PAPERS AND PROCEEDINGS OF THE ROYAL SOCIETY OF TASMANIA, VOLUME 88

Notes on Some Tasmanian and Australian Lepidoptera-Rhopalocera

WITH DESCRIPTIONS OF NEW FORMS AND SUBSPECIES

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WITH 1 PLATE AND 2 TEXT FIGURES

SUMMARY

The origin and possible localities for typical *Heteronympha cordace* Geyer are discussed, and the southern ranges of New South Wales designated as the habitat of the nominotypical subspecies. The range and variation in Australia is studied, and the three Tasmanian geographical races, ssp. *comptena*, *kurena* and *legana* are described and their range and relationships defined. A westward extension of the range of *Oreixenica pt. ptunarra* Couchman is recorded and the subspecies figured.

An additional species is added to the list of Tasmanian butterflies, *Neolucia serpentata* ssp. *lavara* from the Cambridge shore-line.

Donovan's original figure of *Delias harpalyce* is discussed and shown to be of the autumn brood, the distinctive spring brood is named f. *adina*. A new female form of *Delias aganippe* Donovan, f. *koornalla*, is described from Victoria.

Anisynta albovenata ssp. *weemala* and *A. cynone* ssp. *gunneda* are described from Gunnedah, N.S. Wales; the former hitherto only known from Yorke's Peninsula, South Australia, the latter from several localities in South Australia and Victoria.

These notes form a further contribution to our knowledge of the Tasmanian and Australian butterfly fauna. In all cases except where otherwise stated the types are in my own collection.

SATYRIDAE

Heteronympha cordace (Geyer) (1832)

(FIGURES 1-4 AND 2 MAPS)

This species has been recognised as Australian since Butler (1868) in the errata to his " Catal. Diurnal Lepid. Satyridae . . British Mus." gave " Melbourne " as the locality for specimens in the museum collection. On p. 166 of this catalogue Butler had followed Westwood [1851] in placing it as from " East India ", the latter author evidently quoting Geyer, who in describing the butterfly in 1832 states " Hierath Ostindien ". Melbourne at sea level even a century ago would be a most unlikely haunt, since except in the extreme south and west of Tasmania *cordace* seems always confined to upland swampy areas where its foodplant, *Carex*, is common. Within recent years the nearest localities known are Emerald, c. 700 feet, 32 miles east in the hills beyond Belgrave; and Narbethong, c. 1200 feet, 53 miles N.E. in the Victorian Alps. Lilydale, whence F. Spry (1893) obtained specimens is now a farming area and the species only a memory. I have no record from any locality nearer Melbourne,

nor of any *cordace* taken at sea level on the mainland. It seems likely that with this species, as with others, Butler's reference is to the point of despatch, not the place of capture, and Melbourne must be rejected as the possible type locality for this, as for other reasons to be discussed later.

Authors have noticed differences in specimens from several localities, for example, Waterhouse and Lyell (1914) where they say that Ebor specimens "are much darker than the average", and Burns [1948] who in separating ssp. *wilsoni* from south-western Victoria, noted the smaller examples found on Cradle Mt., Tasmania, and again drew attention to the darker specimens from the northern limits of the species' range. No Australian author has attempted to settle the question of a type locality, or, perhaps because of the difficulty in consulting the original figures, of deciding whence Geyer may have had his specimens. The discovery of other new forms now makes it imperative that this question should be settled.

Hubner's "Zutrage z. Samml. exot. Schmetterlinge" was continued after his death in September, 1826, by Geyer. The plates contain illustrations usually showing the upper and underside of each species, but there are no names on the plates, "all the names appearing for the first time in the text" (Hemming 1937, p. XXII). In vol. 4, figs. 797, 798, show our insect, which on page 42 is named *Tisiphone cordace*. Since no copy of this rare and costly work could be found in Australia, I am indebted to my friend, E. E. Syms, who consulted copies in London, and through him to the Trustees of the British Museum (Nat. Hist.) and Mr. W. H. T. Tams for the photograph of Geyer's figures which I am able to reproduce.

Hemming (1937, I: pp. 460, 479) gives the date of publication of figs. 765 to 800 (plates [132]-[137]) as 2 July 1827, to 31 December, 1831; the text p. 42 as 1832, the date of publication of the species name, so that the plate antedates the text by several years at least. The possible locality for the original specimens must obviously be governed by the early dates for the figures, and in this connection it must be remembered that the insect can only be collected in its special haunts from late December to early March, and that even a direct voyage to Europe during the early 19th century occupied half a year. This, together with the time necessary for the production of the plate would mean that the insects could not well have been taken later than 1825, almost certainly much earlier. At this date the colonies of New South Wales and Van Diemen's Land, as then known, are the only localities needing consideration.

