masoni, Moore, 1879 *a*, p. 826 (♀, Meetan); Marshall & de Nicéville, 1883, p. 286 (♂♀, Upper Tenasserim); Moore, 1893, p. 174, pl. cxiv, figs. 1, 1 *a* (♂), 1 *b* (♀, E. Pegu); Bingham, 1905, p. 186, pl. iv, fig. 29.

Zeuxidia amethystus masoni, Stichel, 1906, p. 21; Fruhstorfer, 1911, p. 435.

Zeuxidia masoni, Ollenbach, 1919 *b*, p. 869 (habits in Tavoy).

Zeuxidia amethystus masoni, Evans, 1932 *a*, p. 134, pl. xvi, fig. E 9. 1 (♀).

Zeuxidia amethystus, Elwes (*non* Butler), 1891, p. 270 (Karen Hills).

♂. *Upperside* brownish-black. Fore wing with a discal, broad, curved bar, narrowing posteriorly, extending from costa to near apex of vein 2. Hind wing, between veins 1 *b* and 4, with a marginal broad metallic purplish-blue patch.

Underside brown. Fore wing with three pale lilacine bands crossing the cell; distal area shaded with lilacine; a discal narrow brown bar. Hind wing with basal half shaded with lilacine, becoming more pinkish broadly along inner margin; a discal, narrow, brown bar; an ochraceous ocellus in areas 2 and 6.

Antenna dark red; head, thorax and abdomen dark brown.

♀. *Upperside* paler brown than in male. Fore wing with a discal creamy-white band, not curved, its margins irregular, ending near outer margin in three spots; tornus and adjacent outer margin narrowly ochraceous; a subapical white spot. Hind wing with outer margin irregularly, broadly and somewhat diffusely, ochraceous.

Underside resembling the male, but paler, shaded more or less with ochraceous. Fore wing with discal band and subapical spot showing through from upperside.

Expanse: ♂♀, 110–120 mm.

Habits.—The butterfly was observed by Ollenbach in Tavoy flying in a deep nullah. "The males would appear first and would take up positions on some suitable leaf overhanging the stream, and from these points of vantage, no doubt, watch for the females, which come much later. If by chance another male came along one of those on watch would immediately attack it and then ensure a battle which lasted till one of the combatants was beaten off, and the two would part to take up new positions. . . The females did not settle, but flew down the stream at a fair pace for a certain distance and then disappeared up the hill-sides. This species appears to fly only

during the evenings, for although I visited the place before dawn I did not see any. It has a weak hopping flight and settles frequently, even when disturbed. I did not notice that the males gave out any odour, but my companion assured me he could detect it." (*Ollenbach*, 1919 *b*).

Habitat.—KAREN HILLS to SOUTHERN BURMA ; rare.

Zeuxidia doubledaii Westwood, 1851.

♂♀. Somewhat resembling *amethystus* Butl.

♂. *Upperside* of fore wing with post-discal band narrower than in *masoni* Moore, the apical area broader. Hind wing with a submarginal broad band from costa to vein 2.

Underside marked as in *amethystus*, and usually paler brown; posterior ocellus buff-yellow, ringed with dark brown, and centred with white below which is a dark brown spot.

♀. *Upperside* markings as in *amethystus*, but white, tinged more or less strongly with violet.

Underside as in male but much paler and more variegated.

Distribution.—BURMA, Malaya, Sumatra, Banka, and Billiton. Two subspecies are distinguished, one occurring in Burma.

441. **Zeuxidia doubledaii doubledaii** Westwood.

Zeuxidia doubledaii, Westwood, 1851, p. 329, no. 2, note.
Zeuxidia doubledaii, Brooks, 1937, p. 147 (type-locality, Malaya); Hemming, 1941 *c*, p. 452.
Zeuxidia doubledaii doubledaii, Brooks, 1937, p. 150 (=*chersonesia* Fruhst., *sumatrana* Fruhst.); *id.*, 1940, p. 44.
Zeuxidia doubledaii chersonesia, Fruhstorfer, 1906 *b*, p. 105 (nom. nov. pro *doubledaii* Distant, 1886, pl. xxxviii, fig. 6, ♀); *id.*, 1911, p. 436 (Perak).
Zeuxidia doubledayi (sic) *chersonesia* Evans, 1932 *a*, p. 134; Tytler, 1939 *a*, p. 251 (♀, Myankhamba).
Zeuxidia doubledaii, de Nicéville, 1899, p. 330 (Ataran Valley; Tavoy).
Zeuxidia nicévillei, Fruhstorfer, 1895, p. 196 (♂♀, Sumatra).
Zeuxidia nicévillei nicévillei, Fruhstorfer, 1906 *b*, p. 105 (Sumatra, Battak Mtns.).
Zeuxidia doubledaii sumatrana, Fruhstorfer, 1906 *b*, p. 104 (♂♀, Deli, N.E. Sumatra).

♂. *Upperside* of fore wing with post-discal oblique violet-blue band narrower than in *amethystus*, being about 11 mm. wide at costa as against about 15 mm. in the allied species; the band does not enter cell, is much narrower below vein 4, and reaches inner margin at tornus; an apical, indistinct, pale spot. Hind wing submarginal band continuous from costa to just below vein 2, narrowing posteriorly, its inner edge incurved and almost even, its outer edge less even, and separated from the margin by a narrow border of ground-colour narrowing posteriorly.

Underside paler brown than in *amethystus*, less variegated, and with smaller ocelli.

♀. *Upperside* ground-colour darker than in *amethystus*, and markings pale violet. Fore wing oblique band somewhat broader from costa to vein 5, its outer edge fairly even; post-discal spots in areas 2 to 4 as in the allied species; these spots comprise an elongate one in area 4, more or less broken by the ground-colour, three proximal and three distal spots in areas 1 *b* to 3, the distal ones less sharply defined, the spot in area 2 more or less produced and narrowed proximally; three sub-marginal spots in areas 2 to 4, somewhat triangular; an apical pale spot. Hind wing with post-discal, indistinct, pale short streaks in areas 4 to 6; traces of a submarginal pale band narrowing posteriorly.

Underside as in male but much paler and more variegated.

Expanse: ♂♀, 110–120 mm.

Habitat.—BURMA: Dawna Range to Southern Burma; Malaya; Sumatra; very rare in Burma.

Zeuxidia aurelius (Cramer).

♂. *Upperside* blackish-brown with a purple tinge. Fore wing with a broad violet-blue oblique band from costa to outer margin, occupying the greater part of wing above vein 2, leaving a small apical area of ground-colour; tornal area from vein 2 to inner margin earth-brown. Hind wing with anterior distal area broadly earth-brown; posterior area dark blue; at base of vein 7 a vitreous area, bearing a large, oval, dark brown brand, having a broad and short brown tuft of hair arising from its proximal edge.

Underside grey with smoky-brown markings. Fore wing with posterior area to vein 3, smoky-brown; a large vitreous area below the cell, bearing a small, narrow, oval, grey brand. Hind wing with an ocellus in area 6 and one in 2, defined by black dusting, ringed with black, and centred with white.

♀. *Upperside* ground-colour brown, paler than in the male. Markings of both wings creamy to yellowish-white. Fore wing with an oblique band from costa to vein 5; three distal rows of four spots, the anterior ones in area 4 more or less connected. Hind wing with two post-discal rows of three or four small spots; costal area broadly, and apical area narrowly to vein 5, creamy-white.

Underside resembles the male. Fore wing posterior dark area reduced to a small distal patch.

Distribution.—SOUTHERN BURMA to Malaya, Sumatra, and Borneo. One subspecies in the Indian area.

442. **Zeuxidia aurelius aurelius** (Cramer).

Papilio aurelius, Cramer, 1777, p. 110, pl. clxviii, figs. A, B (♀).
Zeuxidia aurelius aurelius, Fruhstorfer, 1911, p. 437 (Sumatra; Malaya).

Zeuxidia aurelius, Evans, 1932 *a*, p. 134 (Mergui) ; Tytler, 1939 *a*, p. 251 (Hangapru, Mergui).

♂. *Upperside* of fore wing with lower edge of blue band passing through area 2, slightly curved, and reaching vein 2 at about 7 mm. from the margin. Hind wing with the earth-brown area extending into end of cell, in area 3 invaded by a spot of the blue colouring, and narrowing at margin to below vein 3, but not reaching vein 2.

Underside of fore wing with four, somewhat diffuse, short bands crossing cell ; a discal line from costa to origin of vein 3 ; two post-discal indistinct bands, widening at costa where the smoky-brown scaling forms a large patch ; a submarginal line, fairly straight, and parallel to margin. Hind wing with a sub-basal and a discal line, from costa to lower edge of cell ; a discal band, from costa to lower edge of cell, formed by two somewhat irregular lines which enclose the area ; a rounded dark spot in base of area 7, representing the brand on upperside ; a post-discal straight line from costa, becoming indistinct towards posterior ocellus ; a submarginal, somewhat crenulate line, not always distinct ; an antemarginal line.

♀. *Upperside* of fore wing with the oblique band from 17 to 22 mm. wide at the costa, and projecting strongly distad in area 5 ; post-discal spots in areas 3 and 4 joined, the marginal spot in 4 usually not free from the proximal patch. Hind wing spots variable in size, the post-discal one in area 2 tending to be reduced and to become obsolete.

Underside with a prominent discal brown line from costa of fore wing to anal area of hind wing where it runs along inner side of posterior ocellus, is angled at vein 2, and bends irregularly proximad to area 1 *b* ; proximal area defined by the discal line usually darker than outer area ; the submarginal line is angled at vein 2, and runs parallel to discal line as far as end of vein 1 *a* ; tornal projection darkened, and marked with two small black spots.

Expanse : ♂♀, 140–160 mm.

Habitat.—Burma : Mergui district ; Malaya ; Sumatra ; very rare in Burma.

Subfamily DISCOPHORINÆ Stichel.

Discophorinæ, Stichel, 1905, p. 1 ; *id.*, 1909, p. 157 ; Fruhstorfer, 1911, p. 442.

Discophoridæ, Stichel, 1902 *a*, p. 59 ; Rothschild, 1916 *a*, p. 315.

♂♀. Body and wings more strongly built than in the Amathusiinæ. Fore wing with *mdc* absent. Hind wing with vein 1 *a* not longer than abdomen. ♂ abdomen basally ventrally compressed, with a lateral velvety raised area, that

forms a scent-patch. ♂ genitalia with tegumen furnished with one or two lateral processes.

Distribution.—The Indo-Malayan Sub-Region, from SIKKIM, SOUTH INDIA, CEYLON, ANDAMAN ISLANDS and South China, to the Philippines and Celebes.

Key to Genera of Discophorinæ.

1. Fore wing with veins 10 and 11 anastomosed with 12. ♂ hind wing, upperside, with rounded discal black brand extending into areas 2, 3, 4 — *Discophora*, Boisd., p. 446.
2. Fore wing with vein 10 absent, 11 anastomosed with 12. ♂ hind wing, upperside, with area of cell strongly hairy — *Enispe* Doubl., p. 457

Genus **DISCOPHORA** Boisduval.

Discophora, Boisduval, 1836, pl. iv, no. 12 (larva and pupa of *D. menetho*, =*celinde* Stoll); Westwood, 1851, p. 329; Moore, 1881 *b*, p. 35; Marshall & de Nicéville, 1883, pp. 283, 294; Moore, 1893, pp. 173, 187 (type, *D. celinde* Stoll); Bingham, 1905, p. 199; Stichel, 1905, p. 5, pl., fig. 1 (venation); Fruhstorfer, 1911, p. 442; Evans, 1932 *a*, p. 135; Corbet, 1941 *b*, p. 808.

Type of genus, *D. celinde* (Stoll), from Java.

♂♀. Fore wing very broadly triangular, costa strongly arched; apex acute, slightly produced; outer margin straight, tornus well marked, inner margin straight; cell short, not half length of fore wing, moderately broad; *mdc* absent, *ldc* long, oblique, slightly incurved; vein 10 anastomosed with 11, vein 11 with 12, 12 terminating about two-thirds from base. Hind wing with costa slightly arched; outer margin convex or angulate at vein 4; tornus well marked, inner margin long, straight, slightly convex at the middle; vein 8 terminates just before apex, the costal border above it wide.

Antenna about half length of fore wing, club long, narrow, gradual; palpus slender, slight, oblique, third segment short; body stout, robust. ♂ hind wing with a discal brand, rather prominent, more or less rounded.

Distribution.—CEYLON and PENINSULAR INDIA to the NORTH-EASTERN HIMALAYAS, BURMA and ANDAMAN ISLANDS; Southern China, Hainan, Tong-king, Siam and Malaya to Java, Borneo, Philippines and Celebes. Five species, out of the eleven that are known, inhabit the Indian area.

Key to Species of Discophora.

Male.

1. Fore wing upperside with an ochraceous-brown band . . — *deo* de Nicév., p. 450.
   Fore wing upperside marked with spots. 2.

2. Fore wing upperside with ochraceous spots . .	*timora*, Doubl., p. 454.
Fore wing upperside with blue spots. .	3.
3. Fore wing upperside with a post-discal band of four or five spots	*necho* C. & R. Feld., p. 456.
Fore wing upperside with a subapical band of three spots	*lepida* (Moore), p. 452.
Fore wing upperside with three rows of small spots.	*sondaica* Boisd., p. 447.

Females.

1. Fore wing upperside with bluish-white markings	*lepida* (Moore), p. 452. *sondaica* Boisd., p. 447.
2. Fore wing upperside with ochraceous-brown markings	*deo* de Nicév., p. 450. *timora* Doubl., p. 454. *necho* C. &. R. Feld., p. 456.

No other reliable characters can be given by which these females can be separated.

Discophora sondaica Boisduval, 1836.

♂. *Upperside* blackish-brown. Fore wing marked with small bluish-white spots; a post-discal series of four or less, the anterior spot the larger, the others often vestigial; a second, outer post-discal series of four spots always present, the lower spot the smaller; a submarginal series of four or five spots, placed nearer to the post-discal spots than to the margin. Hind wing unmarked, or with submarginal, vestigial, dull ochraceous spots; brand less distinctly defined than in *timora* Doubl., and measuring about 8 mm. from point of origin of vein 2 to vein 4, and about 9 mm. from inner edge in cell to outer edge at vein 3.

Underside marked with various shades of brown to light ochraceous, closely striated with darker brown. A post-discal, heavy, somewhat diffuse dark band, limiting a more deeply coloured proximal area. Hind wing with two small ocelli, one in area 2, and one in 6.

♀. *Upperside* of fore wing with markings white or bluish-white; a costal oblique patch, reaching vein 5; discal, post-discal, and submarginal spots as in male, but much larger and better defined. Hind wing with three rows of ochraceous spots, those of the post-discal row being usually sagittate; outer margin narrowly bordered with ochraceous.

Underside as in male but much paler and less variegated, the markings ill-defined.

♂ *genitalia.*—Dorsal process of uncus not forked.

Distribution.—SOUTHERN INDIA, SIKKIM, and S. E. Tibet, to BURMA, Siam, Southern China, Hainan, Malaya, Sumatra, Java, Borneo, and Philippines. Two subspecies in the Indian area.

443 *a*. Discophora sondaica muscina Stichel.

Discophora muscina, Stichel, 1902 *b*, p. 125 (♂, Karwar).
Discophora sondaica muscina, Stichel, 1905, p. 10 (Karwar).
Discophora tullia muscina, Fruhstorfer, 1911, p. 443; Evans, 1932 *a*, p. 135.
Discophora tullia, Bell (*non* Cramer), 1909, p. 473 (early stages and habits).

♂. *Upperside* blackish-grey with a brownish tinge, basal and costal areas of fore wing paler. Fore wing with costa strongly arched, apex pointed and produced; a post-discal, oblique, bluish-white double spot, placed a little beyond middle of costa; a post-discal proximal row of three small, indistinct, dull white spots, placed obliquely to inner margin; a second post-discal row of three larger, ill-defined, bluish-white spots, one below the other in a vertical row; a third outer post-discal row of three vestigial whitish punctiform spots. Hind wing anal angle acute. The brand almost touches vein 2, and is less elongate than in allied forms.

Underside yellowish with a slight greenish tinge, finely and irregularly striated; proximal half defined by a dark line edging a pale diffuse band, darker than distal half. Fore wing with three dark spots at base of cell; apical dark shading; a post-discal, indistinct, waved, darker band. Hind wing with a posterior discal dark spot; anterior ocellus fairly distinct, posterior one incompletely ringed with black, and both with white centres.

Expanse: ♂, 80–90 mm.

Habitat.—SOUTHERN INDIA: North Kanara. Very rare, especially the female of which no specimen is known to the author.

443 *b*. Discophora sondaica zal Westwood. (Pl. II, fig. 3, ♂; fig. 101, larva and pupa).

Discophora zal, Westwood, 1851, p. 331; *id.*, 1858, p. 188, pl. xxi, figs. 5, 6 (♀, India Orientali); Marshall & de Nicéville, 1883, p. 299, ♂♀; Moore, 1893, p. 191, pl. clii, figs. 1, 1 *a*, *b*, *c* (♂♀); Hemming, 1941 *c*, p. 463.
Discophora tullia var. *zal*, Bingham, 1905, p. 203.
Discophora sondaica indica f. *zal*, Stichel, 1905, p. 10.
Discophora tullia zal, Fruhstorfer, 1911, p. 443 (=dry-season form); Evans, 1932 *a*, p. 135, pl. xvi, fig. E 10. 1 (♀).
Discophora sondaica zal, Stichel, 1933, p. 154.
Discophora tullia, Marshall & de Nicéville (*non* Cramer), 1883, p. 298, figs. (♂♀, Sibsagar); Elwes & de Nicéville, 1887, p. 419 (Tavoy); Wood-Mason & de Nicéville, 1887, p. 353 (Cachar); de Nicéville, 1894 *a*, p. 130 (Sikkim); Bingham, 1905, p. 202, pl. iv, fig. 30 (♂); Tytler, 1911, p. 55 (Naga Hills, common).
Discophora tullia var. *indica*, Staudinger, 1887, p. 190, t. lxiii (♀, as *tullia* Cram.).
Discophora indica, Moore, 1893, p. 192, pl. cliii, fig. 1 (larva and pupa, Calcutta), figs. 1 *a*, *b*, *c*, *d* (♂♀); Adamson, 1905, p. 169 (Burma).

Discophora tullia zal f. *indica*, Fruhstorfer, 1911, p. 443 (=wet-season form).
Discophora tullia indica, Ellis, 1917, p. 107 (Pegu Yoma, common).
Discophora tullia zal var. *indica*, Evans, 1932 *a*, p. 135.
Discophora spiloptera, de Nicéville & Möller, in Elwes & Möller, 1888, p. 331 (♂, Sikkim); Moore, 1893, p. 195, pl. cliv, figs. 1, 1 *a* (♂♀ types, Sikkim); de Nicéville, 1894 *a*, p. 130 (Sikkim, Singla, 2,000 feet, March); Watson, 1897, p. 652 (Upper Chindwin, fairly common).
Discophora tullia var. *spiloptera*, Bingham, 1905, p. 203.
Discophora sondaica indica f. *spiloptera*, Stichel, 1905, p. 10.
Discophora tullia zal f. *spiloptera*, Fruhstorfer, 1911, p. 443; Evans, 1932 *a*, p. 135.

Wet-season form **indica** Stgr.—♂. *Upperside* dark brown. Fore wing with discal, post-discal, and submarginal series of bluish spots, the latter two series closely approximate. Hind wing with the brand prominent; submarginal spots pale and vestigial.

Underside dull ochraceous-brown; basal areas darker, distally defined by a still darker but obscure band ending in a lilacine diffuse small patch at tornus of hind wing; both wings

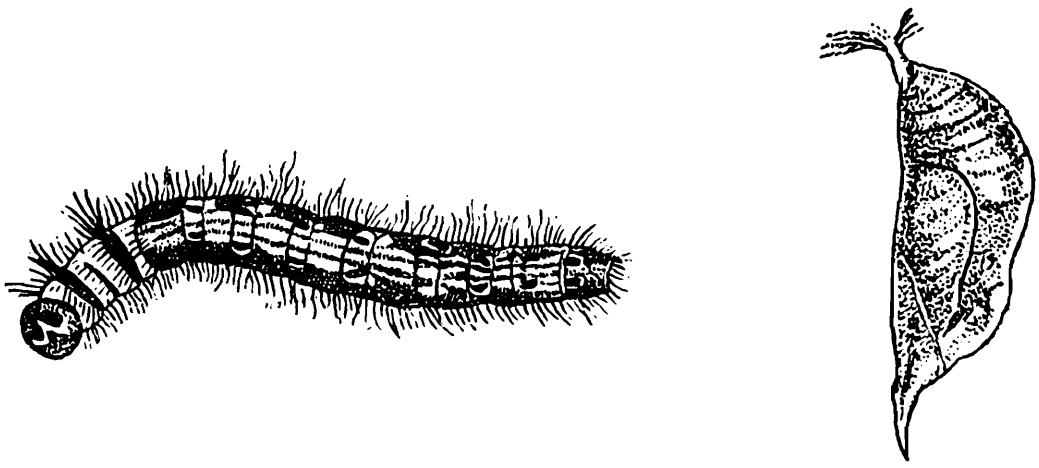


Fig. 101.—*Discophora sondaica zal* Westw.
Larva and pupa. (After *Moore*, 1893).

speckled somewhat sparsely with short brown striæ, and obscurely tinted with lilac; hind wing with two ill-defined ocelli.

Antenna ochraceous; head, thorax and abdomen brown, paler beneath.

♀. *Upperside* purplish-brown. Fore wing with three series of white spots, the inner, or discal, series continued to costa by two large elongate obliquely-placed white spots. Hind wing with three rows of somewhat obscure ochraceous spots.

Underside similar to the male but paler.

Expanse: ♂♀, 80–90 mm.

Dry-season form **zal** Westw.—♂. *Upperside* paler brown than

in *indica*. Fore wing with an additional spot outside the cell; spots in each series more numerous; discal row bluish, the other two rows ochraceous, Hind wing with three rows of ochraceous, somewhat obscure, spots.

Underside paler than in *indica*, and more uniform in colour.

♀. *Upperside* ochraceous. Fore wing with apex of cell yellow, bearing a prominent enclosed black spot; discal series bluish-white, post-discal and submarginal series ochraceous, and an additional inner row in the bases of the areas. Hind wing markings similar to those of *indica*.

Underside very much paler than in *indica*, and more uniform.

Expanse: ♂♀, 80–90 mm.

Form **spiloptera** de Nicév. & Möll.—♂♀. Resembles *zal*, but upperside more heavily marked, the spots being larger and in the male entirely ochraceous. The female lacks the black spot enclosed in the yellow patch at apex of cell.

Larva.—"On bamboo, living during the day in three or four leaves spun together . full-fed larva 2 inches long, colour black mottled with grey; a rather broad yellowish dorsal line; the junction of the segments marked by a thin irregular yellow line and red spot; body covered with white hairs; head and anus black, the former marked with perpendicular yellow lines.

Pupa.—"White, suspended by the tail; labial palpi prominently projected; changing to dark brown a few hours before emergence. The perfect insect remains for three weeks in pupa." (*Manders*, 1890, p. 519, Northern Shan States).

Habitat.—SIKKIM to BURMA; common.

Adamson (1905) records *zal* as common in Burma during the dry season, and *indica* as common during the rains.

Discophora deo de Nicéville.

♂. *Upperside* purplish-brown. Fore wing with a post-discal, oblique, curved, sharply defined, yellow band, from costa to area 2; two or three submarginal small spots in areas 2 to 4, almost joined to the band. Hind wing without markings; proximal area, to beyond cell, somewhat darker; a discal black brand, forming a rounded oval patch at lower angle of cell, not reaching vein 2 and filling basal part of area 3, its edge slightly diffuse and indistinctly lined with grey; the brand measures about 7 mm. from upper to lower edge on vein 2, and about 6 mm. across on the median.

Underside dark ochraceous-brown, paler distally; sub-basal, discal, post-discal, and submarginal bands. Hind wing ocelli small.

♀. *Upperside* resembles the male. Fore wing band broader; submarginal spots larger, three to four in areas 1 *b* to 4.

Underside pale ochraceous, marked as in male, and ocelli reduced.

Antenna dark brown above, paler at the tip and on underside. Head, thorax and abdomen brown on upperside, ochraceous-brown on underside.

♂ *genitalia.*—Dorsal process of uncus not forked.

Distribution.—ASSAM to BURMA, Siam, and Tong-king. Two subspecies in the Indian area.

444 *a*. **Discophora deo deo** de Nicéville.

Discophora deo, de Nicéville, 1898, p. 137, ♂♀, pl. Y, fig. 10 (♂, N. Shan States).

Discophora deo deo, Stichel, 1905, p. 7; Fruhstorfer, 1911, p. 444 ♂.

Discophora deo Evans, 1932 *a*, p. 135; Tytler, 1939 *a*, p. 252 (♂, Southern Shan States).

♂. *Upperside* of fore wing with the band about 11 mm. wide on costa, and about 5 mm. wide on vein 2; outer edge of band broadly crenulate, inner edge slightly indented at the middle.

Underside of fore wing with a sub-basal pair of small black spots, and a larger similar spot placed nearer the base; a sub-basal waved line; three *dc* spots, more or less connected; a discal, narrow, slightly curved band; two post-discal, rather indistinct, bands, the proximal one broader; a submarginal, indistinct line; a marginal narrow border of ground-colour separates a slightly greyish-white area from the outer post-discal band. Hind wing with a rounded black cell-spot and a *dc* spot; a sub-basal irregular line; a discal band as on fore wing, but straight; other indistinct bands as on fore wing, with a narrow, more or less grey-white band, which is accentuated at tornal angle; the two ocelli, in areas 2 and 6, small, ringed with black, centred with white, the lower one with a larger white centre.

♀. *Upperside* of fore wing with the band about 12 mm. wide at costa and about 9 mm. at vein 3; submarginal spots in areas 2 and 3 more or less joined to the band, more definitely so in area 3; outer margin narrowly edged with ochraceous.

