

(Noona Dan Papers No. 84.)

Lycaenidae (Lepidoptera) of the Noona Dan Expedition to the Philippines, Bismarcks, and Solomons.

By

G. E. Tite

British Museum (Natural History) Tring, Herts.

The list that follows is made at the request of Dr. Børge Petersen of the Zoological Museum, Copenhagen, to whom full acknowledgements and thanks are made for the privilege of examining the specimens brought home by the Noona Dan Expedition (See Petersen 1966: 283—304) and comparing them with the series in the collection of the British Museum (Natural History) henceforth referred to as the "B.M."

As would be expected, it has been found that the general trend of the Palawan insects is to form a connecting link between the races of the more northern Philippine islands of Mindoro, and Luzon with those of north Borneo; while those from the Sulu Islands occupy a similar position with regard to the southern Philippines — especially the island of Basilan, and north Borneo. The Bismarck material, though exhibiting affinities with that of New Guinea, and with that of the Solomons, does tend to produce races having often well marked characters, which are not to be found in material from any other area. Where specimens in the B.M. are mentioned, the place-names are cited in accordance with the data labels; they are not necessarily in strict conformity with those used for the Noona Dan labels.

1. PHILIPPINES

***Logania marmorata faustina* Fruhstorfer**

Logania marmorata faustina Fruhstorfer (5) 1914: 23, Mindanao.

TAWI TAWI: Tarawakan, 3.ix.1961, 1♂.

The single specimen exhibits some similarity with *L. marmorata*

staudingeri from Kina Balu in the extension of the grey-white patch on the fore wing.

***Logania marmorata palawana* Fruhstorfer**

Logania marmorata palawana Fruhstorfer (5) 1914: 23, Palawan.

PALAWAN: Makagwa, 22.viii.1961, 1 ♀. — BALABAC: Dalawan Bay, 10—12.x.1961, 2 ♀.

These three specimens and other specimens in the B.M. only differ from *L. marmorata faustina* by the reduced extent of the whitish area on the fore wing. Palawan males in the B.M. are indistinguishable from the only other Philippine male, an example from Leyte. The range of *marmorata* and its races extends over Burma, Siam, Malaya, Sumatra, Borneo, Java to Flores, Celebes, and the Philippines.

***Allotinus fallax dotion* Fruhstorfer**

Allotinus fallax dotion Fruhstorfer (3) 1913: 343, Basilan.

TAWI TAWI: Tarawakan, 23.x.1961, 1 ♀.

Agrees well with the only Basilan female in the B.M.

A. fallax ranges in often well marked races over Malaya, Sumatra, Borneo, Celebes, and the Philippines.

***Miletus symethus hierophantes* (Fruhstorfer)**

Gerydus symethus hierophantes Fruhstorfer (13) 1915: 822, Sulu Islands.

TAWI TAWI: Tarawakan, 23—26.x.1961, 2 ♂, 1 ♀.

There are no examples of this race in the B.M. The species occurs from Burma and Malaya to the Philippines and Lombok, but has not been found in Celebes.

***Miletus symethus edonus* (Fruhstorfer)**

Gerydus symethus edonus Fruhstorfer (3) 1913: 244, Palawan.

PALAWAN: Pinigisan, 600 m., 3—23.ix.1961, 1 ♂, 3 ♀.

***Miletus drucei drucei* (Semper)**

Gerydus drucei Semper, 1889: 162, Pl. 31 figs. 8—9, Bohol.

BALABAC: Dalawan Bay, 8.x.1961, 1 ♀.

M. drucei drucei is found throughout the Philippines, and is replaced in north Borneo by spp. *metrovius* Fruhstorfer. Eliot (1961: 167) reduces the names *philippus* Staudinger, *jacchus* Fruhstorfer, *paianus* Fruhstorfer, and *epidurus* Fruhstorfer to synonyms of *drucei drucei*.

Miletus gopara eustatius (Fruhstorfer)

Gerydus biggsi eustatius Fruhstorfer (3) 1913: 308, North Borneo (lowlands).

TAWI TAWI: Tarawakan, 30.x.1961, 1 ♀.

M. gopara is found in Borneo, Malaya, Sumatra, and Java.

Megisba malaya rosanna Fruhstorfer

Megisba malaya rosanna Fruhstorfer (13) 1922: 858, Luzon, Mindanao, Mindoro.

BALABAC: Dalawan Bay, 13.x.1961, 1 ♀. — TAWI TAWI: Tarawakan, 3.xi.1961, 2 ♂.

The material available is insufficient for exact definition. In the B.M. specimens from north Borneo are placed to *rosanna*; they do however differ from examples from Luzon and Mindanao in that the white spot on the upperside fore wing is wider. One female from Sandakan has this character even further developed, so that the white area occupies approximately a quarter of the wing surface. The Balabac female is very similar; both it and the Tawi Tawi males show closer affinity with the north Borneo examples than with those from Luzon and Mindanao.

Celastrina puspa basilana (Fruhstorfer)

Cyaniris puspa basilana Fruhstorfer (1) 1910: 286, Basilan.

TAWI TAWI: Tarawakan, 29.x.—7.xi.1961, 2 ♂, 2 ♀.

C. puspa spreads eastwards from Ceylon and India to the Philippines and the Key Islands. The Philippine races have been named *ottonis* Fruhstorfer (Palawan), *cagaya* Felder (Luzon), *georgi* Fruhstorfer (Mindanao), and *sabis* Fruhstorfer (Mindoro). *C. puspa basilana* scarcely differs from the north Bornean *tymbria* Fruhstorfer.

Pithecopus corvus corax (Fruhstorfer)

Pithecopus hylax corax Fruhstorfer (12) 1919: 79, Java.

PALAWAN: Pinigisan, 600 m., 31.vii.1961, 1 ♀.

The nomenclature, subspeciation, and distribution is fully dealt with by Cowan (1965: 241—245).

Neopithecopus zalmora colutha (Fruhstorfer)

Pithecopus zalmora colutha Fruhstorfer (12) 1919: 84, Luzon, Palawan.

TAWI TAWI: Tarawakan, 10—13.xi.1961, 4 ♂, 1 ♀.

The three males all exhibit a rather more extensive clouded white patch on the fore wing than do males from Luzon and

Palawan. The white patch on the fore wing of the female is even more extensive, but exact definition of its limits is not possible, owing to the poor condition of the specimen. Three females from Mt. Mulu, north Borneo (Everett) in the B.M. have a well marked white elliptical area on the fore wing, occupying the basal halves of areas 1—3, part of 4, and just infringing into the lower part of the cell. Owing to its tattered state, it is not possible to decide if the Tawi Tawi female is the same. Other races range from Ceylon eastwards to New Guinea.

Spalgis epius strigatus Semper.

Spalgis strigatus Semper, 1889: 160, pl. 31 fig. 1, Cebu.

TAWI TAWI: Tarawakan, 22.x. —3.xi.1961, 1 ♂, 2 ♀.