Geyer's f. 797 has the costa of forewing evenly rounded, the submarginal spots of hindwing in Ib, 2, 3 and 4 are clear and in 3 and 4 are large and distinct, indicating the figure is that of a female. The subapical ocelli of hindwing are large and clearly surrounded by a dark ring; this at once removes Tasmania as a possible locality, since the mountain forms found here have only a minute ocellus, rarely with a fine ring, while the form from sea level at Macquarie Harbour and Port Esperance in addition to other distinctions is also without the ringed ocelli.

Victoria had not then been separated from the mother colony, but unless the specimens were taken during or very soon after Hume and Hovell's journey in October, 1824, they could not well have come from any of the known localities in that State. In New South Wales the species is only found at an altitude above 3000 feet in the Dividing Range, so that it is unlikely the butterfly was found before the first crossing of the Blue Mountains in 1813. It is still found in areas around Medlow Bath and Blackheath, but neither this form, nor the darker one from the Barrington Tops and the Dorrigo plateau further north resembles Geyer's figure. However, in a long series of both sexes from Mt. Kosciusko (4000 feet) in the A. N. Burns collection, I noted females which on the upperside closely agree with the original figure (f. 797), on the underside the only difference is in the comparative lightness of the discal band across the hindwing, in the original figure, f. 798, this is rather darker than in any specimen I have seen.

I think it reasonable to assume that the originals of Geyer's figures were most probably collected between 1813-1825, when the early explorers were pushing out in a south-westerly direction from the first settlements, and that they came from the mountain ranges of southern New South Wales, within the area encompassed by the Snowy Mts., the Munyang and the Monaro Ranges, and I would designate this as the type locality. Further collecting at an altitude in this district may make it possible to restrict the type locality still further.

The Australian Subspecies

Heteronympha cordace cordace (Geyer) (1832)

This name has usually been attributed to Hubner, e.g., Waterhouse and Lyell (1914), Waterhouse (1932), but Hemming has shown that Geyer must be regarded as the author. According to Horn and Kahle (1935) Hubner's types of lepidoptera went via Mazzola to the Naturhist. Museum, Vienna, but Dr. M. Beier, who kindly searched through the Museum collections, (in litt) tells me that *cordace* is not to be found, and that if in fact the type ever was in the Hubner collection it now seems hopelessly lost. This subspecies, as I have restricted it, with the ground colour Cadmium Yellow (Ridgway 3) and the markings as in Geyer's figure, is found throughout the ranges of southern New South Wales, it has been taken at Mt. Kosciusko, Moonbar, Kiandra and Nimmitabel at all altitudes from 3500 to 5000 feet by a number of collectors, and those I have seen from further north in the Aust. Capital Territory (Lees Springs, 4000 ft. D. Waterhouse) do not differ markedly, to the south at altitudes in the Australian Alps (Cobungra, 5000 ft. A. N. Burns), (Glen Wills, 3250 ft. F. E. Wilson) the same general form persists.

Specimens from the lower levels in Victoria, Milgrove, Warburton, Narbethong, Emerald and other localities in the hills, as well as those from Macedon and the Mt. Buangor Range further west do not differ sufficiently to warrant separation from the nominotypical race.

MAP 1.—Map of south-eastern Australia showing the range of *H. cordace* X *H. c. cordace*.

To the north in the Blue Mts. the butterfly is found at altitudes over 2000 feet (Hampden, R. J. Tillyard; Woodford, 2000 ft., Medlow Bath, 3400 ft., and Blackheath, 3500 ft., G. A. Waterhouse), 150 miles north-east it has been taken in several localities on Barrington Tops from 4000-4900 feet; and again further north near Dorrigo (Ebor, 4700 ft. R. J. Tillyard; Deervale, 4500 ft., A. N. Burns).