Underside with the discal band accompanied by a pale broad distal border. Hind wing ocelli obsolete, the posterior ocellus with the black edge on inner side marked as a crescent, and both ocelli with white centres.

Expanse: ♂♀, 80–90 mm.

Habitat.—ASSAM (Manipur) to NORTHERN BURMA and SOUTHERN SHAN STATES; very rare.

444 *b*. **Discophora deo deodoides** Tytler.

Discophora deo deodoides, Tytler, 1939 *a*, p. 252 (♂, Naga Hills, February).

Discophora deo, Tytler (*non* de Nicéville). 1914, p. 229 (♂, Naga Hills, April).

♂. Larger than the nominotypical subspecies; tornus of hind wing more produced. *Upperside* of fore wing with a

post-discal broad yellow band, evenly curved, and not angled down at vein 5, the lower part, in area 2, separated by vein 3 which is black; between post-discal band and outer margin, two large yellow spots in areas 2 and 3; a large patch of conspicuous, silvery mauve, specialized scales, entering the cell and reaching vein 1, the veins crossing this patch conspicuously dark. Hind wing brand larger than in *deo deo*, the veins crossing it lighter.

Habitat.—ASSAM, Naga Hills; rare.

Discophora lepida (Moore).

♂. *Upperside* blackish-brown or earth-brown. Fore wing with a subapical band of three bluish-white spots; two or three very small submarginal spots; fringes grey-white or yellowish. Hind wing with a submarginal row of indistinct spots which may be vestigial or absent; brand as in *deo* de Nicév., and of similar size, narrowed towards end of cell.

Underside markings and colouring somewhat as described for *deo*, but fore wing discal band straighter, with distal pale border; a submarginal, curved, greyish-white band, more or less distinctly defined. Hind wing with a submarginal maculate band, parallel to margin, and greyish-white as on fore wing; posterior ocellus with very prominent white centre. All markings less distinct in dry-season specimens.

♀. *Upperside* paler than the male. Fore wing with a prominent bluish-white oblique band from costa to vein 4; three distal rows of three to four bluish-white spots in areas 1 *b*, 2, 3, and 4. Hind wing with three rows of small ochraceous spots, the inner discal row not always complete; outer margin narrowly ochraceous.

Underside much paler than in the male, but with similar markings.

♂ *genitalia.*—Dorsal process of uncus forked.

Distribution.—SOUTHERN INDIA and CEYLON. Two subspecies.

445 *a*. **Discophora lepida lepida** (Moore).

Enispe lepida, Moore, 1857, p. 213, ♀.

Discophora lepida, Marshall & de Nicéville, 1883, p. 297, ♂♀; Hampson, 1889, p. 351 (Nilgiri Hills, western slopes, ♀); Moore, 1893, p. 190, pl. cli, figs. 1, 1 *a*, *b*, *c* (♂♀, Kanara); Davidson, Bell, & Aitken, 1896, p. 245 (N. Kanara); Bingham, 1905, p. 201; Bell, 1909, p. 407, pl. i, figs. 3, 3 *a* (larva, pupa) (early stages; habits); Evans, 1910, p. 382 (Palni Hills).

Discophora lepida lepida, Fruhstorfer, 1911, p. 445, t. 105 *c* (♂); Evans, 1932 *a*, p. 135, pl. xvi, fig. E 10. 3 (♂).

Discophora lepida significans, Stichel, 1901, p. 317 (♂, Karwar).

Discophora lepida ab. *significans*, Stichel, 1902 *a*, p. 83.

Dry-season form **lepida** (Moore).—♂. *Upperside* of fore wing with subapical band about 5·5 mm. wide at vein 4, as against 4 mm. in the wet form; all spots larger than in the wet form.

Underside ochraceous-brown; discal dark line prominent, but other markings indistinct; ocelli very small, the posterior one with a prominent white centre.

♀. *Upperside* of fore wing with the three submarginal spots sometimes ochraceous.

Underside paler than in the male, and markings in distal areas very obscure.

Wet-season form **significans** Stichel.—♂. *Upperside* of fore wing with subapical band narrower, spots smaller.

Underside deep reddish-brown, paler in proximal half, and all markings well-defined.

♀. *Underside* discal band with a prominent broad white outer border; submarginal band white to brownish-white; ground-colour paler ochraceous than in the dry-season form.

Expanse: ♂♀, 85–95 mm.

Early stages and habits (from *Davidson, Bell, & Aitken*, 1896):—

Larva.—Cylindrical or slightly fusiform; head large; anal segment furnished with two stout conical processes, widely separated, but scarcely divergent. Head greenish-yellow, eye black; body brown; a dorsal, broad, pure white band, flanked with conspicuous black marks and a yellow lateral mark on segments 6 to 11; head and body clothed with long reddish or brown hair. Food plant bamboo.

Pupa.—Head-case produced into two long and conical adjoined processes; thorax slightly convex and dorsally carinate; wing cases evenly expanded, abdomen strongly curved dorsally; surface finely rugose. Colour semitransparent yellowish, like a clean white bone, with the dorsal line and veins of wings marked in faint flesh-colour.

Habits.—The eggs, from three to ten, and probably more, are laid in parallel rows along the midrib on the underside of a leaf in very shady places. The young larvæ are gregarious, and live, at first, on the underside of the leaf. Afterwards the larva lives by itself in a cell formed by joining a couple of leaves together with silk, like the larva of *Charaxes*.

The butterfly frequents dense bamboo jungle, and does not fly until after sunset. The flight is swift and strong, and the insect alights on leaves and bushes. The male has a powerful odour which can be detected as it flies past.

Habitat.—Southern India; rare. The type-specimen, in the British Museum, is a ♀ from Karwar, belonging to the dry-season form.

445 *b*. **Discophora lepida ceylonica** Fruhstorfer.

Discophora lepida ceylonica, Fruhstorfer, 1911, p. 445, t. 106 *d* (♂, as *lepida*) ; Evans, 1932 *a*, p. 135 ; Woodhouse & Henry, 1942, p. 50, pl. vi. figs. 5, 6 (♂), 7 (♀), pl. xl, fig. 4 (larva, pupa).
Discophora lepida, Ormiston (*non* Moore), 1918, p. 17.

♂. *Upperside* earth-brown, paler than in the nominotypical form. Fore wing subapical band much reduced, the lower spot vestigial ; submarginal spots vestigial.

Underside more ochraceous-brown than in the nominotypical form. Fore wing with submarginal band much less curved. Hind wing ocelli more strongly marked.

♀. *Upperside* of fore wing with spots of post-discal, or middle row, smaller, and more distinctly lunate than in the nominotypical form, the spot in 1 *b* well developed.

Underside resembles the form *significans* Stich., with markings as in the male.

Habitat.—CEYLON ; rare.

According to Ormiston (1918) the female is especially rare. The male appears at dusk, and has a jerky and rather fast flight ; it comes readily to sugar. The female is seen flying in the middle of the day.

Discophora timora Westwood, 1850.

♂. *Upperside* deep purplish-brown, paler than in *sondaica* Boisd the markings ochraceous. Fore wing with a post-discal elongate spot in area 5 ; a smaller and indistinct post-discal spot in area 4, placed distad of the one above it ; below the spot in 4 are sometimes traces of spots in areas 2 and 3 ; five small submarginal spots, the anterior and posterior ones minute. Hind wing with a submarginal indistinct series of dots ; brand as in *sondaica* but more distinctly defined on the paler ground-colour.

Underside as in *sondaica* and similarly variable, the lines and bands, however, tending to be straighter.

♀. *Upperside* closely resembles *necho* Feld. ; purplish-brown with ochraceous markings. Fore wing with a post-discal, oblique, curved band, narrower than in *necho*, from costa to vein 2, widest in area 3, the lower part, in area 2, forming a lunate spot often less than half as large as the patch in 3 ; spots in areas 2 and 3 deeply incurved on outer edge, and narrowly separated from the submarginal spots ; submarginal spots, three to four, lunate or triangular, their outer edges more or less incurved ; a post-discal, small, somewhat rounded, free spot in area 2 ; an antemarginal waved line. Hind wing with indistinct submarginal spots ; post-discal spots sometimes present in areas 5 and 6 ; an antemarginal line as on fore wing.

Underside as in male but much more ochraceous and paler.

In *necho* much paler, less ochraceous, and with a distinct purplish tinge.

♂ *genitalia*.—Dorsal process of uncus forked. Well figured by Stichel (1902 *a*), p. 61, fig. 1.

Distribution.—ANDAMAN ISLANDS, SIKKIM to BURMA, Malaya, Siam, Annam, and Tong-king. Two subspecies in the Indian area.

446 *a*. **Discophora timora timora** Westwood.

Discophora timora, Westwood, 1850, pl. liv, fig. 2 (♀); Hemming, 1941 *c*, p. 463.
Discophora celinde var. *timora*, Westwood, 1851, p. 331 ("Timor"; recte Sylhet).
Discophora menetho, Butler (*non* Fabricius), 1870 *a*, p. 45 (Nepal).
Discophora celinde var. *continentalis*, Staudinger, 1887, p. 190, t. lxiii (as *celinde*).
Discophora continentalis, Moore, 1893, p. 188, pl. cl, figs. 1, 1 *a*, *b* (♂♀), 1 *c* (larva and pupa, after Horsfield, Java); Stichel, 1902 *a*, p. 70; *id*., 1905, p. 7; Adamson, 1905, p. 169 (Bhamo).
Discophora continentalis continentalis, Fruhstorfer, 1911, p. 445 (Sikkim).
Discophora celinde continentalis, Ellis, 1917, p. 107 (Pegu; Arakan Yoma; rare).
Discophora continentalis continentalis, Evans, 1932 *a*, p. 135.
Discophora continentalis ab. *seminecho*, Stichel, 1902 *a*, p. 73.
Discophora celinde, Marshall & de Nicéville (*non* Stoll), 1883, p. 295, figs. (♂♀, Sikkim); Moore, 1886, p. 33 (♂, Elphinstone Island); de Nicéville, 1894 *a*, p. 130 (Sikkim); Bingham, 1905, p. 200; Bell, 1909, p. 469, ♂♀ (early stages from Bingham, 1905).

♂. *Upperside* purplish-brown, the basal four-fifths of both wings suffused with dark indigo-blue. Fore wing with two subapical pale ochraceous-white spots; four or five submarginal spots similar to the subapical ones. Hind wing uniform except for the dark discal brand.

Underside ochraceous shaded with brown, darkest on outer half of hind wing; a discal, broad, dark brown band from costa of fore wing to tornus of hind wing; a post-discal lighter ochraceous band, and on hind wing obscure distal ocelli in areas 2 and 6; a purplish-white diffuse mark at tornus of hind wing.

♀. *Upperside* paler purplish-brown; outer margin of both wings narrowly and evenly yellow. Fore wing with a subapical broad yellow bar, curving downwards, and ending in two or three triangular detached spots; two discal spots below middle of bar, and three submarginal large lunular spots. Hind wing with some diffuse yellow obscure spots on the anterior distal half.

Underside similar to that of the male, but much lighter and brighter ochraceous; the brown shading forms obscure bands

of which the discal, broad post-discal, and submarginal, crossing both wings, are the most prominent; hind wing with an additional ocellus in area 3.

Antenna ochraceous; head, thorax and abdomen above brown, beneath more or less ochraceous.

Expanse: ♂♀, 85–100 mm.

Habitat.—BENGAL; SIKKIM to BURMA; not rare. Also in Malaya, Tong-king, and Annam.

"The males frequent moist places on the forest roads. The females appear to remain among the undergrowth where, however, they are easily found." (*Adamson*, 1905, Burma).

446 *b*. **Discophora timora andamensis** Staudinger.

Discophora celinde var. *andamensis*, Staudinger, 1887, p. 190.
Discophora continentalis andamensis, Stichel, 1902 *a*, p. 73; Fruhstorfer, 1911, p. 445, ♂.
Discophora continentalis andamanensis (sic), Evans, 1932 *a*, p. 135.

♂. *Upperside* of fore wing with spots more obscure than in the nominotypical form, the anterior elongate spot more prominent. Hind wing with a brand as in *lepida* (Moore).

Underside very dark, the proximal ochraceous and light submarginal markings alone prominent.

♀. Scarcely distinguishable from the nominotypical form, but markings of *underside* less well defined.

Habitat.—ANDAMAN ISLANDS; rare.

Discophora necho C. & R. Felder, 1867

♂. *Upperside* dark purplish-brown. Fore wing with a post-discal row of five prominent bluish-white or violet spots, those in areas 3 to 5 larger than the others, forming a curved series; a submarginal series of smaller and somewhat rounded spots in areas 1 *b* to 5, the two anterior ones smaller than the others, the three posterior spots placed close to the post-discal ones.

♀. *Upperside* of fore wing with a post-discal, oblique, broad, yellow band, wider on the costa, reaching vein 2 and much narrowed below vein 3, its inner edge indented at veins 3 and 4, its outer edge slightly produced at vein 5, and between veins 4 and 2 is almost joined to the submarginal spots; three prominent submarginal yellow spots in areas 1 *b*, 2 and 3, and a fourth in 4 less distal, the two middle ones somewhat triangular and much larger than the others. Hind wing with a submarginal series of small indistinct yellow spots.

Distinguished from the very similar ♀ of *timora* Westw. by fore wing having outer margin less incurved, and by *underside* of fore wing with the inner one of the two submarginal lines

placed somewhat farther from the outer line, and the two lines farther apart at the tornus.

♂ *genitalia.*—Dorsal process of uncus forked. Well figured by Stichel (1902 *a*), p. 61, fig, 2.

Distribution.—Malaya and BURMA to Java, Borneo, and the Philippines. One subspecies occurs very rarely in Burma.

447. **Discophora necho engamon** Fruhstorfer.

Discophora necho engamon, Fruhstorfer, 1911, p. 446 (Perak).
Discophora necho, Marshall & de Nicéville (*non* C. & R. Felder), 1883, p. 296 (♂, Houndraw, Upper Tenasserim); Elwes & de Nicéville, 1887, p. 419 (♂, Tavoy).

♂. *Upperside* of fore wing with the blue band narrower and darker than in the nominotypical form and Sumatra form.

♀. *Upperside* of fore wing with inner edge of band incurved anteriorly, this edge being placed farther away from the cell—about 4 mm.—than in allied subspecies; the submarginal three lunate spots are smaller than in *n. dis* de Nicév. from Sumatra, are all quite free from the band.

Expanse: ♂♀, 100–115 mm.

Habitat.—BURMA; Malaya. Known from Burma only by the males recorded by Marshall and de Nicéville and by Elwes and de Nicéville, and by a single female in the British Museum, obtained by Archbald at Kawareik, Upper Tenasserim.

The types of *engamon* are in the British Museum. The female allotype is a specimen of *D. timora perakensis* Stichel.

Genus **ENISPE** Doubleday.

Enispe, Doubleday, 1848, pl. xl, fig. 2; Westwood, 1850, p. 292; Marshall & de Nicéville, 1883, pp. 283, 299; Moore, 1893, pp. 173, 198 (type, *E. euthymius* Doubleday); Bingham, 1905, p. 197; Stichel, 1905, p. 11, pl., fig. 2 (venation); *id.*, 1909, p. 157; Fruhstorfer, 1911, p. 448; Evans, 1932 *a*, p. 135; Hemming, 1934 *a*, p. 52 (type, *Adolias euthymius* Doubleday, 1845); *id.*, 1941 *b*, p. 421.
Adolias, Doubleday (*non* Boisd., 1836), 1845, p. 179 (*A. euthymius*).

Type of the genus, *E. euthymius* (Doubleday).

♂♀. Similar to *Discophora*. Fore wing with vein 10 absent; vein 11 anastomosed with 12. ♂ hind wing without a brand; cell strongly hairy.

Antenna longer than in *Discophora*; eye naked; palpus obliquely porrect, third segment short.

Distribution.—ASSAM to Malaya, Sumatra, and Borneo, Yunnan, Hainan, and Southern China. Three species known, two occurring in the Indian area.

Key to Species.

1. Upperside blackish-brown. Fore wing with a bluish-white band . . . . *cycnus* Westw., p. 458.
2. Upperside bright ochraceous with blackish-brown markings [p. 459. *euthymius* (Doubl.)

Enispe cycnus Westwood.

♂. *Upperside* blackish-brown, with a purplish tinge, basal areas paler. Fore wing with a post-discal bluish-white band, broader from costa to vein 4, continuing as three more or less lunate spots, more or less connected, in areas 3, 2, and 1 *b*; a submarginal row of bluish-white wedge-shaped spots in areas 1 *b*, 2, to 4 or 5. Hind wing with an outer marginal, narrow and crenulate, greyish-brown border.

Underside dull ochraceous-brown, with purplish-brown markings. Fore wing with three sub-basal cell-spots; an irregular mark crossing middle of cell, reaching fold in area 1 *b*; a short, narrow, bar on upper *dc* veins; a small spot usually present in bases of areas 4 and 5; a post-discal, prominent, narrow band, its outer edge strongly crenulate, from costa to fold in area 1 *b*; two post-discal rows of small spots, more or less distinct; a submarginal row of somewhat lunate and feebly marked spots; an outer marginal, narrow, border; area between outer post-discal spots and marginal border somewhat greyish or very pale ochraceous; area between the two post-discal rows of spots darker than the proximal area. Hind wing markings much the same as those on fore wing, the distal pale area less distinct; area 1 *a* with proximal two-thirds pale ochraceous-yellow.

♀. *Upperside* paler than the male. Fore wing markings as in the male but in addition the lower spot of the band is usually ochraceous; a pair of small ochraceous spots in proximal part of areas 3 and 2. Hind wing with three rows of ochraceous spots, those of the inner discal row, in areas 2 to 6, more or less connected, those of the post-discal row lunate or wedge-shaped, those of the outer row more rounded and always separate; an outer marginal, narrow, ochraceous border, its inner edge waved.

Underside as in the male but paler, and post-discal dark band no less distinctly marked.

Distribution.—Bhutan to Northern Burma, and Tibet. Two subspecies in the Indian area.

448 *a*. **Enispe cycnus cycnus** Westwood.

Enispe cycnus Westwood 1851 p. 330; Marshall & de Nicéville, 1883, p. 301, ♂♀; Elwes, 1891, p. 271 (Naga Hills; Bernardmyo); Moore, 1893, p. 201, pl. clvii, figs. 1, 1 *a*, *b*, *c* (♂♀); de Nicéville, 1894 *a*, p. 130 (Sikkim, very rare); Bingham, 1905, p. 199; Stichel, 1905, p. 13, pl., fig. 7 (♀); Tytler, 1911, p. 55 (Naga Hills, 6,000 feet).

Enispe cycnus cycnus, Fruhstorfer, 1911, p. 448; Evans, 1932 *a*, p. 135, pl. xvi, fig. E 11. 1 (♂).

♂. *Upperside* of fore wing with the bluish-white band, in its anterior straight part, about 7 to 8 mm. wide, the spot in area 3

being from 3 to 4 mm. wide at vein 3. Other characters as described for the species.

♀. *Upperside* of fore wing as in the male, the ochraceous-brown markings not strongly emphasised. Hind wing with outer row of spots usually but slightly larger than those of inner row or of similar size.

Expanse : ♂♀, 80–95 mm.

Habitat.—ASSAM to NORTHERN BURMA ; rare.

448 *b*. **Enispe cycnus verbanus** Fruhstorfer.

Enispe cycnus verbanus, Fruhstorfer, 1911, p. 448, t. 105 *c* (♀, as *cycnus*) (Bhutan) ; Evans, 1932 *a*, p. 135.

♂♀. *Upperside* of fore wing with the bluish-white band, in its anterior straight part, about 4·5 to 7 mm. wide, the spot in area 3 being at most 3·5 mm. at vein 3, usually not above 2 mm. ; all three spots in areas 1 *b*, 2, and 3 usually smaller than in the nominotypical form, especially the lower spot ; submarginal spots usually smaller than those of the nominotypical form.

Habitat.—BHUTAN ; CACHAR ; rare.

Enispe euthymius (Doubleday).

♂♀. *Upperside* bright ochraceous with blackish-brown markings. Fore wing with apical third and outer marginal border blackish-brown, the outer border usually bearing submarginal spots of ground-colour, more prominent in the female ; a prominent comma-shaped mark on upper part of *dc* veins ; a post-discal bar, heavy or faint, formed by two lunate marks in areas 4 and 5 ; a post-discal series of four spots on veins 2 to 5 ; a submarginal strongly dentate line. Hind wing with a discal straight line, from costa to tornus, in the male usually faintly indented, in the female prominent ; a post-discal bar or vestiges of one, between veins 3 and 5, more marked in the female ; a post-discal row of lunulate spots ; a submarginal row of spots, their inner edges more or less strongly dentate ; a marginal narrow border.

Underside paler than above, with few markings ; a proximal darker area, defined by a discal, narrow, prominent line, bordered on its inner side with ochraceous-brown in the male, and with darker or blackish-brown in the female ; markings in proximal area better defined than the distal ones. Hind wing with three vestigial ocelli in areas 2, 5, and 6, the anterior two usually only very small dark spots, the somewhat similar posterior one always with a prominent white centre.

Distribution.—SIKKIM to S.E. Tibet and BURMA, Siam, Malaya, and Borneo.

449. **Enispe euthymius euthymius** (Doubleday). (Pl. II, fig. 4).

Adolias euthymius, Doubleday, 1845, p. 179; Westwood, 1848, pl. xl, fig. 2.
Enispe euthymius, Marshall & de Nicéville, 1883, p. 300, fig. (♂, Sikkim); Wood-Mason & de Nicéville 1887, p. 353, pl. xv, fig. 1 (♂, Cachar); Elwes, 1891, p. 270 (Karen Hills, 1,500–4,000 feet); Moore, 1893, p. 198, pl. clv, figs. 1, 1 *a*, *b c* (♂♀); de Nicéville, 1894 *a*, p. 130 (Sikkim); Watson, 1897, p. 652 (Chin Hills, 2,000 feet); Adamson, 1905, p. 169 (Karen Hills); Bingham, 1905, p. 198, pl. iv, fig. 3.
Enispe euthymius euthymius, Stichel, 1905, p. 12.
Enispe enthymius (sic), Tytler, 1911, p. 55 (Naga Hills).
Enispe euthymius euthymius, Fruhstorfer, 1911, p. 448 (=dry-season form).
Enispe euthymius, Tytler, 1914, p. 228 (♂, Western Manipur Hills); Ellis, 1917, p. 107 (Pegu Yoma); Evans, 1932 *a*, p. 135.
Enispe tessellata, Moore, 1883 *b*, p. 521; *id.*, 1893, p. 200, pl. clvi, figs. 1, 1 *a*, *b*, *c* (♂ type, Darjeeling; ♀ type, Nepal).
Enispe euthymius tesselatus (sic), Stichel, 1905, p. 12, pl., fig. 5 (♂).
Enispe euthymius f. *tesselata* (sic), Fruhstorfer, 1911, p. 448 (=wet-season form).
Enispe euthymius var. *tessellata*, Tytler, 1914, p. 228 (Naga Hills; Manipur); Evans, 1932 *a*, p. 135, pl. xvi, fig. E 11. 2 (♂).
Enispe euthymius var. *sylhetensis*, Staudinger, 1887, p. 191.
Enispe euthymius f. *melæna*, Tytler, 1914, p. 228 (♂, Naga Hills; Manipur).
Enispe euthymius intermedia, Rothschild, 1916 *a*, p. 315 (♂, Bernardmyo; N. Chin Hills; Tavoy; Perak; Paughir, Shan States).

♂♀. *Upperside* rich ochraceous-orange, with black markings. Fore wing with a discocellular spot; two discal fine lunate spots; a post-discal erect series of four spots; a submarginal, narrow, zigzag band; apical area and outer margin broadly black. Hind wing with a discal, irregular, suffused mark; two post-discal series of lunular continuous marks; outer margin narrowly fuscous.

Underside rich bright ochraceous; a discal, broad, darker ochraceous band, from costa of fore wing to tornus of hind wing, its inner edge defined by an irregular, sinuous, broken line, its outer edge by a straighter, complete, ferruginous line; base of wings marked with ferruginous spots; distal areas uniform, the black markings of upperside showing faintly through; hind wing with a discal series of three or four minute, dark, ocelli, the lowest white-centred.

Antenna, head, thorax and abdomen bright ochraceous.

Expanse: ♂♀, 85–95 mm.

Form **tessellata** Moore.—♂♀. More richly coloured than the nominotypical form, darker, with heavier black markings. *Upperside* of fore wing with a straight black bar near base of areas 2 and 3. Both wings with proximal half somewhat darker than distal half.

Form **melæna** Tytler.—♂. *Upperside* darker than *tessellata*, distal area a richer red, proximal area deep red-brown. Fore wing with a marginal broad black border, bearing a row of separated quadrate spots of the ground-colour, a black discal bar as in *tessellata*, but broader and extended into middle of area 1 *b*.

Underside darker than in *tessellata*.

Habitat.—SIKKIM to BURMA; not rare.

The three forms occur together in Assam in both dry and wet seasons.

Family ACRÆIDÆ Doubleday.

Acræidæ, Doubleday, 1848, p. 137; Aurivillius, 1913, p. 239.
Acræinæ, Bates, 1864, p. 176; Marshall & de Nicéville, 1883, p. 317; Moore, 1901, p. 29.
Acræidi, Seitz, 1908, p. 243; Fruhstorfer, 1914, p. 740 (tribe of Nymphalidæ).

Egg.—Somewhat globular, broad at the base and narrowing anteriorly, the top flattened.

Larva (fig. 103).—Cylindrical, armed with branched spines; segments 4 to 11 each with six spines of almost equal length, placed in a straight transverse line; segment 1 with two dorsal spines, and segments 2 and 3 have, in addition, a lateral spine on each side; segments 12 and 13 each with two spines. Gregarious, and usually brightly coloured.

Pupa (fig. 103).—Elongate, almost cylindrical, smooth. Head without long processes, truncate; shoulders somewhat carinate; dorsum with tubercles, which are sometimes produced to a point. Usually brightly coloured and spotted. Suspended by the cremaster.

