

Caducity in the tegmina of Flatidae (Fulgoroidea).

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Carver¹ used the term caducity to describe palisades of cells breaking off along a continuous line at vein "CP" and the base of the apical cells in tegmina of *Mimophantia stictica* (Melichar). The only other species of flatid known with caducity was *Paranotus trivirgatus* Karsch recorded by Medler².

Incidental to my research on historical type specimens of New World Flatidae, I noticed unusual frequency of caducity in specimens borrowed from Paris, Stockholm and Vienna museums. Caducity was found in specimens from other collections also.

Caducity was recorded in 102 specimens representing 30 species mostly from South America. Extent of breakage was determined by measuring the gaps along vein C from its base to junction with the submarginal line. Gap data were transformed to percentage of loss in relation to length of vein C (mm loss / mm costal length). For 154 observations, the mean and SD of percent loss was 50.8 +/- 34.9, range 3.3 - 100 percent. Percent losses were: 81 females, 54.0 +/- 33.9; 73 males, 47.3 +/- 35.6; 22 right tegmina, 31.8 +/- 23.7; 16 left tegmina, 24.2 +/- 20.0; 114 both tegmina, 59.5 +/- 35.1.

Consistency of the submarginal crossvein as a parameter for measuring length of vein C is shown in Plate I, Figs 1 - 8. The figures also show variable configurations of breakage gaps. Lengths of costal veins as delimited by the submarginal vein ranged from 4.5 to 11.0 mm. Plate 2 shows the average percentages of loss in relation to vein lengths. There were no significant differences between the averages and different lengths of the costal vein.

Analysis of data indicated that caducity occurred at random with regard to sex, right or left tegmen and length of costal vein.

Caducity occurred mostly in generic complexes of *Dascalia* and *Ormenis* (Appendix List of Species). The frequency of breakage was associated with venation morphology, namely (1), presence of a sinuate submarginal line of cross veins that extended from claval apex to vein C, and (2), strong development of a "fracture line" adjacent to vein C. Caducity was not observed apical of the junction of vein C and the submarginal line of crossveins.

Close examination of tegmina revealed the presence of a fracture line adjacent to vein C. This line was strongly developed basally, but not found beyond the junction of veins C and R. This junction is located a short distance basad of the origin of the submarginal line of crossveins.

The extensive caducity in the apical margin of *Mimophantia stictica* is unique. Carver speculated that the narrowed hind wing in that species may be associated with caducity in the forewing. All South American species have normal hind wings and no apical breakage in the tegmina. It is concluded that the development of a fracture line provides a basic mechanism for the caducity reported here.

References

1. CARVER, M. 1992, *The Entomologists* 111:24-26.
2. MEDLER, J.T. 1990. *Dtsch. ent Z*, N.F. 37: 105-118.

PLATE I, Fig. 1 - 8. Illustrations of caducity in the tegmen of various flatids (diagrammatic). 1, *Flataloides* sp.; 2, *Epormenis cestri* (Berg); Fig. 3, *Dascalia* sp.; 4, *Dascalia sinuatipennis* (Stal); 5, *Ormenis antoniae* Melichar; 6, *Dascalia emota* Melichar; 7, *Paradascalia antiqua* (Stal); 8, *Phalaenomorpha dorsisigna* (Walker). Scale bar = 10 mm.