This wide-spread species has some tendency to individual variation; the two females in question are markedly different as regards the extent of the creamy white areas on the fore wing. The subspecies *strigatus* is only represented by one female from Palawan in the B.M. Other Philippine races are *semperi* Fruhstorfer (Luzon), and *georgi* Fruhstorfer (Bohol).

Castalius ethion ulysses (Staudinger)

Lycaena (Castalius) ulysses Staudinger, 1889: 95, Pl. 1. fig. 5, Palawan.

TAWI TAWI: Tarawakan, 13.xi.1961, 1 ♂.

C. ethion occurs in a number of subspecies from Ceylon, South India, Assam, Burma, Malaysia, Celebes, and the Philippines.

Castalius roxus angustior (Staudinger)

Lycaena (Castalius) roxus var. angustior Staudinger, 1889: 95, Palawan.

PALAWAN: Makagwa, 22.viii.1961, 1 ♂.

This subspecies is represented in the B.M. from Palawan, Mindanao, Mindoro, and Cebu. The Palawan series is unlike the north Borneo *roxus manovus* Fruhstorfer (10) 1918: 34, which is remarkable for its greatly expanded white band on both wings. Other races of the collective species occur from Assam to Celebes, and the Lesser Sunda Islands.

Castalius elna elvira Fruhstorfer

Castalius elna elvira Fruhstorfer (10) 1918: 37, NE. Sumatra, Perak, Borneo.

PALAWAN: Pinigisan, 600 m. 9.ix.61, 1 ♂.

Probably a new record for Palawan. The specimen agrees well with examples from north Borneo. *C. elna* is represented in the

B.M. by series ranging from Sikkim, Burma, and Malaya to the Andamans, Sumatra, Java, and Borneo.

Lampides boeticus (L.)

Papilio boeticus Linneus, 1767: 789, Barbaria.

TAWI TAWI: Tarawakan, 10.xi.1961, 1 ♂. — MINDANAO: Sapamoro, 18.xii.61, 1 ♂.

This species occurs widely in the old world, without obvious subspeciation.

Jamides bochus georgi (Fruhstorfer)

Lampides bochus georgi Fruhstorfer (9) 1916: 38, Mindanao.

MINDANAO: Sapamoro, 20.xii.1961, 1 ♂.

This agrees well with a male from Davao in the B.M. Fruhstorfer differentiated this race from the Luzon subspecies (*herodicus* Fruhstorfer 1916:38) on a difference in the width of the dark margin of the fore wing. Luzon examples in the B.M. do exhibit considerable variation in this character, and more Mindanao examples are needed to decide on the correct status of the two names. The collective species is found over most of the Indo-Australian region.

Jamides bochus nabonasser (Fruhstorfer)

Lampides bochus nabonasser Fruhstorfer (9) 1916: 36, Borneo.

TAWI TAWI: Tarawakan, 25—30.ix.1961, 2 ♂.

These specimens cannot be differentiated from examples from Kina Balu, and Sandakan in the B.M.; they contrast with the Philippine races by the great extension of the marginal black, which covers most of the fore wing, restricting the deep metallic blue colour to the basal half of area 1, and to small adjoining portions of area 2 and the cell. A single male from Balabac (ex. Fruhstorfer coll.) appears to be intermediate between *nabonasser* and *herodicus*.

Jamides cleodus potidalon (Fruhstorfer)

Lampides cleodus potidalon Fruhstorfer (9) 1916: 7, Basilan.

TAWI TAWI: Tarawakan, 23.x. — 26.xi.1961, 12 ♂; Lapid Lapid, 19—22.xi.1961: 2 ♂, 3 ♀.

A mainly Philippine species, but comes also from north Borneo, and Formosa.

Jamides cleodus trichonis (Fruhstorfer)

Lampides cleodus trichonis Fruhstorfer (9) 1916: 7, Palawan, North Borneo.

PALAWAN: Pinigisan, 600 m. 23.ix.1961, 1 ♂; Uring Uring, 18.viii.—2.ix.1961, 2 ♂, 1 ♀. — BALABAC: Dalawan Bay, 13.x.1961, 1 ♂.

Jamides elpis gerra (Fruhstorfer)

Lampides kondulana gerra Fruhstorfer (9) 1916: 11, Palawan.

PALAWAN: Pinigisan, 600 m., 10.ix.1961, 1 ♂; Uring Uring, 16.viii.1961, 1 ♀.

Wide-spread from Sikkim to Timor, the species appears to be rare in the Philippines.

Jamides alecto manilana (Toxopeus)

Lampides alecto (dromicus) manilana Toxopeus, 1930: 140, Manila.

PALAWAN: Pinigisan, 600 m., 14.ix.1961. 1 ♀; Uring Uring, 19.viii.1961, 1 ♀.

A common species ranging from Ceylon to the Moluccas in many subspecies.

Jamides aratus nausiphanes (Fruhstorfer)

Lampides aratus nausiphanes Fruhstorfer (9) 1916: 22, Palawan.

PALAWAN: Uring Uring, 27.ix.1961, 1 ♀.

The nominate subspecies was described from Amboina; the collective species is represented in the B.M. from Borneo, Palawan, the Celebes region, the lesser Sunda Islands, and eastwards to New Guinea and the Solomons.

Jamides philatus andrus (Fruhstorfer)

Lampides philatus andrus Fruhstorfer (9) 1916: 25, Basilan.

TAWI TAWI: Lapid Lapid, 22.xi.1961, 1 ♀.

The dark marginal band on the fore wing is narrower than that of the females of *philatus amphyssina* Stgr. (Palawan), or of *philatus armatheus* Fruhstorfer (Borneo). This is another wide-spread species, ranging from Mergui to Kapaur in former Dutch New Guinea.

Jamides philatus amphyssina (Staudinger)

Lycaena amphyssina Staudinger, 1889: 100, Palawan.

PALAWAN: Uring Uring, 18.viii.1961, 1 ♂.

Nacaduba sericina thaumas Fruhstorfer

Nacaduba sericina thaumas Fruhstorfer (8) 1916: 111, Basilan, and Mindanao.

TAWI TAWI: Tarawakan, 29.x.1961, 1 ♀.

Fruhstorfer mentions 2 ♂, 1 ♀ from Basilan. A female from this locality in the B.M. is probably the original; it agrees well with the present specimen. The same author quoted Mindanao (Semper) as an additional locality. He was followed in this by Seitz (1924: 914) who mentioned Mindanao before Basilan, and figured (152h.) a male which appears to have originated from Mindanao. In fact, a male and two females from Mindanao in the B.M. are heavily darkened on both surfaces, being very different from both *sericina sericina* Felder (Luzon) and *sericina thaumas* (Basilan). This rare species is poorly represented in the B.M., and for this reason it is not deemed advisable to name the Mindanao race at present. The species is apparently confined to the Philippines.

Nacaduba sanaya elioti Corbet

Nacaduba sanaya elioti Corbet, 1938: 133, Singapore.

Nacaduba sanaya thalia Corbet, 1938: 134, Borneo.

Nacaduba sanaya elioti Corbet; Eliot, 1955: 157.

TAWI TAWI: Tarawakan, 13.xi.1961, 1 ♀.