Imago.—Wings elongate, more or less diaphanous or sparsely scaled; outer margin always entire. Both wings with cell closed. Fore wing with vein 1 *a* free and not forked with 1 *b* as in the Danaidæ. Hind wing without a groove on the inner margin which is flat and scaled as elsewhere; precostal vein curved basad. Antennæ (vol. I, p. 9, fig. 3 *d*) proportionately short, stout, with distinct club, the shaft with two grooves on the underside. Palpus (vol. I, p. 10, fig. 4 *d*) thinly scaled, and clothed with stiff, bristly hairs; second segment long, third segment very short. Head and thorax short; eyes naked; abdomen long and slender, smooth, often glossy on upperside; after pairing the female bears a sphragis or pouch as in *Parnassius*. Fore tarsi (vol. I, p. 11, fig. 5 iv) of male functionally imperfect, but with one to four segments; in the female perfect.

Habits.—Flight weak and slow. The butterflies frequent flowers of all kinds. When at rest they may be taken off with the fingers. The imago can exude a yellow, somewhat acrid fluid, which has a disagreeable odour. A similar odour is also present in the larva and pupa. The butterfly is very tenacious of life, and its integument resembles that of the Danaidæ.

Distribution.—Africa, the Indo-Australian Region, and South America. Its headquarters are in Africa, where three genera are found; one of these, the genus *Acræa*, extends to INDIA.

Genus **ACRÆA** Fabricius.

Acræa, Fabricius, 1807, p. 284; Scudder, 1875. p. 101 (type, *horta* Linn.); Aurivillius, 1913, p. 246; Hemming, 1934 *a*, p. 52 (type, *Papilio horta* Linn., 1764).

Telchinia, Hübner, 1819, p. 27; Scudder, 1875, p. 277 (type, *serena* Fabr.); Moore, 1881 *b*, p. 65; Marshall & de Nicéville, 1883, p. 319; Moore, 1901, p. 35; Bingham, 1905, p. 470 (type, *violæ* Fabr.); Evans, 1932 *a*, p. 192; Hemming, 1934 *a*, p. 52 (type, *Papilio serena* Fabr., 1775).

Pareba, Doubleday, 1848, p. 142; Marshall & de Nicéville, 1883, p. 318; Moore, 1901, p. 30; Bingham, 1905, p. 468 (type, *vesta* Fabr.); Seitz, 1908, p. 244; Fruhstorfer, 1914, p. 740; Evans, 1932 *a*, p. 192; Hemming, 1934 *a*, p. 54 (type, *Papilio vesta* Fabr., 1787).

Type of the genus, *Acræa horta* (Linnæus), from Africa.

♂♀. Fore wing with vein 11 before the end of the cell; veins 7, 8, 9, 10 stalked; vein 6 from apex of cell or near it and widely separate from vein 5. Hind wing with cell long, reaching middle of wing; venation variable within limits, and veins 6 and 7 sometimes shortly stalked. Palpus with first and second segments light yellowish or whitish, third or terminal segment black. ♂ claws of most species, of mid and hind legs, unequal.

Genitalia.—♀ usually with a chitinous plate on the seventh sternite, surrounding the external orifice of the bursa copulatrix. Those females which possess such a plate have upon it after pairing, a hard wax-like substance, forming a horny anal pouch as in *Parnassius*. This is called the *sphragis*.

Distribution.—The Aethiopian and Indo-Australian Regions. Two species in the Indian area.

Acræa issoria (Hübner).

This species is well-known under the name of *vesta* Fabr., but this name must become a synonym as it is a homonym of *vesta* Cramer, an older name for another insect.

♂♀. *Upperside* fulvous to pale ochraceous, the veins blackened. Fore wing with costal and outer margins narrowly black. Hind wing with a somewhat sagittate, black, submarginal line.

Underside of fore wing paler, of the hind wing whitish; the veins darker than on upperside. Hind wing with a submarginal ochraceous band, outlined with black.

Larva.—"Head reddish-ochraceous, black-spotted, front with a white stripe; segments dark purplish-violet, with longitudinal rows of short, transverse, white bars; spines ochreous, with black tips; legs ochreous, with black bands." (*Moore*).

Pupa.—"Head with two short frontal points; thorax convex and uneven; abdominal segments with a dorsal and two lateral rows of short tubercular points. Colour white, tubercles and streaks on wing-cases ochraceous." (*Moore*).

Distribution.—The lower HIMALAYAS to ASSAM and BURMA, extending to China. Three subspecies in the Indian area.

450 *a*. **Acræa issoria issoria** (Hübner). (Figs. 102, ♂; 103, larva and pupa).

Telchinia issoria, Hübner, 1818, p. 27.
Papilio vesta, Fabricius (*non* Cramer), 1787, p. 14.
Pareba vesta, Moore, 1865 *a*, p. 760 (Darjeeling).
Acræa vesta, de Nicéville, 1881, p. 50 (Sikkim, October; excessively common).
Pareba vesta, Marshall & de Nicéville (part.), 1883, p. 318: Watson, 1897, p. 52 (Chin Hills, 3,500–5,000 feet; common in the rains): Moore 1901 p. 31 pl. cccIxxxvii, figs. 1 (larva and pupa), 1 *a*, *b*, *c* (♂), 1 *d*, *e*, *f* (♀); Bingham (part.), 1905, p. 469, fig. 84 (♂); Seitz (part.), 1908, p. 244, t. 71 *d*; Tytler, 1911, p. 64 (Naga Hills; very common); South, 1913, p. 353 (Mishmi Hills, 6,000 feet).
Pareba vesta vesta, Evans, 1932 *a*, p. 192, pl. xxv, fig. F. 51 (♂); Peile, 1937, p. 156.
Pareba vesta, Hemming, 1934 *a*, p. 54 (=homonym of *Papilio vesta* Cramer, 1777); Sevastopulo, 1941 *b*, p. 752 (early stages).

♂. *Upperside* yellow. Fore wing with the veins along the costal margin broadly, and apical half of those along the outer margin narrowly, black; a broad, curved, discocellular mark; outer margin, including apex, narrowly black, decreasing in width to the tornus, and traversed by an antemarginal series of small spots of the ground-colour. Hind wing with distal half of veins 1 *a* to 8, the submarginal zigzag line, and the marginal slender line, black, the submarginal line coalescing with the marginal line along the veins.

Underside of fore wing yellow, becoming paler towards the apex, the veins much darker, and the black discocellular mark showing through. Hind wing ground-colour a delicate pinkish-white, the veins conspicuously black; a broad submarginal lunulate band, edged with black on its inner and outer sides; an outer marginal slender black line continued along inner margin.

Antennæ, head, thorax and abdomen black; thorax with a little ochraceous yellow pubescence anteriorly. Underside of

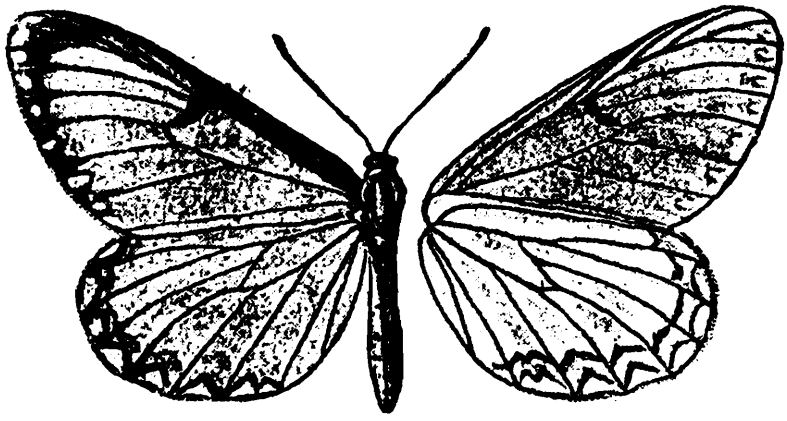


Fig. 102.—*Acræa issoria issoria* (Hübn.), ♂.

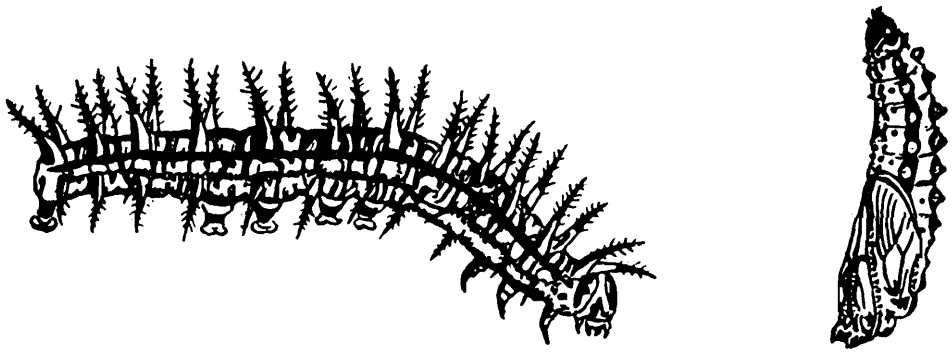


Fig. 103.—*Acræa issoria issoria* (Hübn.).
Larva and pupa. (After *Horsfield & Moore*, 1857).

thorax and abdomen black, sparingly marked and spotted with very pale ochraceous.

♀. *Upperside* ground-colour a paler, duller, ochraceous-yellow than in the male, with similar but broader black markings.

Underside ground-colour duller than in the male, the black markings showing through by transparency.

Expanse: ♂♀, 50–70 mm.

A variable insect, both in the shades of ground-colour and in the markings. The above description is of the palest form. Other specimens have the ground-colour fulvous, the upperside with additional black marks. The fore wing may have a band along base of costa, the apex and outer margin more broadly black, a black transverse cell mark, another oblique mark from costa beyond apex of cell, and black discal transverse marks. Hind wing may have the black submarginal and marginal lines much broader, with the ochraceous-red submarginal band showing through from the underside.

Some female specimens have the fore wing upperside with ground-colour fuliginous, a broad streak at base of cell, a quadrate spot at its apex, a discal irregular series of elongate

marks, and a submarginal series of pale ochreous spots. Hind wing with pale ground-colour, and distal third of wing shaded with fuliginous black.

Early stages (from *Sevastopulo*, 1941 *b*, p. 752) :—

Larva, final stage.—Head yellowish-brown ; a pale inverted Y-shaped mark, the arms filled in with black and edged with black externally. Body ground-colour creamy-white ; a dorsal, lateral, and sublateral chocolate-brown stripe ; posterior to the spines and across each somite two transverse chocolate-brown stripes, and a similar stripe on the intersegmental area ; branched spines, which are basally yellow-brown and apically black, arise from yellowish warts between the longitudinal stripes ; 1st somite with a subdorsal spine, 2nd and 3rd with a subdorsal and a lateral, 4th to 11th with a subdorsal, lateral and sublateral, 12th somite with a subdorsal and lateral ; venter whitish ; a lateral purplish-brown stripe. Legs and prolegs black.

Pupa.—Suspended by the cremaster. Elongate, not prominently angled ; a subdorsal series of short black spines on thorax and abdomen. White, marked with yellow and black. Abdomen with a subdorsal, lateral and median ventral black stripe, the subdorsal and lateral bearing seven and four deep yellow spots respectively ; ventral stripe with an interrupted yellow internal stripe. Wing-cases veined black. Thorax with a median dorsal yellow stripe edged with black. Antenna cases yellow outlined with black. Head and leg cases marked with black.

Described from a full-fed larva found in Shillong on 21. iv. 1941, pupated on 25. iv. 1941. A male emerged on 14. v. 1941.

Habitat.—SIKKIM and ASSAM ; not rare, and sometimes very common.

450 *b*. **Acræa issoria anomala** Kollar.

Acræa anomala, Kollar, 1848, p. 425, pl. iii, figs. 3, 4 (♀, Mussooree).
Pareba vesta anomala, Fruhstorfer, 1914, p. 741 ; Evans, 1932 *a*, p. 192.
Acræa vesta anomala, Peile, 1937, p. 155, pl. xv, fig. 124 (♂).
Pareba vesta, Moore (*non* Fabr.), 1882 *b*, p. 243 (Kangra) ; Doherty, 1886 *a*, p. 114 (Kumaon, 4,000–5,000 feet) ; Mackinnon & de Nicéville, 1897, p. 221 (Mussooree) ; Hannyngton, 1910, p. 141 (Kumaon, 3,000–6,000 feet, very common).

♂♀. This subspecies appears only to differ from the nominotypical one in being of a smaller size.

Expanse : ♂♀, 45–65 mm.

Habits.—" Larva feeds on the willow-leaved nettle (*Bœhmeria salicifolia* D. Don., family Urticaceæ). Imago

July to September. Eggs deposited in September, and hatch in about 20 days. Length of young larva 3 to 4 lines, entirely black. When about three weeks old they moult and then hibernate, reappearing in the following April. They moult again early in May, when they assume the red head. The larvæ generally feed on the upper branches of the plant, are gregarious, and drop to the ground when disturbed. Third moult early in June, about the middle of which month they suspend themselves by the tail near the bottom of the stems of the bushes, and there change to the pupa state. The imago appears in about fifteen days, in the first or second week in July. A few come out in August or September, but not in sufficient numbers to constitute a succession of broods. The imago is seldom found far from the food-plant, which grows near running water.

"It is a very local insect, but, where occurring, abundant. It is to be found in wet ravines at from 3,000 to 4,000 feet elevation in Kulu. It is very constant in its appearance, frequenting the same localities year after year. The imago does not hibernate." (*A. Graham Young*, quoted by *Moore*, 1882 *b*, p. 243).

According to Peile (1937) the insect is abundant at Mussooree in June at 3,000 feet. All stages, except young larvæ, were found about the food-plant, *Debregeasia bicolor* Weddell (family Urticaceæ). Only a few females were seen on the wing; most females were resting on or near their pupa-cases.

It is recommended that before putting specimens of this species in papers for keeping, the oily yellow exudation from the thorax, and the fluid from the abdomen, should be squeezed out into blotting-paper.

Habitat.—KULU to KUMAON; 3,000 to 5,000 feet, rarely to above 6,000 feet; usually common.

450 *c*. **Acræa issoria sordice** (Fruhstorfer).

Pareba vesta sordice, Fruhstorfer, 1914, p. 741 (♂♀, Tenasserim).

♂♀. *Upperside* with black borders broader. ♀ fore wing with a submarginal series of short, reddish-brown, sagittate marks.

Underside with white areas absent.

Expanse: ♂♀, 50–70 mm.

Habitat.—BURMA; rare.

451. **Acræa violæ** (Fabricius). (Fig. 104, ♂).

Papilio violæ, Fabricius, 1775, p. 460.

Telchinia violæ, Moore, 1865 *a*, p. 760 (Bengal); *id.*, 1881 *b*, p. 66, pl. xxxiii, figs. 1 (♂), 1 *a* (♀), 1 *b* (larva and pupa); Marshall & de Nicéville, 1883, p. 320, fig. (♂); Taylor & de Nicéville, 1888, no. 26 (Orissa, very common); Hampson, 1889, p. 352 (Nilgiri Hills); Moore, 1901, p. 36, pl. ccclxxxviii, figs. 1, 1 *a* (larva,

pupa), 1 *b*, *c*, *d* (♂), 1 *e*, *f*, *g* (♀); de Rhé-Philipe, 1902, p. 484 (Lucknow); Bingham, 1905, p. 471, fig. 85 (♂); Bell, 1910, p. 321, pl. E, figs. 31, 31 *a* (♂♀) (early stages and habits); Hannyngton, 1910, p. 141 (Kumaon, 3,000 feet); Fruhstorfer, 1914, p. 742, t. 138 *a*; Ormiston, 1918, p. 35 (Ceylon, to 6,000 feet); Evans, 1932 *a*, p. 192, pl. xxv, fig. F. 52 (♂); Woodhouse & Henry, 1942, p. 68, pl. xv, fig. 13 (♀), pl. xxxvii, fig. 3 (aberr.), pl. xxxix, fig. 2 (larva, pupa), pl. xlix, fig. 4 (egg).
Acræa violæ, Peile, 1937, p. 157, pl. xv, fig. 123 (♂).

♂. *Upperside* tawny. Fore wing with a transverse black cell-spot; an irregular discocellular black bar; post-discal black spots in areas 1 *b*, 3, 4, 5, 6, and 10, those in 4 to 6 parallel to end of cell; apex and outer margin narrowly black, narrowing posteriorly, and with short projections on the veins. Hind wing with a basal series of four or five black spots, a similar spot in the middle of cell, and a subcostal black spot above it; a discal series of obscure blackish spots; a minute post-discal black dot in areas 4 and 6; a broad black marginal border, bearing a submarginal series of small spots of the ground-colour. Most of the macular black markings are obscure, being only the spots showing through from the underside; inner edge of marginal border crenulate.



Fig. 104.—*Acræa violæ* (Fabr.), ♂.

Underside ground-colour ochraceous-yellow or a paler tawny yellow. Fore wing paling to whitish on the apex, with black markings as on upperside. but somewhat blurred and diffuse. Hind wing markings as on upperside, but more clearly defined; submarginal spots much larger, white, not tawny; base of wing black, separated from the basal black spots by two or three large whitish spots.

Antennæ black; head and thorax black, spotted with ochraceous and white; abdomen anteriorly black, posteriorly ochraceous-yellow with narrow transverse black lines. Underside of palpi, thorax and abdomen ochraceous; thorax spotted with ochraceous, the abdomen with a basal longitudinal black line.

♀. Similar to the male. *Upperside* ground-colour duller, the black spots on both wings larger, the upper post-discal

spots on fore wing often coalescing, and forming an irregular oblique short band; marginal black border on both wings proportionately broader, the submarginal spots on hind wing larger and whitish.

Underside much paler and duller; markings as on upperside, the spots on hind wing better defined.

Expanse: ♂♀, 50–65 mm.

Early stages and habits (from *Bell*, 1910):—

Egg.—Dome shaped, with seventeen raised, transversely striated, longitudinal ridges, not meeting at the top; top shallowly reticulate.

Larva.—Body cylindrical, with segments well marked; anal segment high, flap rounded at extremity, not overhanging the claspers; prolegs long. Head small, round, set with erect hairs, brownish-orange; clypeus triangular, the apex black; a black spot at base of each cheek. Segment 2 with a subdorsal spine; segments 2 and 3 with a lateral spine on their common margins; segment 3 with a subdorsal spine, and a lateral one on the common margin of 3 and 4; segment 4 with a subdorsal spine; segments 5 to 12 each with a subdorsal, a supraspiracular, and a subspiracular spine; segment 13 with a subdorsal spine, and 14 with a dorsolateral one; also on segments 3 to 10 there is a small bristle-bearing chitinous area under the subspiracular spine. All spines shiny black, set with erect, stiff, black hairs arising from thickened bases; all of about equal length, excepting those on segments 2, 3, 13 and 14, which are slightly shorter.

Colour of body a greasy claret-brown, with segments 2 and 14 yellow-reddish; dorsal parts of segments 3, 4, 11, and 12 yellow; venter greenish-yellow; legs shiny black; soles (plantæ) of prolegs green; a shiny black shield on base of prolegs. Length, 21 mm.; breadth (including spines), 10 mm.; length of spines, 3 mm.

Pupa.—Elongate; head with two blunt points; anal end bluntly rounded; shoulders prominent; cremaster short and stout. Surface dull, very slightly wrinkled, and set with minute erect hairs. Colour white, with a pink and a yellow shade in it; segments 2 to 5 with a subdorsal broad and interrupted black line, coalescing at the hind margin of the last segment, the extremities in front being joined by a straight line on vertex of head; dorsal space between these lines on segments 3 and 4, reddish-yellow; abdomen with a broad subdorsal line, a similar spiracular line, and a central ventral line, all black; each of these lines or bands encloses a reddish-yellow circular spot near front margins of segments, these spots (except the ventral ones) being the scars left by the larval spines; last segment and cremaster black; tips of head points, sides of head, shoulders, antennæ, and greater part of

proboscis also black; wings margined black, with a central bifurcate black mark, and short subapical line to each; all black markings dull. Length, 17 mm.; breadth, 6 mm. at broadest part.

Habits.—The eggs are laid in a batch, up to 15 or so, on a young shoot or tendril. Larvæ at first gregarious, but separate in the third stage; very active, and grow fast; generally rest on underside of a leaf; usually pupate on or near the food-plant. Both larva and pupa have a disagreeable odour.

Food-plant, in the damper parts, the wild passion-flower, *Modecca palmata* Lam. (family Passifloreæ); also cultivated forms.

In Bombay the butterfly is to be found at all seasons, in the mountains and plains, forests and open country; not uncommon in Sind. Flight weak, slow and fluttering, the wings never being moved far from the horizontal. The insect keeps near the ground and goes straight ahead.

Habitat.—Ceylon and Peninsular India; common.

BIBLIOGRAPHY.

ADAMSON, C. H. E.

1905.—" Catalogue of butterflies collected in Burmah."—Part I. *Trans. Nat. Hist. Soc. Northumb., Durh., and Newc.*, i, pp. 155–89.

1908.—" Catalogue of butterflies collected in Burmah."—Part II. *Trans. Nat. Hist. Soc. Northumb., Durh., and Newc.* (n. s.), iii, pp. 116–48.

AITKEN, E. H.

1886.—" A list of the Bombay butterflies in the Society's collection, with notes." *Journ. Bomb. Nat. Hist. Soc.*, i, pp. 126–35.

ALCOCK, A. W.

1898.—" Rep. Nat. Hist. Res. Pamir Boundary Commission," Lepidoptera, pp. 1–45.

ALPHERAKY, S.

1881.—" Lépidoptères du district de Kouldjà." *Hor. Soc. Ent. Ross.*, xvi, pp. 334–435.

ATKINSON, W. S.

1871.—" Descriptions of three new species of diurnal Lepidoptera from Western Yunan." *Proc. Zool. Soc. Lond.*, 1871, pp. 215–16, pl. xii.

1873.—" Descriptions of two new species of butterflies from the Andaman Islands." *Proc. Zool. Soc. Lond.*, 1873, p. 736, pl. lxiii.

AURIVILLIUS, C.

1898.—" Bemerkungen zu den von J. Chr. Fabricius aus Dänischen Sammlungen beschriebenen Lepidopteren." *Ent. Tidskr.*, 18, 1897, pp. 139–174.

1913.—Acraeidæ, in Seitz' *Gross-schmetterlinge der Erde*, xiii, p. 239.

BATES, H. W.

1864.—" Contributions to an insect fauna of the Amazon Valley." *Journ. Ent.*, ii, pp. 175–213.

BELL, T. R.

1909.—" The common butterflies of the Plains of India." *Journ. Bomb. Nat. Hist. Soc.*, xix, pp. 16–58, 438–74.

1910.—" The common butterflies of the Plains of India." pt viii. *Journ. Bomb. Nat. Hist. Soc.*, xx, pp. 279–330.

BILLBERG, G. J.

1820.—*Enumeratio Insectorum in Museo Billberg.*

BINGHAM, C. T.

1905.—*Fauna Brit. Ind.*, Butterflies, i.

BLANCHARD, E.

1840.—In Castlenau, *Histoire Naturelle des Animaux Articulés*, iii.

1844.—In Jacquemont, *Voy. dans l'Inde*, iv, Ins.

BOISDUVAL, J. B. A.

1832.—In d'Urville, *Voy. Astrolabe*, Ent. i (Lep.).

1833.—*Ic. Hist. Lép. Europe*, i.

1836.—*Spec. Gén. Lép.*, i (text).

1858.—*Spec. Gén. Lép.*, i (plates).

BROOKS, C. J.

1937.—"*Amathuxidia, Zeuxidia,* and *Thauria* : Descriptions of new subspecies and revisional notes." *Entomol.*, lxx, pp. 147–51.

1940.—"*Zeuxidia doubledaii* Westwood." *Entomol.*, lxxiii, p. 44.

BRYK, F.

1937.—*Lep. Cat.*, 78.

BUTLER, A. G.

1866 *a*.—"A monograph of the diurnal Lepidoptera belonging to the genus Euplœa." *Proc. Zool. Soc. Lond.*, 1866, pp. 267–302, pls. xxix, xxx.

1866 *b*.—"A monograph of the diurnal Lepidoptera belonging to the genus *Danais*, being a revision of the insects of that genus, with descriptions of new species in the National Collection."—*Proc. Zool. Soc. Lond.*, 1866, pp. 43–59, pl. iv.

1866 *c*.—"Descriptions of some new species of diurnal Lepidoptera in the collection of the British Museum." *Ent. Mo. Mag.*, iii, pp. 76–8.

1867 *a*.—"Description of new species of diurnal Lepidoptera belonging to the family Satyridæ." *Ann. Mag. Nat. Hist.* (3) xix, pp. 49–51, pl. ii.

1867 *b*.—"A monograph of the genus *Hestia*, with a tabular view of the species of Danaidæ." *Ann. Mag. Nat. Hist.* (3) v, pp. 467–84.

1867 *c*.—"Remarks upon the Fabrician species of the Satyride genus *Mycalesis*." *Proc. Zool. Soc. Lond.*, 1867, pp. 718–21.

1867 *d*.—"Remarks on the nomenclature of the European genera of Satyride Lepidoptera." *Entomol.*, iii, pp. 277–81.

1867 *e*.—"An essay towards an arrangement of the genera of the family Satyridæ." *Ent. Mo. Mag.*, iv, pp. 193–97.

1867 *f*.—"Descriptions of some remarkable new species of a new genus of diurnal Lepidoptera." *Ann. Mag. Nat. Hist.* (3) xx, pp. 216–17.

1867 *g*.—"Descriptions of five new genera and some new species of some Satyride Lepidoptera." *Ann. Mag. Nat. Hist.* (3) xix, pp. 161–67, pl. iv.

1867 *h*.—"Observations on the variation of *Cillo leda* Linn." *Ann. Mag. Nat. Hist.* (3) xix, pp. 51–4.

