

Types of Flatidae. XXIV. Type designations and taxonomic notes on species in the Natural History Museum of Geneva (Homoptera, Auchenorrhyncha, Fulgoroidea)

John T. MEDLER

Bishop Museum, Honolulu, Hawai'i, 96817, USA.

Types of Flatidae. XXIV. Type designations and taxonomic notes on species in the Natural History Museum of Geneva (Homoptera, Auchenorrhyncha, Fulgoroidea). - Type specimens of 8 species named by Melichar were examined. Valid status for 4 holotypes, 2 lectotypes and 3 paralectotypes was determined. Taxonomic data were integrated with records on syntypes deposited elsewhere. New synonymy: *Ormenis conformis* Melichar, a junior synonym of *Ketumala bisecta* (Kirby). New combinations: *Ormenis chloris* Melichar = *Flatormenis chloris* (Melichar); *Ormenis conflicta* Melichar = *Anaya conflicta* (Melichar); *Ormenis debilis* Melichar = *Anormenis debilis* (Melichar).

Key-words: Flatidae - type specimens - Melichar - taxonomic notes.

INTRODUCTION

In his revisional monograph of the family Flatidae, Melichar (1901, 1902) recorded the Natural History Museum of Geneva [Genf] as depository for 20 species of Flatidae, including 11 species described as new.

Five of the Melichar types examined on loan from the Natural History Museum of Geneva had a standardized label with accession number 600/## and locality data transcribed from the original label also affixed to the pin. Melichar's original handwritten determination label was found on 3 specimens labeled otherwise, but in agreement with publication data. They are considered here to be valid syntypes.

Most of the types are females. If available, a male specimen associated with a female was used for dissection and illustration of genitalia. Such specimens bear my blue plesiotype label. This term has no status under nomenclatural rules, but the label identifies the specimen in relation to published data, and enables accurate examination by a future worker.

I also examined syntypes of several species in the Natural History Museum of Geneva that were distributed by Melichar to other museums or retained in his personal collection. Codens sensu Arnett *et al.* (1993) are used to specify the museums, as follows:

- BPBM Bernice P. Bishop Museum, J. Linsley Gressitt Center for Research in Entomology, Honolulu, HI, 96817 USA.
 DEIC Deutsches Entomologisches Institut, Eberswalde, Germany.
 HNHM Hungarian Natural History Museum, Budapest, Hungary.
 MHNG Muséum d'histoire naturelle, CH-1211 Geneva 6, Switzerland.
 MMBC Moravian Land Museum, Department of Entomology, Brno, Czech Republic.
 NHMW Naturhistorisches Museum, Zool. Abt., Vienna, Austria.
 USNM US National Museum of Natural History, Washington, DC, USA.
 ZMUC Zoological Museum, University of Copenhagen, Denmark.

Morphometric measurements are recorded in mm according to the following format: Length: overall; v (vertex); f (frons); p (pronotum); m (mesonotum); t (tegmen); pcl (postclaval sutural margin). Width: v (vertex); f (frons); t (tegmen). The spine formula gives sequence of metatibial lateral spine(s): metatibial apical spines: metatarsal I basal spines.

CATALOGUE

Types are arranged by species name in alphabetical sequence. Each name and generic combination is associated with reference to original publication, along with currently valid status of the name in the 1957 Catalogue of Metcalf, unless a new combination is proposed here.

albobaculata, *Dascalia*, Melichar, 1902: 150, pl. 7, fig. 4, habitus illustration in lateral view; *Leptodascalia*, Metcalf, 1957: 450.

MHNG: Paralectotype ♀, 600/53, Amer. merid., coll. Jurine, det. Melichar; here designated.

ZMUC: Lectotype ♂, Bahia, designated by Medler (1994: 98).

Measurements: Lectotype ♂, Paralectotype ♀ - Length: overall 11.25, 12.5; v 0.25, 0.33; f 1.29, 1.66; p 0.42, 0.50; m 2.49, 2.82; t 8.80, 10.79; pcl 3.32, 3.49. Width: v 1.29, 1.41; f 1.58, 1.74; t 4.32, 4.48. Hind leg spine formula: 2:6:7, 2:(?:? hidden). Measurements show the female larger than the male in all parameters.

