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## A NEW PIERINE GENUS AND SPECIES WITH NOTES ON THE GENUS *TATOCHILA* (LEPIDOPTERA: PIERIDAE).

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A new monobasic genus and two new subspecies of *Tatochila* are described, together with notes on the status of *Tatochila pyrrhomma* (Röber) and *Tatochila sterodice* Staudinger. Details are given of the *Tatochila* type specimens housed in the Museum für Naturkunde der Humboldt-Universität, Berlin (MNHU, Berlin) and the British Museum (Natural History) (BMNH).

### RELIQUIA gen. n.

Type-species: *Reliquia santamarta* sp. n.

Genus of Pierini closely allied to *Pieris* Schrank, with the following combination of characters:

Diagnosis ♂ ♀. Venation as figured (Figs. 1, 2). Four radial veins in the forewing; veins  $R_3$  and  $R_{4+5}$  long-stalked, the veins themselves being short. A pair of tibial spurs present on the mid and hind legs. Tarsal claws bifid, subequal; paronychium elongate and tapering, at least two thirds the length of the claw; pulvillus about one quarter the length of the claw and tapering towards the apex.

♂. Clasper rounded (Fig. 3), without a distinct apical projection; aedeagus parallel sided and distally simple (Fig. 4); juxta with a central elongate backward-pointing process (Fig. 5); uncus simple, as long as the tegumen.

♀. Bursa copulatrix with an accessory pouch and about equal in length to the ductus bursae, a largely unsclerotized structure apart from the area about the ostium.

### *Reliquia santamarta* sp. n.

MALE: Head with the outer surface of the palpi and scales behind the eyes white; forewing above with black markings as illustrated (Pl. 1, Fig. 1). Wings beneath with the base and disc of the forewing white, the apex of the forewing and the ground colour of the hindwing appearing green; veins of the hindwing and forewing apex green, bordered with greenish-grey. Androconia present on forewing upperside. Genitalia as illustrated (Figs. 3,4,5).

Length of forewing: 20.6 - 24.8 mm. (mean, 23.3 mm.)

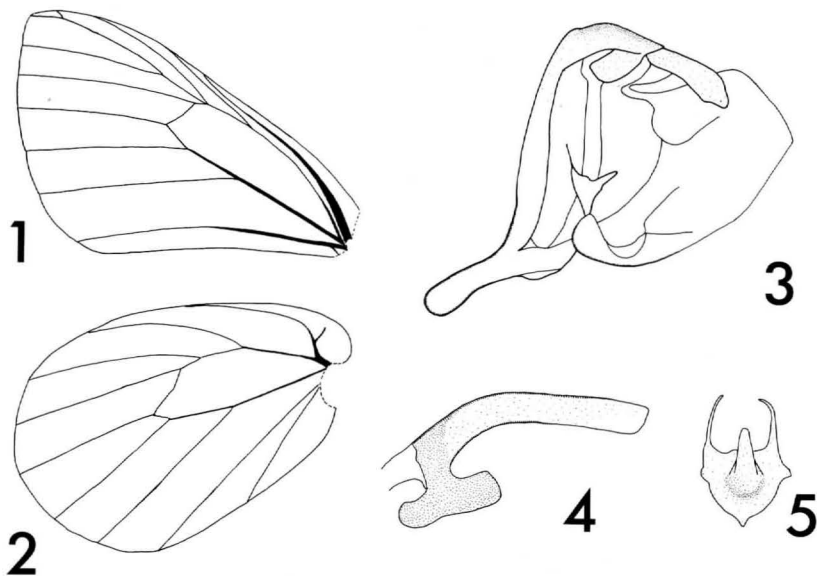
FEMALE: Dark markings of the forewing above somewhat more extensive

than in the male, with traces of the submarginal band reaching the inner margin (Pl. 1, Fig. 6). Wings beneath with the ground colour of the forewing apex and hindwing yellow; veins in these areas bordered with brown.

Length of forewing: 19.6 - 23.7 mm. (mean, 22.3 mm.)