Specimens from this northern part of its range show a gradual tendency to darken, those from the Dorrigo district diverging most clearly from the typical form. The submarginal spots of fore and hindwing tend to disappear in males from Barrington Tops, while in 15 males from Ebor seven have these spots obliterated by the black band. In the females these markings although small are still present, but the general ground colour is restricted by the greater width of the black bands when compared with specimens from southern New South Wales. Although seemingly distinct enough when considered alone, the Deervale-Dorrigo-Ebor specimens actually grade into those from Barrington Tops, while these latter form a transition to the nominotypical race from the alpine areas of the New South Wales-Victorian border. From south to north *c. cordace* clearly shows a pigmentation cline for the melanic markings of the fore and hindwing above, yet specimens from the middle of its range, i.e., northern Victoria and southern New South Wales, can be

matched by examples from either extreme. Geographically there is no barrier between Dorrigo and the Barrington Tops, and the butterfly should be found at other spots in the ranges between. The Hunter River valley and the Cassilis Gap certainly isolate the northern insect from the Blue Mts., but in the long series I have studied I can find no constant character for separation, in fact this is true of the butterfly throughout the whole of its 900 mile range, from near Ararat in Victoria to Dorrigo in N.S.W. The transition is gradual and unbroken, so that I do not make further divisions. There is some doubt as to whether specimens from the Grampians should be included with *c. wilsoni,* I have seen very few examples, but with the recent discovery of *c. cordace* in the Mt. Buangor ranges I incline to place them with the latter subspecies.

It is remarkable that the darker specimens should appear in the northern part of its range, reversing the variation found in other satyrid butterflies restricted to the higher altitudes, e.g., *Oreixenica lathoniella* (Westwood). Since experience in Europe has shown that increased temperatures shorten the pupal stadium and depress the formation of melanin it might have been expected that the northern specimens would have tended to become lighter, whereas the reverse is true. Apparently the greater altitude at which the species is found in northern N.S.W. must be sufficient to counteract the climatic influences.

Variation seems to consist chiefly in the presence of additional ocelli on the upperside hindwing, most often in area 5 below the subapical ocellus. A remarkable aberration in the F. E. Wilson coll. has the normal ground colour replaced by white. A male, the forewing length, 23 m.m., the markings, and the ocelli are quite normal; it is labelled Emerald, Vict. 7-2-43. F. E. Wilson.

H. c. wilsoni Burns [1948]

This, the south-west Victorian subspecies, can be easily separated by the characters of the hindwing beneath, the ground colour is lighter and clearer, the discal band less distinct, the subtornal ocellus in both sexes much reduced in size, often absent in the male, the subapical ocellus in the female minute and in the male absent. Typically from Dartmoor on the lower Glenelg River, it is found in a restricted area and is not common where it occurs, it is distinct in appearance and seems isolated geographically; specimens from the Grampians and the Mt. Buangor ranges further east I consider better placed under ssp. *cordace.*

The Tasmanian Subspecies

In Tasmania the species is found in three areas, not greatly separated by distance, but existing where climatic influences are much more varied than elsewhere in its range in Australia. This is another instance of the development of racial differences in a species inhabiting a small island where favourable conditions are present for such development.

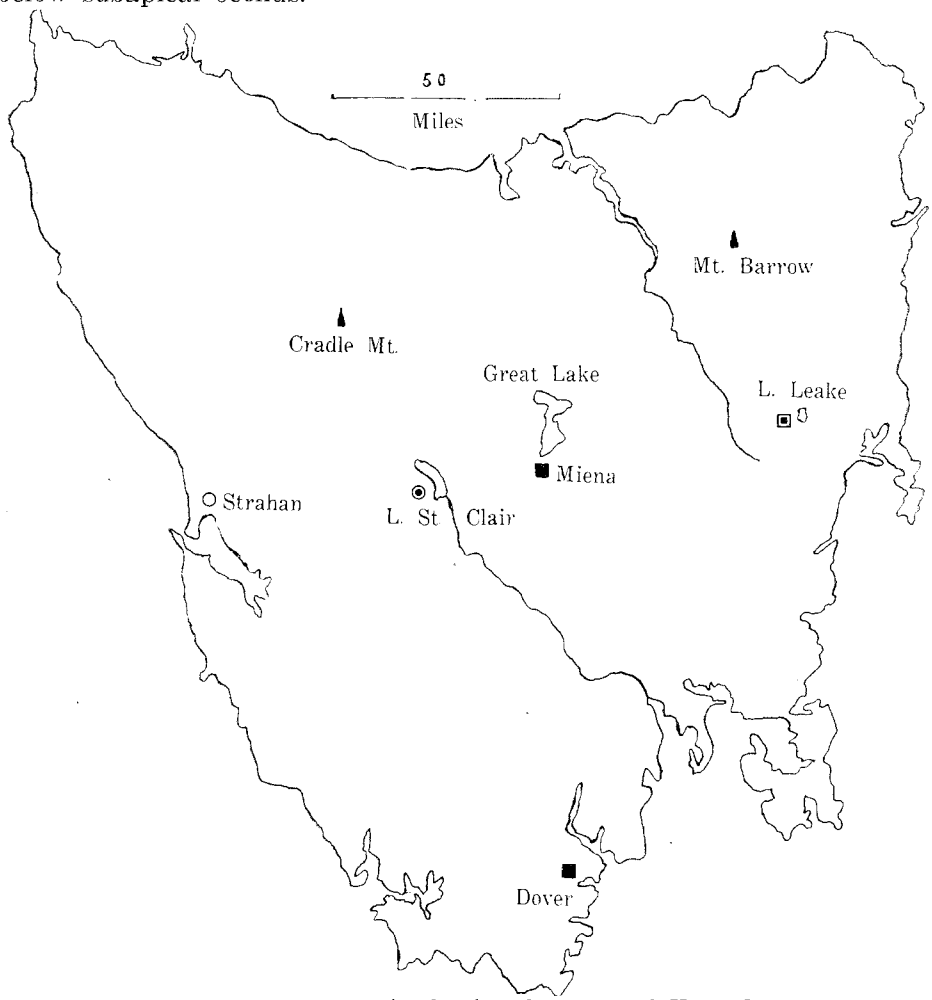
H. cordace comptena n. subsp.*
(FIGURES 3 AND 4)