Taxonomic note: In the original description Melichar cited syntypes from Brazil: Espirito Santo and Bahia [States !] in Breddin's collection, and MHNG, HNHM and ZMUC. The syntype ♂ from Bahia, at ZMUC was designated lectotype and genitalia illustrated by Medler (1994: 98, Fig. 1). The syntype in the Breddin collection at DEIC is a ♀ labeled from Bahia. The syntype recorded as deposited at HNHM was not found by Medler (1993b: 38).

breviceps, *Carthaeomorpha*, Melichar, 1902: 34; Metcalf, 1957: 229.

MHNG: Paralectotype ♀, 600/77, Bresil: Bahia, L.F. Pictet, here designated.

Measurements: Paralectotype ♀ - Length: overall 14.0; v 0.50; f 1.83; p 0.66; m 3.32; t 11.92; pcl 3.32. Width: v 1.33; f 1.99; t 6.64. Hind leg spine formula: 2:6:8.

Taxonomic note: In his original description Melichar cited ♂ and ♀ syntypes, "Bahia Brasilien", one each in NHMW and MHNG. Medler (1993a: 435) designated a lectotype ♀ labeled "Lacerda Brasilien", Signoret Collection, det. Melichar, NHMW. The sex of the syntype at MNHG was erroneously recorded as ♂, and the specimen lacks a det. Melichar label. However, my designation as paralectotype ♀ is considered to be valid. No ♂ from Brazil was available for measurements and illustration of genitalia.

chloris, *Ormenis*, Melichar, 1902: 89, pl. IV, fig. 18. *Anormenis*, Metcalf, 1957: 303. *Flatormenis chloris* (Melichar), **comb. n.**

MHNG: Holotype (abdomen and thorax missing, tegmina detached), 600/81, Etats Unis: Tenesse (sic!), det. Melichar.

My illustration of the holotype tegmen (Fig. 3) compares favorably with tegmen illustrated by O'Brien (1985, Fig. 6), but accentuates apical venation. A ♂ from Arlfarm, Rosslyn, Virginia, and a ♀ from Montgomery Co., Virginia, USNM, were selected for measurements. The genitalia of the Arlfarm ♂ correspond to genitalia illustrated by O'Brien (1985, Fig. 8).

Measurements: Holotype (partial): Frons: length 0.83, width, 1.16; tegmen: length 6.31, pcl 1.99; width 3.32.

Measurements (complete): ♂, ♀, Virginia, USA - Length: overall 9.0, 10.0; v 0.17, 0.21; f 1.00, 1.08; p 0.42, 0.50; m 1.99, 2.16; t 8.30, 9.13; pcl 2.32, 2.82. Width: v 1.16, 1.33; f 1.45, 1.49; t 3.82, 4.32. Hind leg spine formula: 2:7:8, 2:7:8.

Taxonomic note: O'Brien (1985: 660, Figs 4-8) reported on the holotype and illustrated head, tegmen and genitalia. My research on *Flatormenis* Melichar in Central America, Mexico and Southwestern USA revealed that all known species of the genus have similar genitalia pattern as that of the O'Brien plesiotype of *chloris* from St. Tamany Parish, Louisiana.

conflicta, *Ormenis*, Melichar, 1902: 83; *Melicharia lactifera*, Metcalf, 1957: 329. *Anaya conflicta* (Melichar), **comb. n.**

MHNG: Holotype ♀, Trincomalia, A. Humbert, 216, det. *Ormenis proxima* Mel.

The tegmen illustration (Fig. 4) shows both angles evenly rounded and a linear arrangement of apical veins interrupted by a continuous line of subapical crossveins. The species may be recognized by uniformly white tegmina, distinctive pattern of apical veins, oblique crease extending from claval apex, and 5-6 small teeth on valvulae III.

Measurements: Holotype ♀ - Length: overall 9.0; v 0.46; f 1.16; p 0.50; m 2.16; t 7.97; pcl 1.99. Width: v 0.83; f 1.08; t 4.15. Hind leg spine formula: 2:6:8.

Taxonomic note: Melichar (1903: 90) listed specimens of *O. conflicta* from Trincomalee, Matala, Paradna, and Puttalam. The record from Trincomalee [Trincomalia] is probably the holotype cited by Melichar in original description. The holotype of *conflicta* remained unrecognized under the attached label names "*Ormenis proxima*" det. Melichar, and "*Ormenis conformata*", both in error. However, *O. conflicta* and *O. proxima* are related species belonging in the genus *Anaya* Distant.

Melichar (1923: 70) and Metcalf (1957: 323) listed *O. conflicta* as a junior synonym of *Melicharia lactifera* (Walker), also in error.

conformata, *Ormenis*, Melichar, 1902: 87; *Anormenis*, Metcalf, 1957: 303.

