

MINISTERIE VAN ONDERWIJS, KUNSTEN EN WETENSCHAPPEN

ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

DEEL XXXI, No. 6

23 November 1950

ON TWO APPIAS SPECIES FROM CELEBES AND A NOTE REGARDING DELIAS STHENOBAEA (BOISD.) (RHOPALOCERA, PIERIDAE)

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Part of the butterfly collection of Mr. P. Zondervan, who died in a Japanese camp, was saved from destruction during the Japanese occupation and the post-war troubles and finally came into my hands. The material is for the greater part still in an excellent condition and contains many interesting forms. The number of specimens is small, as it was Mr. Zondervan's habit to mount only one pair of any new species he collected. The bulk so remained in papers and these all got lost.

Here follows an account of some interesting Pieridae.

Appias (paulina) urania (Wall.)

Tachyris urania, Wallace, "Eastern Pieridae", Trans. ent. Soc. 6 (3) 3 (1867), Tondano, mountains of N. Celebes (♂).

Appias urania, Martin, D. ent. Zeits. Iris, 91, 1919.

1 ♂, Tondano, 17.7.1939, 1 ♀, Tondano, 9.1937; 1 ♂, var. *albata* Hopff., Tondano, 22.12.1939.

The ♀ seems to be very rare, though it shows up in rather good numbers in other places of the *paulina* area in the favourable season, which is at the end of the wet monsoon.

It would have been waste of paper to mention these captures, were it not that Mr. Zondervan captured another ♂ specimen of the *paulina* com-

plex which is so deviating from the above that anybody first seeing it would conceive it as belonging to a distinct species. It represents the *leis* (Hbn.) group of *paulina* (Cram.) in the Celebes district, just as *urania* Wall., together with some local races from the Lesser Sunda Is., is the general representative in the Archipelago. In other words, there has been some overlapping in Celebes, and one more species duplex must be added to the Celebes list.

The groups into which the species complex of *Appias paulina* can be divided and the territories occupied by them are:

- a. *paulina* (Cram.) group, Continental and Ceylon.
- b. *leis* (Hübner), Western Malayan, incl. Philippines and North Celebes.
- c. *urania* (Wall.), Celebes and adjacent islands, Lesser Sunda Chain.
- d. *ega* (Boisd.), Queensland, extending westward to the Northern Moluccas.

***Appias paulina* (*leis*) *zondervani* n. subsp.**

Description. ♂. Large, milk white. Fore wing, basal half of costal marginal area suffused grey, upper half black. Apex blackish, as well as the termen down to vein 2, five white spots in the black area, the upper two of them lengthened; a large roundish black spot in interspace 3. Hind wing borderless, fringes white. Under side, fore wing milk white, apical part creamy white, a square black spot in 3, as large as on the upper side, connected with costa and termen by a diffuse wavy greyish band. Hind wing creamy white, unmarked.

The shape of the fore wing is not elongated as in *urania* (Wall.) but it resembles that of a normal *leis* (Hübner). Wings' expanse: 60 mm (length of fore wing: 35 mm).

Holotype, Tondano, N. Celebes, 15.4.1939, in Museum Leiden, Holland.

This new subspecies of the *leis* group is much larger than any *leis* I have ever seen before, in fact, it shows much resemblance to *zoë* (Voll.) from the North Moluccas, but the latter betrays its Papuan descent by the double black spot of the fore wing, under side, just as *ega* (Boisd.) from Queensland. However, it seems to be almost identical to *Appias nupta* Fruhst. from Nias I. (Ent. Nachr. 23, 1896, 63; in Seitz IX, 153, t. 60 e, ♂), the principal difference being the reduced size of the latter's black spot and apical portion of the fore wing. It is very interesting to notice that the same *nupta* is also a second representative of the *paulina* complex in the island of Nias.

The name of *melania* (F.) given to this compound by Fruhstorfer in Seitz can not be employed, because *melania* F. is an *Appias* species of Australia that represents *A. nero* there. If one feels prepared to forego the difference in the colours of the ♂♂ of such forms as *melania* (F.), *celestina* (Boisd.), *placidia* (Stoll), *zarinda* (Boisd.), and *nero* (F.), and to attribute more value to the basic pattern of the ♀♀, it will be time to reconstruct this complex, in which case *melania* (F.), 1775, takes preference over *nero* (F.), 1793, and *placidia* (Stoll), 1790, the other names being much younger.

The conspecificity of *melania* and *celestina* has already been alluded to by Waterhouse and Lyell, Butt. of Austr., 1914, page 148: "We are inclined to believe the Australian *melania* is a well defined race of this species..." (i.e., *celestina*).