1867 *i*.—"Descriptions of new or little-known species of Asiatic Lepidoptera." *Ann. Mag. Nat. Hist.* (3) xx, pp. 399–404, pls. viii, ix.

1867 *j*.—"Description of a new genus and species of diurnal Lepidoptera." *Ent. Mo. Mag.*, iv, pp. 121–2, figs. 1, 2.

1868.—*Cat. Satyridæ Brit. Mus.*

1869.—"Descriptions of new species of diurnal Lepidoptera." *Ent. Mo. Mag.*, vi, pp. 55–7.

1870 *a*.—*Cat. Fabr. Lep.*

1870 *b*.—"Descriptions of some new diurnal Lepidoptera." *Trans. Ent. Soc. Lond.*, 1870, pt. iv, pp. 485–520.

1871 *a*.—"Descriptions of some new species of Lepidoptera." *Ann. Mag. Nat. Hist.* (4) viii, pp. 282–91.

1871 *b*.—"A monograph of the Lepidoptera hitherto included in the genus *Elymnias*." *Proc. Zool. Soc. Lond.*, 1871, pp. 518–20, pl. xlii.

1874 *a*.—"Descriptions of six new species of diurnal Lepidoptera in the collection of the British Museum." *Ent. Mo. Mag.*, xi, pp. 163–4.

1874 *b*.—"Descriptions of some new species and a new genus of diurnal Lepidoptera." *Trans. Ent. Soc. Lond.*, pp. 423–36, pl. vi.

BUTLER, A. G.

1874 *c*.—"Descriptions of four new Asiatic butterflies." *Cist. Ent.*, i, pp. 235–36.

1875.—"Contributions towards a knowledge of the Rhopalocera of Australia." *Trans. Ent. Soc. Lond.*, pp. 1–10.

1877 *a*.—"The butterflies of Malacca." *Trans. Linn. Soc. Lond.*, ser. 2, Zool. i, pp. 533–68, pls. lxviii, lxix.

1877 *b*.—"On Rhopalocera from Japan and Shanghai." *Ann. Mag. Nat. Hist.*, (4) xix, pp. 91–7.

1877 *c*.—"Descriptions of two new Lepidopterous insects from Malacca." *Journ. Linn. Soc. Lond.*, Zool., xiii, p. 115.

1878.—"On the butterflies in the collection of the British Museum hitherto referred to the genus *Euplœa*." *Journ. Linn. Soc. Lond.*, Zool., xiv, pp. 290–303.

1879.—"On a collection of Lepidoptera from Cachar." *Trans. Ent. Soc. Lond.*, 1879, pp. 1–8.

1880 *a*.—"On new and little-known butterflies from India." *Proc. Zool. Soc. Lond.*, 1880, pp. 147–52, pl. xv.

1880 *b*.—"On a small collection of Lepidoptera from Western India and Beloochistan." *Ann. Mag. Nat. Hist.*, (5) v, pp. 221–26.

1881.—"On a collection of Lepidoptera from Western India, Beloochistan and Afghanistan." *Proc. Zool. Soc. Lond.*, 1881, pp. 601–24.

1882.—"Descriptions of new species of Lepidoptera from Tenasserim." *Ann. Mag. Nat. Hist.* (5) x, pp. 372–76.

1883.—"On a collection of Indian Lepidoptera received from Lieut.-Colonel Charles Swinhoe." *Proc. Zool. Soc. Lond.*, 1883, pp. 144–75, pl. xxiv.

1885 *a*.—"On a collection of Lepidoptera made at Manipur and on the borders of Assam." *Ann. Mag. Nat. Hist.* (5) xvi, pp. 298–347, pl. viii.

1885 *b*.—"A few observations touching Mr. de Nicéville's recent suggestions on seasonal dimorphism in the Lepidoptera." *Proc. Ent. Soc. Lond.*, pp. v–vii.

1886 *a*.—"On Lepidoptera collected by Major Yerbury in Western India." *Proc. Zool. Soc. Lond.*, 1886, pp. 355–95, pl. xxxv.

1886 *b*.—"On a collection of Lepidoptera made by Commander Alfred Carpenter, R.N., in Upper Burma." *Ann. Mag. Nat. Hist.* (5) xviii, pp. 183–91.

1886 *c*.—"An account of two collections of Lepidoptera recently received from Somaliland." *Proc. Zool. Soc. Lond.*, 1885, pp. 756–76, pl. xlvii.

1888.—"An account of three series of Lepidoptera collected in North-West India." *Ann. Mag. Nat. Hist.* (6) i, pp. 132–51.

CLERCK, C. A.

1764.—*Icones Ins.*, iii (inedit.).

CORBET, A. S.

1937 *a*.—"Observations on species of Satyridæ and Amathusiidæ of the Malay Peninsula." *Proc. Roy. Ent. Soc. Lond.*, ser. B, 6, pt. 5, pp. 96–104.

1937 *b*.—"Observations on species of Papilionidæ, Pieridæ and Danaidæ from the Malay Peninsula." *Proc. Roy. Ent. Soc. Lond.*, ser. B, vol. 6, pt. 3, pp. 45–52.

1938.—"Observations on certain species of Rhopalocera from the Malay Peninsula." *Journ. Fed. Mal. S. Mus.*, xviii, pt. ii, pp. 242–62.

1939.—"The date of Thomas Horsfield's *A descriptive catalogue of the Lepidopterous insects contained in the museum of the Honourable East India Company*." *Journ. Soc. Bibl. Nat. Hist.*, i, pt. 7.

CORBET, A. S.

1940.—" The butterflies of Hong Kong," part i.—*The Hong Kong Nat.*, x (1), pp. 11–19 ; part ii, *ibid.* (2), pp. 84–91.

1941 *a*.—" The Linnæan names of Indo-Australian Rhopalocera."—Part I. *Proc. Roy. Ent. Soc. Lond.* (B), 10, pp. 8–16. Part II. *Ibid.*, pp. 17–27.

1941 *b*.—" A further contribution to a knowledge of the Rhopalocera of the Malay Peninsula." *Journ. Fed. Mal. S. Mus.*, xviii (5), pp. 805–13.

1941 *c*.—" Observations on certain of the Fabrician names of Indo-Australian Rhopalocera." *Proc. Roy. Ent. Soc. Lond.* (B), 10, pt. 6, pp. 98–106, fig. 1.

1941 *d*.—" Further revisional notes on Malayan Rhopalocera." *Entomol.*, lxxiv, pp. 133–35.

* 1942.—" Revisional notes on the genus *Euplœa* F." *Ann. Mag. Nat. Hist.* (11), ix, pp. 253–67.

1943.—" A key for the separation of the Indo-Australian and African species of the genus *Euplœa* F." *Proc. Roy. Ent. Soc. Lond.* (B), 12, pt. 2, pp. 17–22.

1944.—" Some notes on the butterflies of the Langkawi Islands." *Entomol.*, lxxvii, pp. 39–42.

CORBET, A. S., & PENDLEBURY, H. M.

1934.—*The butterflies of the Malay Peninsula.*

1936.—" A revision of the genus *Amathusia*, with special reference to the Malayan species." *Journ. Fed. Mal. S. Mus.*, xviii, pt. i, pp. 141–53.

1938.—" Further notes on the genus *Amathusia* F." *Journ. Fed. Mal. S. Mus.*, xviii, pt. ii, pp. 240–41.

CRAMER, P.

1775.—*Pap. Exot.*, i.

1777.—*Pap. Exot.*, ii.

1779.—*Pap. Exot.*, iii, pp. 1–128, pls. 193–264.

1780 *a*.—*Pap. Exot.*, iii, pp. 129–176, pls. 265–288.

1780 *b*.—*Pap. Exot.*, iv, pp. 1–32, pls. 289–305.

CROWLEY, P.

1896.—" Description of a new species of *Thauria*." *Ann. Mag. Nat. Hist.* (6), xvii, p. 66.

DALMAN, J. W.

1816.—" Försök till systematisk Uppställning af Sveriges Fjärilar." *K. Vet. Acad. Handl.*, xxxvii, pp. 48–101, 199–225, pl. ii.

1820.—In Billberg, *Enumer. Ins.*

DAVIDSON, J., & AITKEN, E. H.

1891.—" Notes on the larvæ and pupæ of some of the butterflies of the Bombay Presidency." *Journ. Bomb. Nat. Hist. Soc.*, v, pp. 260–78, pls. A, B, C ; pp. 349–375, pls. D, E, F.

DAVIDSON, J., BELL, T. R., & AITKEN, E. H.

1896.—" The butterflies of the North Canara District of the Bombay Presidency." *Journ. Bomb. Nat. Hist. Soc.*, x, pp. 237–58, 372–93, pls. i–v.

DISTANT, W. L.

1882 *a*.—*Rhopalocera Malayana.*

1882 *b*.—" On some apparently undescribed Rhopalocera." *Ann. Mag. Nat. Hist.* (5), x, pp. 405–7.

1885.—In de Nicéville, 1885 *a*.

---

* See also, but not referred to in text: 1942. "The Linnæan names of Indo-Australian Rhopalocera," pt. 3. *Proc. R. Ent. Soc. Lond.* (B) 11, pt. 6, pp. 91–94.

DOHERTY, W.
1886 *a*.—" A list of butterflies taken in Kumaon." *Journ. As. Soc. Beng.*, 55 (2), pp. 103–140.
1886 *b*.—" Additional notes on new or rare Indian butterflies." *Journ. As. Soc. Beng.*, 55 (2), 3, pp. 256–65.
1889.—" Notes on Assam butterflies." *Journ. As. Soc. Beng.*, 58, pp. 118–34, pl. x.

DOUBLEDAY, E.
1844.—*List Lep. Brit. Mus.*, 1.
1845.—" Descriptions of new or imperfectly described diurnal Lepidoptera." *Ann. Mag. Nat. Hist.*, xvi, pp. 176–82, 232–36, 304–8.
1847 *a*.—In Doubleday & Westwood, *Gen. Diurn. Lep.*, i, pp. 19–132.
1847 *b*.—" Descriptions of new or imperfectly described Lepidopterous insects." *Ann. Mag. Nat. Hist.*, xix, pp. 173–76.
1849.—In Doubleday & Westwood, *Gen. Diurn. Lep.*, i, pp. 201–42.
1850.—In Doubleday & Westwood, *Gen. Diurn. Lep.*, ii, pl. xl.
1851.—In Doubleday & Westwood, *Gen. Diurn. Lep.*, ii, pls. xxxi–lxi.

DRUCE, H.
1874.—" A list of the Lepidopterous insects collected by Mr. L. Layard at Chentaboon and Nahconchaisee, Siam, with descriptions of new species." *Proc. Zool. Soc. Lond.*, 1874, pp. 102–9, pl. xvi.
1875.—" Descriptions of new species of diurnal Lepidoptera." *Cist. Ent.*, i, pp. 357–63.

DRURY, D.
1773.—*Ill. Exot. Ins.*, ii.

EIFFINGER, G.
1908.—In Seitz' *Gross-schmetterlinge der Erde*, i, pp. 94–114.

ELLIS, E. V.
1917.—" Butterflies of the Tharrawaddy and the Pegu Yoma." *Journ. Bomb. Nat. Hist. Soc.*, xxv, pp. 104–20.

ELTRINGHAM, H.
1915.—" Further observations on the structure of the scent organs in certain male Danaine butterflies." *Trans. Ent. Soc. Lond.*, pp. 152–76, pls. xi–xx.

ELWES, H. J.
1882.—" On a collection of butterflies from Sikkim." *Proc. Zool. Soc. Lond.*, 1882, pp. 397–407, pl. xxv.
1887.—" Descriptions of some new Lepidoptera from Sikkim." *Proc. Zool. Soc. Lond.*, 1887, pp. 444–47.
1891.—" On butterflies collected by Mr. W. Doherty in the Naga and Karen Hills and in Perak." *Proc. Zool. Soc. Lond.*, 1891, pp. 249–89, pl. xxvii.

ELWES, H. J., & EDWARDS, J.
1893.—" A revision of the genus *Ypthima*." *Trans. Ent. Soc. Lond.*, 1893, pp. 1–54, pls. i–iii.

ELWES, H. J., & MÖLLER, O.
1888.—" A collection of the Lepidoptera of Sikkim." *Trans. Ent. Soc. Lond.*, 1888, pt. iii, pp. 269–465, pls. viii–xi.

ELWES, H. J., & DE NICÉVILLE, L.
1887.—" A list of the Lepidopterous insects collected in Tavoy and Siam by the Indian Museum Collector." *Journ. As. Soc. Beng.*, lv, pt. ii, no. 5, pp. 413–42, pl. xx.

ERSCHOFF, N.
1874.—*Fedtschenko, Reise Turkest. Lep. Rhopalocera.*

EVANS, W. H.
1910.—" A list of the butterflies of the Palni Hills. *Journ. Bomb. Nat. Hist. Soc.*, xx, pp. 380–91 *a*.
1912.—" A list of Indian butterflies." *Journ. Bomb. Nat. Hist. Soc.*, xxi, pp. 553–84, 969–1008.
1913.—" Notes on Indian butterflies." *Journ. Bomb. Nat. Hist. Soc.*, xxii, pp. 279–82.
1914 *a*.—" Notes on Indian butterflies." *Journ. Bomb. Nat. Hist. Soc.*, xxii, pp. 761–70.
1914 *b*.—" Notes on Indian butterflies." *Journ. Bomb. Nat. Hist. Soc.*, xxiii, pp. 302–10.
1920.—" A note on the species of the genus *Mycalesis*, occurring within Indian limits." *Journ. Bomb. Nat. Hist. Soc.*, xxvii (2), pp. 354–62, pls. i–iv (venation and genitalia).
1922.—" The identification of Indian butterflies: Butterfly collecting in India." *Journ. Bomb. Nat. Hist. Soc.*, xxviii, pp. 500–517, 740–47.
1923.—" The identification of Indian butterflies." *Journ. Bomb. Nat. Hist. Soc.*, xxix, pp. 519–537, pls. x–xii, pp. 780–97, pls. xiii–xvi.
1927.—*The identification of Indian butterflies*, ed. i.
1932 *a*.—*The identification of Indian butterflies*, ed. ii.
1932 *b*.—" The butterflies of Baluchistan." *Journ. Bomb. Nat. Hist. Soc.*, xxxvi, pp. 196–209.

FABRICIUS, J. C.
1775.—*Syst. Ent.* (3) i.
1787.—*Mant. Ins.*, ii.
1793.—*Ent. Syst.*, iii: i.
1798.—*Ent. Syst.*, Suppl.
1807.—" Die neueste Gattungs—Eintheilung der Schmetterlinge aus den Linneischen Gattungen Papilio und Sphinx." *Illiger Magazin*, vi, pp. 277–96.

FELDER, C.
1862.—" Verzeichniss der von der Naturforschern der K.K. " Fregatte Novara " gesammelte Macrolepidopteren." *Verh. Zool.-bot. Ges. Wien*, xii, pp. 473–96.

FELDER, C. & R.
1859.—" Lepidopterologische Fragmente," iv. *Wien. Ent. Mon.*, iii, pp. 390–405, pls. vii–ix.
1860.—" Lepidoptera nova in paeninsula Malayica collecta diagnosibus instructa." *Wien. Ent. Mon.*, iv, pp. 394–402.
1862.—" Observationes de Lepidopteris nonnullis Chinæ centralis et Japonicæ." *Wien. Ent. Mon.*, vi, pp. 22–40.
1865.—*Reise Novara*, Lep. ii, Heft ii, pp. 137–352, pls. xxii–xlvii.
1867.—*Reise Novara*, Lep. ii, Heft iii, pp. 353–536, pls. xlviii–lxxiv.
1868.—" Diagnosen neuer von E. Baron v. Ransonnet in Vorder-Indien gesammelter Lepidopteren." *Verh. Zool.-bot. Ges. Wien*, xviii, pp. 281–86.

FORBES, W. T. M.
1939.—" Revisional notes on the Danainæ." *Ent. Amer.*, 19 (2), pp. 101–40.

FORSAYETH, R. W.
1884.—" Life-history of sixty species of Lepidoptera observed in Mhow, Central India." *Trans. Ent. Soc. Lond.*, 1884, pt. iii, pp. 377–419, pls. xiv, xv.

FRUHSTORFER, H.
1895.—" Neue Rhopaloceren aus dem Malayischen Archipel." *Ent. Nachr.*, xxi, pp. 196–7.
1898.—" Neue Lepidopteren aus Asien." *Berl. Ent. Zeit.*, xliii, pp. 175–99.
1899 *a*.—" Uebersicht der Indo-Australischen Danaiden." *Berl. Ent. Zeit.*, xliv, pp. 64–87.
1899 *b*.—" Neue Amathusien und Aufzählung der Bekannten." *Iris*, xii, pp. 71–8.
1901.—" Neue Lepidopteren aus dem Indo-Malayischen Gebiet." *Iris*, xv, pp. 169–78.
1903 *a*.—" Revision der Gattungen Hestia und Nectaria." *Iris*, xvi, pp. 51–65.
1903 *b*.—" Nachrichten aus dem Berl. Ent. Verein." *Insektenb.*, xx, p. 396.
1904 *a*.—" Neue Indo-Australische Lepidopteren." *Iris*, xvii, pp. 133–57.
1904 *b*.—" Beitrag zur kenntnis der Rhopaloceren—Fauna der Insel Engano." *Berl. Ent. Zeit.*, xlix, pp. 170–206, pls. i, ii.
1906 *a*.—" Neue Mycalesis." *Soc. Ent.*, xxi, pp. 81–3.
1906 *b*.—" Neue Zeuxidia Formen." *Iris*, xix, pp. 104–6.
1907 *a*.—" Monographie der Elymniinae." *Iris*, xx, pp. 157–252, pls. v, vii, viii.
1907 *b*.—" Neue Danaiden und Uebersicht der bekannten Indo-Australischen Arten." *Iris*, xix (1906), pp. 161–202.
1908 *a*.—" Monographische Revision der Gattung *Melanitis*." *Ent. Zeit.*, xxii, pp. 80–7.
1908 *b*.—" Eine für Indien neue Satyride." *Int. Ent. Zeit.*, 2, p. 10.
1908 *c*.—" Neue Indo-Australische *Mycalesis* und besprechung verwandter Formen." *Verh. Zool.-bot. Ges. Wien*, lviii, pp. 126–239, t. i.
1908 *d*.—" Neue Ostasiatische Satyriden." *Ent. Zeit.*, xxii, p. 127.
1908 *e*.—" Berichtigung." *Int. Ent. Zeit.*, 2, no. 4, p. 29.
1909.—" Neues aus Formosa." *Ent. Zeit.*, xxiii, no. 25, pp. 116–17.
1910.—In Seitz, *Gross-schmetterlinge der Erde*, Fauna Indo-Austral., ix, pp. 191–272.
1911.—In Seitz, *Gross-schmetterlinge der Erde*, Fauna Indo-Austral., ix, pp. 273–452.
1914.—In Seitz, *Gross-schmetterlinge der Erde*, Fauna Indo-Austral., ix, pp. 705–44.
1916.—" Neue lokalrassen indischer Tagfalter." *Ent. Runds.*, xxxiii, no. 5, pp. 24–5.

GODART, J. B.
1819.—In Latreille & Godart, *Encyc. Méth.*, t. ix.

GODFREY, E. J.
1916.—" The butterflies of Siam." *Journ. Nat. Hist. Soc. Siam*, 2 (ii), pp. 106–147.

GOUGH, W. G. H.
1935.—" Some butterflies of Nepal." *Journ. Bomb. Nat. Hist. Soc.*, xxxviii, no. 2, pp. 258–65.

GRAY, G. R.
1846.—*Lep. Ins. Nepal.*

GRAY, G. R., & DOUBLEDAY, E.
1844.—*List Lep. Ins. Brit. Mus.*, i.

GROSE-SMITH, H. G.
1887.—" Descriptions of eight new species of Asiatic butterflies." *Ann. Mag. Nat. Hist.* (5) xx, pp. 265–8.

GROTE, A. R.
1873.—" Notes on Satyrid genera." *Canad. Entom.*, v, p. 62.
GRUM-GRSHIMAÏLO, G.
1888.—" Novæ Species et Varietatis Rhopalocerorum." *Hor. Soc. Ent. Ross.*, xxii, pp. 303–7.
1891.—" Lepidoptera Nova." *Hor. Soc. Ent. Ross.*, xxv, pp. 445–65.
GUENÉE, A.
1859.—In Doubleday, *List Brit. Lep.*, ed. 2.
GUÉRIN-MÉNEVILLE, F. W.
1843.—In Delessert, *Souv. Voy. Ind.*, 2.
HAMPSON, G. F.
1889.—" The butterflies of the Nilgiri district, S. India." *Journ. As. Soc. Beng.*, lvii (2), no. 4, pp. 346–68.
HANNYNGTON, F.
1910.—" The butterflies of Kumaun."—Part I. *Journ. Bomb. Nat. Hist. Soc.*, xx, pp. 130–142.
HART, W. E.
1889.—" Notes on a caterpillar farm." *Journ. Bomb. Nat. Hist. Soc.*, iv, pp. 277–89.
HEMMING, F.
1933 *a*.—" Holarctic butterflies: Miscellaneous notes on nomenclature." *Entomol.*, lxvi, pp. 275–79.
1933 *b*.—" Additional notes on the types of certain butterfly genera." *Entomol.*, lxvi, pp. 222–5.
1933 *c*.—" On the types of certain butterfly genera." *Entomol.*, lxvi, pp. 196–200.
1934 *a*.—*Generic names of Holarctic butterflies.*
1934 *b*.—*Generic names of British Insects*, 2.
1934 *c*.—" Notes on nine genera of butterflies." *Entomol.*, lxvii, pp. 37–8.
1936.—In *Rep. 7th Int. Congr. Zool. Lisbon*, 1935, pt. 1.
1937.—" Changes in the genotypes of, or in the priority to be accorded to, eleven genera of Lepidoptera Rhopalocera." *Proc. Roy. Ent. Soc. Lond.* (B), 6, pt. 8, pp. 149–53.
1939.—" Notes on the generic nomenclature of the Lepidoptera Rhopalocera," I.—*Proc. Roy. Ent. Soc. Lond.* (B), 8, pt. 7, pp 133–8.
1941 *a*.—" The dates of publication of the several portions of Doubleday (E.) *Genera of Diurnal Lepidoptera* and of the continuation thereof by Westwood (J. O.)." *Journ. Soc. Bibl. Nat. Hist.*, i, pp. 335–411.
1941 *b*." The types of the genera established by Doubleday (E.) in the *Genera of Diurnal Lepidoptera* and by Westwood (J. O.) in the continuation thereof." *Journ. Soc. Bibl. Nat. Hist.* i, pp. 413–46.
1941 *c*.—" The dates of publication of the specific names first published in Doubleday (E.) *Genera of Diurnal Lepidoptera* and in the continuation thereof by Westwood (J. O.)." *Journ. Soc. Bibl. Nat. Hist.*, i, pp. 447–64.
1941 *d*.—" On eight subspecies in the Lepidoptera Rhopalocera at present without valid names." *Proc. Roy. Ent. Soc. Lond.* (B) 10, pt. 10, pp. 207–8.
1943.—" Notes on the generic nomenclature of the Lepidoptera Rhopalocera, II." *Proc. Roy. Ent. Soc. Lond.* (B), 12, pt. 2, pp. 23–30.
HERBST, J. F. W.
1796.—*Natursyst. Schmett.*, viii.

HEWITSON, W. C.
1862–1866.—*Exot. Butt.*, iii.
1865.—" A monograph of the genus *Yphthima*." *Trans. Ent. Soc. Lond.* (3), ii, pp. 281–93, pls. xvii, xviii.
1867.—" Descriptions of some new species of diurnal Lepidoptera." *Trans. Ent. Soc. Lond.* (3), v, pp. 561–66.
1868.—*Exot. Butt.*, iv.
1872.—" Descriptions of seven new exotic Lepidoptera." *Ent. Mo. Mag.*, ix, pp. 83–6.
1874.—" List of 49 butterflies collected by Capt. Wimberley in the Andaman Islands." *Ann. Mag. Nat. Hist.* (4) xiv, pp 356–58
1876.—" Notes on Mr. Atkinson's collection of East Indian Lepidoptera." *Ent. Mo. Mag.*, xiii, pp. 149–152.

HOLLAND, W. J.
1887.—" Notes upon a small collection of Rhopalocera made by Rev. B. C. Henry in the island of Hainan." *Trans. Amer. Ent. Soc.*, xiv, pp. 111–124, pls. i, ii.

HORSFIELD, T. (See CORBET, A. S., 1939).
1828.—" *A descriptive catalogue of the Lepidopterous insects contained in the museum of the Honourable East India Company*," pt. i, pp. 1–80.
1829.—*Id.*, pt. ii, pp. 81, etc.

HORSFIELD, T., & MOORE, F.
1857.—*Cat. Lep. Mus. E. I. C.*, i.

HÜBNER, J.
1816.—*Verzeichniss bekannter Schmettlinge* (sic), pp. 1–16.
1819.—*Id.*, pp. 17–176.
1818.—*Zuträge z. Samml. exot. Schmett.*, i.
1819–27. *Samml. Exot. Schmett.*, ii.

HULSTAERT, R. P. G.
1931.—Danaididæ in *Gen. Ins.*, fasc. 193.

ILLIGER, J. C. W.
1800.—*Versuch einer systematischen vollständigen Terminologie für das thier-u. Pflanzenreich*, pp. 117, 122.

KERSHAW, J. C.
1907.—*Butterflies of Hongkong.*

KIRBY, W. F.
1871.—*Syn. Cat. Diurn. Lep.*
1877.—*Syn. Cat. Diurn. Lep., Suppl.*
1894.—In *Allen's Nat. Libr. Handb. Lep. Butt.*, i.

KLUG, J. C. F.
1845.—*Symb. Phys.*, v.

KLUK, K.
1802.—*Zwierzat Hist. nat. pocz. gospod.*, iv.