Above, ground colour Cadmium Orange (Ridgway 3), brighter in tone than in nominotypical *c. cordace* from the Mt. Kosciusko district.

Male, above, the discal spot in area 4 of hindwing is large and completes the row of spots between subapical and subtornal ocelli, subapical ocellus without the surrounding dark ring, submarginal spots in areas 3 and 4 larger and more clearly defined, subapical ocelli of fore and hindwing with large blue pupils, subtornal ocellus of hindwing with blue pupil 1·5 m.m. diameter.

Female, above, as in male, a clear white dot in area 5 below subapical ocelli of fore and hindwing, subtornal ocellus of hindwing elongated, with a large elongated blue pupil 2 m.m. wide.

Male and female beneath with large clearly defined post-discal white spots in areas 3 and 4 of hindwing, in the female 3 m.m. diameter; female with an additional white spot surrounded by a dark ring in area 5 below subapical ocellus.



MAP 2.—Map of Tasmania showing the range of *H. cordace* ssp.
○ *H. c. comptena;* ⊙ *H. c. kurena;* ▣ *H. c. legana.*

Male, forewing length 22 m.m., female 22 m.m.

Holotype male labelled Strahan, Tas. sea-level. 23-January-1950 L. E. Couchman.

Allotype female, data as for male.

The most richly coloured of all the *cordace* races, ssp. *comptena* is readily distinguished above by the large blue pupils of the ocelli, and the large and clearly defined white spots of areas 3 and 4 of hindwing beneath, which with the additional ocellus in 5 form a complete curved series from apex to tornus. The additional white discal dots in area 5 of both fore and hindwing above in the female make this sex very distinctive. I have seen a few specimens from Zeehan which do not differ materially, and consider those from Dover collected by S. Angel should also be included here. This is a coastal race found at or very near sea level in areas of 40-70 inch rainfall. The type series was collected within a few yards of the sea near Strahan and it seems likely that it will be found in similar localities around the western and southern coastline as far as the Port Esperance area.

* Comptena, spirit of the dead of the western tribes.

H. cordace kurena n. subsp.*

Male, female, ground colour above Orange (R.3), markings as in ssp. *cordace,* with an additional small post-discal orange spot in area Ib of forewing, larger in female.

Male above, submarginal spots in 3 and 4 of hindwing small and round, subapical ocelli of fore and hindwing small, round, 1·5 m.m. diameter, with minute white pupil, that of the hindwing without a surrounding dark ring; subtornal ocellus of hindwing small, round, 3 m.m. diameter, with small white pupil.

Female above, the submarginal spots of both wings as in the nominotypical female, but differing in the much larger discal spot of area 4 of hindwing, the ground colour seeming to form a band only slightly constricted in area 4, a minute white dot in area 5 of hindwing below subapical ocellus. Female beneath, the hindwing with clear white post-discal spots in 3 and 4, a small ocellus surrounded by a dark ring in 5, forming with the subapical and subtornal ocelli a curved series across the wing.

Male forewing length 18·5 m.m., female 20 m.m.

Holotype male; Cuvier River, Tas. 2500 ft. 5 Jan. 1948 L. E. Couchman.

