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NOTES ON AUSTRALIAN BUTTERFLIES IN THE AUSTRALIAN MUSEUM. No. 2.*

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(Figure 1.)

Candalides Hübner, 1819.

This genus was first mentioned in the Verzeichniss, 1819, when Hübner used it for two very dissimilar species. Of these, Scudder (1875) selected as the genotype *C. xanthospilos* Hübn.

The absimilis group of Candalides.

The first mention of any species of this group was by Felder 1862, when he described *Holochila absimilis* from Ash Island, Hunter River, N. S. Wales, received from A. W. Scott. Felder (1865) gave good figures of both sexes.[1] I saw the holotype male at Tring Museum and there is no doubt that it is the species with a uniform blue upperside without any appearance of sex scales on the forewing when viewed either directly or obliquely. I have for long been of the opinion that I have had in the collection at least two species under the name *absimilis*. When Dr. C. P. Ledward found at Burleigh Heads, South Queensland, two distinct types of larvae, I was forced to make an investigation which gave rather surprising results, shown below.

The females of all the species will be very difficult to separate, but, as far as I am able, I give characters from specimens in the Museum collection which will help to distinguish them. I also include the two somewhat similar species described by Semper,[2] where he used the genus *Holochila*. I have seen the types of all the species and their synonyms.

Candalides helenita Semper, 1878. (Figure 1a.)

Male. Upperside greenish-blue, with a trident sex mark on veins 2, 3 and 4 of forewing.

Female. Upperside black, with a large central white patch on both wings, that of hindwing reaching apex, without any blue scales. Underside almost wholly silky-white with very few dark markings, the terminal black spots on hindwing very small. Readily recognized.

Semper's holotype male bears an old label, "Cap York", which is therefore the type locality. It is also found as far south as Cairns and Kuranda, where it has been recorded throughout the year. The female described by Semper, and afterwards figured by Druce, 1902, and seen by me, is a small female of *margarita*. Synonyms are *androdus* Miskin, 1890, Cape York, and *subargentea* G. Smith and Kirby, 1896, Cape York.

Candalides margarita Semper, 1878. (Figure 1b.)

The male has the trident sex mark on the forewing upperside, but the general colour is blue tinged with purple. The female upperside is similar to *helenita*, but has basal blue scales on both wings. The underside of both sexes is more heavily marked than in *helenita*, especially the terminal spots of hindwing.

The holotype male bears an old label, Bowen, which must be taken as the type locality. Semper described and Druce figured (1902) the female as *helenita*.

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* For No. 1, see RECORDS OF THE AUSTRALIAN MUSEUM, vol. xx, no. 3, p. 217, 1938.

[1] Felder.—Reise der . . . Novara . . . 1857-1859, Zool. ii, 2, 1865, p. 261, tab. xxxii, figs. 14-16.

[2] Semper.—*Journal des Museum Godeffroy*, v, 14, 1879, pp. 161-162. (Separate issued in 1878.)

No doubt often mistaken for *absimilis* and the two species to be described later, but the trident sex mark in the male and the white patch reaching apex of hindwing in the female distinguish it from these.

Dr. Ledward has found the larvae feeding on several species of *Loranthus* and will shortly describe them. (The pupal duration at Burleigh Heads in early spring is about 33 days.) It is found along the Queensland coast and on Prince of Wales Island. It will no doubt be found in northern N.S. Wales.

The male clasps are very pointed.

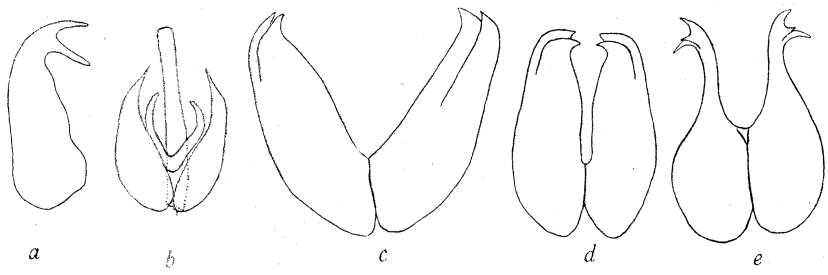

Figure 1.
Clasps of a, *helenita*; b, *margarita*; c, *absimilis* (Sydney); d, *persimilis* (Mackay); e, *consimilis* (Sydney).

Candalides absimilis Felder, 1862. (Figure 1c.)

The male of this species is uniformly blue above with very narrow black margins and no matter how it is viewed from above no sex scales can be seen. If, however, it is held before strong transmitted light, a trident mark can be seen on the forewing. The female is black above with a central white spot on each wing, that of hindwing not reaching apex. Base of both wings dusted with purplish scales. Underside more heavily marked than in *margarita*, but the terminal spots of hindwing usually absent.

The holotype male is in the Tring Museum, from Ash Island, received from A. W. Scott. It extends along the coast north to Brisbane; south of Sydney it is not so common and a few specimens have been taken in Victoria. I have bred it in my garden at Killara, near Sydney, feeding on the young leaves of *Cupania*. In 1922, the larvae were very common on the Richmond River, feeding on the leaves of *Cupania*, native *Wistaria*, and several other plants. At both these places I caught *absimilis* and *consimilis* on the same day.