N. sanaya occurs from Burma, Siam, Malaya to Bali, Celebes, and the Philippines.

Nacaduba berenice zygida Fruhstorfer

Nacaduba berenice zygida Fruhstorfer (8) 1916: 128, Basilan, Palawan.

TAWI TAWI: Tarawakan, 24.x. — 13.xi.1961, 1 ♂, 1 ♀.

The specimens are unfortunately in poor condition, and it is not possible to decide with certainty whether they are referable to this race or to *berenice akaba* Druce (1873: 350). The species ranges from Ceylon to the Solomons, and north Australia.

Prosotas nelides (de Niceville)

Nacaduba nelides de Niceville, 1895: 280, Pl. 0, fig. 24, NE. Sumatra.

PALAWAN: Pinigisan, 600 m., 21.ix.1961, 2 ♂.

The two examples are in very poor condition, which renders their certain identification a matter of some difficulty. The male genitalia in the genus *Prosotas* are all very similar, but in most species, slight deviations in the shape of the claspers are observ-

able. In the two examples under consideration, these organs are similar to those of preparations made from Malayan *nelides*. The species is represented in the B.M. only from Malaya and Sumatra. Should this occurrence in Palawan be substantiated, it will indicate a marked extension of the known distribution.

Prosotas aluta philiata (Fruhstorfer)

Nacaduba aluta philiata Fruhstorfer (8) 1916: 119, Philippines.

PALAWAN: Uring Uring, 24.viii.1961, 1 ♂.

The species extends from Assam eastwards to the Philippines, Borneo and Bali.

Ionolyce helicon helicon (Felder)

Lycaena helicon Felder, 1860: 457, Amboina.

PALAWAN: Pinigisan, 600m., 31.viii.1961, 1 ♀.

Wide-spread in the Indo-Australian region.

Catopyrops ancyra almora (Druce)

Cupido almora Druce, 1873: 349, Borneo.

PALAWAN: Pinigisan, 600m., 10—23.ix.1961, 3 ♂; Uring Uring, 18.viii.1961, 1 ♂. — MINDANAO: Sapamoro, 19.xii.1961, 1 ♂.

Occurs in many subspecies from Burma to the Solomons.

Catochrysops strabo luzonensis Tite

Catochrysops strabo luzonensis Tite, 1959: 204, Philippines.

MINDANAO: Sapamoro, 16.xii.1961, 2 ♀. — PALAWAN: Uring Uring, 22.viii.—23.ix.1961, 2 ♀.

The species occurs in a number of subspecies from Ceylon, South India, Burma, Malaya, Sumatra, Java, Borneo, Philippines, Celebes, the Moluccas, and New Guinea.

Catochrysops panormus exiguus (Distant)

Everes exiguus Distant, 1886: 455, Pl. 44, fig. 17, Malaya.

PALAWAN: Pinigisan, 600m., 12—16.ix.1961, 2 ♂; Uring Uring, 2.viii.1961, 1 ♀.

This race extends over Assam, Burma, Malaya, Sumatra, Borneo, Java, Lombok, Hainan, Formosa and the Philippines. Other races are found from Ceylon, and eastwards to Guam, the Solomons, New Hebrides, and Loyalty Islands.

Euchrysops cnejus luzonicus (Röber)

Plebeius luzonicus Röber, 1886: 60, Luzon.

PALAWAN: Uring Uring, 7.ix.1961, 1 ♀. — TAWI TAWI:

Lapid Lapid, 21.xi.1961, 1 ♀; Tarawakan, 25.x.1961, 1 ♀.

Another wide-spread species; it occurs from India to Fiji, and the New Hebrides.

Everes lacturnus (Godart)

Polyommatus lacturnus Godart, 1824: 660, Timor.

PALAWAN: Uring Uring, 25—27.ix.1961, 2 ♀. — TAWI TAWI, Tarawakan, 13.ix.1961, 1 ♀; Lapid Lapid, 22.xi.1961, 1 ♂, 1 ♀ (in copula). — MINDANAO: Sapamoro, 18.xii.1961, 1 ♂.

E. lacturnus ranges from Ceylon to Australia and the Solomons.

Zizeeria knysna karsandra (Moore)

Polyommatus karsandra Moore, 1865: 505, Pl. 31, fig. 7, NW. India.

PALAWAN: Uring Uring, 22—28.viii.1961, 1 ♂, 2 ♀.

The nominate subspecies occurs in Africa, Asia Minor, and Spain. Subspecies *karsandra* replaces it in the Indo-Australian region.

Zizina otis oriens (Butler)

Zizera otis oriens Butler, 1883: 417, Mindanao.

PALAWAN: Uring Uring, 18.viii. — 1.ix.1961, 1 ♂, 2 ♀.

Another widely distributed species, inhabiting most of the Indo-Australian region, Africa and Madagascar.

Narathura abseus oghatinna (Fruhstorfer)

Arhopala abseus oghatinna Fruhstorfer (4) 1914: 130, Basilan.

TAWI TAWI: Tarawakan, 26.x.1961, 1 ♀.

The range of the species includes Ceylon, India, Burma, Malaya, Sumatra, Borneo, and the Philippines.

Narathura mindanensis (Bethune-Baker)

Arhopala mindanensis Bethune-Baker, 1903: 62, Pl. 1, fig. 24, Mindanao.

MINDANAO: Sapamoro, 16.xii.1961, 1 ♂.

As far as is known, this species is confined to Singapore, Sumatra, Borneo, and the Philippines.

Flos apidanus palawanus (Staudinger)

Amblypodia apidanus palawanus Staudinger, 1889: 130, Palawan.

BALABAC: Dalawan Bay, 10—13.ix.1961, 2 ♀.

The species occurs in Assam, Burma, Malaya, the Sunda Islands, Celebes, and the Philippines.

Hypolycaena sipylus tharrytas Felder.

Hypolycaena tharrytas Felder, 1862: 294, Luzon.

PALAWAN: Uring Uring, 10.viii.1961, 1 ♀. — BALABAC: Dalawan Bay, 8.x.1961, 1 ♂.

H. sipylus and its races range from the Philippines, Celebes, and Java to New Guinea.

Drina maneia (Hewitson)

Myrina maneia Hewitson, 1863: 29, Pl. 12, figs. 14—15, Singapore.

TAWI TAWI: Tarawakan, 7.xi.1961, 1 ♂.

Represented in the B.M. from Mergui, Thailand, Malaya, and Borneo. The series does not show any marked evidence of subspeciation, except for three males from Labuan which exhibit on the fore wing a reduction of the specialized scales on the veins, and a narrower dark margin.

Deudorix epijarbas coriolanus Fruhstorfer

Deudorix epijarbas coriolanus Fruhstorfer (2) 1911: 266, Palawan.

PALAWAN: Pinigisan, 600m., 8—11.ix.1961, 4 ♂; Uring Uring, 18. and 31.viii.1961, 2 ♀.

The species occurs over most of the oriental region from Ceylon to the Bismarcks.

Rapala alcetas alcetina Semper.

Rapala alcetas alcetina Semper, 1890: 225, Bohol, Mindanao.

