

# BULLETIN ZOOLOGISCH MUSEUM

 UNIVERSITEIT VAN AMSTERDAM

Vol. 10 No. 10 1985

## TWO NEW SPECIES OF *DICRANOMYIA* STEPHENS, 1829, WITH NOTES ON RELATED SPECIES (DIPTERA, LIMONIIDAE) <sup>1)</sup>

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### ABSTRACT

*Dicranomyia* (*D.*) *lorettae* sp.n. and *Dicranomyia* (*D.*) *mattheyi* sp.n. are described. Comments are given on the relationship of the new species and the *chorea* group sensu Lackschewitz & Pagast, 1941. The synonymy of *Dicranomyia hygropetrica* Vaillant, 1952, and *Dicranomyia mitis* (Meigen, 1830) is established.

### INTRODUCTION

In his basic work on the Limoniidae, Lackschewitz (1928) regrouped the species of the genus *Dicranomyia* into categories named after a characteristic representative. These groups, defined by the general aspect of the species and the structure of the male genitalia, are no longer used in the present-day taxonomy of the genus. They have been replaced by genera or subgenera, which have been created or reinstated since. Lackschewitz's "*chorea* group", however, still constitutes a remarkable unit. All the species included in it by Lackschewitz (1928) and subsequently added by Lackschewitz & Pagast (1941) have been referred to the nominate subgenus, and form a natural group.

The species mentioned by Lackschewitz (1928) are the following: *livornica* Lackschewitz, 1928, *mitis* (Meigen, 1830), *conchifera* Strobl, 1901, *luteipennis* Goetghebuer, 1920, *chorea* (Meigen, 1818), *incisurata* Lackschewitz, 1928, and *zernyi* Lackschewitz, 1928. The latter species was subsequently referred to the *hyalinata* group by Lackschewitz & Pagast (1941). In their publication they add to this list *strobli* Pagast, 1941, *madarensis* (Wollaston, 1858), *micronychia* Loew/Pagast, 1941, and *signata* Lackschewitz, 1941. Also *Dicranomyia* (*D.*) *michaeli* Theowald, 1977, can be considered part of this group, as well as two new species, *Dicranomyia* (*D.*) *lorettae* sp.n. and *Dicranomyia* (*D.*) *mattheyi* sp.n.

Eight species of this group inhabit Central and Western Europe: *chorea*, *mitis*, *conchifera*, *luteipennis*, *lorettae*, *mattheyi*, *strobli* and *incisurata*. Some species occur only in southern Europe: *madarensis* (Madeira), *signata* (Corsica,

<sup>1)</sup> This paper is part of the author's doctor-work.

Yugoslavia, Italy), *michaeli* (Azores, Madeira, Canary Is.) and *livornica* (Italy). *D. micronychia* is only known from two unlabelled specimens cited by Lackschewitz & Pagast, 1941, as "*micronychia* Loew".

In Central Europe two species, *strobbi* and *incisurata*, are easily identified, their male genitalia being very characteristic. The other species are very similar: a comparative study is necessary, especially in view of the description of the two new Central European species.

*Dicranomyia* (*D.*) *chorea* (Meigen, 1818)

Figs. 1, 3.

*Limonia chorea* Meigen, 1818: 134.  
*Limonia lutea* Meigen, 1804: 55 (nomen oblitum).  
*Limnobia quadra* Meigen, 1838: 29.  
*Dicranomyia flavicollis* Becker, 1908: 82.  
*Dicranomyia vidua* Santos, 1923: 19.  
*Dicranomyia longipes* Santos, 1923: 38.  
*Dicranomyia modesta*; Santos, 1923: 18; Lackschewitz, in Frey, 1937: 7.  
*Dicranomyia chorea* f. *lutescens* Lackschewitz, 1928: 211.  
*Dicranomyia chorea* f. *grisescens* Lackschewitz, 1928: 211.

Non:

*Limnobia modesta* Wiedemann in Meigen, 1818: 134.

Notes on synonymy.-

Mendl (1979) gave a chronological account of *lutea* Meigen, the status of which for a long time had not been clear. It has been regarded either as a species in itself, as a variety of *mitis* or as a synonym of *chorea*. Mendl settles for this last hypothesis on the basis of the original drawings by Meigen, reproduced by Morge (1976). Lackschewitz (1928) had already come to the same conclusion, establishing the synonymy of *Limonia lutea* Meigen with *Dicranomyia chorea* f. *lutescens* Lackschewitz.

Examination of the only specimen of *Limonia lutea* in the Meigen collection in the Muséum National d'Histoire Naturelle, Paris, leads us to confirm Lackschewitz's and Mendl's statements. The male specimen is lacking the abdomen and legs and the apex of the right wing. There are two labels: one dark grey, bearing the number 440 40, and another one reddish with the indication "*lutea* ♂".