Allotype female, similarly labelled.

This is quite the smallest race, males and females average only two-thirds the expanse of ssp. *cordace.* Distinguished above by the extra post-discal spot in Ib of forewing, and the small subapical ocellus of hindwing not surrounded by a dark ring.

In our experience ssp. *kurena* is confined to " button grass " swamps in areas with rainfall from 70 to 110 inches on the western plateau from Derwent Bridge to Cradle Mt., at an altitude of 2400-2900 feet. Typically from the valley of the Cuvier River between Lake Petrarch

and Lake St. Clair, its weak flight probably prevents it crossing the western mountains to meet ssp. *comptena,* while the drier valleys of the Macquarie and South Esk impose an effective barrier to the east in the direction of the next subspecies. A series of four males and two females from Hampshire on the Emu River, altitude 1520 feet, differs only in its slightly larger size; while a number of males collected in the valley of the Dee River 22nd January, 1946, close to the Lyell Highway, altitude 2200 feet, are also hardly to be distinguished. This, the most easterly locality for this mountain race, as it also was for the mountain subspecies of *H. penelope* Waterhouse (*H. p. panope* Waterhouse), is now cleared and will soon be inundated by Hydro-Electric Commission developments.

* Kurena, little, in the dialect of the eastern tribes of Tasmania

H. **cordace legana** n. subsp.*

Male, female, intermediate in size between ssp. *cordace* and ssp. *kurena,* ground colour as in *c. cordace,* black markings narrower than in *c. kurena.* Male above, submarginal spots of fore and hindwing larger than in ssp. *cordace,* those in 3 and 4 of hindwing large and triangular in shape, subapical ocelli of forewing and subtornal of hindwing as small as ssp. *kurena,* but the subapical ocellus of hindwing is reduced to a minute black dot. Female above, submarginal spots in 3 and 4 of forewing are both large and square, the hindwing has a complete submarginal band of spots from 1 to 6, those in 3 and 4 large and semilunular; discal band much broader in area 6 with the subapical ocellus in its centre, the spot in 4 although narrowed is still much larger than in ssp. *cordace.* Hindwing beneath in both sexes lighter and with an illdefined darker discal shading, subtornal ocellus small, subapical ocellus minute, with very small but clearly defined white post-discal spots in areas 3 and 4.

Male forewing length 20·5 m.m., female 21 m.m.

Holotype male; Lake Leake, Tas. 2100 feet. 21 Jan., 1951, L. E. Couchman.

Allotype female; same locality and collector, dated 20 Jan. 1951.

Ssp. *legana* is clearly distinguishable in both sexes by the reduction of the subapical ocellus of hindwing above, in many males it becomes a small black dot. Beneath it approaches ssp. *wilsoni* in the reduction of the hindwing ocelli, but above the lighter ground colour and the extended submarginal series of spots readily distinguish it from this south-west Victorian as well as the other known subspecies. Typically from swamps in the immediate vicinity of Lake Leake at altitudes between 1900 and 2100 feet, ssp. *legana* will include specimens from Mt. Barrow at altitudes of 1750-2400 feet, collected by N. B. Tindale, 9 February, 1949. It is noteworthy that this north-eastern Tasmanian subspecies is most nearly related to ssp. *wilsoni* from south-western Victoria, not, as might be expected with the race from the Victorian ranges, which geographically speaking is comparatively close. The western Tasmanian ssp. *comptena* on the other hand has some affinities with the New South Wales race, but is still the most divergent of all *cordace* subspecies.

* Legana, the eastern tribes' word for fresh water

Oreixenica ptunarra ptunarra Couchman 1953

(FIGURES 5, 6)

When describing this remarkable new species I had specimens of the nominotypical subspecies only from Miena, altitude 3300 feet, at the southern end of the Great Lake. It has since been found to occur west and south of the original locality, specimens were taken on March 8th, 1953, at 3600 feet on the road from Liawenee to Lake Augusta; earlier, March 2nd, a pair had been taken about a mile west of the Marlborough Highway where it crosses the Ouse River at an altitude little if any higher than the Great Lake. The western limits of ssp. *ptunarra* are still not known, though collecting in the vicinity of Lake St. Clair has so far proved fruitless there seems no reason why it should not extend at least to the eastern shores of this lake.