MINDANAO: Sapamoro, 19.xii.1961, 1 ♀.

R. alcetas comes only from the Philippine area, being represented in the B.M. from Leyte, Mindoro, and Mindanao (*alcetina*) and as *a. alcetas* from Palawan.

2. BISMARCKS AND SOLOMONS**Thysonotis danis dispar** Smith & Kirby

Thysonotis dispar Smith & Kirby, 1895: 23, Pl. iv, figs. 1—4, New Britain.

Danis danis dispar (Smith & Kirby); Toxopeus, 1930: 130.

DYAUL: Sumuna, 7.iii.1962, 1 ♂. — LAVONGAI: Banatani, 21—22.iii.1962, 1 ♂, 2 ♀. — MUSSAU: Boliu, 13.ii.1962, 1 ♀.

Thysonotis dispar occurs in many subspecies from the Moluccas to the Bismarcks and north Australia. Toxopeus (1930: 128—133) deals with the subspeciation in detail.

Thysonotis danis latifascia Rothschild, Comb. nov.

Thysonotis dispar latifascia Rothschild, 1915: 394, Manus, Admiralty Islands, ♂.

Thysonotis subsuleima Strand, 1916: 18, Admiralty Islands, ♀. SYN. NOV.

MANUS: Lorengau, 19—21.vi.1962, 1 ♂, 2 ♀.

The types of both *latifascia* and *subsuleima* are in the B.M. There is no doubt that they represent the sexes of the same subspecies. Toxopeus does not mention these names.

Thysonotis caelius hanno Grose Smith

Thysonotis hanno Grose Smith, 1894: 25, New Britain.

Thysonotis caelius hanno Grose Smith; Fruhstorfer (6) 1915: 43.

NEW BRITAIN: Valoka, 7—12.vii.1962, 4 ♂; Rabaul, 25.vii.1962, 1 ♂. — DYAUL: Kollepine, 12.iii.1962, 1 ♂.

Subspecies *hanno* is represented in the B.M. from New Britain, French Island, Feni Island, New Ireland and New Hannover. Other races occur from the Moluccas, New Guinea to north Australia. The Admiralty Islands race has been named *manusi* Rothschild (1915: 394).

Thysonotis cyanea hamilcar Grose Smith

Thysonotis hamilcar Grose Smith, 1894: 25, New Britain.

Thysonotis cyanea hamilcar Grose Smith; Fruhstorfer (6) 1915: 44.

NEW BRITAIN: Valoka, 13.vii.1962, 1 ♀; S. of Cape Hoskins Aerodrome, 6.vii.1962, 1 ♂. — NEW IRELAND: Danu, Kalili Bay, 28.iv.1962. — LAVONGAI: Banatam, 24.iii.1962, 1 ♀. — MANUS: Lorengau, 18.vi.1962, 1 ♀.

The species is distributed from Flores and Timor to the Solomons and north Australia. The subspecies *hamilcar* is in the B.M. from all the main Bismarck Islands and the Admiralty Islands. In the Solomons it is replaced by *chromia* Druce (1891: 365).

Thysonotis browni Druce & Bethune-Baker

Thysonotis brownii Druce & Bethune-Baker, 1893: 547, New Ireland.

NEW BRITAIN: Valoka, 13.vii.1962, 1 ♀. — NEW IRELAND: Danu, Kalili Bay, 30.iv.1962, 1 ♂. — LAVONGAI: Banatam, 21—25.iii.1962, 1 ♂, 4 ♀.

Only known from the Bismarck Archipelago, the species is represented in the B.M. from Rook Island, New Britain, New Hannover, Witu (or French I.) and New Ireland.

Epimastidia ariensis bornemanni (Pagenstecher)

Cupido bornemanni Pagenstecher, 1894; 77, Neu Pommern.

NEW BRITAIN: Yalom, 1000m., 18—21.v.1962, 1 ♂, 1 ♀.

The species is confined to the Solomons (*a. ariensis*) and to the Bismarcks (*a. bornemanni*). Two females from Rook Island in the B.M. differ from other Bismarck examples of that sex in the delicate grey-blue colour of the upperside.

Hypochrysops scintillans (Butler)

Miletus scintillans Butler 1882: 150, New Britain.

DUKE OF YORK: Manuan, 26.vii.1962, 1 ♀. — MUSSAU: Malakata, 10.vi.1962, 1 ♀.

A purely Bismarck species, it is represented in the B.M. from New Britain, New Ireland, New Hanover, and Duke of York Island.

Philiris Rober

Owing to the confusing similarity of the majority of the females in this genus, their accurate identification is a matter of great difficulty, especially when the individuals concerned were not collected in association with males. The names "*intensa*" and "*regina*" are therefore given below as probable identifications only.

Philiris regina (Butler)

Holochila regina Butler, 1882: 150, Duke of York I.

Philiris regina (Butler); Tite 1963: 237.

NEW BRITAIN: Yalom, 1000m., 9.v.1962, 1 ♀. — NEW IRELAND: Lemkamin, 900m., 14.iv.1962, 1 ♀.

Distributed from the Key Islands to the Bismarcks without obvious subspeciation.

Philiris intensa intensa (Butler)

Holochila intensa Butler, 1876: 245, Aru.

Philiris intensa (Butler); Tite 1963: 236.

NEW BRITAIN: Valoka, 5—10.vii.1962, 2 ♀.

This race occurs in Aru, New Guinea, the Louisiades and the Bismarcks. The species is represented in the Moluccas by *P. intensa butleri* (Grose Smith and Kirby) 1897: 8.

Philiris tombara Tite

Philiris tombara Tite, 1963: 244, Bismarcks.

NEW BRITAIN: Valoka, 9.vii.1962, 1 ♀; Yalom, 1000m., 20.v.

1962, 1 ♀.

Only previously known from the type material in the B.M.

Philiris lucescens Tite

Philiris lucescens Tite, 1963: 247, Bismarcks.

NEW BRITAIN: Yalom, 13—20.v.1962, 2 ♀.

Hitherto, only known from the type material in the B.M., Rook I., and New Britain.

Celastrina philippina lychorida (Fruhstorfer)

Zycaenopsis nedda lychorida Fruhstorfer (13) 1922: 875, Bismarcks.

Zycaenopsis philippina lychorida Fruhstorfer; Toxopeus 1926: 375.

NEW BRITAIN: Valoka, 11.vii.1962, 1 ♂.

Toxopeus (1926: 369) deals fully with the synonymy of *philippina* and *nedda*. The collective species ranges from the Philippines, Celebes, Timor, Key Islands, Aru, New Guinea to the Bismarcks.

Pithecopis dionisius staphylus, Fruhstorfer

Pithecopis dionisius staphylus Fruhstorfer (12) 1919: 81, Neu Pommern.

NEW BRITAIN: Valoka, 5—8.vii.1962, 5 ♂; Vaisisi, 9.vii.1962, 4 ♂; Yalom, 1000m., 17—24.v.1962, 6 ♂; Komgi, 1000m., 14.v.1962, 2 ♂. — NEW IRELAND: Danu, Kalili Bay, 30.iv.1962, 4 ♂; Lemkamin, 900 m., 11.iv.1962, 1 ♂. — LAVONGAI: Banatam, 21—25.iii.1962, 2 ♂. — MANUS: Lorengau, 19—21.vi.1962, 4 ♂.