Material Examined: HOLOTYPE ♂, Colombia, Sierra Nevada de Santa Marta, Upper Rio Cambirumeina, 24.viii.1972. 3950 metres. M.Adams & G.Bernard. 45♂, 12♀ PARATYPES; 4♂ 1♀, Colombia, Sierra Nevada de Santa Marta, Paramos, 4000-4300 metres. 4-10.viii.1973. C.Gibson & S.Bunt. (BMNH). 3♂ 1♀, 18 Km. E. of San Pedro, Dept. Magdalena, 10 54'N, 73 53'W. 4000m. 23.xii.1972. P.Ward. 1♀, 12 Km. E. of San Pedro, Dept. Magdalena, 10 54'N. 73 56'W. 3650m. 22.xii.1972. P.Ward (Allyn Mus., Sarasota). 26♂, 4♀, Colombia, Sierra Nevada de Santa Marta, Cambirumeina Valley, 4000-4100m., 17-19.ii.1975. M. Adams & G. Bernard. 3♂ 3♀, Colombia, Sierra Nevada de Santa Marta, 1 km. S.E. of Pico Jose Hilario, 3800-3900m., 10-11.iii.1975. M. Adams & G. Bernard. 7♂ 2♀, Colombia, Sierra Nevada de Santa Marta, Cuchilla La Cimarrona, 3900m., 11.iii.1975. G. Bernard. 1♂, Colombia, Sierra Nevada de Santa Marta, Upper Quebrada Cimarrona, 3550m., 10.iii.1975. G. Bernard. 1♂ Colombia, Sierra Nevada de Santa Marta, 1 km. E. of Lago Río Frío, 3600m. 8.iii.1975. G. Bernard (BMNH).

This species is tentatively placed in a new genus, probably intermediate between *Pieris* Schrank and the 'Tatocheilae-Phulia' group. In some aspects it shows a similarity to *Piercolias* Staudinger. The shape of the claspers is reminiscent of those found in *Piercolias* subgen. *Pierphulia* Field from which it differs in having four radial veins in the forewing, as does *Piercolias* sensu stricto. The comparatively short uncus, however, immediately distinguishes it from the latter. Although the general pattern of the forewing upperside is similar to *Hypsochila* Ureta, the structure of the tarsal claws and the presence of tibial spurs appear to preclude it from this genus. The tibial spurs present on the mid and



Text-Figures 1-5. *Reliquia santamarta* gen. n., sp. n. Figs. 1 & 2, Venation of left fore and hindwings. Fig. 3, Male genitalia, right clasper and aedeagus removed. Fig. 4, aedeagus, Fig. 5, juxta.

hindlegs are normally found in *Theochila* Field and *Tatochila* Butler, the structure of the uncus, female genitalia, tarsal claws and general facies, particularly of the wings beneath, showing some affinity to *Tatochila*. It is not however closely related to any known *Tatochila* species, differing in the structure of the claspers, aedeagus and juxta together with the radial venation of the forewing.

According to Klots (1933) the peculiar development of the juxta seen here is characteristic of *Pieris* and related genera. It is shown particularly strongly in *Pieris*, *Leptophobia* Butler, *Itaballia* Kaye and *Perrhybris* Hübner. This species shows little resemblance in general facies to the latter three genera. Furthermore the radial venation readily separates it from *Leptophobia* and *Perrhybris*, and the elongate foreleg metatarsus of *Itaballia* is not found here. Of the four 'subgenera' included in *Pieris* by Klots (1933), *Synchlœ* Hubner (including *Artogeia* Verity [Kudrna, 1974]), *Pontia* Fabricius, *Glennia* Klots and *Pieris* sensu stricto, none as defined would appear to accommodate this species. The most extreme development of the juxta is only found in *Pieris* sensu stricto in which Bernardi (1947) places only three species, *brassicæ* L., *deota* de Nicéville and *brassicoides* Guérin (Kudrna, [1974] includes a further species, *cheiranthi* Hübner). However, in these species the aedeagus is thickened towards the middle, not parallel sided. Since recent workers (Kudrna, 1974) recognise the *Pieris* 'subgenera' of Klots as distinct genera, the erection here of a new monobasic genus is probably justified. Using the key in Klots (1933) this species runs out to *Pieris* Schrank.

### ***Tatochila* Butler**

*Tatochila* Butler, 1870 : 38, 51. Type-species by original designation : *Synchlœ autodice* Hübner.