LYCAENIDAE

Neolucia serpentata lavara n. subsp.*

Male above, basal blue areas of fore and hindwing extending further towards outer margins than in ssp. *serpentata* Herr.-Sch., the blue being close to Amparo Blue (R.9), without the purplish tinge of mainland specimens. Beneath, white markings of fore and hindwing are more prominent because of the darker ground colour, discal blotches of hindwing from costa to vein 4 black, much more prominent than in the nominotypical subspecies.

Holotype male; Cambridge, Tas. sea level, 5 April, 1952, L. E. Couchman.

Allotype female; same locality and date, collected by J. R. Cunningham; in the collection of the Tasmanian Museum.

This is a new record for Tasmania, the species first being noted by J. R. Cunningham, 30 March, 1952, on the mud-flats near Cambridge, subsequently we found it to be not uncommon, attracted to the flowers of the introduced African box-thorn (*Lycium* sp.).

I possess one specimen, from a series of three taken at Whitemark, Flinders Island, 30 January, 1949, by N. B. Tindale, but this is typical ssp. *serpentata,* differing in no way from Victorian and South Australian examples. A smaller and darker race, ssp. *lavara* can be easily distinguished by the different shade of blue above, and beneath by the prominent white and black markings, particularly of the hindwing.

* Lavara, an aboriginal word for little

PIERIDAE

Delias harpalyce (Donovan) (1805)

Donovan describes this from " New Holland " with no indication as to the source of the specimen or its exact locality. Considering the known range of the butterfly and the date shown on plate 18, Jan. 1, 1805, it is certain that the original example could only have come from near Sydney, and this must be accepted as the type locality.

Westwood (1872) discusses Donovan's method of preparing his plates, and Waterhouse (1938) deals with a number of Donovan's figures that were copied from W. Jones' unpublished Icones, but *harpalyce* is not noted among these. The underside figure of *harpalyce* is however so crude that I have no doubt it was drawn in the same manner as other species noted by Westwood and Waterhouse, i.e., the upperside taken direct from a specimen, or copied from Jones' figures, the underside painted from notes made of the differences between upper and underside. Only in this way could an artist of Donovan's ability make such an error in the shape and position of the scarlet post-discal band. The angle formed by the band is not sufficiently acute, the costal spot too large and too far from base and the spot in area 5 too square and not produced towards outer margin. The upper side figure is however a good representation of the male of the late summer brood, in which the forewings have a submarginal band of small grey-white spots in areas 4 to 8.

The spring brood is distinctive and my friend C. G. L. Gooding, of Moe, Victoria, who has collected and bred this butterfly extensively for many years has called my attention to the constant differences.

D. harpalyce f. adina f. nov.

This is the spring generation, distinguished in the male upperside forewing by the size and extent of the submarginal band of spots, these are much larger than in the late summer form, in some specimens they extend almost completely across the black border, and there is an additional slightly smaller spot in area 3.

The female also has these submarginal spots much larger than in the late summer form, in addition there is some scattered grey-white scaling in areas 1 and 2, completing the band from costa to tornus; basal area of forewing and hindwing clearly greenish-grey, extending further towards the hind margin than in f. *harpalyce*.

Holotype male; Moe, Vict. 20 October, 1952, C. G. L. Gooding. Bred ex pupa.

Allotype female, similarly labelled.

Paratypes in the Gooding and my own collections.

The differences have been noticed by authors, e.g., Talbot (1937, Monograph Pierine Genus *Delias* (6) : 427) but none seem to have realised that they were seasonal in character. Variation in this species occurs chiefly on the underside, consisting either of an extension of the basal black areas of fore and hindwing over the normal grey-white discal areas, in two female examples in the Gooding coll. from Moe, dated 14-11-1925, the black area of the hindwing extends from base to the scarlet post-discal band, while several other specimens grade into this extreme form; or the scarlet post-discal band of the hindwing itself is restricted, a bred female in the same coll., dated 20-10-1938, from Moe has only a few red scales in areas 2, 3 and 4, with traces of spots in 6 and 7, the costal spot alone being distinct.

The same collection includes two remarkable gynandromorphs; the first, bred from Moe, dated 23-10-52, has the normal female genitalia, the shape, colour and markings of the right fore and hindwings are as in a normal female, with the subterminal band of forewing continued into Ib and Ia, but the left fore and hindwings are those of a male, also with faint subterminal spots in areas Ib and Ia. The second specimen, similarly labelled, is also a female with the wing shape and genitalia of a female, but the colour and markings are those of a male, the only noticeable difference is in the slightly narrower black margin of the hindwing above.