The species occurs from the Moluccas to the Solomons, subspecies *staphylus* being restricted to the Bismarcks.

Lampides boeticus (Linn.)

Papilio boeticus Linnaeus, 1767: 637, Barbaria.

NEW IRELAND: Lemkamin, 900m., 7—22.iv.1962, 9 ♂, 5 ♀. — MANUS: Lorengau, 23—25.vi.1962, 2 ♂, 6 ♀.

Anthene paraffinis paraffinis (Fruhstorfer)

Lycaenesthes emolus paraffinis Fruhstorfer (7) 1916: 99, Neu Laucenberg.

Anthene paraffinis paraffinis (Fruhstorfer); Tite 1966: 263.

NEW IRELAND: Danu, Kalili Bay, 28.iv.1962, 3 ♀. — MUS-
SAU: Talumalaus, 19.i.1962, 1 ♀.

A. paraffinis ranges through New Guinea, the Bismarcks and the Solomons; the nominate subspecies is in the B.M. from New Britain, Feni, Witu, New Ireland, Duke of York, Bougainville, Vella Lavella, Guizo, Choiseul, Alu, Rendova, and Treasury.

Jamides soemias Druce

Jamides soemias Druce, 1891: 367, Pl. 32 figs 4—5, Alu I.

Jamides bochus soemias Druce; Seitz 1924: 902.

NEW BRITAIN: Valoka, 8.vii.1962, 1 ♀; 5 miles E. of Mt. Bango, 6.vii.1962, 1 ♂; S. of Cape Hoskins Aerodrome, 6.vii.1962, 3 ♂; Bita Paka, 10.vii.1962, 1 ♂. — NEW IRELAND: Danu, Kalili Bay, 3.iv.1962, 1 ♀. — MANUS: Lorengau, 25.vi.1962, 1 ♀.

This species is represented in the B.M. from the Bismarcks and most of the Solomon Islands. Its male genitalia do not differ from those of the other taxa included by Seitz under *bochus*, but as a number of these taxa — easily separable on superficial characters — do inhabit the same areas, they are best treated as separate species.

Jamides celeno sundana (Fruhstorfer)

Lampides celeno sundana Fruhstorfer (9) 1916: 6, Banda, Buru, Key Is., New Guinea.

NEW BRITAIN: 5 miles E. of Mt. Bango, 6.vii.1962, 1 ♂; Rabaul, 25.vii.1962, 1 ♂.

Solomons. — GUADALCANAL: Honiara, 7—8.x.1951 (Galathea Exped.) 2 ♂.

J. celeno is wide-spread, occurring from Ceylon to the New Hebrides. Specimens from the Bismarcks exhibit no apparent difference from typical subspecies *bandana* from the Island of Banda. In the New Hebrides the species is represented by *evanesens* Butler (1875: 615).

Jamides aratus caerulea (Mathew). Comb. nov.

Lampides caerulea Mathew, 1887: 46, Ugi.

Lampides aetherialis caerulea (Mathew) Fruhstorfer (9) 1916: 24.

NEW BRITAIN: Valoka, 11—13.vii.1962, 2 ♂, 1 ♀; 5 miles E. of Mt. Bango, 6.vii.1962, 1 ♂, 1 ♀. — DUKE OF YORK: Manuan, 18—20.vii.1962, 3 ♂, 2 ♀.

The types of both *aetherialis* Butler (1884: 195) and *caerulea* are in the B.M.; there can be no doubt that both are conspecific with *aratus*. The collective species ranges from the Philippines and Borneo to the Solomons, *caerulea* being the race from the Bismarcks and Solomons, and *aetheriales* that from the Key Islands.

Jamides nemophila paralectus (Grose Smith & Kirby)

Lampides paralectus Grose Smith & Kirby, 1897: 7 (and 9) New Ireland.

Jamides nemophila paralectus (Smith & Kirby); Tite, 1960: 326.

NEW BRITAIN: Valoka, 5—13.vii.1962, 3 ♂, 2 ♀. — NEW IRELAND: Danu, Kalili Bay, 28—30.iv.1962, 1 ♂, 2 ♀. — DYAUL: Sumuna, 7—8.iii.1962, 1 ♂, 1 ♀. — LAVONGAI: Banatam, 19.iii.1962, 1 ♀.

This purely Papuan area species is represented in the B.M. from New Ireland, New Hanover, and New Britain by *paralectus*, and from Rock Island by *albipatulus* Tite (1960: 326).

***Nacaduba pactolus raluana* Ribbe.**

Nacaduba pactolus raluana Ribbe, 1899: 231, Neu Pommern and Neu Lauenburg.

NEW IRELAND: Danu, Kalili Bay, 3.iv.1962, 1 ♂.

As far as is known this race is confined to the Bismarcks. There are only 4 examples in the B.M. Other races extend westwards to Ceylon and India.

***Nacaduba astarte astarte* (Butler)**

Lampides astarte Butler, 1882: 150, New Britain.

DYAUL: Summa, 7.iii.1962, 1 ♀. — LAVONGAI: Banatam, 22.iii.1962, 1 ♂.

This species comes only from the Bismarcks and Solomons area; its subspeciation is dealt with (Tite, 1963: 76—77.)

***Nacaduba berenice apira* Fruhstorfer**

Nacaduba berenice apira Fruhstorfer (8) 1916: 129, Bismarck Archipelago.

DYAUL: Sumuna, 7.iii.1962, 2 ♂.

This race is in the B.M. from New Hanover, New Britain, and Nissan. Other races occur from Ceylon to the Solomons and north Australia.

***Nacaduba kurava ariitia* Fruhstorfer**

Nacaduba perusia ariitia Fruhstorfer (8) 1916: 137, Bismarck Archipelago.

Nacaduba kurava ariitia Fruhstorfer; Tite 1963: 82.

NEW BRITAIN: Rabaul, 25.vii.1962, 1 ♂. — DYAUL: Sumuna, 7.iii.1962, 1 ♀.

This race is in the B.M. from New Britain, Witu, Rook I., Matthias, and Squally Island. Other races occur over most of the oriental region from Ceylon to the New Hebrides.

Prosotas nora nora (Felder)

Lycaena nora Felder, 1860: 458, Amboina.

Prosotas nora nora (Felder); Tite, 1963: 92.

NEW BRITAIN: Valoka, 4.vii.1962, 1 ♂; Bita Paka, 10.vii.1962, 1 ♂. — LAVONGAI: Banatam, 25.iii.1962, 1 ♂.

The examples mentioned above and the B.M. series from the Bismarcks show no obvious difference from the Amboina type, and specimens from the Key Islands and New Guinea also belong to this race. Specimens from St. Matthias and Squally islands in the B.M. are smaller and the females exhibit a greater extent of blue on the fore wings. Races of *nora* extend from India to north Australia.