KOLLAR, V.
1844.—In Hügel: *Kaschmir und das Reich der Siek*, iv, abt. 2, pp. 395–496, pls. i–xxii.
1849.—" Ueber den charakter der Insecten-Fauna von Süd-Persien." *Denkschr. Akad. Wien. Math.-nat. Ch.*, i.

LANG, A. M.
1868 *a*.—" Description of *Aulocera werang*, a new species of butterfly belonging to the family Satyridæ." *Ent. Mo. Mag.*, iv, pp. 246–248.
1868 *b*.—" Notes on Lepidoptera from Goolmurg in Cashmere," *Ent. Mo. Mag.*, v, pp. 33–7.

LATREILLE, P. A.
1804.—*Nouv. Dic. Hist. Nat.*, 24 (Tab.).
1807.—*Gen. Crust. et Ins.*
1809.—*Gen. Crust. et Ins.*, iv.
1810.—*Consid. Gen. Anim. Crust. Arach. Ins.*

LE CERF, F.
1913.—" Contribution à la faune lépidoptérologique de la Perse." *Ann. Hist. Nat. Paris, Ent.*, 2, pp. viii–188.

LEECH, J. H.
1890.—" New species of Lepidoptera from China." *Entomol.*, xxiii, pp. 26–50.
1892.—*Butterflies from China, Japan and Corea*, pp. 1–285.

LESLIE, G. A., & EVANS, W. H.
1903.—" The butterflies of Chitral." *Journ. Bomb. Nat. Hist. Soc.*, xiv, pp. 666–78.

LINNÆUS, C.
1758.—*Systema Naturæ* (ed. x), i.
1763.—" Centuria Insectorum rariorum (Upsala)." *Amoen. Acad.*, vi, pp. 384–415.
1764.—*Mus. Ludov. Ulricæ.*
1767.—*Systema Naturæ* (ed. xii), i.

LUCAS, M. H.
1853.—" Description de nouvelles espéces de Lépidoptères appartenant aux collections entomologiques du Musée de Paris." *Rev. Mag. Zool.*, 1853 (July), pp. 310–22.

MACPHERSON, T.
1887.—" Note on *Hestia malabarica*." *Journ. Bomb. Nat. Hist. Soc.*, ii, pp. 164–5, plate (egg, larva, pupa).

MACKINNON, P. W., & DE NICÉVILLE, L.
1897.—" A list of the butterflies of Mussoorie." *Journ. Bomb. Nat. Hist. Soc.*, xi, pp. 205–21, pls. U, V, W.
1898.—*Op. cit., l. c.*, pp. 368–389, 585–603.

MACKWOOD, F. M.
1914.—*Spolia Zeylanica*, x, pt. 36.

MANDERS, N.
1890.—" A catalogue of the Rhopalocerous Lepidoptera collected in the Shan States." *Trans. Ent. Soc. Lond.*, pp. 511–39.

MARSHALL, G. F. L.
1882 *a*.—" Some new or rare species of Rhopalocerous Lepidoptera from the Indian Region." *Journ. As. Soc. Beng.*, li (2), nos. ii, iii, pp. 37–43, pl. iv.
1882 *b*.—" Notes on Asiatic butterflies with descriptions of some new species." *Proc. Zool. Soc. Lond.*, 1882, pp. 758–61.
1883.—In Marshall & de Nicéville, *Butterflies Ind.*, i.

MARSHALL, G. F. L., & DE NICÉVILLE, L.
1880.—" Some new species of Rhopalocerous Lepidoptera from the Indian Region." *Journ. As Soc. Beng.*, xlix (2), pp. 245–8.
1883.—*Butterflies of India, Burma and Ceylon*, i.

MARTIN, L.
1909.—" Das indo-malaiische Satyridengenus *Erites*, Westw." *Iris*, xxii, pp. 142–54.

MEIGEN, J. W.
1828.—*Syst. Beschr. europ. Schmett.*, i (3).

MEHTA, D. R.
1933.—" Comparative morphology of the male genitalia in Lepidoptera." *Rec. Ind. Mus.*, xxxv (ii), pp. 197–266.

MOORE, F.

1857.—In Horsfield & Moore, *Cat. Lep. Ins., E. I. C.*, i.

1865 *a*.—"On the Lepidopterous insects of Bengal." *Proc. Zool. Soc. Lond.*, 1865, pp. 755–823, pls. xli–xliii.

1865 *b*.—"List of diurnal Lepidoptera collected by Capt. A. M. Lang in the N.W. Himalayas." *Proc. Zool. Soc. Lond.*, 1865, pp. 486–509, pls. xxx–xxxi.

1872.—"Descriptions of new Indian Lepidoptera." *Proc. Zool. Soc. Lond.*, 1872, pp. 553–83, pls. xxxii–xxxiv.

1874 *a*.—"List of diurnal Lepidoptera collected in Cashmere territory." *Proc. Zool. Soc. Lond.*, 1874, pp. 263–74, pl. xliii.

1874 *b*.—"Descriptions of new Asiatic Lepidoptera." *Proc. Zool. Soc. Lond.*, 1874, pp. 565–69, pls. lvi, lxvii.

1877 *a*.—"Descriptions of Asiatic diurnal Lepidoptera." *Ann. Mag. Nat. Hist.* (4), xx, pp. 43–52.

1877 *b*.—"The Lepidopterous fauna of the Andaman and Nicobar Islands" *Proc Zool. Soc. Lond.*, 1877, pp. 579–632, pls. lviii–lx.

1878.—"Descriptions of new species of Lepidoptera." *Ann. Mag. Nat. Hist.* (5), i, pp. 227–37.

1879 *a*.—"A list of the Lepidopterous insects collected by Mr. Ossian Limborg in Upper Tenasserim." *Proc. Zool. Soc. Lond.*, 1878, pp. 821–59, pls. li–liii.

1879 *b*.—"Descriptions of new Asiatic diurnal Lepidoptera." *Proc. Zool. Soc. Lond.*, 1879, pp. 136–44.

1880 *a*.—*Lep. Ceylon*, i, pt. i, pp. 1–40, pls. i–xviii.

1880 *b*.—"On the Asiatic Lepidoptera referred to the genus *Mycalesis*." *Trans. Ent. Soc. Lond.*, 1880, pt. iv, pp. 155–77.

1881 *a*.—"Descriptions of new Asiatic diurnal Lepidoptera." *Trans. Ent. Soc. Lond.*, pt. iii, pp. 305–13.

1881 *b*.—*Lep. Ceylon*, i, pts. ii–iv.

1882 *a*.—In Rothney, 1882.

1882 *b*.—"List of the Lepidoptera collected by the Rev. J. H. Hocking, chiefly in the Kangra district." *Proc. Zool. Soc. Lond.*, 1882, pp. 234–63, pls. xi, xii.

1883 *a*.—"A monograph of *Limnaina* and *Euplœina*." *Proc. Zool. Soc. Lond.*, 1883, pp. 201–324, pls. xxix–xxxii.

1883 *b*.—"Descriptions of new Asiatic diurnal Lepidoptera." *Proc. Zool. Soc. Lond.*, 1883, pp. 521–35, pls. xlviii, xlix.

1884.—"Descriptions of some new Asiatic diurnal Lepidoptera." *Journ. As. Soc. Beng.*, liii (2), no. 1, pp. 16–52.

1886.—"List of the Lepidoptera of Mergui and its Archipelago." *Journ. Linn. Soc. Lond.*, xxi, pp. 29–60. pls. iii, iv.

* 1890.—*Lepidoptera Indica*, i, pp. 1–144.

1891.—*Lepidoptera Indica*, i, pp. 145–232.

1892 *a*.—*Lepidoptera Indica*, i, pp. 233–317.

1892 *b*.—*Lepidoptera Indica*, ii, pp. 1–96.

1893.—*Lepidoptera Indica*, ii, pp. 97–208.

1895.—*Lepidoptera Indica*, ii, pp. 209–74.

1901.—*Lepidoptera Indica*, v, pp. 1–96.

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* The dates of publication of the *Lep. Indica* were not always as printed on the covers. Those for vols. i and ii are as follows:—
Vol. i, pp. 1–112 (1890), 113–176 (1891), 177–310 (1892).
Vol. ii, pp. 1–112 (1893), 113–176 (1894), 177–248 (1895), 249–274(1896).
(See Sherborn, 1894, *Ann. Mag. Nat. Hist.* (6) xi, p. 261; *id.*, *l.c.*, 1901 (7) viii, p 565).

DE NICÉVILLE, L.

1881.—"A list of butterflies taken in Sikkim, in October, 1880, with notes on habits, etc." *Journ. As. Soc. Beng.*, 2 (ii), no. 1, pp. 49–60.

1882.—"Second list of butterflies taken in Sikkim in October, 1882, with notes on habits, etc." *Journ. As. Soc. Beng.*, li (ii), nos. ii, iii, pp. 54–66.

1883 *a*.—"Third list of butterflies taken in Sikkim." *Journ. As. Soc. Beng.*, lii (ii), pp. 92–110, pl. x.

1883 *b*.—In Marshall & de Nicéville, *Butterflies of Ind.*, i.

1884.—"Note on the *Papilio polydecta* of Cramer." *Trans. Ent. Soc. Lond.*, 1884, pp. 87–90, pl. iii.

1885 *a*.—"List of the butterflies of Calcutta and its neighbourhood." *Journ. As. Soc. Beng.*, liv (ii), pp. 39–54.

1885 *b*.—"Fourth list of butterflies taken in Sikkim." *Journ. As. Soc. Beng.*, liv (ii), pp. 1–5.

1886 *a*.—"On some new Indian butterflies." *Journ. As. Soc. Beng.*, lv (ii), no. iii, pp. 249–56, pl. xi.

1886 *b*.—"On the life-history of certain Calcutta species of Satyrinæ." *Journ. As. Soc. Beng.*, lv, pp. 229–38, pl.xii.

1887.—"Descriptions of some new or little-known butterflies from India." *Proc. Zool. Soc. Lond.*, 1887, pp. 448–67, pls. xxxix, xl.

1888 *a*.—"Description of a new Satyrid from India." *Proc. As. Soc. Beng.*, 1887, p. 147.

1888 *b*.—"New or little-known butterflies from the Indian Region." *Journ. As. Soc. Beng.*, lvii (ii), no. 4, pp. 273–93, pls. xiii, xiv.

1889.—"New and little-known butterflies from the Indian Region." *Journ. Bomb. Nat. Hist. Soc.*, iv, pp. 163–94, pls. A, B.

1890 *a*.—"On new and little-known butterflies from the Indian Region." *Journ. Bomb. Nat. Hist. Soc.*, v, pp. 199–225, pls. D, E.

1890 *b*.—"List of Chin-Lushai butterflies." *Journ. Bomb. Nat. Hist. Soc.*, v, pp. 295–98.

1890 *c*.—"Description of a new Morphid butterfly from North-Eastern India." *Journ. Bomb. Nat. Hist. Soc.*, v, p. 131, pl. C.

1891.—"New and little-known butterflies from the Indo-Malayan Region." *Journ. Bomb. Nat. Hist. Soc.*, vi, pp. 341–98, pls. F, G.

1892 *a*.—"Note on the Indian butterflies comprised in the subgenus *Pademma* of the genus *Euplœa*." *Journ. As. Soc. Beng.*, lxi, pp. 237–45.

1892 *b*.—"Note on the Indian and Malay Peninsula butterflies comprised in the subgenus *Stictoplœa* of the genus *Euplœa*." *Proc. As. Soc. Beng.*, 1892, pp. 158–61.

1892 *c*.—"New and little-known butterflies from the Indo-Malayan Region." *Journ. Bomb. Nat. Hist. Soc.*, vii, pp. 322–57, pls. H, I, J.

1893.—"On *Erites*, an oriental genus of Satyrid butterflies." *Journ. As. Soc. Beng.*, lxii (i), pp. 1–7.

1894 *a*.—"A list of the butterflies of Sikkim." *Sikk. Gaz.*, 1894, pp. 116–87.

1894 *b*.—"New or little-known butterflies from the Indo-Malayan Region." *Journ. As. Soc. Beng.*, lxiii (ii), pp. 1–59, pls. i–v.

1895 *a*.—"New and little-known butterflies from the Indo-Malayan Region." *Journ. Bomb. Nat. Hist. Soc.*, ix, pp. 259–321, pl. N.

1895 *b*.—"New and little-known Lepidoptera from the Indo-Malayan Region." *Journ. Bomb. Nat. Hist. Soc.*, x, pp. 13–40, pl. R.

DE NICÉVILLE, L.

1897.—" On new or little-known butterflies from the Indo- and Austro-Malayan Regions." *Journ. As. Soc. Beng.*, lxv, pp. 544–77, pls. i–iv.

1898.—" New and little-known butterflies." *Journ. Bomb. Nat. Hist. Soc.*, xii, pp. 131–60, pls. X, Y, Z, AA.

1899.—" Notes on some butterflies from Tenasserim." *Journ. Bomb. Nat. Hist. Soc.*, xii, pp. 329–36, pl. BB.

1900.—" On new and little-known Lepidoptera from the Oriental Region." *Journ. Bomb. Nat. Hist. Soc.*, xiii, pp. 157–73, pls. CC, DD, EE.

1902 *a*.—" List of the butterflies of Hongkong." *Journ. As. Soc. Beng.*, lxxi, pp. 1–36.

1902 *b*.—" On new and little-known butterflies mostly from the Oriental Region." *Journ. Bomb. Nat. Hist. Soc.*, xiv, pp. 236–51, 450–57, pl. FF.

DE NICÉVILLE, L., & MARTIN, L.

1896.—" A list of the butterflies of Sumatra, with especial reference to the species occurring in the north-east of the island." *Journ. As. Soc. Beng.*, lxiv (1895), pp. 357–555.

DE NICÉVILLE, L., & MÖLLER, O.

1888.—In Elwes & Möller.

NURSE, C. G.

1900.—" Lepidoptera taken in Cutch." *Journ. Bomb. Nat. Hist. Soc.*, xii, pp. 511–13.

OBERTHÜR, C.

1876.—" Lépidoptères nouveaux de la Chine." *Et. d'Ent.*, ii, pp. 13–34, pls. i–iv.

1893.—" Lépidoptères d'Asie et de l'Afrique." *Et. d'Ent.*, xvii, pp. 1–33, pls. i–iv.

OKEN, L.

1815.—*Lehrbuch Naturgeschichte*, iii (Zool.).

OLLENBACH, O. C.

1919 *a*.—" Occurrence of *Stichopthalma* (sic) *godfreyi* Roths." *Journ. Bomb. Nat. Hist. Soc.*, xxvi, pp. 867–8, fig.

1919 *b*.—" Notes on the habits of *Zeuxidia masoni* and *Xanthotænia busiris*." *Journ. Bomb. Nat. Hist. Soc.*, xxvi, pp. 869–70.

1921.—" A list of butterflies collected in the Tavoy District, Burma." *Journ. Bomb. Nat. Hist. Soc.*, xxvii, pp. 883–97.

ORMISTON, W.

1918.—" Notes on Ceylon butterflies."—Part I. *Spolia Zeylanica*, pp. 1–69.

1924.—*The Butterflies of Ceylon.*

PEILE, H. D.

1937.—*A Guide to Collecting Butterflies of India.*

PENDLEBURY, H. M.

1933.—" Notes and new records of butterflies from the Malay Peninsula." *Journ. F. M. S. Mus.*, xvii, pp. 377–401.

DE RHÉ-PHILIPE, G. W. V.

1902.—" The butterflies of the Lucknow district." *Journ. Bomb. Nat. Hist. Soc.*, xiv, pp. 481–93.

1905.—" Further notes on the butterflies of the Lucknow district." *Journ. Bomb. Nat. Hist. Soc.*, xvi, pp. 720–22.

1910.—" Notes on some butterflies from the Indian Region." *Journ. Bomb. Nat. Hist. Soc.*, xx, pp. 753–69.

1917.—" The butterflies of Lahore." *Journ. Bomb. Nat. Hist. Soc.*, xxv, pp. 136–42.

RILEY, N. D.
1921.—" Some undescribed Rhopalocera from Mesopotamia and N.W. Persia." *Ann. Mag. Nat. Hist.* (9) viii, pp. 590–600.

RÖBER, J.
1900.—" Neue Schmetterlinge." *Ent. Nachr.*, xxvi, pp. 199–204.
1903 *a*.—" Zwei neue Morphiden." *Soc. Ent.*, xvii, pp. 153–4.
1903 *b*.—" Lepidopterologisches." *Stett. Ent. Zeit.*, 64, pp. 337–58.
1926.—" Neue tropische Falter." *Ent. Runds.*, xliii, pp. 18–23.

ROBSON, S.
1894.—" Notes on *Callerebia nirmala*, Moore." *Journ. Bomb. Nat. Hist. Soc.*, viii, pp. 551–53.

ROEPKE, W.
1936.—*Rhopalocera Javanica*, ii.

ROTHNEY, G. A. J.
1882.—" A list of the butterflies captured in Barrackpore Park." *Ent. Mo. Mag.*, xix, pp. 33–36.

ROTHSCHILD, Lord.
1916 *a*.—" Notes on Amathusiidæ, Brassolidæ, Morphidæ, etc." *Nov. Zool.*, xxiii, pp. 299–318.
1916 *b*.—" Some new Lepidoptera from Siam and Africa." *Ann. Mag. Nat. Hist.* (8) xvii, pp. 474–76.
1918.—" On a new species of *Stichophthalma*." *Nov. Zool.*, xxv, p. 310.

RÜHL, F.
1892–1895.—*Die Palæarktischen Gross-schmetterlinge.*

SCHRANK, F.
1801.—*Fauna Boica*, 2 (i).

SCUDDER, S. H.
1872.—" A systematic revision of some of the American butterflies." *4th Ann. Rep. Peab. Acad. Sci.*, 1871, pp. 24–83.
1875.—" Historical sketch of the names proposed for butterflies." *Proc. Amer. Acad. Arts & Sci. Bost.*, x, pp. 91–293.

SEITZ, A.
1907.—*Gross-schmetterlinge der Erde*, Fauna Palæarctica, i.
1908.—*Op. cit.*, i.
1927.—" Das system der Schmetterlinge: iii, Die Danaiden." *Ent. Runds.*, xliv, pp. 32, 35, 39, 44, 47.

SEVASTOPULO, D. G.
1933.—" The early stages of Indian Lepidoptera." *Ent. Rec.*, xlv, pp. 136–8, 148–9.
1935.—" Early stages of Indian Lepidoptera." *Ent. Rec.*, xlvii, pp. 18–19, 49–50.
1940.—" The early stages of Indian Lepidoptera."—Part V. *Journ. Bomb. Nat. Hist., Soc.* xlii, no. 1, pp. 38–44.
1941 *a*.—" The early stages of Indian Lepidoptera." *Journ. Bomb. Nat. Hist. Soc.*, xlii, no. 2, pp. 283–94.
1941 *b*.—" The early stages of Indian Lepidoptera."—Part VIII. *Journ. Bomb. Nat. Hist. Soc.*, xlii, no. 4, pp. 748–56.
1942.—" The early stages of Indian Lepidoptera."—Part IX. *Journ. Bomb. Nat. Hist. Soc.*, xliii, no. 1, pp. 39–47.
1944 *a*—" The *Danaus* species of Calcutta." *Entomol.*, lxxvii, pp. 77–78.
1944 *b*.—" Seasonal forms of India Satyridæ." *Entomol.*, lxxvii, pp. 164–166.

SOUTH, R.
1913.—" A list of butterflies collected by Capt. F. M. Bailey in Western China, South-Eastern Tibet, and the Mishmi Hills, 1911." *Journ. Bomb. Nat. Hist. Soc.*, xxii, pp. 345–65, 598–615.

STAUDINGER, O.
1881.—" Beitrag zur Lepid. Faun. Cent. Asiens." *Stett. Ent. Zeit.*, xlii, pp. 253–300.
1886.—" Centralasiatische Lepidopteren." *Stett. Ent. Zeit.*, xlvii, pp. 193–215, 225–56.
1887.—In Staudinger u. Schatz, *Exot. Schmett.*, i.
1889.—" Centralasiatische Lepidopteren." *Stett. Ent. Zeit.*, 1, pp. 16–60.

STICHEL, H.
1901.—" Nachr. Berl. Ent. Ver." *Insekt.-Börse*, 18, p. 317.
1902 *a*.—" Die Gattung Discophora Bsd." *Iris*, xv, pp. 50–95. t. i, ii.
1902 *b*.—" Nachr. Berl. Ent. Ver." *Insekt.-Börse*, 19, p. 124.
1905.—" *Discophorinæ*." *Gen. Ins.*, fasc. 31.
1906.—" *Amathusiinæ*." *Gen. Ins.*, fasc. 36.
1909.—In Seitz, *Gross-schmetterlinge der Erde*, i, pp. 155–7.
1933.—*Lep. Cat.*, 54, *Amathusiidæ*.

STOLL, C.
1780.—In Cramer, *Pap. Exot.*, iv, pp. 33–90, pls. 306–336.
1781.—In Cramer, *Pap. Exot.*, iv, pp. 91–164, pls. 337–372.
1782.—In Cramer, *Pap. Exot.*, iv, pp. 165–252, pls. 373–400.
1787.—In Cramer, *Pap. Exot.*, v, pp. 1–42, pls. 1–8.
1790.—In Cramer, *Pap. Exot.*, v, pp. 43–181, pls. 9–42.

STRAND, E.
1918.—*Lep. Niep.*, Nachtr., p. 2.

SUFFERT, E.
1900 *a*.—" Sitzungsberichte des Berl. Ent. Ver., 1899, 19 Jan." *Berl. Ent. Zeit.*, xlv, pp. (6) (7).
1900 *b*.—" Eine neue aberration des *Danaus dorippus* Klug." *Berl. Ent. Zeit.*, xlv, pp. 115–16.

SWAINSON, W.
1840.—*Cabinet Cycl.*

SWINHOE, C.
1885.—" On the Lepidoptera of Bombay and the Deccan." *Proc. Zool. Soc. Lond.*, 1885, pp. 124–48, pl. ix.
1886.—" On the Lepidoptera of Mhow." *Proc. Zool. Soc. Lond.*, 1886, pp. 421–65, pls. xl–xli.
1889.—" On new Indian Lepidoptera, chiefly Heterocera." *Proc. Zool. Soc. Lond.*, 1889, pp. 396–432, pls. xliii, xliv.
1890.—" New species of Indian butterflies." *Ann. Mag. Nat. Hist.* (6) v, pp. 353–65.
1893.—" A list of the Lepidoptera of the Khasia Hills." *Trans. Ent. Soc. Lond.*, pt. iii, pp. 267–330.
1908.—" New Eastern Lepidoptera." *Ann. Mag. Nat. Hist.* (8) i, pp. 60–8.
1913.—*Lepidoptera Indica*, x, Addenda.
1915.—" New species of Indo-Malayan Lepidoptera." *Ann. Mag. Nat. Hist.* (8) xvi, pp. 170–86.
1916.—" New species of butterflies and moths from Australia, Africa, and the Indo-Malayan Region." *Ann. Mag. Nat. Hist.* (8) xviii, pp. 480–90.
1917.—" New species of Indo-Malayan Lepidoptera." *Ann. Mag. Nat. Hist.* (8) xix, pp. 331–43.

TALBOT, G.
1939.—" *Danaus aventina* (Cram.) and *D. vulgaris* (Butl.)." *Entomol.*, lxxii, pp. 288–91.
1940.—" Some new forms of the genus *Euplœa* Fabr." *Ent. Mo. Mag.*, lxxvi, pp. 247–48.

'Talbot, G.
1941.—" Revisional notes on the genus *Idea* Fabr." *Trans. Roy. Ent. Soc. Lond.*, 91, pt. 4, pp. 105–17.
1943 *a*.—" Notes on the genus *Euplœa* Fabr." *Proc. Roy. Ent. Soc. Lond.* (B), 12, pt. 1, pp. 6–16.
1943 *b*.—" Revisional notes on the genus *Danaus* Kluk." *Trans. Roy. Ent. Soc. Lond.*, 93, pt. 1, pp. 115–48.

'Talbot, G., & Corbet, A. S.
1939.—" The Indo-Malayan species of the *Mineus* group of *Mycalesis* Hbn." *Journ. F. M. S. Mus.*, xviii, pt. iii, pp. 406–14.

'Taylor, W. C., & de Nicéville, L.
1888.—*List of the butterflies of Khorda in Orissa.* (Calcutta Central Press Co.).

'Tytler, H. C.
1911.—" Notes on butterflies from the Naga Hills."—Part I. *Journ. Bomb. Nat. Hist. Soc.*, xxi, pp. 48–65, pl. A.
1912.—*Op. cit.*—Part II. *Journ. Bomb. Nat. Hist. Soc.*, xxi, pp. 588–606, pl. B.
1914.—" Notes on some new and interesting butterflies from Manipur and the Naga Hills."—Part I. *Journ. Bomb. Nat. Hist. Soc.*, xxiii, pp. 216–29, pls. i, ii.
1926.—" Notes on some new and interesting butterflies from India and Burma." *Journ. Bomb. Nat. Hist. Soc.*, xxxi, pp. 579–90, pls. i–v.
1928.—*Proc. Ent. Soc. Lond.*, 3 (1), pp. 15–16.
1939 *a*.—" Notes on some new and interesting butterflies chiefly from Burma."—Part I. *Journ. Bomb. Nat. Hist. Soc.*, xli, pp. 235–52.
1939 *b*.—" Two new butterflies from the Andaman Islands." *Entomol.*, 72, p. 78.
1940.—" Notes on some new and interesting butterflies chiefly from Burma."—Part II. *Journ. Bomb. Nat. Hist. Soc.*, xlii, pp. 109–23.

Wallengren, H. D. J.
1859.—" Nya Fjaril-slägten." *Ofv. Kongl. Vet.-Akad. Förh.*, xv (1858).

Wallace, A. R.
1869.—" Notes on Eastern Butterflies." *Trans. Ent. Soc. Lond.*, pt. iv, pp. 321–49.

