

Nachtrag zum Laufkäferverzeichnis von 1952. Verh. des Vereins f. naturwissensch. Heimatforschung zu Hamburg, 31. Stade. — MAKOLSKI, J. 1952. Revue of Central-European species from the *Badister bipustulatus* Fabr. group with description of a new species (Coleoptera, Carabidae). Annales Mus. Zool. Polonici, XV, p. 7–23.

Notes on some Fulgorids collected in Canada by professor Håkan Lindberg during the summer of 1956 (Homoptera, Fulgoroidea).

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In the summer of 1956 Professor HÅKAN LINDBERG went to Canada for the X International Congress of Entomology at Montreal on August 17–25. Before and after the congress he was able to collect insects for a few weeks in various localities in the Provinces of Quebec and Ontario. I have been entrusted with the task of identifying the fulgorids collected by him. As the material included some additions to the publications by MOORE (1944, 1950) on the Hemiptera of Quebec Province I am publishing this list of the species found by Professor LINDBERG.

Superfamily *Fulgoroidea* LATR.

Family *Cixiidae* SPIN.

Oliarus humilis SAY — 1 ♂, July 24–30, Quebec, Hudson Heights.

Cixius basalis VAN D. — 1 ♀, July 24–30, 2 ♀♀, August 25–31, Quebec, Hudson Heights; 1 ♀, August 1, W. Ontario, Sibley Park; 6 ♂♂ 8 ♀♀, August 1–15, W. Ontario, Black Sturg. Lake; 1 ♀, August 8, Ontario, pr. Garvel River.

C. pini FITCH — 31 ♂♂ 30 ♀♀, August 1–15, W. Ontario, Black Sturg. Lake; 1 ♂, August 23, Quebec, Lake Mt Tremblant. BEIRNE'S (1950) investigation was consulted for the identification.

Family *Araeopidae* METC.

Laccocera vittipennis VAN D. — forma brachyptera: 25 ♂♂ 36 ♀♀, August 24–31, Quebec,

Hudson Heights. — forma macroptera: 1 ♂ 1 ♀, August 24–31, Quebec, Hudson Heights.

Pissonotus (Phyllodictus) aphidioides (VAN D.) — forma brachyptera 1 ♂, August 25–31, Quebec, Hudson Heights.

P. (Ph.) basalis (VAN D.) — forma brachyptera: 4 ♀♀, July 24–30, Quebec, Hudson Heights; 2 ♂♂ 2 ♀♀, August 1–15, W. Ontario, Black Sturg. Lake.

P. (Ph.) tumidus MORGAN and BEAMER — forma brachyptera: 1 ♂, 1 ♀, August 1–15, W. Ontario, Black Sturg. Lake. — The types of the species were taken in Manitoba (MORGAN and BEAMER 1949 p. 103).

P. (Pissonotus) brunneus VAN D. — forma brachyptera: 1 ♂, August 25, Quebec, Choisy pr. Rigaud.

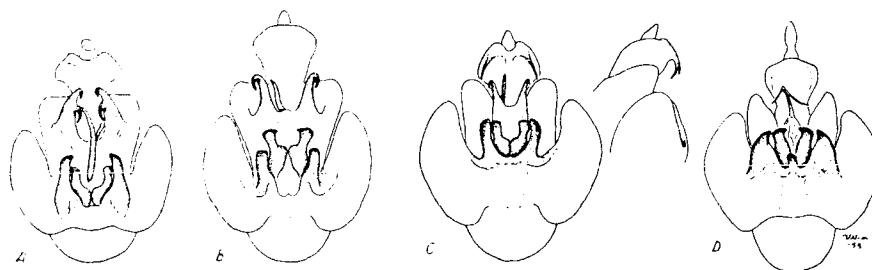


Abb. 1. Male genital capsule, ventral view, of *Megamelus aestus* Metc. (A), *davisi* VAN D. (B), *notula* GERM. (C), and *inflatus* METC. (D). — Orig.

Stenocranus pallidus BEAMER — 1 ♂, September 1–4, Quebec, Hudson Heights. — BEAMER'S (1946) material was from Illinois and Wisconsin.

Megamelus aestus METC. — forma brachyptera: 5 ♂♂ 8 ♀♀, August 25, Quebec, Choisy pr. Rigaud; 1 ♀, September 1–4, Quebec, Hudson Heights. — forma macroptera: 1 ♀, July 28, Quebec Choisy pr. Rigaud. — METCALF (1923, p. 203) mentions in the description of the species: «anal processes four». The anal segment of the species is without armature, however, and the formations mentioned are genital hooks belonging to the diaphragm (cf. Figs. 1 A and 2 A).