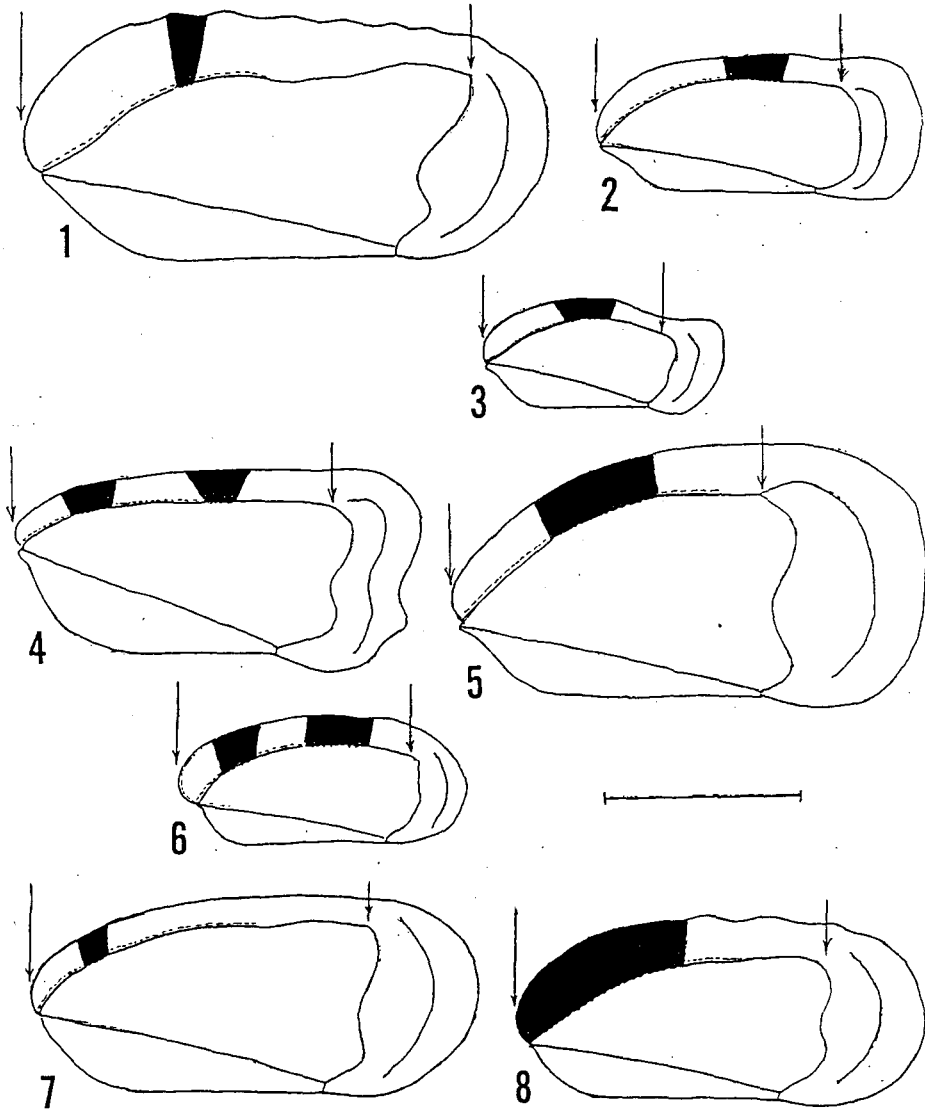
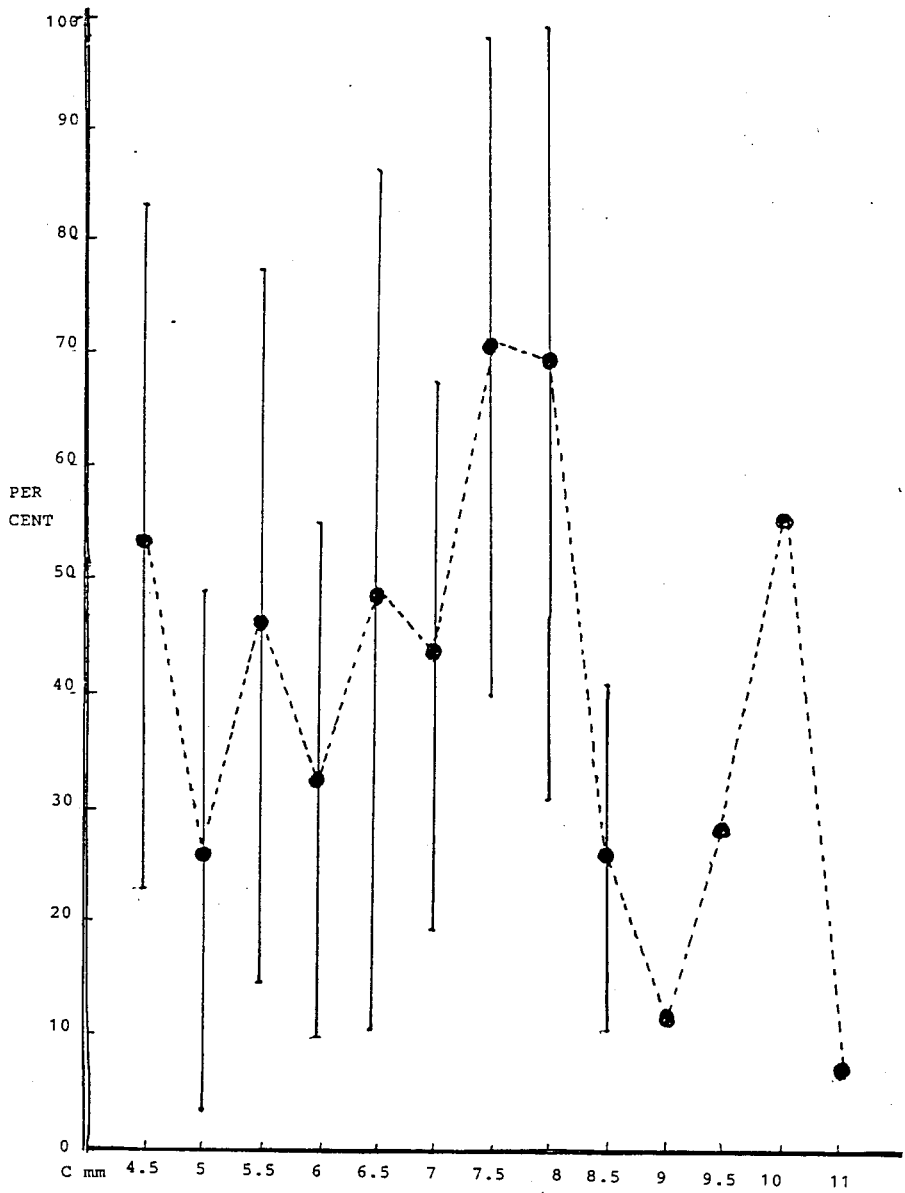