Delias aganippe (Donovan) (1805)

A batch of thirty full-grown larvae taken by Miss Margaret Gooding feeding on *Loranthus* growing on *Acacia dealbata* on the banks of Traralgon Creek, Victoria, January 20th, 1951, produced among others eight females in which the normal grey-white ground colour is replaced by Martius Yellow (R.4), the markings above and beneath as in typical *aganippe*.

I call this f. *koornalla* f. nov.* Holotype female labelled Traralgon Creek, Victoria, February 9, 1951, Margaret Gooding; in the Gooding coll., with paratypes similarly labelled in the same collection and in my own.

* Koornalla, an aboriginal name for the district

HESPERIIDAE

Anisynta a. albovenata Waterhouse 1940

The holotype male in the Australian Museum has the spot at end of cell 1 m.m. square, with traces only of two subapical spots, two minute post-discal dots in 4 and 5 and another minute discal dot in area 2.

Forewing length 12·5 m.m.

The female allotype in the same collection has the cell spot of the same size and shape as the male, but with three distinct subapical spots, two post-discal spots in 4 and 5 and three discal spots in Ib, 2 and 3.

Forewing length 15·5 m.m.

A. a. weemala n. subsp.*

Male above, spot at end of cell as in ssp. *albovenata*, 1·5 m.m. square, but with three distinct subapical spots, two post-discal spots in 4 and 5 as large as cell spot, one discal spot slightly smaller in lower half of Ib, and a small streak above it in upper half of Ib.

Beneath, differs from the nominotypical subspecies in that the spots of forewing are as large as above, yellow; hindwing ground colour brown, with an angular grey discal band broken by the white veins extending from vein 8 at half to vein Ib, broadest in areas 3 and 4.

Female above, markings as in male, yellow; spot at end of cell 2 m.m. square, spot and streak in Ib larger than in male. Beneath, forewing as in male, hindwing the discal band continued by basal spots in upper and lower half of area Ib, and basal spots above and below vein 7.

Male forewing length 13 m.m., female 14·5 m.m.

Holotype male labelled Gunnedah, N.S.W., 10 September, 1943, F. S. Paul.

Allotype female labelled as male.

Paratypes similarly labelled in the F. S. Paul and my own collections.

Ssp. *weemala* is easily distinguished above by the larger markings, beneath by the brown ground colour and clear discal band of hindwing. It keeps to the hills at c. 1000 feet altitude, the flight is short but very fast and it is fond of settling on bare patches of earth with wings outspread; taken from 10 September to 2 October, 1944.

Specimens are in most Australian collections and Evans (1949, Catal. Hesperiidae Europe, Asia and Aust.; 211) refers to one male in the British Museum. Waterhouse had separated Gunnedah specimens in his coll. as a new subspecies, but had not named them.

This is a remarkable extension in the range of the species, first described from Yorke's Peninsula, South Australia, now recorded from Gunnedah, N.S.W., 850 miles north-eastward, and my friend F. S. Paul is to be congratulated on his discovery of this and other S. Australian species in this unexpected locality.

* Weemala, Kamilaroi for distant view.

A. **cynone gunneda** n. subsp.*

Male and female above distinguished from ssp. *grisea* Waterhouse 1932 by the reduction of markings of forewing to minute dots; beneath the forewing of male with three subapical dots only; hindwing of male and female overlaid with yellow scaling, post-discal spots indistinct without the black anterior edges found in ssp. *gracilis* Tepper 1882.

Male forewing length 11·5 m.m., female 12·5 m.m.

Holotype male labelled Gunnedah, N.S.W., 26 March, 1944, F. S. Paul.

Allotype female, as male.

Paratypes in the F. S. Paul and my own collections.

Nominotypical *cynone* Hewitson 1874 was restricted to the area around the mouth of the Murray River by Waterhouse; ssp. *gracilis* Tepper 1882 is found in several localities near Adelaide, South Australia; ssp. *grisea* Waterhouse 1932 is from Kerang on the Loddon River in northern Victoria, while ssp. *gunneda* extends this range to Gunnedah in northern New South Wales. This town is 876 feet above sea level, and *c. gunneda* ranges from this altitude to c. 1100 feet. An autumn butterfly, it has been taken from 11 March, 1944 to May 17, on the latter date it was getting scarce. Nothing has been written of the early stages, so the following note kindly communicated by my friend F. S. Paul, although incomplete, is worth recording.

The egg is cream in colour with about twelve vertical ridges, showing white against the ground colour, converging to a slightly darker micropylar area; slightly wider than high, flattened at the base and laid singly on stems of "snow grass" (*Poa* sp.?), though on one occasion, 8-4-1944, three eggs were observed on one stem about 1/16 in. apart.