M. inflatus METC. — forma brachyptera: 3 ♂♂ 11 ♀♀, July 28, Quebec, Choisy pr. Rigaud. — forma macroptera: 2 ♂♂ 3 ♀♀, July 28, Quebec, Choisy pr. Rigaud. The genitals are shown in Figs. 1 D and 2 D.

M. davisi VAN D.? — forma macroptera: 1 ♂, August 1–15, W. Ontario, Black Sturg. Lake. The genitals are shown in Figs. 1 B and 2 B. OMAN (1947, p. 216) gave a picture of the genitals of the type of the species.

Species *M. notula* GERM. (VAN DUZEE 1917, p. 766; METCALF 1943, pp. 210–214) is mentioned of old from both Canada and the U.S. — MOORE (1950, p. 31) also mentions it from the Province of Quebec. The species is not included in the material collected by Professor Lindberg. The occurrence of *M. notula* in North America is still uncertain, in my opinion, for the species regarded by CRAWFORD (1914, p. 605, plate 47, Figs. I and J) and METCALF (1923, p. 169, plate 68, Fig. 648) as *notula* («anal processes wanting», METCALF, l.c.) is not the same species as the *notula*, the genitals of which are shown in Figs. 1 C and 2 C (cf. CHINA 1938, p. 244, Fig. c; LINNAVUORI 1957, p. 50, Fig. G), studied by European investigators.

The question of the relationship of the genera *Delphax*, *Liburnia*, *Megamelus*, *Delphacodes* and *Calligypona* has been the subject of lively and extensive discussion (cf. for instance CRAWFORD 1914, pp. 602–604; MUIR and GIFFARD 1924, p. 18–19; OSSIANNILSSON 1942, p. 113; METCALF 1943, p. 389–398; 1946, p. 63–64; CHINA 1954). I hold to the views put forward by DLABOLA (1957 a, p. 35; 1957 b, pp. 115–116) and LINNAVUORI (1957, pp. 49–50) and will call the following genus by the name *Calligypona* J. SAHLB. 1871 (*Liburnia* auct.

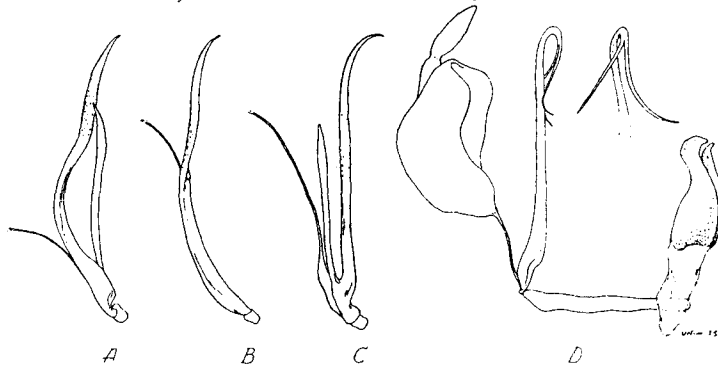


Abb. 2. Aedeagus, lateral view, of *Megamelus aestus* METC. (A), *davisii* VAN D. (B), *notula* (C), and *inflatus* METC. (D). - Orig.

nec STÅL 1866, *Delphacodes* auct. nec FIEBER 1866). Type of the genus is *Delphax reyi* FIEB. 1866 = *Calligypona albicollis* J. SAHLB. 1871.

- Calligypona analis* (Crawf.) - forma brachyptera: 1 ♂, July 24 - 30, Quebec, Hudson Heights.
C. laminalis (VAN D.) - forma brachyptera: 1 ♂, August 25, Quebec, Choisy pr. Rigaud.
C. lineatipes (VAN D.) - forma brachyptera: 1 ♂, July 24 - 30, Quebec, Hudson Heights.
C. lutulenta (VAN D.) - forma brachyptera: 22 ♂♂ 40 ♀♀, July 24 - 30; 3 ♂♂ 14 ♀♀, August 25 - 31, 1 ♂ 1 ♀, September 1 - 4, Quebec, Hudson Heights. - forma macroptera: 1 ♀, July 24 - 30, Quebec, Hudson Heights.
C. paransera (BEAMER) - forma brachyptera: 1 ♂, August 1, W. Ontario, Sibley Park; 1 ♂, August 1 - 15, W. Ontario, Black Sturg. Lake. BEAMER (1948, pp. 101 - 102, plate VIII, Fig. 39) explained the species on the basis of material collected from the states of South Dakota and New York.
C. pellucida (F.) - forma macroptera: 2 ♂♂ 1 ♀, August 1 - 15, W. Ontario, Black Sturg. Lake.
C. puella (VAN D.) - forma macroptera: 1 ♂ 1 ♀, August 25, Quebec, Choisy pr. Rigaud.

Family *Derbidae* SPIN.