MHNG: Lectotype ♂, Rosario, det. Melichar, here designated.

Head and tegmen are illustrated in Figs 2a, 2b, 2c. The genital capsule was partially crushed and unsuitable for illustration.

Measurements: Lectotype ♂ - Length: overall 7.5; v 0.25; f 0.83; p 0.33; m 1.49; t 6.31; pcl 1.99. Width: v 0.83; f 1.00; t 2.99. Hind leg spine formula: 2:7:8.

Taxonomic note: Melichar cited "Amerika" as provenance for *O. conformata* and did not record a depository for ♂ and ♀ syntypes. The specimen from "Rosario, det. Melichar" is considered a valid syntype. The specific locality of "Rosario" is unknown. This name is found in various American localities: e.g., Argentina, Brazil, Chile, Mexico, Paraguay, Uruguay and Venezuela. Although *O. conformata* and *O. perpusilla* appeared to Melichar similar in form and size, diagnostic characters differ, and the two species are not congeneric.

conformis, *Ormenis*, Melichar, 1902: 73; *Melormenis*, Metcalf, 1957: 332; *Ketumala bisecta* Kirby, 1891: 152, Fig. 5, **syn. n.**

MHNG: Holotype ♂, 600/53, Trincomalie, Ceylan, A. Humbert, 104, det. Melichar.

Genitalia of the holotype are illustrated in Fig. 6. Characters are indistinguishable from numerous specimens from Ceylon that I have determined as *Ketumala bisecta* (Kirby).

Measurements: Holotype ♂ - Length: overall 7.0; v 0.33; f 0.83; p 0.50; m 1.16; t 5.64; pcl 1.16. Width: v 0.83; f 1.08; t 2.66. Hind leg spine formula: 2:7:7.

Taxonomic note: The provenance of the holotype is Sri Lanka [Ceylon] not "Nordamerika" cited by Melichar in error. Melichar considered the species very similar to his *O. fuscata* from Ceylon.

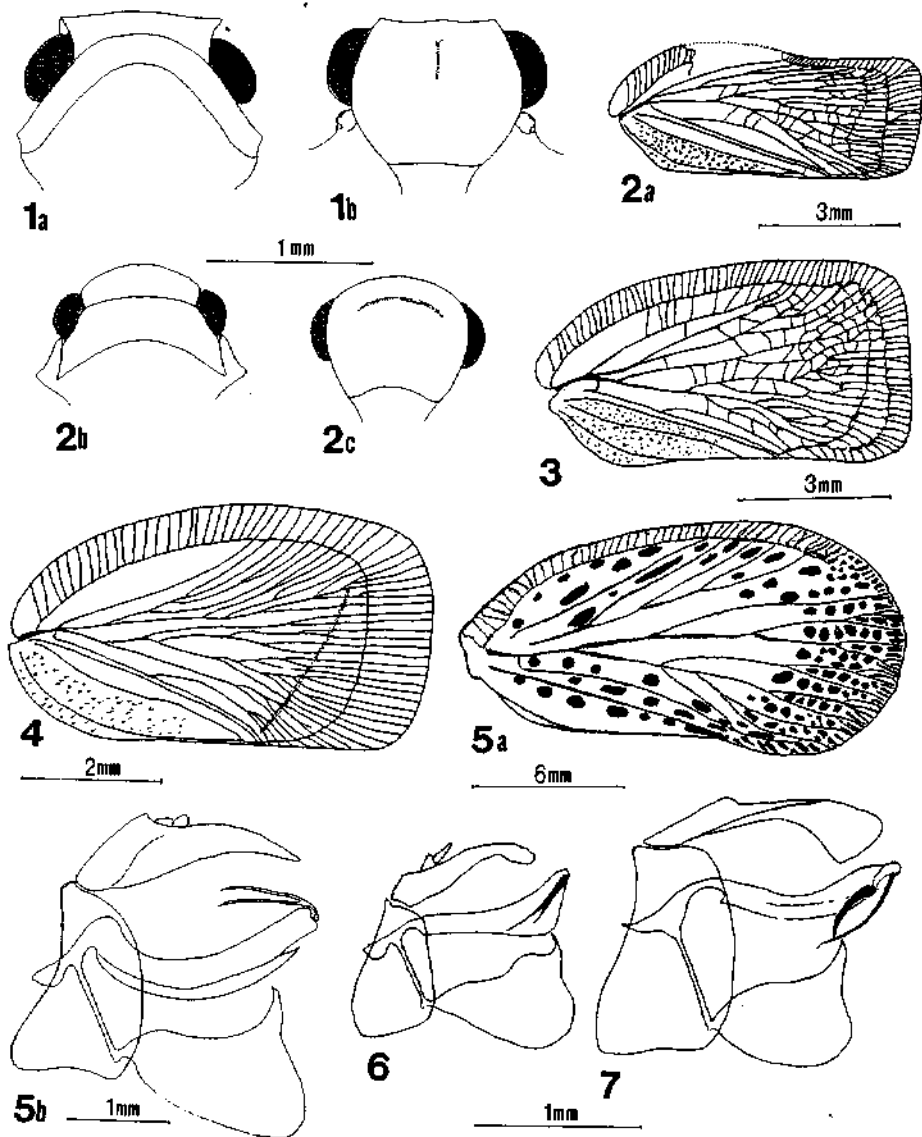
debilis, *Ormenis*, Melichar, 1902: 87; *Hansenia*, Metcalf, 1957: 280; *Anormenis debilis* (Melichar), **comb. n.**