Waterhouse had also separated ssp. *gunneda* as a distinct race in his collection but had not named it. Further evidence of the similarity of the Gunnedah and South Australian butterfly fauna is provided by this species, with further collecting other South Australian species may very possibly be found.

* Gunneda, place of white stone

ACKNOWLEDGMENTS

My thanks go to many friends who have generously allowed me access to their collections and provided material for study, their help is acknowledged throughout these pages. David Crosby, F.R.E.S., kindly sent me all his Victorian *H. cordace* for extended study.

I am especially grateful to the Director, the National Museum of Victoria, and A. N. Burns, F.R.E.S., the Director, the Australian Museum and A. Musgrave, F.R.E.S., for facilities and help afforded during studies in their Museums.

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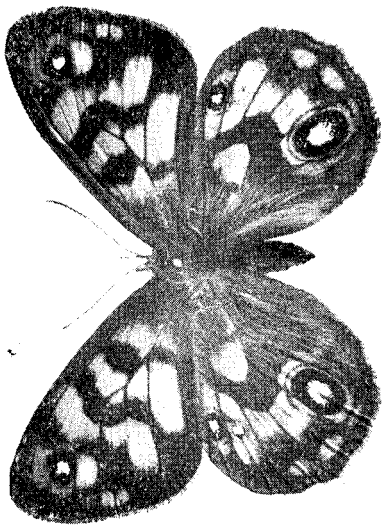

Fig. 3

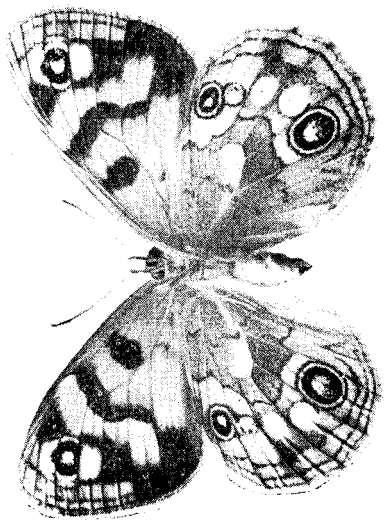

Fig. 4

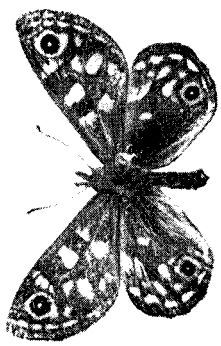

Fig. 5

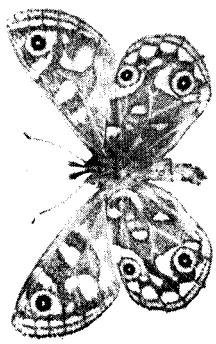

Fig. 6

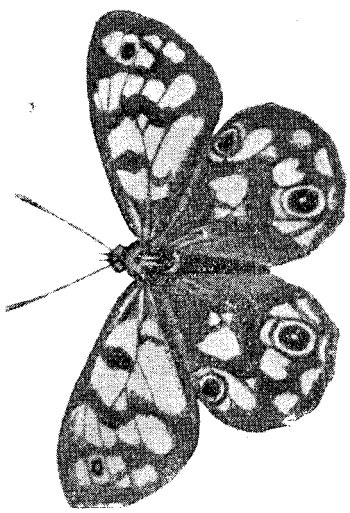

Fig. 1

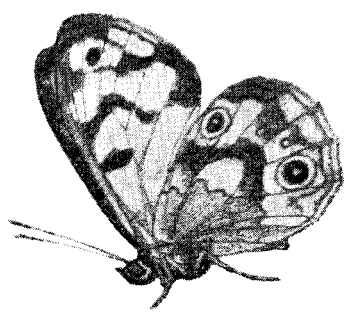

Fig. 2

FIG. 1, 2.—Geyer's figures of "*Tisiphone cordace*". (Courtesy of the Trustees of the Brit. Mus. (Nat. Hist.) and Mr. W. H. T. Tams.)

FIG. 3, 4.—*Heteronympha cordace comptena* n. ssp. Allotype female, Strahan, Tasmania. Sea level. 23 January, 1950. L. E. Couchman.

FIG. 5, 6.—*Oreixenica ptunarra ptunarra* Couchman, 1953. Holotype male, Miena, Tasmania. 3300 feet. 1 March, 1952. R. Dobson.

(FIGS. 3-6, A. M. Hewer.)