The pupal duration of this species is peculiar. A larva from Killara pupated in December and the male did not emerge until the following September. Numerous larvae from the Richmond River, found in September, pupated in October and gave males and females in 17–23 days.

Candalides persimilis n. sp. (Figure 1d.)

The species is somewhat similar to the following in that it has the same type of sex mark on the forewing in the male. The colour is very different as also are the male clasps, which are very like those of *absimilis*.

Male. Upperside lilac with a narrow brown termen to both wings. Forewing with a central patch of dull sex scales and hindwing with a black spot near tornus. Female brown-black with a large central white patch and a few basal blue scales on forewing; a smaller white patch on hindwing, variable in size, sometimes absent. Underside similar to *absimilis*, but with a distinct black spot near tornus of hindwing.

This species in the male is quite a different colour from *absimilis* and also it has sex scales on the forewing as in *consimilis*. I have chosen as the type series thirteen males and seven females from a number caught at Mackay by R. E. Turner. During the long time he was there the only other species of this group caught by him was one female *margarita*. I have it from Cairns and Kuranda. Four males and two females from Byron Bay seem to be the same.

The male clasps are markedly different from *consimilis*, but somewhat close to those of *absimilis*. At the end they are cut off straight instead of being gently rounded as in *absimilis*.

Candalides consimilis n. sp. (Figure 1e.)

This interesting new species is generally smaller than *absimilis*, the termen of forewing slightly straighter and the tornus of hindwing slightly produced. It has a less rounded appearance.

The male upperside is a duller blue, the termen of forewing is broader black, especially between the veins, and extends towards a rather conspicuous patch of dull sex scales in the centre of the forewing. The termen of hindwing is also broader black and there are two or three conspicuous black spots near tornus. The female is black above with a distinct whitish central spot on forewing with blue scales below and towards the base, the hindwing has a variable central whitish spot in most cases entirely obscured with blue scales. Underside of both sexes similar to *absimilis*, with terminal black spots sometimes faintly indicated.

This species is no doubt in many collections under *absimilis*, but the sex scales and the remarkable genitalia readily distinguish it. The latter are so distinct that it is hard to believe they belong to the same genus.

The type locality will be my garden at Killara, near Sydney. Until this summer I had only caught one male, but had probably overlooked it. I have recently taken both in some numbers on the same day flying along the same flight track. I have also caught it at Stanwell Park and Narrabeen (without any *absimilis*). It is represented sparingly in the collection from Sydney to southern Queensland. Amongst a number of specimens caught at Ballina, only one was this species. I have males from Lawson, Blue Mountains, and from Lismore. Females seem to be rare.

The genitalia of this species are very different from the others. The clasps resemble a bulb with its dried stalk.

I hope I have accomplished the difficult task of differentiating between the above three species. With the series in the Museum there is not much difficulty in recognizing the three and the genitalia confirm this. Many more specimens are required to determine the range of the species.

It is possible that with other species of this genus, two or more species may be included under one name, as was the case with *C. erinus* more than forty years ago.

Arhopala amytis Hewitson, 1862.

Both sexes of this species were described by Hewitson and the female figured from specimens in the British Museum, with no more precise locality than 'Australia'. At the same time a small female was figured from Aru.

When examining the types, I was surprised to find that they did not agree with the race known in Australia as *amytis*, nor with the description given by Bethune-Baker,[3] 1903, in his fine monograph of the genus. I found that both had labels C.Y. and 50–95. On reference to the register I found these meant they had been collected by John Macgillivray at Cape York and registered in 1850. Other specimens from Cape York in London agreed with them. This fixes the type locality as Cape York. It is astonishing that Bethune-Baker did not notice this and one wonders if he ever looked at the types. He at the same time treated Cape York specimens as a variety.

A. cyronthe Miskin, 1890, described from two males from Cape York and Bowen, is a synonym. The Bowen locality is certainly incorrect.

The Museum has the typical race from Cape York, Thursday, Prince of Wales and Banks Islands.

A. amytis amphis, n. subsp. This is the race that hitherto has been considered the typical one. I have shown above that it is not so. The male is blue, somewhat similar to the typical race, but is slightly greener above and more shining, the termen of the forewing is broader and the apex considerably broader black. On the hindwing the

[3] Bethune-Baker.—*Transactions, Zoological Society of London,* xvii, 1, 1903, p. 33, pl. iv, figs. 9-9a.

termen is also broader black. The undersides are as variable as the typical race, but the green scales near the tail are very much restricted. The female is greener above and the black margins are broader. The underside is as variable as in the other races.

The type locality will be Mackay, where in May, 1935, I found it flying in large numbers, and we have it as well in quantity from Mr. R. E. Turner. I would also place here specimens from Townsville and the Cairns District. The four figures in *The Butterflies of Australia* were all taken from Mackay specimens. We have specimens more obscured on the underside than fig. 462 and more heavily marked than fig. 467.

A. amytis amydon, n. subsp. The male upperside is rich purple without the shining appearance of the two other races and the margins are very narrowly black. The female upperside is dull violet-blue, quite unlike the shining colour of the other races. On the underside this race is also very variable, and the green scales near the tail are extensive.

This is not such a brilliant race as the others and is easily distinguished by the colour of the upperside, especially in the female. We have a small series from Murray Island (type), two males from Darnley Island, and one male from Groot Eylandt. Probably the few specimens we have from Port Darwin will come here.