MHNG: Holotype ♀, Cordilleren, 2000 m. (no other data), Head and genitalia are illustrated in Figs 1a, 1b, 7.

BPBM: Plesiotype ♂, Panama: Cerro Azul, Sendero.

Measurements: Plesiotype ♂, holotype ♀ - Length: overall 7.0, 7.0; v 0.17, 0.17; f 0.83, 0.83; p 0.33, 0.33; m 1.49, 1.49; t 6.47, 6.97; pcl 1.83, 1.99. Width: v 0.83, 0.83; f 1.04, 1.08; t 3.32, 3.15. Hind leg spine formula: 2:6:7, 2:6:7.

Taxonomic note: The provenance "Cordilleren" is not a precise locality, but applies in general to the range of Andes mountains extending in Colombia, Bolivia and Peru. The holotype belongs to a complex of *Anormenis* species in Central and South America that is easily recognized by a dark spot on the apex of antennal segment II, as shown in Fig. 1b.



FIGS 1-7

Ormenis debilis Melichar. Fig. 1a, head, 1b, frons, 7, male genitalia. *Ormenis conformata* Melichar. Fig. 2a, tegmen, 2b, head, 2c, frons. *Ormenis chloris* Melichar. Fig. 3, tegmen. *Ormenis conflicta* Melichar. Fig. 4, tegmen. *Poekilloptera pantherina*, Fig. 5a, tegmen, 5b, male genitalia. *Ormenis conformis*, Fig. 6, male genitalia.

fuscata, *Ormenis*, Melichar, 1902: 73; *Seliza nigropunctata* Kirby, Metcalf, 1957: 408.

MHNG: Type material not found.

MMBC: Lectotype ♀, Ceylon, *fuscata* det. Melichar.

Taxonomic note: Melichar (1903: 89) listed the species from Patipolla. Distant, 1906:443, and 1916:124, queried *O. fuscata* as junior synonym of *S. nigropunctata* Kirby. Melichar, 1923:89, and Metcalf, 1957: 408, catalogued the synonymy as valid.

pantherina, *Poekilloptera suturata*, Melichar 1901: 239; *Poekilloptera fritillaria* var. *pantherina*, Metcalf, 1957: 83.

MHNG: Lectotype ♀, paralectotype ♀, Brazil: Amazonas, Sto Paulo d'Olivencia, M. de Mathan, coll. Autran, var. *pantherina* det. Melichar, here designated.

BPM: Plesiotype ♂, Brasil: Distrito Federal, 8 km W of Planaltina, 3.xi.1993, coll. G.M. Nishida.

Measurements: Plesiotype ♂, lectotype ♀. Length: overall 17.0, 20.0; v 0.83, 0.66; f 1.49, 1.66; p 0.83, 0.66; m 2.49, 3.49; t 15.27, 17.60; pcl 2.32, 2.49. Width: v 1.33, 1.33; f 1.66, 1.66; t 8.63, 9.96. Spine formula: 1:7:7, 1:6:4.

Taxonomic note: The diagnosis of var. *pantherina* in original publication by Melichar (1901: 239) was "Die schwarze Zeichnung der Zellen geht bis zum Apicalrande (Museum in Genf)." The tegmen illustration of the plesiotype (Fig. 5a) shows black markings extending to the apical margin. The genitalia of the plesiotype ♂ are illustrated in Fig. 5b.