PLATE II. Average losses in relation to specimen size, as indicated by various lengths of vein C.



APPENDIX. List of species and specimens providing caducity data base, along with country, sex and depository museum.

ORMENIS complex

- Anormenis discus (Walker), Peru:♂,CALIFORNIA ACAD.SCI.;♀,PARIS.
Anormenis sp. nr discus, Ecuador:♂, STOCKHOLM.
Anormenis sp. nr media (Melichar), Brazil:♂, STOCKHOLM.
Epormentis roscida (Germar), Ecuador, Fr. Guyana:♂, LONDON;♀,PARIS;♂,
STOCKHOLM. Flatormenis dolobrata (Fowler), Mexico: 2♀, CALIFORNIA ACAD.
SCI.
Flatormenis panamensis (Schmidt), Panama: 2♀, BISHOP.
Leptormenis sp., Brazil: ♀, BISHOP;♂,♀, NC STATE UNIV.
Melormenis sp., Mexico: 4♀, CALIFORNIA ACAD. SCI.
Ormenis antoniae Melichar, Brazil, Fr.Guiana,Ecuador,Guyana, Peru:2♂,2♀,
LONDON:14♂,12♀, CALIFORNIA ACAD.SCI.;2♂,PARIS;2♂, STOCKHOLM.
Ormenis cestri Berg, Argentina, Brazil, Colombia, Uruguay, Venezuela:♂, 2♀,
CALIFORNIA ACAD. SCI.; 2♂, 3♀, PARIS; 2♂,♀, STOCKHOLM;2♂, VIENNA.
Ormenis inferior Fowler, Mexico:♂, STOCKHOLM.
Ormenis pallida (Fabricius), Brazil:♂,♀, PARIS.
Ormenis septentrionalis (Signoret), [locality unknown]:♂,LONDON.
Ormenis testacea (Walker), Brazil:♀, VIENNA.
Ormenis sp., Mexico:♀, CALIFORNIA ACAD. SCI.
Ormenis sp. nr cestri, Venezuela:♀, PARIS.
Ormenis sp., Brazil:♀, PARIS.
Ormenis sp., Costa Rica,♀, PARIS.
Ormenis sp. nr Petrusa Stal, Venezuela, 2♀, PARIS.

DASCALIA complex

- Dascalia albomaculata (Melichar), Brazil:♂, PARIS.
Dascalia emota (Melichar), Brazil:♂, PARIS.
Dascalia sinuatipennis (Stal), Brazil, Peru: 2♂, CALIFORNIA ACAD. SCI.; 4♀, PARIS.
Dascalia sp., Peru:♀, CALIFORNIA ACAD. SCI.
Dascalia sp. nr. ♂1, Brazil, Paraguay:♂,♀, VIENNA.
Paradascalia antiqua (Stal), Brazil:♂, 2♀, PARIS; ♂, VIENNA.
Paradascalia revistita (Melichar), Brazil:♀, VIENNA.
Paradascalia sp., Brazil: 2♀, PARIS.

FLATOIDES Complex

- Flataloides sp., Brazil:♀, PARIS.
Phalaenomorpha dorsisigna (Walker), Fr. Guiana, Peru:♂,1♀, CALIFORNIA ACAD.
SCI.;♂, PARIS.