Watkins, H. G. T.
1925.—" New *Callerebias*." *Ann. Mag. Nat. Hist.* (9) xvi, pp. 233–37.
1927 *a*.—" New Himalo-Chinese butterflies." *Ann. Mag. Nat. Hist.* (9) xx, pp. 97–102.
1927 *b*.—" New Himalayan butterflies." *Entomol.*, lx, p. 151.

Watson, E. Y.
1897.—" Notes on a collection of butterflies from the North Chin Hills and Upper Chindwin District, Burma." *Journ. Bomb. Nat. Hist. Soc.*, x, pp. 634–87, pl. A.

Westwood, J. O.
1841.—In Humphrey & Westwood, *British Butterflies and their Transformations* (ed. 1).
1848.—*Cab. Or. Ent.*
1851.—In Doubleday & Westwood, *Gen. Diurn. Lep.*, ii, pp. 327–466, pls. lxvii–lxxvii.
1858.—" On the Oriental species of butterflies related to the genus *Morpho*." *Trans. Ent. Soc. Lond.* (n. s.), iv, pp. 158–89, pls. xvii–xxi.

WILLIAMS, C. B.
1927.—" A study of butterfly migration in S. India and Ceylon." *Trans. Ent. Soc. Lond.*, lxxv, pp. 1–33.
1930.—*Butterfly Migration.*

WOODHOUSE, L. G. O., & HENRY, G. M. R.
1942.—*The Butterfly Fauna of Ceylon.*

WOOD-MASON, J.
1877.—" New and little-known insects from Upper Tenasserim." *Proc. As. Soc. Beng.*, xlvi, pp. 160–3.
1878.—" Description of a new Lepidopterous insect belonging to the genus *Thaumantis*." *Journ. As. Soc. Beng.*, xlvii (ii), pp. 175–6, pl. xii.
1880.—" Description of *Parantirrhœa marshalli*, the type of a new genus and species of Rhopalocera Lepidoptera from South India." *Journ. As. Soc. Beng.*, xlix, pp. 248–50.
1883.—" Description of a new species of the Lepidopterous genus *Elymnias*." *Ann. Mag. Nat. Hist.* (5) xi, p. 62, pl. ii.

WOOD-MASON, J., & DE NICÉVILLE, L.
1880 *a*.—" List of diurnal Lepidoptera from Port Blair, Andaman Islands." *Journ. As. Soc. Beng.*, xlix (ii), pp. 223–43, pl. xiii.
1880 *b*.—" On the Lepidopterous genus *Æmona*." *Journ. As. Soc. Beng.*, xlix (ii), pp. 175–8, pl. vi.
1881 *a*.—" List of diurnal Lepidoptera inhabiting the Nicobar Islands." *Journ. As. Soc. Beng.*, l (ii), pp. 224–38.
1881 *b*.—" Second list of Rhopalocerous Lepidoptera from Port Blair, Andaman Islands." *Journ. As. Soc. Beng.*, l (ii), pp. 243–62, pl. xiv.
1882.—" Second list of diurnal Lepidoptera inhabiting the Nicobar Islands." *Journ. As. Soc. Beng.*, li (ii), pp. 14–20, pl. iii.
1883.—In Marshall & de Nicéville, *Butterflies of India*, i.
1887.—" List of the Lepidopterous insects collected in Cachar by Mr. Wood-Mason." *Journ. As. Soc. Beng.*, lv (ii), 1886, pp. 343–93, pls. xv–xviii.

WYNTER-BLYTH, M. A.
1940.—" A list of the butterflies of the Simla Hills." *Journ. Bomb. Nat. Hist. Soc.*, xli, no. 4, pp. 716–41.

ZINKEN-SOMMER, J. L. T. F.
1831.—" Beitrag zur insecten-fauna von Java." *Nov. Acta Ac. Leop.*, xv, pp. 129–94, pls. xiv–xvi.

LIST OF FORMS DESCRIBED AS NEW IN THE PRESENT VOLUME.

Fam. SATYRIDÆ.

Mycalesis suavolens **tytleri**, p. 153.
Lethe goalpara **gana**, p. 186.
Lethe serbonis **teesta**, p. 220.
Lethe serbonis **bhutya**, p. 221.
Lethe pulaha pulaha f. **plagiata**, p. 232.
Lethe pulaha **pandyia**, p. 233.
Lethe pulaha pandyia f. **pulla**, p. 233.
Lethe armandii khasiana f. **alcas**, p. 235
Lethe bhadra f. **beata**, p. 236.
Lethe yama **buckleyi**, p. 239.
Pararge schakra **aiyuna**, p. 244.
Pararge mærula **tarbena**, p. 244.
Rhaphicera moorei **mantra**, p. 250
Hipparchia actæa **ziara**, p. 277.
Ypthima **akbar**, p. 324.

VOL. I.

ADDENDA

AND

CORRIGENDA

Pages 16–18. *Wing venation.*—The venation of the fore wing has been studied by Zeuner (1943 *a*). He concludes that " the system of venational nomenclature worked out by Comstock (1918, ' The wings of insects '), based on the investigation of a large number of examples from all orders of insects, is the only one which expresses clearly both the phylogenetic evolution and the ontogenetic development of the venation of insects, including the Lepidoptera." The following notation is proposed by Zeuner from a study of the tracheation of living pupæ. The Zeuner notation is given in parenthesis :—Vein 12 (Sc), 11 (R), 10 (RS), 9 (RS_2), 8 (RS_3), 7 (RS_4), 6 (M_1), 5 (M_2), 4 (M_3), 3 (CUA_1), 2 (CUA_2), 1 A (Comstock) (CUP or posterior cubitus), 1 *b* or 1 (1A), 1 *a* (2A). In the genus *Colias* (p. 541) vein 8 is supposed to be missing. Zeuner shows that M has only two branches instead of three and that M_2 (vein 5) is the missing one.

It should be noted that vein 1 shown in the figures of venation reproduced from Bingham, is vein 1 *b*. See pages 320, 360, 372, 383, 434, 439, 450, 474, 489, 505, 541.

Page 33, par. 4. The following observation was made by Peile (1937, p. 135) :—" One (*Kallima inachis huegeli* Koll.) lying apparently killed in my hand suddenly flew off to a tree-trunk and then over the nullah, when a Kingcrow seized it in mid-air." Also on p. 13 is a similar observation, perhaps the same one, with the addition that " the butterfly's wings came floating down from a bough overhead."

Page 36. *Seasonal variation.*—The statement as to the cause of this variation requires modification. Although the early stages will, in some way, be influenced by the climate generally and possibly even by the plants eaten by the larvæ at different seasons, there is no real evidence for believing that these factors are directly responsible for the very different wing-patterns shown by the seasonal forms of certain species. Among the numerous fortuitous variations, resulting from many

parings, will occur some that will be better adapted to the surrounding colour-pattern and to other concomitant conditions of the environment, whether these are due to seasonal change in the vegetation or to the prevailing soil and rock. These variations will tend to become more numerous and more distinct if they prove to be a protection against vertebrate enemies and, perhaps, more especially if the new or changed environment is prolonged in time and space.

Pages 54–55.—The anal veins of the hind wing in *Troides* and other Papilionidæ have been studied by Zeuner (1943 *b*). In a discussion of the anal pouch and anal veins of hind wing (pp. 119–124, figs. 76–95) the author shows that veins 1 *a* and 1 *b* are both present in many Papilionidæ and are particularly developed in the *Troides* group.

Page 54.—The key should be amended at par. 4 to read :—

Hind wing with vein 1 *b* often absent or vestigial; anal area in male specialised and usually bearing a scent-tuft.—(**Papilionidæ**).

Hing wind with vein 1 *b* always well developed; anal area in male not specialised.—**Pieridæ.**

Page 55, line 5 from bottom.—Delete " vein 1 *b* is absent " and substitute : Vein 1 *b* tends to become reduced and is usually absent or vestigial; it is more strongly developed in *Troides*.

Page 56. *Classification of Papilionidæ*.—E. B. Ford (1944 *b*) has proposed a new phylogenetic arrangement of the family based upon his studies of the chemistry of the pigments combined with the known structural characters. In a previous paper (1944 *a*, p. 104) Dr. Ford gives a table of genera arranged in a linear series. The most specialised is found to be *Teinopalpus*, followed by *Papilio*, *Lamproptera*, *Graphium*, *Battus* (an American genus), *Troides*, *Atrophaneura* (*Polydorus*), *Cressida*, *Euryades*, *Zerynthia*, *Bhutanitis* (*Armandia*), *Sericinus*, *Luhdorfia*, *Hypermnestra*, *Parnassius*, *Archon* and *Baronia* (American).

Page 61. *Troides*.—This genus is fully treated by Zeuner (1943 *b*), and some figures are given of the male genitalia of some Indian species.

Page 70. *Polydorus*.—This name is preoccupied and must be replaced by *Atrophaneura* Reakirt, 1864 [1865] (*Proc. Ent. Soc. Phil.*, 3, p. 446, type, *Papilio semperi* C. & R. Felder, 1861). See Corbet, 1943, p. 206.

Page 78. *Papilio coon doubledayi* occurs also in Malaya.

Page 85. **Polydorus aristolochiæ** (Fabr.).—This name is strictly preoccupied by *Atrophaneura ascanius* Linn.). See Corbet (1941 *a*, p. 27). It is hoped that the priority rule will be suspended in this case.

Page 86.—If the name *ascanius* (Linn.) (see above) is used to replace *aristolochiæ* (Fabr.), the name for the Indian subspecies will be *diphilus* (Esper). The Linnæan *ascanius* came from Java.

Page 106. **Chilasa** Moore.—Following the conclusion reached by Ford (1944 *b*, p. 206), who has studied the species included in *Chilasa*, this group should be relegated to the position of a " species-group " of *Papilio*. It may be called the *Clytia* Group.

Page 106. **Chilasa agestor** Gray, 1832, should read 1831.

Page 107 **Chilasa agestor agestor** Gray occurs also in Malaya.

Page 143. **Papilio elephenor** Doubl. The type-locality is Sylhet.

Page 150. **Papilio paris paris** Linn. should read: *Papilio paris decorosa* Fruhstorfer, 1909. The nominotypical subspecies came from south-east China. (See Corbet, 1941 *a*, p. 27).

Page 193. **Papilio machaon centralis** Stgr.—Peile (1921, p. 66; 1937, p. 32) notes the occurrence of *centralis* in Iraq, where the larva feeds mostly on rice (*Ruta tuberculata*). Four other food-plants (Umbelliferæ) are noted. The larva feeds on the flowers, rarely on the leaves. Many adults were bred.

Page 200. " *Paranticopis* " should read *Paranticopsis*.

Page 210. Second line from the bottom. Read 1846 *a* (2).

Page 220. **Graphium sarpedon sarpedon** (Linn.) should read: *Graphium sarpedon luctatius* Fruhstorfer (1907 *e*, p. 183) (Borneo, Natuna Is., Malaya). Nominotypical *sarpedon* is from south China.

Pages 233–239. "*Paranticopis* " should read *Paranticopsis*.

Page 250. **Armandia** Blanch. This name is pre-occupied and *Bhutanitis* Atkinson must be used.

Page 302. Line 18 from top. For " *xiphia* (Fabr.) " read *nina* (Fabr.).

Page 336. **Delias berinda boyleæ** Butl.—The British Museum contains 2 males and 1 female from Nepal (Naini Tal), taken in May, 1916, by G. O. Allen, and presented by Lieut.-Colonel H. D. Peile. These specimens show slight differences from the typical *boyleæ*.

Page 342. **Delias belladonna belladonna** (Fabr.).—The form described here is not the nominotypical subspecies and the name **mixta** nov. is proposed for it. The identity of the true *belladonna* has been cleared up by the discovery, by Corbet (1941 *d*, p. 103; 1942, p. 93),

of the Fabrician type in the Linnæan Collection. This specimen is a female of the western Chinese subspecies described as *zelima* Mitis (1893).

Page 345. The name *thysbe* (Cramer) is a primary homonym of *thysbe* Linnæus. The species should be called *Delias acalis* (Godart) (1819, pp. 113, 148). See Corbet, 1941 *b*, p. 806.

No. 111 *a*. The reference to Bingham, pl. xviii, fig. 117, should be transferred to *Delias aglaia aglaia* on page 343.

Page 361. Second line from top : read *Pieris lea*, Doubleday, 1846 *a* (1), p. 23 (Moulmein ♂♀). (See Bibliography, p. 570.)

Page 377 No. 121. Second line should read :—*Pieris clemanthe*, Doubleday, 1846 *a* (1), p. 23 (Moulmein, ♀).

Page 387 Top line. Replace **lalage** (Doubleday) by **pandione** (Geyer). No. 124 *a* should read **Appias pandione lalage** (Doubleday).

Page 389. No. 124 *b*. Delete **lalage** and replace by **pandione.**

Page 403. Under *distribution* insert **South India.**

Bottom line : " two subspecies " should read three subspecies.

Page 436. **Euchloë charlonia lucilla** Butler.—First paragraph of description, line 3, should read : " extends to the costal margin " instead of " does not extend to the costal margin."

In the reference to Evans (1932 *a*) delete " pl. vii, fig. B 3.1 (♂) " and transfer to *doveri* Evans (p. 435).

Page 437 **Euchloë belemnia palæstinensis** Röber.—Before " Peile, 1937 " insert " Peile, 1922, pp. 350–51 (early stages and food-plants in Mesopotamia)."

Euchloë ausonia (Hübner). Add as a final paragraph : An account of the early stages and food-plants of this species in Mesopotamia is given by Peile (1922, pp. 350–51).

Page 439. The genus **Ixias** has been revised by Gabriel (1943), and the following changes have been made in the taxonomy of the Indian species.

Page 440. **Ixias marianne** (Cramer) comprises (*a*) *marianne marianne* (Cramer), from the Punjab, United Provinces, Nepal, Central and South India, Ceylon ; (*b*) *marianne nola* Swinhoe, from Northern Bombay, Mahableshwar Mountains.

Pages 444–5. It is very doubtful whether the specimens upon which Fruhstorfer based the names *nivescens* and *connectens* came from Ceylon.

Page 447 Nos. 151 *e* and *f* comprise a single subspecies,

latifasciatus Butler. This ranges from the Mishmi Hills to the Karens, south to Martaban and the lower Salween River. The name *meipona* Gr.-Sm. refers to an inter-intermediate form, and *moulmeinensis* Moore to the dry-season form.

Page 448. **Ixias verna** is considered to be a subspecies of *pyrene* (Linn.). The wet-season form is *pallida* Moore. The nominotypical *verna* is an intermediate form (=*citrina* Moore).

Page 450. The name **lena** Swinhoe is based upon a large male (69 mm.) with a marginal band on hind wing upperside 4 mm. in width. The true dry-season form is much smaller (58 mm.) with a hind wing band 1 to 2 mm. in width. Gabriel considers *lena* to be an intermediate form.

Page 446. No. 151 *c*, line 13. Add reference to *Ixias pyrene satadra* : Peile, 1937, p. 70, pt. v, fig. 30 (♂), pl. viii, fig. 60 (♀) (Variation and habits at Miramshah and Peshawar).

Page 486. No. 164. For " **Valeria valeria hippia** " read **Valeria valeria anais** (Lesson). Insert : *Danais anais* Lesson, 1837, pl. xliv, figs. 2, 2 *bis* (♀, " Océanie," recte Tourane, Cochinchina).

The name *hippia* (Fabr.) is preoccupied by *hippia* (Cramer, 1779) ; after " 55 " on first line insert : (*non* Cramer, 1779).

Line 12 from bottom : For " *gea* " read *gæa*.

Page 487 " ♀ f. **philomela** (Fabr.) " should read : ♀ f. **lutescens** Butl. (1879, *Cist. Ent.* ii, p. 431). The name *philomela* is preoccupied.

Page 488. For " *Dry-season form* **gea** (Feld.) " read : *Dry-season* form **anais** (Lesson) (=*gaea* C. & R. Feld.).

Page 490. **Catopsilia crocale** and **pomona**.—Wheeler (1943) discusses these forms and adduces strong evidence for their conspecificity. He includes figures of both forms taken *in cop.* He concludes that *Catopsilia crocale* (Cramer) should be accepted as the valid name for the collective species.

T. R. Bell, in a communication to Lieut.-Colonel Peile (4. x. 1944), writes as follows from Karwar :—" When I returned here in March, 1938, I took the matter in hand and reared many broods of the species which is very common here, mostly on *Cassia siamea* Lam. I paired all the different forms at different times for two years in succession and have settled that they are all one, no matter whether differently marked, with black antennæ or pink, with heavily vinous markings below or not."

In a further letter (21. i. 1945) Bell stated that with reference to the vinous markings: "In the cold weather (or in the dry weather) no females have these patches on the undersides of the hind wings."

Page 523. Line 20. Read "three" subspecies instead of "six"

Page 529. Line 12 from bottom. The habitat of nominotypical *hecabe* (Linn.) is regarded as being south-east China (Corbet, 1941 *a*, p. 27).

The name *lacteola* (Distant) must not be applied to *hecabe* (Linn.), as it represents a distinct species so far not recorded from the Indian area. (See Corbet, 1941 *c*, p. 502, fig. 4). The white female form of *hecabe* is very rare in India. It is at present without a name.

Page 533. The name **stockleyi** Cbt. & Pend. must be replaced by **sarinoides** (Fruhst.), of which it is a synonym. The reference to *sarinoides* on page 528 must be transferred to page 533. The type of this name is from Siam (Hinlap) and is in the British Museum. (See Corbet, 1941 *b*, p. 806).

Page 534. **Eurema jordani** Corb. & Pend.—See also Corbet, 1941 *c*, p. 501, fig. 3 (*non* 2).

Page 535. The name **andersoni** (Moore) should read **andersonii.** The male genitalia are figured by Corbet, 1941 *c*, p. 501, fig. 2 (*non* 3).

Page 539. For "**Terias tilaha**" read **Eurema tilaha.**

Page 562. No. 199. For "Ménétries" read Ménétriès.

New name added.—*Delias belladonna mixta*, subsp. nov. (p. 342).

CORRIGENDA.

Page 570. Doubleday. *For* 1846, *read* 1846 *a* (2).

Page 579. *For* Ménétries, *read* Ménétriès.

Page 580. Moore. *For* 1890, 1891, 1892 *a*, 1892 *b*, 1893, 1825 *a*, see vol. ii. (Bibliography).

BIBLIOGRAPHY.

ADDENDA.

CORBET, A. S.

1941 *a*.—"The Linnæan names of Indo-Australian Rhopalocera," pt. 2. *Proc. R. Ent. Soc. Lond.* (B) 10, pp. 17–27.

1941 *b*.—"A further contribution to a knowledge of Rhopalocera of the Malay Peninsula." *Journ. Fed. Mal. S. Mus.*, xviii (5), pp. 805–13.

1941 *c*.—"Spolia Mentawiensis: Rhopalocera, Pieridæ." *Ann. Mag. Nat. Hist.* (11), viii, pp. 497–503.

1941 *d*.—"Observations on certain of the Fabrician names of Indo-Australian Rhopalocera." *Proc. R. Ent. Soc. Lond.* (B), 10, pt. 6, pp. 98–106.

1942.—"The Linnæan names of Indo-Australian Rhopalocera," pt. 3. *Proc. R. Ent. Soc. Lond.* (B), 11, pt. 6, pp. 91–94.

1943.—"Notes on two genera of butterflies." *Entomologist*, 76, pp. 206–7.

DOUBLEDAY, E.

1846 *a* (1).—"Descriptions of new or imperfectly described diurnal Lepidoptera." *Ann. Mag. Nat. Hist.*, xvii, pp. 22–26.

FORD, E. B.

1944 *a*.—"Studies on the chemistry of pigments in the Lepidoptera, with reference to their bearing on systematics.—3. The red pigments of the Papilionidæ." *Proc. R. Ent. Soc. Lond.* (A), 19, pp. 92–106.

1944 *b*.—"Studies on the chemistry of pigments in the Lepidoptera with reference to their bearing on systematics.—4. The classification of the Papilionidæ." *Trans. R. Ent. Soc. Lond.*, 94, pp. 201–223.

GABRIEL, A. G.

1843.—"A revision of the genus *Ixias* Hübner." *Proc. R. Ent Soc. Lond.* (B), 12, pp. 55–70.

LESSON, R. P.

1837.—In Bougainville "*Journal de la Navigation autour du Globe de la Frégate la Thetis et de la Corvette l'Esperance.*"

WHEELER, L. R.

1943.—"The conspecificity of *Catopsilia crocale* Cramer and *C. pomona* Fabr." *Entomologist*, lxxvi, pp. 89–94, pl. ii.

ZEUNER, F. E.

1943 *a*.—"On the venation and tracheation of the Lepidopterous fore wing." *Ann. Mag. Nat. Hist.* (11), x, pp. 289–304, figs. 1–15.

1943 *b*.—"Studies in the systematics of *Troides* Hübner and its allies." *Trans. Zool. Soc. Lond.*, xxv, pt. 3, pp. 107–184.

ALPHABETICAL INDEX.

[All names printed in *italics* are synonyms. When a species is mentioned on more than one page, the page on which the description occurs is the last-mentioned.]

aborica *Tytl.* (Stichophthalma), 420.
Acræa *Fabr.*, 462.
Acræidæ *Doubl.*, 461.
actæa (*Esp.*) (Hipparchia), 275, 277.
aculeata *Hamps.* (Melanitis), 375.
adamsoni *Moore* (Cœlites), 358.
adamsoni *Marsh.* (Euplœa), 93.
adamsoni *Wats.* (Mycalesis), 116, 117, 118.
Adigama Dist., 55.
adolphei (*Guér.*) (Mycalesis), 130, 147.
æmate *Fruhst.* (Mycalesis), 119.
Æmona *Hew.*, 404, 411.
æsatia (*Fabr.*) (Danaus), 66.
affectata *Elw. & Edw.* (Ypthima), 339.
affinis (*Fabr.*) (Danaus), 18, 28.
agamarschana (*C. & R. Feld.*) (Idea), 7, 12.
Agapetes *Billb.*, 109, 296.
ageloides (*C. Feld.*) (Danaus), 18, 41.
aglea (*Stoll.*) (Danaus), 4, 18, 37.
Agrusia Moore, 380.
aisa *Fruhst.* (Lethe), 194.
aiyuna *Talb.* (Pararge), 244.
akbar *Talb.* (Ypthima), 317, 324.
alberta Butl. (Lethe), 222.
albipars *Talb.* (Danaus), 26.
albofasciata *Tytl.* (Mycalesis), 124.
alcas *Talb.* Lethe 235.
alcippoides (*Moore*) (Danaus), 22.
alemola *Swinh.* (Ypthima), 325.
algea (*Godt.*) (Euplœa), 64, 74.
aliris (*Westw.*) (Thauria), 430.
amathusia (*Hew.*) (Æmona), 412, 413.
Amathusia *Fabr.*, 405, 432.
Amathusiidæ *Stich.*, 403.
Amathusiinæ *Moore*, 404.
Amathuxidia *Stgr.*, 405, 438.
Amecera Butl., 240.
amethystus *Butl.* (Zeuxidia), 441.
ampa *Swinh.* (Melanitis), 371.
amplifascia *Talb.* (Danaus), 22.
amplifascia *Roths.* (Thauria), 431.
amythaon (*Doubl.*) (Amathuxidia), 439.
Anadebis Butl., 362.
analoga (*Alph.*) (Hipparchia), 271.
anapita *Moore* (Mycalesis), 126, 128.
anaxias *Hew.* (Mycalesis), 116, 118, 119.
anaxioides *Marsh.* (Mycalesis), 116, 120.
andamana (*Moore*) (Mycalesis), 145.
andamanensis *Fruhst.* (Amathusia), 433, 436.
andamanensis *Stgr.* (Discophora), 456.
andamanensis *Atks.* (Euplœa), 72.
andamanica *Evans* (Melanitis), 376.
andersonii (*Moore*) (Elymnias), 402.
andersoni (*Atks.*) (Lethe), 190, 195.
angularis *Moore* (Erites), 352.
anisakana *Tytl.* (Melanitis), 374.
annada *Moore* (Erebia), 300, 310.
annamitica *Fruhst.* (Mycalesis), 151, 159.
anomala *Koll.* (Acræa), 465.
antonia *Röb.* (Stichophthalma), 424.
anysis Hew. (Debis), 228.
apara Fruhst. (Lethe), 205.
apicalis (*Moore*) (Euplœa), 102.
apicalis Moore (Ypthima), 329.
arcesilas *Stich.* (Faunis), 409.
arcesilaus Fabr. (Papilio), 409.
archaica *Fruhst.* (Neorina), 361.

archbaldi Tytl. (Stichophthalma), 422.
Arge Hübn., 296.
argentina *Butl.* (Erites), 352, 354.
ariaspa *Moore* (Ypthima), 319, 320.
arida *Fruhst.* (Euplœa), 76.
armandii (*Oberth.*) (Lethe), 231, 234.
arrakana (*Fruhst.*) (Idea), 12, 13.
asela *Moore* (Euplœa), 69.
aspasia (*Fabr.*) (Danaus), 18, 42.
assama (*Westw.*) (Faunis), 410.
asterope (*Klug*) (Ypthima), 317, 324.
astorica Tytl. (Karanasa), 280.
astorica *Tytl.* (Maniola), 257.
aswa (*Moore*) (Melanitis), 372.
aswina *Fruhst.* (Melanitis), 373.
atkinsonia (*Hew.*) (Lethe), 170, 184.
augusta Moore (Pademma), 95.
auletes *Fruhst.* (Melanitis), 376.
Aulocera *Butl.*, 109, 287.
aurelius (*Cram.*) (Zeuxidia), 441, 444.
austeni (*Moore*) (Ypthima), 344.
avanta *Moore* (Ypthima), 332.
avatara Moore (Satyrus), 290.
aventina Cram. (Papilio), 50.