Prosotas dubiosa dubiosa (Semper)

Lampides dubiosa Semper, 1879: 159, Queensland.

Prosotas dubiosa dubiosa (Semper); Tite, 1963: 97.

NEW BRITAIN: Bita Paka, 10.vii.1962, 3 ♂.

Another wide-spread species, ranging from Ceylon to north Australia and the Solomons. Its subspeciation has not yet been fully worked out.

Erysichton lineata uluensis (Ribbe)

Nacaduba meiranganus var. *uluensis* Ribbe, 1899: 230, Pl. 4, fig. 6, Neu Pommern.

Erysichton lineata uluensis (Ribbe); Tite, 1963: 103.

NEW BRITAIN: Valoka, 12.vii.1962, 1 ♂; Yalom, 1000m., 13—19.v.1962, 2 ♂.

The species is found from the Moluccas and Key Islands to the Bismarcks, Solomons and north Australia. The present race is restricted to the Bismarcks, St. Matthias, and Squally Island.

Ionolyce helicon caracalla (Waterhouse & Lyell)

Nacaduba caracalla Waterhouse & Lyell, 1914: 95, fig. 854, Darnley Island.

Ionolyce helicon caracalla (Waterh. & Lyell); Tite, 1963: 101.

NEW BRITAIN: Valoka, 12—13.vii.1962, 2 ♂; Bita Paka, 10.vii.1962, 1 ♂.

I. helicon occurs from Ceylon to north Australia, the present race being found in the Papuan region.

Catopyrops ancya complicata (Butler)

Lampides complicata Butler, 1882: 150, Duke of York I.

Catopyrops ancyra (florinda?) complicata (Butler) Toxopeus, 1930: 149.

NEW BRITAIN: Valoka, 11.vii. 1962, 1 ♂. — MUSSAU: Malakata, 15.ii., and 10—11.vi.1962, 3 ♀.

Another wide-spread species, it is represented in the Bismarcks by subspecies *complicata*. Examples are in the B.M. from New Hanover, New Ireland, New Britain, Witu, Rook, and by a single female from Manus, Admiralty Islands.

Catopyrops kokopona (Ribbe)

Nacaduba kokopona Ribbe, 1899: 232, Pl. 4, fig. 7, Neu Pommern.

Catopyrops kokopona (Ribbe); Tite, 1963: 108.

NEW BRITAIN: Valoka, 4.vii.1962, 1 ♂; Yalom, 1000m., 10—24.v.1962, 6 ♂; Komgi, 1000m., 14.v.1962, 1 ♂.

This species is only known from the Bismarcks area, where it appears to be plentiful. Specimens in the B.M. are from Rook I., New Britain, Witu I., and St. Matthias.

Catochrysops amasea Waterhouse & Lyell

Catochrysops amasea Waterhouse & Lyell, 1914: 103, Banks, Darnley, and Murray Islands.

LAVONGAI: Banatam, 16—25.iii.1962, 2 ♂.

Inhabits New Guinea, the Bismarcks, and the Solomons.

Catochrysops panormus papuana Tite

Catochrysops panormus papuana Tite, 1959: 208, British New Guinea.

NEW BRITAIN: S. of Cape Hoskins Aerodrome, 6.vii.1962, 2 ♂; 5 miles E. of Mt. Bango, 6.vii.1962, 2 ♂; Bitapaka, 10.vii.1962, 1 ♀. — DYAUL: Kollepine, 12.iii.1962, 1 ♂. — MANUS: Lorengau, 23.vi.1962, 1 ♀.

This race is found from Aru, New Guinea, and the Bismarcks. (See p. 54).

Euchrysops cnejus cnidus Waterhouse & Lyell

Euchrysops cnejus cnidus Waterhouse & Lyell, 1914: 100, Cape York.

DUKE OF YORK: Manuan, 20.vii.1962, 1 ♂, 1 ♀. — NEW IRELAND: Lemkamin, 900m., 11—16.iv.1962, 3 ♂; Nago Island near Kavieng, 13.i.1962, 2 ♀. — LAVONGAI: Banatam, 18—25.iii.1962, 3 ♂, 3 ♀. — MUSSAU: Boliu, 13.ii.1962, 1 ♂. — MANUS: Lorengau, 23—24.vi.1962, 3 ♂, 7 ♀.

Everes lacturnus palliensis Ribbe

Everes parrhassius palliensis Ribbe, 1899: 235, Neu Lauenburg.

DYAU: Sumuna, 2—8.iii.1962, 1 ♂, 1 ♀. — LAVONGAI: Banatam, 19.iii.1962, 2 ♂. — MANUS: Lorengau, 23—24.vi.1962, 7 ♂, 2 ♀.

Zizula hylax dampierensis (Rothschild)

Zizera dampierensis Rothschild, 1915: 389, Dampier Island.

Zizera gaika Trimen; Rothschild (Misidentification) 1915: 389, Manus, Admiralty Islands.

NEW IRELAND: Danu, Kalili Bay, 3—30.iv.1962, 4 ♂, 1 ♀; Nago Island near Kavieng, 13.i.1962, 1 ♂; Lemkamin, 900m., 11.iv.1962, 1 ♀. — DYAU: Sumuna, 5—10.iii.1962, 2 ♂. — MUS-SAU: Talumalaus, 19.i.—5.ii.1962, 3 ♂, 3 ♀; Boliu, 4—6. vi.1962, 3 ♂, 2 ♀; Malakata, 9.vi.1962, 1 ♀. — MANUS: Lombrum, 29.vi.1962, 5 ♂, 4 ♀.

In the B.M., all the specimens from New Guinea, its neighbouring islands, the Bismarcks, the Solomons, and the New Hebrides are placed as *dampierensis*. Rothschild (1915) stated that the type series from Dampier I., and Vulcan I. differed in the greater extent of the dark margins above from what he referred to as *gaika* from the Admiralty Islands. Examination of the long series now in the B.M. reveals that, although there is a tendency in specimens from New Guinea, Dampier, and Vulcan to have wider margins than do those from the Bismarcks, Solomons, and New Hebrides, this character is variable over the entire range, and it is not possible to divide the series on a geographical basis.

Subspecies *dampierensis* is distinguished from South Indian *hylax hylax* by its paler less violaceous blue ground, the narrower fuscous margins in the male, and by the female being always mostly blue above, never entirely fuscous.

The collective species is wide-spread in the African and Oriental regions, and is represented in the new world from Texas to Argentina by *cyma* Edwards.

Zizina otis lampra subsp. nov.

♂. All wings above are of a delicate slightly shining silver-blue colour, without a hint of the violaceous tint to be seen in other races of *otis* from the Oriental Region, including the nominate race from South China. There is on the fore wing a shadowy dusky margin of less than 1mm. in width, followed by a conti-

nuous submarginal series of dusky lunules. In some examples, these markings are diffuse, and appear as a single shadowy band of approximately 3mm. in width.