The genus *Tatochila* Butler together with the genera *Theochila* Field, *Hypsochila* Ureta, *Phulia* Herrich-Schaeffer, *Piercolias* Staudinger and *Baltia* Moore comprise the 'Tatocheilae-Phulia' branch of the *Pieridae* (Klots, 1933). Redefinitions of these genera are given by Field (1958) and the genus *Tatochila*, embracing thirteen species, is revised by Herrera and Field (1959). Since then one further species, *Tatochila mariae*, has been described by Herrera (1970). All the known species of *Tatochila* occur, according to Herrera and Field (1959), in the tundra, temperate forest and scrub areas of South America, from Colombia to Tierra del Fuego.

### ***Tatochila xanthodice paramosa* subsp. nov.**

**MALE:** Head with outer surface of palpi yellow; scales behind the eyes light orange. Wings above white, with dark markings as illustrated (Pl 1, Fig. 5). Wings beneath with the base and disc of the forewing white; costal and anal margins together with the upper half of the discal cell suffused with light orange. Veins generally whitish towards the margin in the yellow-pale orange areas and bordered with dark scales.

Length of forewing: 23.7-27.4 mm. (mean, 25.3 mm.)

**FEMALE:** Similar to the male but upperside of wings pale yellow, with dark markings as illustrated (Pl. 1, Fig. 10).

This subspecies differs from typical *xanthodice* (Lucas) from central and southern Colombia in the intensity of the orange suffusion together with the absence of the internervular orange markings of the underside of the hindwing, although in one specimen there is a suggestion of sagittate brown markings in these areas. On the underside there is considerable variation in the width of the dark borders of the hindwing veins. In two male specimens the borders are similar to those found in the typical subspecies but in the remaining specimens they are appreciably wider.

Material examined: HOLOTYPE ♂, Colombia : 18 km. E. of San Pedro, Dept. Magdalena. 10 54'N. 73 53'W. 17.xii.1973. P.Ward. 3850m. 8♂, 2♀ PARATYPES:

7♂ 2 ♀, Colombia: 16-18 km. E. of San Pedro, Dept. Magdalena. 10 54'N. 73 53'W. 16-23.xii.1973. P.Ward. 3650-4000m. 1♂, Colombia, Sierra Nevada de Santa Marta, 1 km. S.E. of Pico José Hilario, 3800m., 10.iii.1975. M.Adams. (Holotype; 5♂ 1♀ paratypes in Allyn Mus., 3♂, 1♀ paratypes in BMNH.)

***Tatochila orthodice carabaya* subsp. n.**

MALE: Head with outer surface of palpi pale yellow; scales behind the eyes orange. Wings above white; forewing above with black markings as illustrated (Pl. 1, Fig. 2). Wings beneath with the base and disc of the forewing white, the apex of the forewing and ground colour of the hindwing being pale yellow; veins of hindwing and forewing apex white, bordered with dark brown; upper half of discal cell, anal cells and costal margin lightly dusted with orange.

Length of forewing: 23.8-32.0 mm. (mean, 27.1 mm.)

FEMALE: Similar to the male but wings above pale yellow, with dark markings as illustrated (Pl. 1, Fig. 7).

Length of forewing: 25.8-27.2 mm.

Differs from typical *orthodice* (Weymer) from Bolivia and Argentina in the dark markings of the forewing being more extensive and intense. Furthermore the outer surfaces of the palpi are pale yellow, not orange. The male genitalia are typical of *orthodice* (Weymer).

Using Herrera & Field's key this subspecies runs out to the *xanthodice-homoeodice* couplet, two species between which it is intermediate in forewing pattern. It is readily separated from *T. homoeodice* Paravicini by the upper half of the discal cell being orange. The distinct submarginal sagittate markings of the forewing above, present in *xanthodice* (Lucas), are largely obscured by the more extensive marginal wedge-shaped markings of this new subspecies.