Badacara Moore, 16.
Bahora Moore, 16.
baileyi (*South*) (Erebia), 300, 309.
baladeva (*Moore*) (Lethe), 189, 193, 194.
baldiva (*Moore*) (Hipparchia), 274.
baldus (*Fabr.*) (Ypthima), 318, 336, 337.
balti Tytl. (Karanara), 280.
balucha (*Evans*) (Hipparchia), 272.
bara *Evans* (Ypthima), 334.
baroghila *Tytl.* (Maniola), 257.
baronesa *Fruhst.* (Mandarinia), 110
beata *Talb.* (Lethe), 236.
beelinga Moore (Erites), 354.
bela *Moore* (Melanitis), 372.
bethami *de Nicév.* (Melanitis), 371.
bethami (*Moore*) (Mycalesis), 161.
bhadra (*Moore*) (Lethe), 231, 236.
bhairava (*Moore*) (Lethe), 193, 228.
bhima (*Marsh.*) (Lethe), 237.
bhutya *Talb.* (Lethe), 221.
bicolor (*Seitz*) (Œneis), 286.
binghami *Moore* (Cœlites), 359.
binghami Moore (Crastia), 71.
binotata Butl. (Stictoplœa), 80.
biseriata Moore (Tronga), 62.
Blanaida Kirby, 166.
blasius (*Fabr.*) (Mycalesis), 132.
bolanica *Marsh.* (Ypthima), 317, 331.
boloricus (*Gr.-Grsh.*) (Hipparchia), 276, 283.
bowringi (*Moore*) (Danaus), 22.
brahma Moore (Isamia), 93.
brahminoides *Moore* (Aulocera), 290.
brahminus (*Blanch.*) (Aulocera), 288.
bremeri Butl. (Crastia), 61.
brevistigma *Moore* (Maniola), 265.
Brintesia Fruhst., 287.
brisanda *de Nicév.* (Lethe), 192, 218.
Bruasa Moore, 380.
bruno *Tytl.* (Lethe), 184.
buckleyi *Talb.* (Lethe), 239.
buddha *Gr.-Grsh.* (Œneis), 284.
burmeisteri (*Moore*) (Euplœa), 102.
bumila *Evans* (Euplœa), 73.
burmana *Tytl.* (Faunis), 410.
burmana *Tytl.* (Lethe), 178.
burmana *Tytl.* (Pararge), 247.
burmana *Tytl.* (Stichophthalma), 421.
burmana *Evans* (Ypthima), 317, 325.
burmensis (*Moore*) (Elymnias), 401.
burnettii *Evans* (Aulocera), 291.
busiris *Westw.* (Xanthotænia), 406.

cadelli (*W.-M. & de Nicév.*) (Idea), 14.
cadesia *Moore* (Hipparchia), 280, 281.
Caduga Moore, 16.
cæca (*Watks.*) (Erebia), 311.
cœnonympha (*C. & R. Feld.*) (Maniola), 254, 258.
Callerebia Butl., 298.
Calliplœa Butl., 55.
calverti *Tytl.* (Cœlites), 359.
Calysisme Moore, 111.
camadeva (*Westw.*) (Stichophthalma), 416, 418, 419.
camadevoides *de Nicév.* (Stichophthalma), 420.
camaralzeman *Butl.* (Euplœa), 63.
camorta (*Evans*) (Danaus), 28.
camorta *Moore* (Euplœa), 74.
canens *Hübn.* (Faunis), 408.
carpenteri Butl. (Calysisme), 135, 136.
carpenteri Moore (Isamia), 63.
cashapa Moore (Callerebia), 305.
cashmirensis *Moore* (Pararge), 245.
casiphone *Geyer* (Elymnias), 382, 396.
castelnauii C. & R. Feld. (Euplœa), 89.
catharina Butl. (Ypthima), 329.
caudata *Butl.* (Elymnias), 384.

centralis (*Riley*) (Maniola), 259.
cerealis *Wats.* (Ypthima), 334.
ceylanica C. Feld. (Danais), 38.
ceylonica *Fruhst.* (Discophora), 454.
ceylonica *Hew.* (Ypthima), 317, 327, 328.
chandica (*Moore*) (Lethe), 191, 211.
charaka *Moore* (Mycalesis), 124.
Charma Doh., 166.
Chazara Moore, 266.
cheena (*Moore*) (Maniola), 261.
chelensis *de Nicév.* (Elymnias), 399.
chenui (*Guér*) (Ypthima), 317, 326.
chersias *Fruhst.* (Amathusia), 433, 434, 435.
chersonesia Fruhst. (Zeuxidia), 443.
chitralica *Evans* (Erebia), 302.
chitralica (*Tytl.*) (Hipparchia), 283.
chitralica Tytl. (Maniola), 257, 260.
chitralica (*Evans*) (Maniola), 264.
Chittira Moore, 16.
chloë (*Guérin*) (Euplœa), 93.
Chonala Moore, 240.
Chortobius Guen., 254.
christophi *Leech* (Lethe), 192, 213, 214.
chrysippus (*Linn.*) (Danaus), 4, 18, 19, 20.
chumbica *Moore* (Aulocera), 292.
Cœlites *Westw.*, 108, 351.
Cœnonympha *Hübn.*, 109, 252.
cœnonympha (*C. & R. Feld.*) (Maniola), 258.
complexiva Swinh. (Ypthima), 319.
confusa *Auriv.* (Lethe), 190, 205.
continentalis Stgr. (Discophora) 455.
core (*Cram.*) (Euplœa), 64, 66, 67.
coreoïdes Moore (Euplœa), 78.
coreta (*Godt.*) (Euplœa), 4, 78.
cortona *Fruhst.* (Elymnias), 393.
corus (*Fabr.*), 88.
cottonis (*Hew.*) (Elymnias), 381, 387, 388.
Clerome Westw., 407.
crameri *Luc.* (Euplœa), 58, 60.
crassa Butl. (Euplœa), 101.
Crastia Hübn., 54.
crishna *Westw.* (Neorina), 360, 361.
crisilda *Hew.* (Ragadia), 355, 356.
crito *de Nicév.* (Ragadia), 356.
critolaus *de Nicév.* (Ragadia), 356.
critolina *Evans* (Ragadia), 357.
crocea Butl. (Danais), 42.
crowleyi (*Moore*) (Euplœa), 81.
Culapa Moore, 110.
cupreipennis Moore (Crastia), 59.
cycnus *Westw.* (Enispe), 457, 458.
Cyllo Boisd., 364.
Cyllogenes *Butl.*, 109, 376.
dædalia Swinh. (Ypthima), 319.
dædalion (*de Nicév.*) (Elymnias), 390.
daksha (*Moore*) (Erebia), 306.
dakwania *Tytl.* (Lethe), 169, 175.
Dallacha Moore, 298.
damaris *Gray* (Orinoma), 251.
Danaida Latr., 16.
Danaidæ, 1.
Danainæ, 2.
Danais Latr., 16.
Danaus *Kluk*, 4, 16.
Danisepa Dist., 55.
dara *Dist.* (Elymnias), 381, 390.
daretis (*Hew.*) (Lethe), 190, 204.
davendra (*Moore*) (Maniola), 255, 263.
davisoni (*Moore*) (Mycalesis), 161.
Debis Doubl., 166.
decolorata *Fruhst.* (Melanitis), 374.
defigurata *Fruhst.* (Euplœa), 72.
dehradunensis Stnd. (Aulocera), 295.
deione *Westw.* (Euplœa), 75.
delia *Mart.* (Erites), 354.
deliades Hew. (Debis), 170.
deo *de Nicév.* (Discophora), 446, 450, 451.
deodoides *Tytl.* (Discophora), 451.
despoliata *Fruhst.* (Euplœa), 106.
determinata *Butl.* (Melanitis), 367.
deva (*Moore*) (Elymnias), 401.
dharma Moore (Pademma), 95.
diabolica (*Fruhst.*) (Idea), 9.
diademoides (*Moore*) (Ethope), 362, 363.
digna *Marsh.* (Hipparchia), 275, 276.
dinarbas (*Hew.*) (Lethe), 217.
diocletianus (*Fabr.*) (Euplœa), 103, 104.
Dionana Moore, 166.
diores *Doubl.* (Thaumantis), 426, 427.
Discophora *Boisd.*, 446.
Discophorinæ *Stich.*, 404, 445.
distanti Moore (Calysisme), 139, 140.
distans *Talb.* (Euplœa), 70.
distans *Butl.* (Lethe), 191, 213.
dohertyi *Evans* (Erebia), 315.
dohertyi (*Moore*) (Ypthima), 318, 342.
dokwana *Evans* (Aulocera), 289.
dolopes (*Hew.*) (Lethe), 222.
dominans *Fruhst.* (Euplœa), 72.
dorippus (*Klug*) (Danaus), 22.
doris Stoll (Papilio), 349.
doubledaii *Westw.* (Zeuxidia), 441, 443.
doubledayi *C. & R. Feld.* (Euplœa), 64, 65.

dravidarum (*Fruhst.*) (Danaus), 34.
droshica (*Tytl.*) (Hipparchia), 272.
drusia Cram. (Papilio), 135, 136.
drypetis (*Hew.*) (Lethe), 190, 201, 203.
duarseri de Rhé-Philipe (Euplœa), 84.
duguidi *Tytl.* (Mycalesis), 154.
dura (*Marsh.*) (Lethe), 170, 188.
duryodana C. & R. Feld. (Cyllo), 374.
Dyctis Boisd., 379.
dynsate (*Hew.*) (Lethe), 190, 207.
dyrta C. & R. Feld. (Lethe), 200.

eclecta (*Swinh.*) (Euplœa), 94.
elisa Butl. (Euplœa), 88.
elwesi (*Moore*) (Lethe), 183.
Elymnias *Hübn.*, 108, 379.
embolima Butl. (Lethe), 203.
enervata (*Stgr.*) (Hipparchia), 271.
engamon *Fruhst.* (Discophora), 457.
Enispe *Doubl.*, 446, 457.
Enope Moore, 166.
Epigea Hübn., 298.
epiminthia *Westw.* (Cœlites), 357, 358.
Epinephele Hübn., 254.
Erebia *Dalm.*, 109, 298.
erichsonii *C. & R. Feld.* (Euplœa), 91, 101, 102.
Erites *Westw.*, 109, 351.
eryx Fabr. (Papilio), 41.
esaca (*Westw.*) (Elymnias), 382, 401.
esperi *C. Feld.* (Euplœa), 62.
Ethope *Moore*, 109, 362.
Eumenis Hübn., 266.
eumeus (*Drury*) (Faunis), 408, 409.
Euplœa *Fabr.*, 54.
Euplœamima Holl., 362.
Euplœinæ, 2.
europa (*Fabr.*) (Lethe), 190, 197.
euthymius (*Doubl.*) (Enispe), 457, 459, 460.
evansii *Tytl.* (Mycalesis), 130, 146.
evansi *Tytl.* (Stichophthalma), 424.
eversmanni *Eversm.* (Pararge), 241, 245.
exprompta (*Butl.*) (Danaus), 51.
eyndhovii *C. & R. Feld.* (Euplœa), 64, 66.

falcipennis *W.-M. & de Nicév.* (Erites), 352, 353.
Faunis *Hübn.*, 405, 407.
faunula (*Doubl.*) (Faunis), 408, 410.
faunuloides (*de Nicév.*) (Faunis), 411.
ferrari *Tytl.* (Euplœa), 73.
fervida (*Butl.*) (Mycalesis), 165, 166.
flanona Fruhst. (Lethe), 212.
francisca (*Stoll*) (Mycalesis), 116, 121.
fraterna *Butl.* (Elymnias), 383.
frauenfeldii *C. Feld.* (Euplœa), 62.
friderici *Fruhst.* (Amathusia), 433, 434, 436.
fruhstorferi *Röb.* (Stichophthalma), 424.
fulva *Evans* (Aulocera), 293.
fumata Butl. (Danais), 47.
fuscum (*C. & R. Feld.*) (Mycalesis), 126, 127.

gafuri (*Tytl.*) (Lethe), 196.
galkissa *Fruhst.* (Melanitis), 371.
gamaliba Butl. (Mycalesis), 350.
gambara Fruhst. (Lethe), 205.
gammiei (*Moore*) (Lethe), 188.
gana *Talb.* (Lethe), 186.
ganapati *Fruhst.* (Melanitis), 373.
Gareris Moore, 111.
garhwalica *Tytl.* (Œneis), 285.
garuna *Fruhst.* (Aulocera), 295.
gautama (*Moore*) (Danaus), 18, 35, 36.
gautamoides (*Doh.*) (Danaus), 36.
gela *Fruhst.* (Ypthima), 341.
gelduba Fruhst. (Lethe), 171, 172.
gellia *Fruhst.* (Ypthima), 328.
gemina *Leech* (Lethe), 190, 195.
genutia Cram. (Papilio), 25.
gilgitica *Tytl.* (Aulocera), 295.
gilgitica (*Tytl.*) (Hipparchia), 273.
gilgitica (*Tytl.*) (Hipparchia), 283.
goalpara (*Moore*) (Lethe), 170, 185.
godartii *Luc.* (Euplœa), 70.
gokala *Moore* (Melanitis), 375.
goolmurga (*Lang*) (Maniola), 259.
gopa *C. & R. Feld.* (Mycalesis), 122.
Gorgo Hübn., 298.
gotama *Moore* (Mycalesis), 116, 124.
grammica Boisd. (Danais), 38.
grandis *Tytl.* (Aulocera), 292.
grantii (*Butl.*) (Euplœa), 97.
grotei *C. & R. Feld.* (Euplœa), 81.
grynion (*Fruhst.*) (Danaus), 26.
gulnihal *de Nicév.* (Lethe), 193, 226, 227.

hadeni (*W.-M. & de Nicév.*) (Idea), 13.
halimede (*Mén.*) (Agapetes), 297.
hamata (*McLeay*) (Danaus), 18, 32.
hamiltoni Swinh. (Pademma), 96.
Hanipha Moore, 166.
harmostus Fruhst. (Orinoma), 251.
harrisii *C. & R. Feld.* (Euplœa), 81.
haynei *Tytl.* (Æmona), 414.
Hemadara Moore, 298.
heri *Moore* (Mycalesis), 150, 155.

Hermianax Fruhst., 359.
Hermias Fruhst., 166.
hesione Cram. (Papilio), 349.
Hestia Hübn., 4.
heydenreichi *Led.* (Hipparchia), 267, 270.
hilaris (*Stgr.*) (Maniola), 266.
hilda *Westw.* (Neorina), 360.
himachala (*Moore*) (Ethope), 362.
Hipio Hübn., 364.
Hipparchia *Fbr.*, 109, 266.
holman-hunti *Cbt. & Pendl.* (Amathusia), 433, 434, 437.
hopei *C. & R. Feld.* (Euplœa), 80.
howra *Moore* (Ypthima), 330.
hübneri *Kby.* (Ypthima), 317, 329.
huebneri (*C. & R. Feld.*) (Hipparchia), 275, 279.
humei Elw. & Edw. (Ypthima), 337.
hyagriva (*Moore*) (Erebia), 300, 312.
hybrida (*Butl.*) (Erebia), 300, 309.
hypermnestra (*Linn.*) (Elymnias), 381, 383.
hypermnestra (*Westw.*) (Idea), 7, 14.
hyrania Koll. (Satyrus), 216.

Idea *Fabr.*, 4.
igilia *Fruhst.* (Mycalesis), 130, 137.
illustris (*Butl.*) (Euplœa), 98.
imperialis Moore (Pademma), 96.
incerta (*Stgr.*) (Faunis), 410.
indecora *Moore* (Ypthima), 318, 336.
indica *Stgr.* (Discophora), 449.
indicus (*Fruhst.*) (Danaus), 27.
indigofera Moore (Pademma), 96.
indistans (*Moore*) (Mycalesis), 141.
inica *Hew.* (Ypthima), 317, 319.
inquinata Butl. (Euplœa), 87.
insana (*Koll.*) (Lethe), 192, 216.
intermedia Moore (Callerebia), 305.
intermedia Roths. (Enispe), 460.
intermedia (*Moore*) (Mycalesis), 130, 139.
intermedia *Crowl.* (Thauria), 431.
interposita Marsh. & de Nicév. (Epinephele), 259.
irawada *Moore* (Euplœa), 93.
irma *Evans* (Lethe), 173, 174.
Isamia Moore, 55.
iskander *Hemm.* (Maniola), 260.
ismene (*Cram.*) (Melanitis), 366.
issa *Fruhst.* (Lethe), 227, 228.
issoria (*Hübn.*) (Acræa), 462, 463.

jalaurida (*de Nicév.*) (Lethe), 170, 182.
janetæ *de Nicév.* (Cyllogenes), 377. 378.
japroa *Tytl.* (Aulocera), 293.
jasonia (*Westw.*) (Idea), 7, 9.
jocularia Swinh. (Ypthima), 329.
junonia *Butl.* (Mycalesis), 164.
justina (*Stoll*) (Mycalesis), 136.
juventa (*Cram.*) (Danaus), 19, 53.

Kabanda Moore, 111.
kabrua *Tytl.* (Lethe), 170, 182.
kabrua *Tytl.* (Rhaphicera), 249.
kabruensis *Tytl.* (Lethe), 186.
kala *Evans* (Erebia), 307.
kalawrica *Tytl.* (Æmona), 415.
kalinda *Moore* (Erebia), 299. 302.
kalinga *Doh.* (Euplœa), 85.
kalinga *Moore* (Melanitis), 375.
kamriana *Tytl.* (Erebia), 303.
kanarensis (*Moore*) (Idea), 11.
kanetisa Moore, 266.
kanjupkula *Tytl.* (Lethe), 177.
kansa (*Moore*) (Lethe), 192, 223.
Karadira Moore, 55.
Karanasa Moore, 266.
karennia *Tytl.* (Æmona), 415.
kashmirica *Moore* (Maniola), 260.
kasmira *Moore* (Ypthima), 330.
kentunga *Tytl.* (Æmona), 415.
Kerrata Moore, 166.
khasia Evans (Mycalesis), 139.
khasiana (*Moore*) (Lethe), 234.
khasiana *Moore* (Mycalesis), 162.
klugii *Moore* (Euplœa), 91, 95, 97.
klugius (*Zink.*) (Thaumantis), 426, 428.
kohimensis *Tytl.* (Mycalesis), 161.
Kolasa Moore, 315.
kollari *C. & R. Feld.* (Euplœa), 4, 91, 99.
konglua *Tytl.* (Mycalesis), 153.
Kringana Moore, 426.
kurrama Evans (Aulocera), 295.

ladesta Fruhst. (Lethe), 222.
langi *de Nicév.* (Mycalesis), 156, 157.
lankana Moore (Euplœa), 78.
lasiommata Westw., 240.
laspura *Evans* (Maniola), 266.
lathyi *Fruhst.* (Thauria), 431.
latiaris (*Hew.*) (Lethe), 193, 225.
latistigma *Moore* (Maniola), 264.
laurion de Nicév. (Lasiommata), 244.
layardi *Druce* (Euplœa), 72.
lazulina (*Moore*) (Euplœa), 103.
leda (*Linn.*) (Melanitis), 365, 366.
ledereri *C. & R. Feld.* (Euplœa), 86.
leechi Moore (Karanasa), 280.
lehana *Moore* (Hipparchia), 273.
lena *Atks.* (Æmona), 412, 413, 414.
leopardus (*Butl.*) (Danaus), 4, 31.

lepcha (*Moore*) (Mycalesis), 151, 160.
lepida (*Moore*) (Discophora), 447, 452.
Lethe *Hübn.*, 108, 166, 167.
leucogonis (*Butl.*) (Euplœa), 102.
leuconoë (*Erichs.*) (Idea), 7, 15.
leucostictos (*Gmel.*) (Euplœa), 91, 102.
limborgii *Moore* (Euplœa), 76.
Limnaina, 2.
Limnas Moore, 16.
limniace (*Cram.*) (Danaus), 18, 30.
linnæi Moore (Trepsichrois), 83.
linteata (*Butl.*) (Idea), 14.
lioneli *Fruhst.* (Elymnias), 393.
lisandra (*Cram.*) (Ypthima), 317, 332.
Loesa Moore, 111.
loha *Doh.* (Aulocera), 292.
Lohana Moore, 315.
Lopinga Moore, 240.
lorimeri *Tytl.* (Erebia), 301.
louisa (*W.-M.*) (Stichophthalma), 417, 421.
Loxerebia Watks., 298.
lucipor *Westw.* (Thaumantis), 428.
lupinus (*Costa*) (Maniola), 255, 259.
lurida Butl. (Mycalesis), 132.
lycoides *Wats.* (Ypthima), 321.
lycus *de Nicév.* (Ypthima), 317, 320.
Lyela Swinh., 252.
lynceus (*Drury*) (Idea), 7, 8.
lyncus *de Nicév.* (Lethe), 181.

macclellandi (*Moore*) (Euplœa), 98.
macmahoni (*Swinh.*) (Cœnonympha), 253.
macrina (*Fruhst.*) (Danaus), 53.
Macroplœa Butl., 55.
madrasa *Evans* (Ypthima), 338.
mæroides (*C. & R. Feld.*) (Pararge), 242.
mærula (*C. & R. Feld.*), 241, 244.
magna (*Evans*) (Hipparchia), 278.
magnifica Butl. (Euplœa), 75.
Magula Fruhst., 166.
Mahintha Moore, 55.
mahratta *Moore* (Ypthima), 325.
maianeas *Hew.* (Mycalesis), 116.
maitrya *de Nicév.* (Lethe), 169, 176.
maiza (*Lang*) (Maniola), 258.
malabarica (*Moore*) (Idea), 4, 7, 9, 10.
malayana (*Fruhst.*) (Danaus), 28.
malelas (*Hew.*) (Elymnias), 382, 394, 395.
malsara *Moore* (Mycalesis), 151, 157, 158.
malsarida *Butl.* (Mycalesis), 150, 162.
mandana (*Koll.*) (Maniola), 262.
Mandarinia *Leech*, 108, 110.
mandata (*Moore*) (Orsotriœna), 350.
mandosa (*Butl.*) (Orsotriœna), 350.
mani (*de Nicév.*) (Erebia), 299, 300.
manii *Doh.* (Mycalesis), 120.
Maniola *Schr.*, 109, 254.
mansonia *Fruhst.* (Lethe), 189.
mantra *Talb.* (Rhaphicera), 250.
margarita Butl. (Euplœa), 93.
margaritae *Elw.* (Lethe), 192, 215.
margherita Fruhst. (Idea), 12.
Marica Hübn., 298.
marshalli *W.-M.* (Parantirrhœa), 379.
marshalli *Butl.* (Ypthima), 338.
masoni (*Moore*) (Euplœa), 102.
masoni (*Elw.*) (Pararge), 241, 246.
masoni *Moore* (Zeuxidia), 442.
materta (*Fruhst.*) (Erebia), 306.
matinia Fruhst. (Ypthima), 344.
medus (*Fabr.*) (Orsotriœna), 348, 349.
megalia *de Nicév.* (Ypthima), 318.
megalomma *Butl.* (Ypthima), 318.
mekara (*Moore*) (Lethe), 191, 209.
melaena *Tytl.* (Enispe), 461.
Melanargia Meig., 296.
melaneus (*Cram.*) (Danaus), 18, 43.
melanippus (*Cram.*) (Danaus), 18, 27.
melanoides (*Moore*) (Danaus), 39.
melanoleuca (*Moore*) (Danaus), 40.
Melanitis *Fabr.*, 109, 364.
Melanocyma Westw., 408.
Melynias Moore, 380.
Menama Moore, 55.
menava (*Moore*) (Pararge), 241.
ménétrièsii *C. & R. Feld.* (Euplœa), 76.
mercea *Evans* (Mycalesis), 138.
merguia *Tytl.* (Thauria), 432.
merula Swinh. (Elymnias), 383.
mestra *Hew.* (Mycalesis), 150, 154.
methora *Hew.* (Ypthima), 318, 340, 341.
microsticta Butl. (Stictoplœa), 80.
midamus (*Linn.*) (Euplœa), 91.
Mimadelias Moore, 380.
mimus *W.-M. & de Nicév.* (Elymnias), 389.
minerva (*Fabr.*) (Lethe), 191, 208.
mineus (*Linn.*) (Mycalesis), 130, 133, 134.
Minois Hübn., 266.

miranda Evans (Mycalesis), 119.
misenus *de Nicév.* (Mycalesis), 151, 156.
Mitocerus Billb., 432.
mnasicles *Hew.* (Mycalesis), 150, 151.
mniszechii (*H.-S.*) (Hipparchia), 268, 271.
moelleri (*Elwes*) (Lethe), 170, 183, 184.
modesta Moore (Callerebia), 306.
modesta *Butl.* (Euplœa), 58, 59.
modesta (*Moore*) (Hipparchia), 280, 281.
monoculus Fruhst. (Minois), 278.
montana *C. & R. Feld.* (Euplœa), 77.
montana (*Leech*) (Agapetes), 297.
moorei (*Evans*) (Hipparchia), 276, 282.
moorei *Butl.* (Rhaphicera), 248, 249, 250.
Morphindra Röb., 430.
mouhotii (*Moore*) (Euplœa), 60.
muirheadi (*C. & R. Feld.*) (Lethe), 231, 236.
mulciber (*Cram.*) (Euplœa), 82, 83.
mulcibra Hübn. (Trepsichrois), 83.
muscina *Stich.* (Discophora), 448.
musikanos (*Fruhst.*) (Danaüs), 33.
mutina Fruhst. (Danaida), 31.
Mycalesis *Hübn.*, 108, 110.
mycena Stoll (Papilio), 366.
Mydosama Moore, 111.
myops *Stgr.* (Cœnonympha), 253.
Myrtilus Moore, 111.
mystes *de Nicév.* (Mycalesis), 149.

nada Moore (Callerebia), 309.
Nadiria Moore, 315.
naga *Doh.* (Lethe), 192, 214.
nagaensis *Roths.* (Stichophthalma), 420.
naganum *Tytl.* (Lethe), 221.
Nandogea Moore, 426.
narasingha (*Moore*) (Erebia), 300, 314.
nareda (*Koll.*) (Ypthima), 317, 321.
narica (*Hübn.*) (Maniola), 255, 261.
narkunda Fruhst. (Lethe), 185.
Narmada Moore, 55.
nautilus *Butl.* (Mycalesis), 125.
necho *C. & R. Feld.* (Discophora), 447, 456.
Nectaria Billb., 4.
neelgheriensis (*Guér.*) (Lethe), 201.
Nemetes Moore, 166.
neopatra Fruhst. (Danaida), 44.
Neope Butl., 166.
Neorina *Westw.*, 109, 359.
neovisala Fruhst. (Mycalesis), 139.
neoza (*Lang.*) (Maniola), 257.
nesaea (*Linn.*) (Elymnias), 382, 392.
nesippus (*C. Feld.*) (Danaus), 28.
newara *Moore* (Ypthima), 322.
nicetas (*Hew.*) (Lethe), 169, 179.
nicetella *de Nicév.* (Lethe), 169, 175.
nicévillei (*Moore*) (Euplœa), 60.
nicévillei (*Evans*) (Lethe), 173, 174.
nicévillei *Röb.* (Stichophthalma), 420.
nicévillei Fruhst. (Zeuxidia), 443.
nicobarica *W.-M. & de Nicév.* (Danaus), 53.
nicobarica (*Moore*) (Mycalesis), 137.
nicobarica *Evans* (Orsotriœna), 351.
nicotia *Westw.* (Mycalesis), 151, 156.
nikæa *Moore* (Ypthima), 344.
niladana *Fruhst.* (Lethe), 198.
nilamba *Fruhst.* (Elymnias), 396.
nilgiriensis (*Moore*) (Danaus), 18, 48.
nipalensis (*Moore*) (Danaus), 26.
nirmala *Moore* (Erebia), 299, 304.
Nissanga Moore, 111.
noblei (*Swinh.*) (Euplœa), 93.
nothis *Westw.* (Cœlites), 357, 358.
nourmahal (*Westw.*) (Stichophthalma), 416, 417.
novaræ *C. Feld.* (Euplœa), 103.
nudgara *Fruhst.* (Lethe), 199.
nudgara Fruhst. (Mycalesis), 157.
nurinissa *de Nicév.* (Stichophthalma), 418.
Nyrtha Billb., 266.

obnubila *Marsh.* (Elymnias), 388.
ocellata (*Pouj.*) (Lethe), 170, 181.
oculata (*Moore*) (Mycalesis), 125.
oculus *Marsh.* (Mycalesis), 130, 148.
Œneis *Hübn.*, 109, 284.
olivacea (*Moore*) (Euplœa), 61.
opima (*Watks.*) (Erebia), 308.
ophthalmica (*Stgr.*) (Erebia), 311.
orcha *Evans* (Mycalesis), 143.
ordinata *Butl.* (Ypthima), 333.
Oreas Oken, 287.
Oreina Westw., 298.
Orinoma *Gray*, 108, 251.
orixa (*Moore*) (Erebia), 311.
orseis *Hew.* (Mycalesis), 116, 125.
Orsotriœna *Wllgr.*, 109, 347.
otrea (*Stoll*), 135.