- Otiocerus coquebertii* KIRBY - 5 ♂♂ 4 ♀♀, August 1 - 15, W. Ontario, Black Sturg. Lake; 1 ♀, August 25 - 31, Quebec, Hudson Heights.
O. degeerii KIRBY - 2 ♂♂ 2 ♀♀, July 24 - 30, Quebec, Hudson Heights.
Cedusa incisa (METC.) - 31 ♂♂ 40 ♀♀ (2 couples copulating); July 24 - 30, 1 ♂ 1 ♀, August 25 - 31, Quebec, Hudson Heights; 2 ♀♀, August 25, Quebec Choisy pr. Rigaud. - Both METCALF (1923, pp. 165 - 166) and MCATEE (1924) use the differences between the forms of genital styles to distinguish the species. A structurally intricate, asymmetrical aedeagus would obviously also constitute a good characteristic of species in this genus.

Family *Dictyopharidae* SPIN.

- Scolops sulcipes* SAY - forma brachyptera: 22 ♂♂ 19 ♀♀ (2 ♀♀ with a tubular deformity in the genitals), August 25 - 31, Quebec, Hudson Heights; 1 ♂, August 25, Quebec, Choisy pr. Rigaud; 2 ♀♀, August 28, Quebec, La Minerve. - forma macroptera: 7 ♂♂ 7 ♀♀, August 25 - 31, Quebec, Hudson Heights.

Two brachypterous females had a tubular deformity (cf. Fig. 3 b) in the thin chitinous membrane between the divided 8th (cf. BREAKEY 1928, p. 419) and 7th sternites. The deformity resembles exactly the formations which I have



Abb. 3. *Scolops sulcipes* (SAY). Female genital capsule, ventral view, normal (a), deformed (b). - Orig.

previously (KONTKANEN 1950) found in a Finnish material in some euscelid leafhoppers (6 species) and which DLABOLA (1957 c) recently reported in the species *Rhopalopyx parvispinus* WAGN. in Czechoslovakia.

In all these cases the deformity was associated with pronounced atrophy of the genitals. I assumed in my article that the deformed individuals were males. It is obvious from the illustrations by DLABOLA that they were females.

These two *Scolops sulcipes* individuals from Hudson Heights are the first fulgorids in which I have seen the deformity in question. In this case I could not observe any atrophy of the external genitals or any other deformity.

It can readily be assumed that the deformity in question is caused by a parasite. So far, however, neither DLABOLA nor I have been able to find the causative agent and the question still awaits detailed study.

Family *Achilidae* STÅL.

Epiptera confusa BEIRNE - 2 ♀♀, August 1 - 15, W. Ontario, Black Sturg. Lake.

E. pallida (SAY) - 1 ♀, August 1 - 15, W. Ontario, Black Sturg. Lake.

Family *Flatidae* SPIN.

Ormenis septentrionalis SPIN. - 1 ♂, August 25 - 31, Quebec, Hudson Heights.

Family *Issidae* SPIN.

Bruchomorpha oculata NEWM. - forma brachyptera: 7 ♂♂ (1 dryinised) 6 ♀♀, August 25 - 31; 2 ♀♀, September 1 - 4, Quebec, Hudson Heights; 1 ♂ 2 ♀♀, August 28, Quebec, La Minerve; 2 ♂♂ 1 ♀, August 29, Quebec, Lake Mt. Tremblant. - forma macroptera: 3 ♀♀, August 25 - 31, Quebec, Hudson Heights.

Aphelonema histrionica STÅL - forma brachyptera: 20 ♂♂ (1 dryinised) 16 ♀♀ (1 dryinised), August 1 - 15, W. Ontario, Black Sturg Lake; 1 ♀ August 28, Quebec, La Minerve. I met dryinide larvae in these two Issidae species only. The larvae were attached to the apical part of abdomen, on the dorsal side.

Literature: BEAMER, R. H. 1946. The genus *Stenocranus* in America north of Mexico (Homoptera - Fulgoridae - Delphacinae). Jour. Kansas Entom. Soc. 19, p. 1 - 11. - 1948. Some new species of Delphacodes (Homoptera, Fulgoridae, Delphacinae), Part IV. Ibid., 21, p. 96 - 110. - BEIRNE, BRYAN P. 1950. The Canadian Cixiidae (Homoptera, Fulgoroidea). Canad. Entom. 82, p. 93 - 101. - BREAKEY, E. P. 1928. The genus *Scolops*