Material examined: HOLOTYPE ♂, Peru, Agualani, 10,000 ft., i.1902. G. Ockenden. 52♂, 3♀ PARATYPES: 23♂ 1♀, Peru, Limbani, Carabaya, 9-10,000 ft., i-v.1904. G.Ockenden (1♂ presented to both the U.S. National Museum, Washington and the Allyn Museum of Entomology, Sarasota); 1♀, Peru, Limbani, Carabaya, 10,000 ft., xi.1901. G.Ockenden; 8♂, 1♀, Peru, Agualani, 9-10,000 ft., ix-xii.1901. G.Ockenden; 8♂ Peru, Agualani, 9-10,000 ft., x.1905. G.Ockenden; 3♂ Peru, Agualani, 9-10,000 ft., i.1902. G.Ockenden; 4♂ Peru, Oconoque to Agualani, Carabaya, 6-9,000 ft., iii.1905. G.Ockenden; 3♂, Peru, La Oroya to Agualani, Carabaya, x.1904. G.Ockenden; 1♂, Peru, Tirapata, 13,000 ft., iii.1901. G.Ockenden; 1♂, Peru, Limbani, Fruhst. (MNHU, Berlin); 1♂ Peru, Oroya to Limbani, i.1901. G.Ockenden. 4♂ Peru. (All in BMNH unless otherwise stated).

There is in the BMNH one further atypical *orthodice* female from Argentina (Sierra de Cordoba, La Cumbre, 27.iii.1970. 3,500 ft., D. Bannerman). It is more heavily marked than the typical *orthodice* female with a distinct submarginal band in the forewing above (Pl. 1, Fig. 9). It appears to be the most southerly record of this species and may perhaps represent a good subspecies. However, to name it without further material from this region would be premature.

***Tatochila pyrrhomma* Röber stat. rev.**

*Tatochila pyrrhomma* Röber, 1908: 56, pl. 18, figs. d2, d3. LECTOTYPE ♂, Peru, Huancabamba (MNHU, Berlin) here designated [examined].

*Tatochila pyrrhomma* Röber; Herrera & Field, 1959: 511 [as synonym of *Tatochila xanthodice* (Lucas)].

Described from an unstated number of males from Huancabamba. There is in the collection of MNHU, Berlin one specimen (Pl. 1, Fig. 3) which certainly originates from the type series, differing from typical *xanthodice* (Lucas) in having the upper half of the discal cell of the hindwing below yellow, not orange; furthermore the submarginal internervular streaks are absent. This single specimen bears the label 'Huancabamba, N. Peru, 3000m. H.Rolle. Berlin, S.W.11.' and is

designated lectotype, having been labelled accordingly.

There are in the collection BMNH five male specimens which compare well with the lectotype in having the upper half of the discal cell yellow (Pl. 1, Fig. 8) although very faint submarginal streaks are present in the hindwing underside. These specimens all bear the data 'Acopampa, S. Peru, 11,000 ft., ii-iii.1910.' A further male specimen originating from 'Bolivia, Cocopuncu to Pararani, 10,000 ft.', housed in the Allyn Museum collection, is also a representative of this species. The structure of the aedeagus places *pyrrhomma* in Herrera and Field's group D, the *orthodice* group.

Length of forewing: 25.2-28.9 mm. (mean, 27.8 mm.)

Using Herrera and Field's key, this subspecies runs out to the *xanthodice-homoeodice* couplet, the absence of any orange coloration in the upper half of the discal cell showing some affinity in pattern to *homoeodice* Paravicini from which, however, it is readily separated by the presence of a submarginal series of sagittate markings in the upperside of the forewing.

#### ***Tatochila sterodice* Staudinger stat. rev.**

*Tatochila microdice* var. *sterodice* Staudinger, 1899: 18.

*Tatochila sterodice* Staudinger; Giacomelli, 1915: 406, 412, 413. Stat. rev.

*Tatochila microdice* Blanchard; Herrera & Field, 1959: 488 [misidentification].

The type specimens of *microdice* Blanchard were not located by Herrera and Field (1959), but subsequently they have been found in the BMNH collection, and as now noted by Field (personal communication) the true *microdice* is not in fact a *Tatochila* species, but probably belongs to the genus *Hypsochila*. Three Staudinger names, published in the same paper (1899), are available for the actual *Tatochila* species in question and as first reviser I choose the name *sterodice* Staudinger, which least upsets current usage. Following Herrera & Field (1959), *Tatochila sterodice* has four subspecies, the names of which are now as follows:-

#### ***Tatochila sterodice sterodice* Staudinger**

*Tatochila microdice* var. *sterodice* Staudinger, 1899: 18, 19. NEOTYPE ♂, Chile, Punta Arenas (BMNH), here designated.

*Tatochila microdice allodice* Bryk, 1944: 5, pl. 1, fig. 2. HOLOTYPE ♀, Argentina, Peninsula Llau llau (Riksmuseet, Stockholm) [Synonymized by Herrera & Field, 1959: 486].