***Delias sthenobaea* (Boisd.).**

Pieris sthenobaea, Boisduval, Spéc. Gén. Léop. I, 466, 1836, ♂ ("Moluques").

Boisduval's description depicts a ♂ of *zebuda* (Hew.) up to the smallest detail, and it is only by the colour of the under side of the hind wing and the red basal streak of that wing being turned into pale yellow that it differs from a normal *zebuda*.

This has already been stated by Von Mitis in "Iris", 1893, and I do not appreciate Talbot's shift over to the parallel variety of *D. belisama* (Cr.) from Java in order to cover the name *sthenobaea* (misspelt *sthenoboea* by Talbot in his Mon. *Delias*).

The habitat of "Moluques" does not mean Moluccas as we understand them now. Boisduval mentions (l.c., 201) with regard to a *Papilio*: "Assez commun dans les Moluques, surtout à Amboine et Célèbes". Celebes is here clearly incorporated in the Moluccas, and there are numerous butterflies which have been described for the first time by Boisduval from the Moluccas that actually occur only in Celebes.

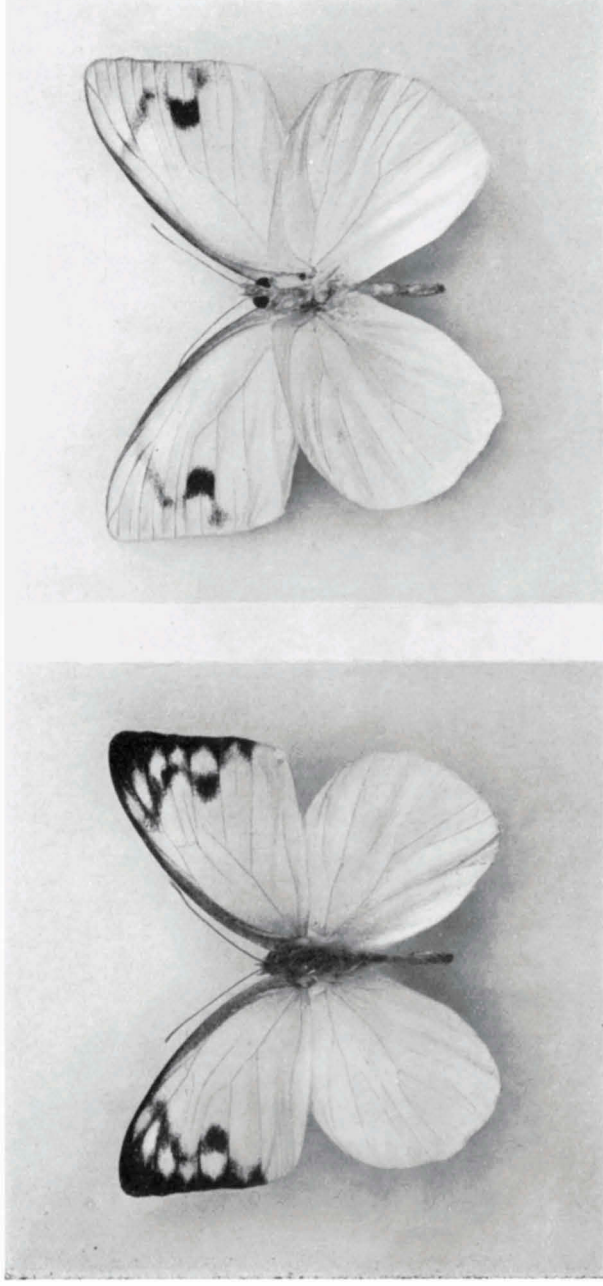
Mr. Zondervan's collection contained one ♀ specimen of *sthenobaea* (Boisd.), which, in so far as I know, is the first specimen that has been collected after its description by Boisduval. It deviates in no respect from the *zebuda* ♀ but for the light yellow colour of all light parts of the under side of the hind wing, the basal streak included. It was unlabeled when I received it, but Mr. Zondervan wrote me before the war that he had collected this variety near Tondano and intended to publish a note on it.

Now that the real *sthenobaea* has been rediscovered it necessitates some changes in names to be effectuated, for Boisduval's name is older than any other name that has been bestowed on Celebes *belisama*, as under:

Delias belisama sthenobaea (Boisd.), 1836 (= *zebuda* (Hew.), 1862).

Forma *zebuda* Hew. of subspecies *sthenobaea* may be reserved to denote the common form.

The Javanese yellow variety should be called *Delias belisama* (Cram.),



Appias paulina (leis) zondereani n. subsp., holotype, upper and under surface, natural size.