Pachama Moore, 111.
Pademma Moore, 55.
padma (*Koll.*) (Aulocera), 288, 290.
palæarcticus *Stgr.* (Œneis), 284, 287.
pallas (*Evans*) (Hipparchia), 276,

pallida (*Evans*) (Hipparchia), 272.
pallida (*Tytl.*) (Hipparchia), 280, 281.
pallida *Tytl.* (Lethe), 222.
Pandima Moore, 315.
pandocus *Moore* (Ypthima), 317, 323.
pandyia *Talb.* (Lethe), 233.
Panlymnas Bryk, 16.
panthera (*Fabr.*) (Elymnias), 381, 389.
Paralasa Moore, 298.
paraleuca *Fruhst.* (Elymnias), 387.
Parantica Moore, 16.
Parantirrhœa *W.-M.*, 109, 378.
Pararge *Hübn.*, 108, 239, 240.
Pareba Doubl., 462.
parisatis (*Koll.*) (Hipparchia), 267, 268.
Parœneis Moore, 284.
parsis (*le Cerf*) (Hipparchia), 268.
Patala Moore, 166.
patna (*Westw.*) (Elymnias), 382, 397.
patnia *Moore* (Mycalesis), 163.
patnoides (*Moore*) (Elymnias), 398.
patria *Leech* (Neorina), 360, 361.
pealii *W.-M.* (Æmona), 413.
pealii *W.-M.* (Elymnias), 382, 392.
pedonga *Talb.* (Danaus), 46.
peguana (*Moore*) (Lethe), 227.
peguana *Evans* (Ypthima), 336.
pembertoni (*Moore*) (Euploea), 102.
penanga (*Westw.*) (Elymnias), 381, 398.
Penoa Moore, 55.
peribœa Butl. (Calysisme), 125.
perimele *Fruhst.* (Lethe), 226.
perna *Fruhst.* (Mycalesis), 151.
perseoides (*Moore*) (Mycalesis), 130, 145.
persephone (*Hübn.*) (Hipparchia), 267, 270.
perseus (*Fabr.*) (Mycalesis), 130.
persimilis (*Moore*) (Danaus), 51.
persimilis *Elw. & Edw.* (Ypthima), 342.
phedima (*Stoll.*) (Melanitis), 366, 369.
phidippus (*Linn.*) (Amathusia), 434.
Philareta Moore, 266.
philomela (*Linn.*) (Ypthima), 307, 334.
phœbus *Butl.* (Euploea), 89.
Phorcis Hübn., 298.
phormion Fruhst. (Danaida), 40.
phormis (*Fruhst.*) (Danaus), 40.
pimpla (*C. & R. Feld.*) (Hipparchia), 278.
plagiata *Talb.* (Lethe), 232.
plataniston (*Fruhst.*) (Danaus), 44.
plexippus (*Linn.*) (Danaus), 18, 23, 25.
poeyi C. & R. Feld. (Euploea), 75.
polydecta (*Cram.*) (Mycalesis), 136.
portheus C. & R. Feld. (Amathusia), 439.
Pradena Fruhst., 16.
præusta *Leech* (Pararge), 241, 247.
pseudofalcipennis *Fruhst.* (Erites), 353.
pulaha (*Moore*) (Lethe), 231, 232.
pulahina *Evans* (Lethe), 231, 234.
pulahoides (*Moore*) (Lethe), 233.
pulchella (*C. & R. Feld.*) (Maniola), 255.
pulchra (*C. & R. Feld.*) (Maniola), 255.
pumilus (*C. & R. Feld.*) (Œneis), 285, 286.
pupilata (*Tytl.*) (Hipparchia), 281.
purpurascens Tytl. (Danaus), 51.
Putlia Moore, 166.
pygmæa Moore (Stictoplœa), 80.

Radena Moore, 16.
radza *Evans* (Mycalesis), 120.
Ragadia *Westw.*, 109, 355.
ragalva Fruhst. (Lethe), 197.
rama (*Moore*) (Mycalesis), 130, 146.
ramadeva (*de Nicév.*) (Lethe), 190, 195.
ramdeo *Moore* (Thaumantis), 427.
ramsayi (*Moore*) (Euploea), 105.
Rangbia Moore, 166.
rara Butl. (Ypthima), 319.
Ravadeba Moore, 16.
recussa *Fruhst.* (Euploea), 72.
redtenbacheri *C. & R. Feld.* (Euploea), 58, 63.
reducta Evans (Callerebia), 306.
regalis (*Moore*) (Euploea), 98.
regalis *Leech* (Mandarinia), 110.
regina Moore (Stictoplœa), 80.
rhadamanthus Fabr. (Papilio), 104.
Rhaphicera *Moore*, 108, 247.
robinsoni Dist. (Ypthima), 326.
roepstorffi *Moore* (Euploea), 91, 94.
rogenhoferi *C. & R. Feld.* (Euploea), 92.
rohria (*Fabr.*) (Lethe), 190, 200.
rothneyi Moore) Isamia), 100.
rotundata *de Nicév.* (Erites), 354.
roxane C. & R. Feld. (Epinephele), 263.
rudis (*Moore*) (Mycalesis), 158.
runeka (*Moore*) (Orsotriœna), 349.

Sadarga Moore, 111.
sadona *Evans* (Lethe), 192, 219.
sadona *Tytl.* (Mycalesis), 155.

safeda *Tytl.* (Hipparchia), 281.
saitis *Hew.* (Zipœtis), 345.
sakra *Moore* (Ypthima), 318, 342, 343.
Salatura Moore, 16.
Salpinx Hübn., 54.
salweena *Tytl.* (Æmona), 416.
Samanta Moore, 111.
samba *Moore* (Mycalesis), 132.
Samundra Moore, 111.
sanatana *Moore* (Mycalesis), 121.
saraswati (*Koll.*) (Aulocera), 288, 295.
sarcaposa *Fruhst.* (Ypthima), 323.
Satoa Moore, 111.
satpura *Evans* (Ypthima), 338.
satricus (*Doubl.*) (Rhaphicera), 248.
satyavati *de Nicév.* (Lethe), 191, 210.
Satyridæ *Sw.*, 106.
Satyrinæ *Bates*, 106.
Satyrus Latr., 266.
saueri *Dist.* (Elymnias), 396.
savara *Gr.-Sm.* (Ypthima), 318, 340.
scanda *Koll.* (Erebia), 299, 307, 308.
scanda (*Moore*) (Lethe), 193, 224.
scandina (*Fruhst.*) (Erebia), 307.
schraka (*Koll.*) (Pararge), 241, 242.
scherzeri *C. Feld.* (Euplœa), 73.
scylax *Hew.* (Zipœtis), 346.
scylla *Butl.* (Aulocera), 289.
sebonga Tytl. (Mycalesis), 152, 153.
semifasciata *Fruhst.* (Melanitis), 374.
seminecho Stich. (Discophora), 455.
septentrionis (*Butl.*) (Danaus), 34.
serbonis (*Hew.*) (Lethe), 192, 219.
shallada *Marsh. & de Nicév.* (Erebia), 299, 303.
shandura *Tytl.* (Erebia), 301.
shandura *Marsh.* (Hipparchia), 270.
Shania Evans, 315.
sherwillii Moore (Pademma), 96.
shiva (*le Cerf.*) (Hipparchia), 268.
siamensis (*Godfr.*) (Idea), 15.
siderea *Marsh.* (Lethe), 169, 171.
sidonis (*Hew.*) (Lethe), 169, 172.
significans *Stich.* (Discophora), 453.
sihala Moore (Lethe), 207.
sikkimensis *Stgr.* (Œneis), 287.
similis (*Linn.*) (Danaus), 19, 50.
similis *Elw. & Edw.* (Ypthima), 318, 338, 339.
simulatrix *W.-M. & de Nicév.* (Euplœa), 74.
Sinchula Moore, 166.
singala R. *Feld.* (Ypthima), 333.
singhala *Moore* (Elymnias), 382, 391.
sinhala *Moore* (Euplœa), 91, 99.
sinorix (*Hew.*) (Lethe), 192, 224.
sintica *Fruhst.* (Lethe), 230.
sita (*Koll.*) (Danaus), 18, 45, 46.
sita C. Feld. (Neorina), 363.
sobrina *Elw. & Edw.* (Ypthima), 341.
sondaica *Boisd.* (Discophora), 447.
sordice (*Fruhst.*) (Acræa), 466.
sparta *de Nicév.* (Stichophthalma), 423.
spiloptera *de Nicév. & Möll.* (Discophora), 450.
splendens Butl. (Euplœa), 92.
splendens *Tytl.* (Thaumantis), 427.
stenopa *Fruhst.* (Lethe), 230.
Stichophthalma *C. & R. Feld.*, 405, 416.
Stictoplœa Butl., 55.
striata *Hamps.* (Ypthima), 334.
suavolens *W.-M. & de Nicév.* (Mycalesis), 150, 152.
subdecorata *Fruhst.* (Elymnias), 395.
subdita Moore (Mahintha), 71.
subdita (*Moore*) (Mycalesis), 143.
subfasciata *Moore* (Mycalesis), 135, 136.
subpallida *Tytl.* (Faunis), 409.
suffusa *Tytl.* (Euplœa), 76.
sumatrana Fruhst. (Zeuxidia), 443.
sura (*Doubl.*) (Lethe), 170, 187.
suradeva (*Moore*) (Cyllogenes), 377.
Suralaya Moore, 111.
surkha *Marsh.* (Mycalesis), 165.
suroia (*Tytl.*) (Erebia), 312.
swaha (*Koll.*) (Aulocera), 288, 293, 294.
sylhetensis Stgr. (Enispe), 460.
sylvia *Hemm.* (Maniola), 257.
Syngea Hübn., 298.

tabella *Marsh.* (Ypthima), 335.
tabitha (*Fabr.*) (Mycalesis), 131.
talboti *Tytl.* (Euplœa), 106.
tambra *Moore* (Melanitis), 370.
tamuna *de Nicév.* (Lethe), 199.
Tanaoptera Billb., 166.
Tanisma Moore, 166.
taprobana (*C. & R. Feld.*) (Danaus), 18, 47.
tarbena *Evans* (Erebia), 304.
tarbena *Talb.* (Pararge), 244.
tavoyana Moore (Menama), 59.
teesta *Talb.* (Lethe), 220.
Telchinia Hübn., 462.
Telinga Moore, 111.
tellula *Fruhst.* (Aulocera), 295.
tenuistigma *Moore* (Maniola), 255, 265.
tessellata *Moore* (Enispe), 460.
Thaumantis *Hübn.*, 405, 425.
Thauria *Moore*, 405, 430.

thawgawa *Tytl.* (Aulocera), 293.
thawgawa *Tytl.* (Lethe), 177.
thelephassa (*Hübn.*) (Hipparchia), 268, 275.
Theope Moore, 362.
thora *Moore* (Ypthima), 333.
Thoræssa Westw., 432.
thycana *Wall.* (Elymnias), 400.
Thymipa Moore, 315.
timandra *Wall.* (Elymnias), 393.
timora *Doubl.* (Discophora), 447, 454, 455.
tinctoria *Moore* (Elymnias), 387.
tira (*Fruhst.*) (Danaus), 46.
Tirumala Moore, 16.
Tiruna Moore, 55.
todara *Moore* (Lethe), 203.
transiens (*Suff.*) (Danaus), 22.
Trepsichroïs Hübn., 54.
tristigmata *Elwes* (Lethe), 170, 180.
tritogeneia *Fruhst.* (Lethe), 208.
Tronga Dist., 55, 58.
tulliolus (*Fabr.*) (Euplœa), 86.
turbata Fruhst. (Orsotriæna), 349.
typhlus Fruhst. (Mycalesis), 131.
tytia *Gray* (Danaus), 46.
tytleri *Talb.* (Mycalesis), 153.
tytleri *Roths.* (Stichophthalma), 422.

undularis (*Drury*) (Elymnias), 386.
uniformis (*Moore*) (Euplœa), 98.

Vadebra Moore, 55.
vaga *Fruhst.* (Lethe), 223.
vaivarta *Doh.* (Lethe), 172, 174.
vajra *Fruhst.* (Lethe), 209, 210.
vamana Moore (Cyllo), 374.
varaha *Moore* (Melanitis), 370.
vasudeva *Moore* (Elymnias), 382, 400.
verbanus *Fruhst.* (Enispe), 459.
verma (*Koll.*) (Lethe), 193, 228, 229.
vermiculata *Butl.* (Euplœa), 69.
vesta Fabr. (Papilio), 463.
vetus *Fruhst.* (Mycalesis), 155.
violacæopicta (*Pouj.*) (Lethe), 169, 177.
violæ (*Fabr.*) (Acræa), 466.
vindhya (*C. Feld.*) (Lethe), 192, 222.
Virapa Moore, 111.
visala *Moore* (Mycalesis), 130, 140.
visrava (*Moore*) (Lethe), 169, 170.
vitrina *Fruhst.* (Euplœa), 89.
Vonana Moore, 58.
vulgaris (*Butl.*) (Danaus), 19, 52.

wagneri (*H.-S.*) (Maniola), 255, 262.
watsoni (*Watks.*) (Erebia), 312.
watsoni *Evans* (Mycalesis), 159.
watsoni (*Moore*) (Ypthima), 323.
werang *Lang* (Aulocera), 289.
westwoodi Butl. (Amathusia), 439.
westwoodii *Moore* (Neorina), 361.

Xanthotænia *Westw.*, 404, 406.

yama (*Moore*) (Lethe), 231, 237, 238.
yamoides Moore (Patala), 238.
yasina Tytl. (Erebia), 301, 302.
yoga Fruhst. (Lethe), 201.
yoma *Evans* (Ypthima), 339.
Ypthima *Hübn.*, 109, 315.
ypthimoides (*Moore*) (Ypthima), 317, 326.

zal *Westw.* (Discophora), 448.
zeugitana Fruhst. (Lethe), 223.
Zeuxidia *Hübn.*, 405, 440.
ziara *Talb.* (Hipparchia), 277.
Zipœtis *Hew.*, 109, 345.
zitenius (*Herbst*) (Melanitis), 373, 374.
Zophoessa Doubl., 166.
zuchara *Fruhst.* (Lethe), 210.

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PLATE I.

Fig. 1. *Rhaphicera satricus satricus* (Doubl.), ♂.
2. *Œneis palæarcticus sikkimensis* Stgr., ♂.
3. *Erebia kalinda kalinda* Moore, ♂.
4. *Ragadia crisilda crisilda* Hew., ♂.
5. *Melanitis zitenius zitenius* (Herbst.), ♂.
6. *Elymnias hypermnestra caudata* Butl., ♂.
7. *Elymnias cottonis obnubila* Marsh., ♂.
8. *Elymnias nesæa timandra* Wall., ♂.
9. *Xanthotænia busiris busiris* Westw., ♂.

PLATE I.

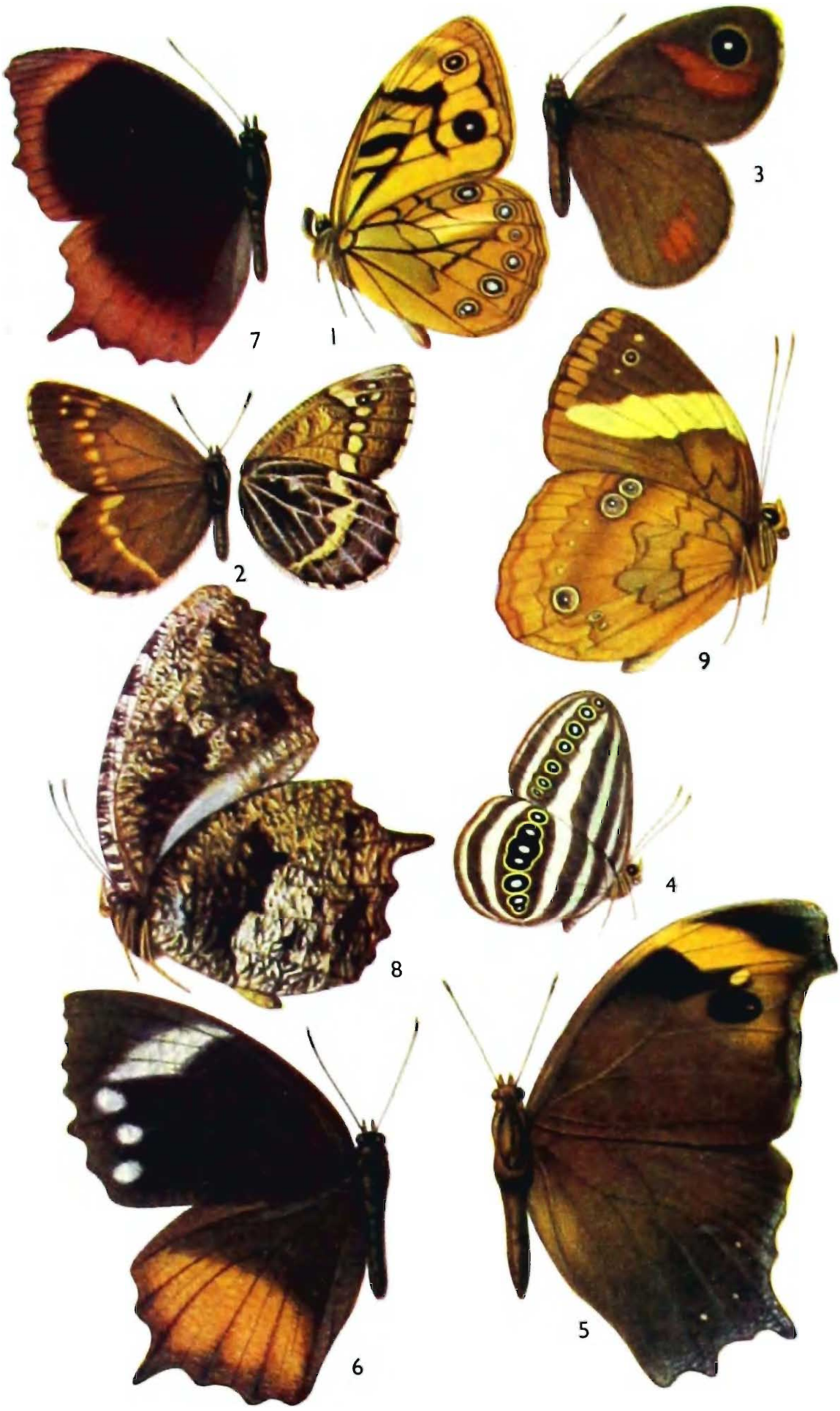


PLATE II.

Fig. 1. *Thaumantis diores diores* Doubl., ♂.
2. *Zeuxidia amethystus masoni* Moore, ♂.
3. *Discophora sondaica zal* Westw., ♂.
4. *Enispe euthymius euthymius* (Doubl.), ♀.



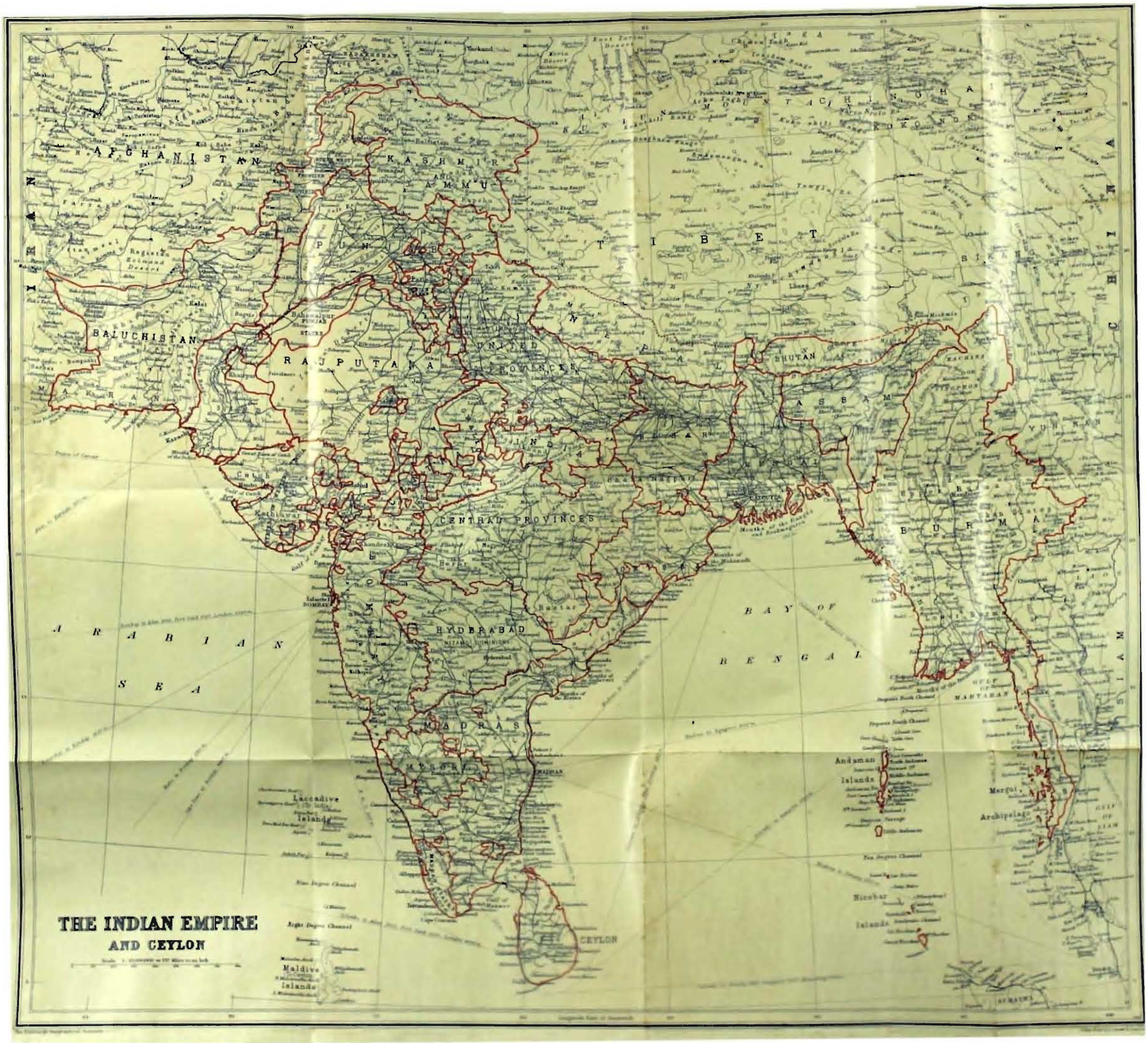
1

3



4

2


THE INDIAN EMPIRE
AND CEYLON
AFGHANISTAN
KASHMIR
JAMMU
PUNJAB
BALUCHISTAN
RAJPUTANA
UNITED PROVINCES
BHUTAN
ASSAM
BENGAL
CENTRAL PROVINCES
HYDERABAD
MADRAS
MYSORE
BOMBAY
BURMA
TIBET
CHINA
ARABIAN SEA
BAY OF BENGAL
Laccadive Islands
Maldive Islands
Andaman Islands
Nicobar Islands
CEYLON