*Tatochila microdice microdice* Blanchard; Herrera & Field, 1959: 488, pl. 3, fig. 11. [misidentification].

The original description of *sterodice* Staudinger is based on three specimens originating from Rio Grande and Punta Arenas, but according to Herrera and Field (1959) the syntypic series was destroyed during World War II. In order to stabilize the nomenclature of this species a single male specimen (Pl. 1, Fig. 4), housed in the BMNH, bearing the labels 'Punta Arenas. xii-10-93' and 'Levick Bequest. 1941-83' is here designated neotype and has been labelled accordingly.

#### ***Tatochila sterodice fuegensis* Field**

*Tatochila microdice fuegensis* Field; in Herrera & Field, 1959: 490, pl. 4, figs. 12, 12a. HOLOTYPE ♂, Argentine, Tierra del Fuego, Puerto Harberton (Universidad Nacional de Tucuman, Argentine).

#### ***Tatochila sterodice macrodice* Staudinger**

*Tatochila microdice* var. *macrodice* Staudinger, 1899: 21. LECTOTYPE ♂, Bolivia, La Paz, Achacachi (MNHU, Berlin) designated by Herrera & Field,

1959: 492.

*Tatochila microdice macrodice* Staudinger; Herrera & Field, 1959: 492.

The lectotype bears the label 'Achacachi, La Paz, Bolivia, 18.9.93., Garlepp'. Additionally there are in the collection MNHU, Berlin eight further specimens, all paralectotypes, bearing the following data: 1♂ 'Hullatani, Bolivia, 5000m. 92. Garlepp'; 1♂ 'Malaga, Bolovia, 4-5000m. Garlepp'; 1♂ 1♀, 'Illimani, 3000-4500m. 95. Garlepp'; 1♂ 2♀, 'Huallat., Garl.'; 1♂ 1♀, 'La Paz, Bolivia. 95. Garlepp'; each specimen also carries the usual Staudinger 'Origin' label.

### ***Tatochila sterodice arctodice* Staudinger**

*Tatochila microdice* var. *arctodice* Staudinger, 1899: 19. LECTOTYPE ♂, Ecuador (MNHU, Berlin) here designated.

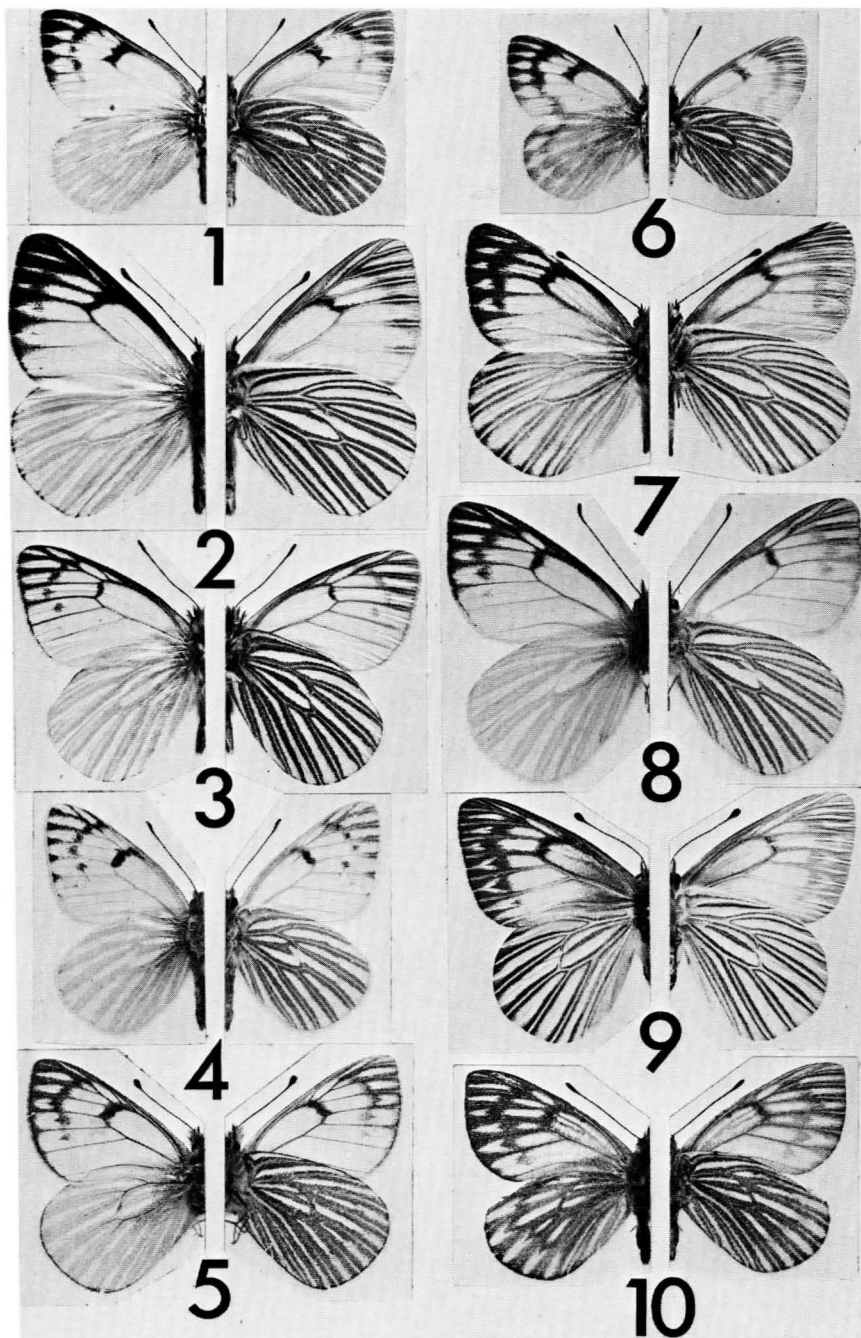
*Tatochila microdice arctodice* Staudinger; Herrera & Field, 1959: 494.