♀. The wings on the upperside are silver-blue, but are rather dingier in appearance than are those of the male, owing to a scattering of dusky scales. On the fore wing, the apical area and distal margin are diffusely darkened with fuscous to an individually variable extent; in this dark area, faint indications of submarginal spots with accompanying lunules can be detected. The hind wings are similar in colour; the whole costal area above vein 6 is dingy fuscous, and below that vein, there is a marginal line, and a series of submarginal spots with lunules similar to, but more clearly defined than, those of the fore wing.

♂♀. The underside does not differ from that of *otis aruensis* Swinhoe from Aru and New Guinea. Both sexes are very variable in size, the length of the fore wing (base to apex) varying from 10 to 14.5mm. in the examples in the B.M.

Holotype ♂. BISMARCK ARCHIPELAGO: Witu = French Island, vi.1925 (A. F. Eichhorn) B.M. Type No. Rh. 17034.

Allotype ♀. As holotype, B.M. Type No. Rh. 17035.

Other material in the B.M. BISMARCK ARCHIPELAGO: as holotype, 6 ♂, 3 ♀; Feni Island, E. of New Ireland, v—vi.1924 (Eichhorn) 7 ♂, 4 ♀; Kavieng, New Ireland, x.1936 (Cheesman) 1 ♂, 1 ♀; New Ireland, (Rev. G. Brown) 1 ♂, 1 ♀; New Ireland, ii.1924 (Eichhorn) 1 ♂; New Hanover, ii.1923, (Meek) 3 ♂, 1 ♀; New Hanover, ii.—iii.1897 (Webster) 1 ♂; New Britain (various collectors) 5 ♂, 1 ♀; Manus, Admiralty Islands, ix.—x.1913 (Meek) 4 ♂, 2 ♀; St. Matthias Island, vi.1923 (Eichhorn) 2 ♂, 1 ♀; Squally Island, viii.1923 (Eichhorn) 2 ♂.

Material of the Noona Dan Expedition:

NEW BRITAIN: Valoka, 4—11.vii.1962, 3 ♂, 3 ♀; Kwalakessi, 3.vii.1962, 2 ♂; S. of Cape Hoskins Aerodrome, 6.vii.1962, 3 ♂, 2 ♀; Yalom, 1000m., 19.v.1962, 1 ♂; Rabaul, 25.vii.1962, 1 ♂; Bita Paka, 10.vii.1962, 12 ♂, 1 ♀. — DUKE OF YORK: Manuan, 20.vii.1962, 1 ♂. — DYAUL: Sumuna, 7—13.iii.1962, 1 ♂, 2 ♀. — NEW IRELAND: Nago Island near Kavieng, 13.i.1962, 1 ♀. — LAVONGAI: Banatam, 16.iii.1962, 1 ♂. — MUSSAU: Talumalaus, 1—9.ii.1962, 3 ♂; Boliu, 13.ii.1962, 2 ♂ and 5—6.vi.1962, 5 ♂; Malakata, 11.vi.1962, 1 ♂.

Luthrodes cleotas cleotas (Guerin)

Polyommatus cleotas Guerin, 1838; 277, Pl. 18 fig. 4, New Ireland.

NEW BRITAIN: Bita Paka, 10.vii.1962, 1 ♂, 1 ♀. — NEW IRELAND: Danu, Kalili Bay, 28.iv.1962, 1 ♂, 1 ♀.

The species occurs from Wetter, South West Islands to Buru, New Guinea, the Bismarcks, and the Solomons. The nominate subspecies is found throughout the Solomons, including St. Mathias and Squally islands.

Narathura araxes eurisus (Druce)

Arhopala eurisus Druce, 1891; 370, Pl. 32 figs. 11—12, Guadalcanar.

Narathura araxes eurisus (Druce) Evans, 1957: 114.

DY AUL: Sumuna, 7.iii.1962, 1 ♀.

This race inhabits the whole of the Bismarcks and the Solomons. Other races extend westward to Sumatra and southwards to north Australia.

Arhopala thamyras phryxus Boisduval

Arhopala phryxus Boisduval, 1832: 75, New Guinea.

Arhopala thamyras phryxus Boisduval: Evans, 1957: 127.

MANUS: Lorengau 19—24.vi.1962, 1 ♂, 2 ♀.

This is the race from Waigeu, Aru, New Guinea, and the Solomons. The collective species is confined to the Moluccan-Papuan area.

Arhopala thamyras minnetta (Butler)

Amblypodia minnetta Butler, 1882: 152, Duke of York Island.

Arhopala thamyras minnetta (Butler) Evans, 1957: 127.

NEW BRITAIN: Valoka, 5.vii.1962, 1 ♂; Bita Paka, 10.vii.1962, 1 ♀. — LAVONGAI: Banatam, 22.iii.1962, 1 ♂.

This race represents the species in the Bismarcks, but not in the Admiralty Islands.

Bindahara phocides chromis (Mathew). Comb. nov.

Sithon chromis Mathew, 1887: 47, Ugi, Solomons.

MANUS: Lombrun, 29.vi.1962, 1 ♀.

This is the Solomons and Bismarcks race; the collective species ranges from the Hymalayas to northern Australia.

Summary

The material is listed under two headings: (1) The Philippines, with 45 taxa; (2) The Bismarcks and Solomons, with 40 taxa. Brief

indications of the geographic range of each species are given, these being largely founded on the material in the B. M. collection. *Zizina otis lampra* ssp. n. is described from the Bismarck Islands. *Thysonotis danis latifascia* Rothschild, *Jamides aratus caerulea* (Mathew), and *Bindahara phocides chromis* (Mathew) are comb. nov. *Thysonotis subsuleima* Strand is cited as a syn. nov. of *Th. danis latifascia* Rothschild.

References

- Baker, G. T. Bethune, 1903; A revision of the Amblypodia Group of Butterflies of the family Lycaenidae. — Trans. zool. Soc. Lond. 27: 1—164, Plates i-v.
- Boisduval, J. B. A., 1832; Voyage de découvertes de l'Astrolabe Ent. 1, 716 pages, Paris.
- Butler, A. G., 1875: On a Collection of Butterflies from the New Hebrides and the Loyalty Islands ... Proc. zool. Soc. London 1875: 610—619, Plate 67.
- , 1876; On a Collection of Lepidoptera from Port Moresby, New Guinea. — Ann. Mag. nat. Hist. 4. 18: 240—249.
- , 1882; Descriptions of New Species of Lepidoptera chiefly from Duke of York Island and New Britain. — Ann. Mag. nat. Hist. 5. 10: 149—160.
- , 1883; The Lepidoptera collected during the recent expedition of H. M. S. »Challenger«. — Ann. Mag. nat. Hist. 5. 11: 402—408.
- , 1884; The Lepidoptera collected during the recent expedition of H. M. S. »Challenger» - Pt. ii. — Ann. Mag. nat. Hist. 5. 13: 183—203.
- Corbet, A. S., 1938; A Revision of the Malayan species of the *Nacaduba* ... Trans. R. ent. Soc. Lond. 87: 125—164, 1 plate.
- , 1940; The Identity of the Fabrician species *Papilio sphinx* and *Papilio hylax*. — Entomologist 73: 275—277.
- Cowan, C. F., 1965; The Nomenclature of *Pithecopis corvus* and allied species (Lep. Lyc.). — Ann. Mag. nat. Hist. 13. 8: 421—425.
- Distant, W. L., 1882—1886: Rhop. Malayana, 481 pages, 46 plates, London.
- Druce, H., 1873; A list of the Collections of Diurnal Lepidoptera made by Mr. Lowe in Borneo. — Proc. zool. Soc. Lond. 1873: 367—371.
- Druce, H. H., 1891; On the Lycaenidae of the Solomon Islands. — Proc. zool. Soc. Lond. 1891: 357—372, 2 plates.
- Druce, H. H. & Baker, G. T. Bethune, 1893; A Monograph of the Genus *Thysonotis*. — Proc. zool. Soc. Lond. 1893: 536—553, Pl. 45—47.
- Edwards, W. H., 1881; Descriptions of new species of Diurnal Lepidoptera found within the United States. — Trans. Am. ent. Soc. 9: 3.