(Homoptera, Fulgoridae). Univ. Kansas Sc. Bull. 18, no 6, p. 417–455. – CHINA, W. E. 1938. Some Homoptera new to the British list. Entom. mo. Mag. 74, p. 235–244. – 1954. Delphacodes Fieber, 1866, versus Calligypona J. Sahlberg, 1871 (Homoptera, Delphacidae). Entom. mo. Mag. 90, p. 165. – CRAWFORD, DAVID L. 1914. A contribution toward a monograph of the homopterous insects of the family Delphacidae of North and South America. Proc. U. S. Nat. Mus. 46, p. 557–640. – DLABOLA, J. 1957 a. Results of the zoological expedition of the National Museum in Prague to Turkey. 20. Homoptera Auchenorrhyncha. Acta Entom. Mus. Nat. Prage XXXI, 469, p. 19–68. – 1957 b. The problem of the genus Delphacodes and Calligypona, three new species and other czechoslovakian faunistics (Hom. Auchenorrh.). Ibid. XXXI, 476, p. 113–119. – 1957 c. Changes in the genital block of Rhopalopyx Rib. Acta Soc. Entom. Cechosl. 53, p. 111–114. – KONTKANEN, P. 1950. A peculiar deformity of the external genitalia observed in some euscelid leafhoppers. Ann. Entom. Fenn. 16, p. 91–92. – LINNAVUORI, R. 1957. Remarks on some italian Delphacidae (Hemiptera, Homoptera). Boll. Soc. Entom. Italiana 87, p. 49–52. – McATEE, W. L. 1924. Notes on Cenchrea Westwood and Cedusa Fowler in America (Homoptera: Fulgoroidea). Ann. Entom. Soc. America 17, p. 175–186. – METCALF, Z. P. 1923. A key to the Fulgoridae of eastern North America with descriptions of new species. Jour. Elisha Mitchell Soc. 38, p. 139–230. – 1943. General Catalogue of the Hemiptera. Fulgoroidea. Araeopidae, p. 1–552. – 1946. A new species of Delphacodes from Alberta (Fulgoroidea). Canad. Entom. 78, p. 63–65. – MOORE, G. A. 1944. A list of Hemiptera taken at Hudson Heights, Quebec. Canad. Entom. 76, p. 40–44. – 1950. Check-list of Hemiptera of the province of Quebec. Contrib. Inst. Biol. Univ. de Montreal, no 26, p. 1–49. – MORGAN, L. W. and BEAMER, R. H. 1949. A revision of three genera of delphacine fulgorids from America north of Mexico. Jour. Kansas Entom. Soc. 22, p. 97–142. – MUIR, F. and GIFFARD, W. M. 1924. Studies in North American Delphacidae. Bull. Haw. Sugar Pl. Assoc., Div. Entom. 15, p. 1–53. – OMAN, P. W. 1947. The types of Auchenorrhynchous Homoptera in the Iowa State College Collection. Iowa St. Coll. Jour. Sc. 21, p. 161–228. – OSSIANNILSSON, F. 1942. Contributions to the knowledge of Swedish Cicadina. Opusc. Entom. 7, p. 113–114. – VAN DUZEE, E. P. 1917. Catalogue of the Hemiptera of America north of Mexico. Techn. Bull. Calif. Agr. Exp. Stat., Entom. 2, p. I–XIV, 1–902.

Kirjallisuutta.

A. E. GARDNER: A key to the larvae of the British Odonata. Entom. Gazette 5, s. 157–171 ja 193–213. Feltham 1954.

Tämä pieni, myös erillisenä vihkosena saatavissa oleva tutkielma sisältää kaavat sudenkorennotoukkien määrittystä varten. Tässä suhteessa meikäläinen kylläkin kutakuinkin tulee toimeen VALLEN käsikirjan (Animalia Fennica 7) avulla. Kuitenkin on aihetta suositella sen lisänä käyttöön yllämainittua kirjoitelmaa. Muutamia Suomessa esiintyvistä lajeista siitä tosin puuttuu, mutta kuvitus on runsas, mikä tämän alan teoksissa on tärkeää. Habitus- ja detaljipiirroksia, joita on 118, ovat kookkaita ja tarkkaa työtä. Erityisesti niiden ansiosta toukkien nimeäminen käy vaivattomasti. Kirjallisuusluettelo, joka käsittää 78 numeroa, lienee ainutlaatuinen.

L. TIENSUU.

E. M. HERING: Bestimmungstabellen der Blattminen von Europa einschliesslich des Mittelmeerbeckens und der Kanarischen Inseln. Uitgeverij Dr. W. Junk, s'Gravenhage 1957. 3 nidettä, yht. 1406 sivua.

Lehdenmiinaajat muodostavat biologisen ryhmän, jolle toukan elintavan ohella ja siihen liittyen pieni koko on tunnusomaisena piirteenä. Tästä, sekä samalla useimpien lehtimiinonjen heikosta havaittavuudesta on epäilemättä johtunut, että ryhmä aikaisemmin oli, esim.