There are in the collection MNHU, Berlin seven specimens which certainly originate from the type series in addition to the specimen studied by Herrera & Field which bears the label 'Ecuador, 88. Dogn.'. In order to entirely stabilize the nomenclature of this species the specimen studied by Herrera & Field (1959) is here designated lectotype, the other seven specimens being similarly designated paralectotypes, having been labelled accordingly. In addition to the normal Staudinger 'Origin' labels the paralectotypes bear the following data: 1♂, '?Columb.'; 1♂ 'Columb?Wallis'; 1♂, 1♀, 'Malachi, 9-10,000 ft., Whymp. March 80.' and 'Ecuador'; 1♀, 'coll. v. Schenck. Cauca, Wallis'; 1♀, 'Rio Dagua, Columb. occ. 95. Kalbr.'; 1♀ 'Ecuador. 88. Dogn.'.

Since I have had the opportunity of studying the bulk of the type material of *Tatochila* housed in the MNHU, Berlin and in the BMNH, it seems opportune to give a list of the types as Herrera & Field (1959) were only able to see representatives of the type series. The taxa are listed alphabetically followed by the reference to the original description, together with the original status and combination. The category and number of types are given along with the data quoted directly from the labels beneath the specimens, the sign '/' indicating the extent of each label. The current status and combination, taken from Herrera & Field (1959), is noted where it differs from the original.

### PLATE 1, Upper & Under sides

- Fig. 1 *Reliquia santamarta* gen. n., sp. n. HOLOTYPE ♂ (Colombia, Upper Rio Cambirumeina).
- Fig. 2 *Tatochila orthodice carabaya* subsp. nov. HOLOTYPE ♂ (Peru, Agualani).
- Fig. 3 *T. xanthodice pyrrhomma* Röber, LECTOTYPE ♂ (Peru, Huancabamba).
- Fig. 4 *T. sterodice sterodice* Staudinger, NEOTYPE ♂ (Chile, Porvenir).
- Fig. 5 *T. xanthodice paramosa* subsp. nov. HOLOTYPE ♂ (Colombia, Dept. Magdalena).
- Fig. 6 *Reliquia santamarta* gen. n., sp. n., PARATYPE ♀ (Colombia, Sierra Nevada de Santa Marta).
- Fig. 7 *Tatochila orthodice carabaya* subsp. nov. PARATYPE ♀ (Peru, Limbani).
- Fig. 8 *T. xanthodice pyrrhomma* Röber (Peru, Acopampa).
- Fig. 9 *T. orthodice* subsp. nov.? (Argentina, La Cumbre).
- Fig. 10 *T. xanthodice paramosa* subsp. nov. PARATYPE ♀ (Colombia, Dept. Magdalena).