Melichar's brief diagnosis gave no label information on two syntypes at MHNG and 3 at MMBC, each ♀, and with the same locality, collector and det. Melichar labels. My lectotype and paralectotype designations apply to specimens at MHNG.

propria, *Dascalia*, Melichar, 1902: 146; *Paradascalia*, Metcalf, 1957: 448.

MNHG: Holotype ♀, Sudamerika, original citation by Melichar. Type material was not found.

proxima, *Ormenis*, Melichar, 1902: 83; *Anaya proxima* (Melichar), Metcalf, 1957: 441. MHNG: Type material was not found.

NHMW: Holotype ♀ of *proxima*, Ceylon, (*Anaya*) designated by Medler 1987: 536.

Taxonomic note: A ♂ unambiguously belonging to *proxima* has not been available for genitalia study.

ACKNOWLEDGEMENTS

This work was made possible in large part by facilities provided by the J. Linsley Gressitt Center for Research in Entomology, Bernice P. Bishop Museum. I am pleased to acknowledge technical help of David Preston for digital photographs of tegmina that were utilized for line drawings. I appreciate very much the help given by Dr Peter Schwendinger, Curator at the Natural History Museum of Geneva, for expediting loans of type materials.

REFERENCES

- ARNETT, R. H., Jr., SAMUELSON, G. A. & NISHIDA, G. A. 1993. The insect and spider collections of the world. *Flora & Fauna Handbook*, No. 11, 310 pp.
- DISTANT, W. L. 1906. The Fauna of British India, including Ceylon and Burma. Rhynchota. Heteroptera-Homoptera. Vol 3: 397-464, Figs 205-252.
- DISTANT, W. L. 1916. The Fauna of British India, including Ceylon and Burma. Rhynchota, Homoptera, Vol. 6: 1-248 (Appendix).
- KIRBY, W. F. 1891. Catalogue of the described Hemiptera Heteroptera and Homoptera of Ceylon based on the collection formed (chiefly at Pundaloya) by Mr. E. Ernest Green. *Journal of the Linnean Society of Zoology* 24: 126-174, Pls 5-6.
- MEDLER, J. T. 1987. Types of Flatidae (Homoptera) IV. Lectotype designations and taxonomic notes on species in the Vienna Museum. *Annalen des Naturhistorischen Museums Wien* 88/89 B: 535-539.
- MEDLER, J. T. 1993a. Types of Flatidae (Homoptera) XVIII. Lectotype designations for Fowler and Melichar type specimens in the Museum of Natural History in Vienna, with 2 new genera and a new species. *Annalen des Naturhistorischen Museums Wien* 94/95 B 433-450.
- MEDLER, J. T. 1993b. Types of Flatidae (Homoptera) XIX. Lectotype designations and taxonomic notes on species in the Budapest Museum, Part 2. *Annales historico-naturales musei nationalis Hungarici* 85: 37-45.
- MEDLER, J. T. 1994. Types of Flatidae (Homoptera) XXI. Review of Melichar types in the Zoological Museum, Copenhagen, with lectotype designations. *Steenstrupia* 20: 97-100.
- MELICHAR, L. 1901. Monographie der Acanaloniiden und Flatiden (Homoptera). *Annalen des Naturhistorischen Museums Wien* 16: 178-258.
- MELICHAR, L. 1902. Monographie der Acanaloniiden und Flatiden (Homoptera) (Fortsetzung). *Annalen des Naturhistorischen Museums Wien* 17: 1-123, Pls I-IX.
- MELICHAR, L. 1903. Homopteren-Fauna von Ceylon. 1903: 1-248, Pls 1-6.
- MELICHAR, L. 1923. Homoptera, fam. Acanaloniidae, Flatidae et Ricaniidae. *Genera Insectorum* 182: 1-185, Pls 1-2.
- METCALF, Z. P. 1957. General Catalogue of the Homoptera, Fasc. IV, Part 13, Flatidae. *North Carolina State College, Raleigh, N. C.*, 565 pp.
- O'BRIEN, L. 1985. New synonymies and combinations in New World Fulgoroidea (Achilidae, Delphacidae, Flatidae, Fulgoroidea: Homoptera). *Annals of the Entomological Society of America* 78: 657-662.
- O'BRIEN, L. 1985. New synonymies and combinations in New World Fulgoroidea (Achilidae, Delphacidae, Flatidae, Fulgoroidea: Homoptera). *Annals of the Entomological Society of America* 78: 657-662.