- Eliot, J. N., 1955; Notes on *Nacaduba hermus* (C. Felder) Complex. — Proc. R. ent. Soc. Lond. (B) 24: 153—158.
- , An Analysis of the genus *Miletus* (Hübner). — Bull. Raffles Mus. 26: 154—177.
- Evans, W. H., 1957; A Revision of the *Arhopala* Group of Oriental *Lycaenidae*. — Bull. Br. Mus. nat. Hist. Ent. 5: 85—141.
- Felder, C., 1860; *Lepidopterorum Amboinensium*. — Sber. Akad. Wiss. Wien, 40: 449—462.
- Felder, C. & R., 1862; *Lepidoptera nova* . . . Wien. ent. Monatschr. 6: 282—294.
- Fruhstorfer, H. (1), 1910; Neue *Cyaniris*-Rassen und Übersicht de bekannter Arten. — Stettin ent. Ztg. 71: 282—305.
- , (2), 1911; Uebersicht der *Lycaeniden* des Indo-Australischen Gebiets. — Berl. ent. Z. 56: 197—272.
- , (3), 1913; Uebersicht der *Gerydinae* . . . Z. wiss. Insekt Biol. 9: 242—247; 307—310; 341—344.
- , (4), 1914; Neue *Arhopala* Rassen. — Dt. ent. Z. Iris 1914: 121—137.
- , (5), 1914; Uebersicht der *Gerydinae* . . . Z. wiss. Insekt Biol. 10: 20—25.
- , (6), 1915; Neue Formen der Gattung *Thysonotis* . . . Societas ent. 30: 39—40; 42—45; 49—52.
- , (7), 1916; Uebersicht der Indo-Australischen *Lycaenesthes*-Formen. — Zool. Meded. 2: 96—102.
- , (8), 1916; Revision der Gattung *Nacaduba* . . . l. c.: 103—140.
- , (9), 1916; Revision der Gattung *Lampides* . . . Arch. Naturgesch. (1915) 81 A. 6: 1—46, 2 plates.
- , (10), 1918; Revision der Gattung *Castalius* . . . Tijdschr. Ent. 6: 17—44, Plates 4—5.
- , (11), 1919; *Spalgis*, eine bicontinentale *Lycaenidengattung*. — Arch. Naturgesch. (1917) 83 A. 1: 73—76.
- , (12), 1919; Revision der Artengruppe *Pithecopus* . . . Arch. Naturgesch. (1917) 83 A. 1: 77—84.
- , (13), 1907—1927: In Seitz, *The Macrolepidoptera of the World*, 9: 1197 pages; 177 plates.
- Godart, J. B., 1824; *Enc. Meth.* 9: 329—828 (pt. 2) Paris.
- Guérin Ménéville, 1838; In Duperry, *Voy. autour Monde "Coquille"* (Zool.) Paris.
- Hewitson, W. C., 1863—1878; *Ill. Diurn. Lep.* 275 pages, 107 plates. London.
- Linnaeus, C., 1767; *Syst. Nat.* 1: 744—900. Holmiae.
- Mathew, G. F., 1887; Descriptions of some new Species of *Rhopalocera* from the Solomon Islands. — Trans. ent. Soc. Lond. 1887: 37—49, 1 plate.

- Moore, F., 1865; List of Diurnal Lep. collected by Capt. A. M. Lang in the N. W. Himalayas. — Proc. zool. Soc. Lond. 1865: 486—509. 2 plates.
- Niceville, L. de, 1895; On new and little known Butterflies from the Indo-Malayan Region. — J. Bomb. nat. Hist. Soc. 9: 259—321, 4 plates.
- Pagenstecher, A., 1894; Beitrage zur Lepidopteren-Fauna des Malayischen Archipels. — Jb. Nassau. Ver. Naturk. 47: 61—81, 2 plates.
- Petersen, B., 1966; The Noona Dan Expedition, Insects and other land Arthropods. — Ent. Meddr. 34: 282—304.
- Ribbe, C., 1889; Beitrage zur Lepidopteren-Fauna des Bismarck- und Salomo-Archipels in Sud-See. — Dt. ent. Z. Iris 12: 219—260.
- Rober, J., 1886; Neue Tagschmetterlinge der indo-australischen Fauna. — Dt. ent. Z. Iris 1: 33—72.
- Rothschild, Lord, 1915; On the Lepidoptera in the Tring Museum sent by Mr. A. S. Meek from the Admiralty Islands, Dampier, and Vulcan Islands. — Novit. Zool. 22: 387—402.
- Seitz, A., 1908—1927; Macrolep. of the World 9: 1197 pages; 177 plates. Stuttgart.
- Semper, G., 1879; Beitrag zur Rhopalocerenfauna von Australien. — J. Mus. Godeffroy 5: 138—194, 2 plates.
- , 1886—1892; Schmett. Philipp. Inseln, 1: 380 pages, 49 plates. Wiesbaden.
- Smith, H. Grose, 1894; Descriptions of two more new species of Butterflies from New Britain ... Ann. Mag. nat. Hist. 6. 14: 25.
- Smith, H. Grose & Kirby, W. H., 1892—1897; Rhop. Exot. 2: 252 pages; 60 plates. London.
- Staudinger, O., 1889; Lep. de Inseln Palawan. — Dt. ent. Z. Iris 2: 3—180.
- Strand, E., 1916; Lep. Niepeltiana 26 pages, 5 plates. Zirlau bei Freiburg i. Schl.
- Tite, G. E., 1959; The Genus *Catochrysops*. — Entomologist 92: 201—212, 2 plates.
- , 1960; The *Jamides euchylas* complex ... Bull. Br. Mus. nat. Hist. Ent. 9: 319—336, 1 plate.
- , 1963; A Synonymic List of the Genus *Nacaduba* ... l.c. 13: 67—116, 2 plates.
- , 1963; Revision of the Genus *Candalides* ... l.c. 14: 197—259, 4 plates.
- Toxopeus, L. J., 1926; *Lycaenidae Australasiae* 1. — Treubia 8: 365—375.
- , 1930; De soorte als functie ... 198 pages, 4 plates. Amsterdam.
- Waterhouse, G. A. & Lyell, G., 1914; Butts. of Australia 238 pages, 888 figs.