- arctodice** Staudinger, 1899: 19 (as var. of *Tatochila microdice*) Lectotype ♂, Ecuador (MNHU, Berlin) [see p. 6].
- blanchardii** Butler, 1881: 472 (as species of *Tatochila*). Lectotype ♂, 1♀ paralectotype in BMNH. 'Valparaiso. 82.17.' Lectotype designated by Herrera & Field, 1959: 485.
- ernestae** Herrera, 1954: 140 (as subsp. of *Tatochila blanchardii*). 1♂, 1♀, paratypes in BMNH. 'Iquique. 15.i.49. Etcheverry'/'Brit.Mus. 1955-157.'
- homoeodice** Paravicini, 1910: 23 (as species of *Tatochila*). Lectotype ♂, 1♀ paralectotype in BMNH. 'N.Peru, Huancabamba.'/'Levick Bequest, B.M. 1941-83.' Lectotype in effect designated by Herrera & Field, 1959: 503.
- immaculata** Röber, 1908: 57, pl. 18, figs. e2, e3 (as form of *Tatochila stigmadice*). 1♂ syntype in MNHU, Berlin. 'N.Argent'. Currently placed as a synonym of *Tatochila stigmadice* Staudinger.
- joergenseni** Röber, 1924: 1015 (as species of *Tatochila*). Holotype ♂ in MNHU, Berlin. 'Banos, (Ecuad). R.Haensch S.' Currently placed as a synonym of *Tatochila sagittata* Röber.
- macrodice** Staudinger, 1899: 21 (as var. of *Tatochila microdice*). Lectotype ♂, Bolivia (MNHU, Berlin) [see p. 5].
- orthodice** Weymer; in Weymer & Maassen, 1890: 99, 124, pl. 3, fig. 20 (as species of *Pieris*). 2♂ syntypes in MNHU, Berlin. 1♂, 'Cotana in Bolivia. 87. Stubel.'/'Typus.'/'Coll. Weymer.' 1♂, 'Bolivia.' Currently placed as a species of *Tatochila*.
- punctata** Jörgensen, 1916: 467 (as form of *Tatochila stigmadice* Staudinger). 5♂, 2♀ syntypes in BMNH. 'Esquina Grande.'/'Brit.Mus. 1924-323.' 2♂, 'Argent. 2000m. 20.xi.1915. (Jörgensen).' 1♂, 'Catamarca, Argentine Rep. 1640m. 25.xi.1915.' 1♂, 'Catamarca, Argentine Rep. 1640m. 27.xi.1915.' 1♀, 'Catamarca, Argentine Rep. 1640m. 30.xi.1915.' 1♀, 'Catamarca, Argentine Rep. 1640m. 21.xi.1915.' Currently placed as a synonym of *Tatochila stigmadice* Staudinger.
- sagittata** Röber, 1908: 57, pl. 18, fig. e1 (as species or form of *Tatochila*). Lectotype ♂ in MNHU, Berlin. 'Huancabamba, N.Peru, 3000m. H.Rolle. Berlin S.W.11.' Currently placed as a species of *Tatochila*.
- sterodice** Staudinger, 1899: 18, 19 (as var. of *Tatochila microdice*). Neotype ♂, Chili (BMNH) [see p. 5].
- stigmadice** Staudinger, 1894: 62 (as species of *Pieris*). 1♂ lectotype, 4♂ paralectotypes in MNHU, Berlin. ♂ lectotype, 'Cocapata, Bolivia 3500m. 92. Garlepp.'/'Origin.' 4♂ paralectotypes, 'Cocapata, Garlepp.'/'Origin.' 1♂ paralectotype in BMNH. 'Cocapata, Garlepp.'/'Godman-Salvin Coll. 96-12.' Currently placed as a species of *Tatochila*. Lectotype designated by Herrera & Field, 1959: 509.
- vanvolxemii** Capronnier, 1874: 11, pl. 1, fig. 1 (as species of *Pieris*). Holotype ♂ in BMNH. '651. Buenos Ayres. 21.xii.1872. V.V.' Currently placed as a species of *Tatochila*.

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