Description of *L. lutea*: Head yellow, with a grey pollinosity; antennal segments spherical to oblong, verticils slightly longer than the

corresponding segments; flagellum yellow tending to greyish-brown, scape and pedicel more definitely yellow (only the right antenna is complete, of the left one only the scape and the pedicel remain); rostrum and palpi greyish-yellow. All the thoracic tergites yellow, with a grey pollinosity, silky; praescutum with a not very clear central stripe, slightly darker than the rest of the thorax; what can be seen of the pleurae, pierced by the pin, yellow with grey pollinosity, though less than the tergites; coxae yellow; wings transparent, iridescent, stigma practically invisible, no spots on the front margin of the wing,  $Sc_1$  ending in C level at the Rs-base,  $Sc_2$  about half way between the base of the wing and  $Sc_1$ , no hairs on Sc, distal cell closed, m-cu at its base; length of wing 6.4 mm.

*Dicranomyia chorea* f. *lutescens* and the very light-coloured small forms of *D. mitis* are much alike: without the help of the characteristics of the legs and, more important, without an examination of the structure of the male genitalia, it is impossible to classify a specimen with certainty. Two details, however, enable us to decide that the specimen of *lutea* in the Meigen collection is probably identical with *chorea*. First the Sc of *mitis* has hairs (Edwards, 1938; Mendl, 1979), while that of *chorea* is smooth and hairless like *lutea*. It must, however, be noted, that this criterion does not seem to be constant for *mitis*, or at least it is not always clearly visible. Furthermore the antennae of *mitis* are entirely brown, while those of *chorea*, and also of *lutea*, are greyish-yellow, at least in the first segments. Probably therefore *lutea* Meigen is identical with *chorea* Meigen and not with *mitis* Meigen, as already suggested by Lackschewitz (1928) and Mendl (1979).

Descriptive remarks.-

A species of variable coloration and size, presenting a seasonal dimorphism: a spring form, large (7-8 mm), grey, with spotted wings (f. *grisescens*), and an autumnal form, smaller (5-6 mm), yellow, with no clear spots on the wings (f. *lutescens*).

Genitalia ♂: 9th tergite with slight indentation; cylindrical basistyle, with an oval basal

lobe; od two times larger than the basistyle, spherical to oblong, with a relatively slender rostrum with two very short, parallel spines in the middle.

Distribution.-

From North Africa to Scandinavia, eastwards as far as the Urals; Canary Islands; North America.

*Dicranomyia (D.) luteipennis* Goetghebuer, 1920  
Figs. 2, 4.

*Dicranomyia luteipennis* Goetghebuer, 1920: 108, figs. 1, 4 (wing, genitalia ♂).

Descriptive remarks.-

A reddish-yellow species; size 7 mm; wings with well-marked stigma and with three brown spots, transverse veins clearly infuscated with brown.

Genitalia ♂: 9th tergite with slight indentation; cylindrical basistyle with oval basal lobe; od almost spherical, 1.5 times as long as the basistyle, with a very short rostrum, bearing two straight spines at its base, spines almost parallel and 1.5 times as long as the rostrum.

Distribution.-

Some localities in Central and Western Europe and in Italy. The distribution is most probably still very incompletely known.

*Dicranomyia (D.) mattheyi* sp.n.  
Figs. 5-9.

Material.-

Holotype. 1♂: Il Fuorn (CH-GR), 1790 m, Swiss coordinates 812/171 7-8.VIII.1980, light trap (LT). W. Geiger & C. Dufour leg. in Musée d'Histoire naturelle de la Ville de Neuchâtel, preserved in 70% alcohol.

Paratypes. 1♂: as holotype in Natur-Museum Luzern; 1♂: as holotype, 17-25.IX.1980 in Naturhistorisches Museum, Chur, coll. Swiss National Park; 1♂: as holotype, 9-11.VIII.1980 in Zoologisch Museum Amsterdam; 1♂: Fully (CH-VS), 550 m, LT, 13-19.X.1980, W. Geiger & C. Dufour leg. in Musée d'Histoire naturelle de la Ville de Neuchâtel; 1♂: Altdorf (CH-UR), 465 m, LT, 25.X.1980, L. Rezbanyai leg. in coll. Dr. J. Stary, Olomouc. All material is preserved in 70% alcohol.

Description.-

General appearance as *D. luteipennis* Goetghebuer; body brown, with a light brownish-grey pollinosity; wings transparent, a little brown infuscated, with a well visible stigma and transverse veins with dark spots.

Head dark brown, with a grey pollinosity; rostrum and palpi brownish; antennae 14-segmented; scape brown, pedicel and flagellum yellow-brown; antennal segments spherical to oval, the last seven being spindle-shaped; verticils longer than the corresponding segments. Thorax dark brown; praescutum dark brown, with a grey pollinosity and without any line or stripe; pronotum, scutum, scutellum and postscutellum brown; pleurae brownish; coxae, trochanter and legs yellowish; femora without dark ring; wings transparent, with a yellow-brown infuscation, veins yellowish-brown,  $Sc_1$  ending in front at Rs-base,  $Sc_2$  half-way along Sc, discal cell closed, with m-cu at its base, stigma rectangular, brown and well visible, a brown spot over  $Sc_1$  and Rs-base and another at the bifurcation of Rs in  $R_{2+3}$  and  $R_{4+5}$ , this last spot is blended with the stigma, transverse veins of discal cell and m-cu have a vertical brown spot, forming two dark vertical strokes on apical part of wing; halteres yellow. Abdomen brownish.

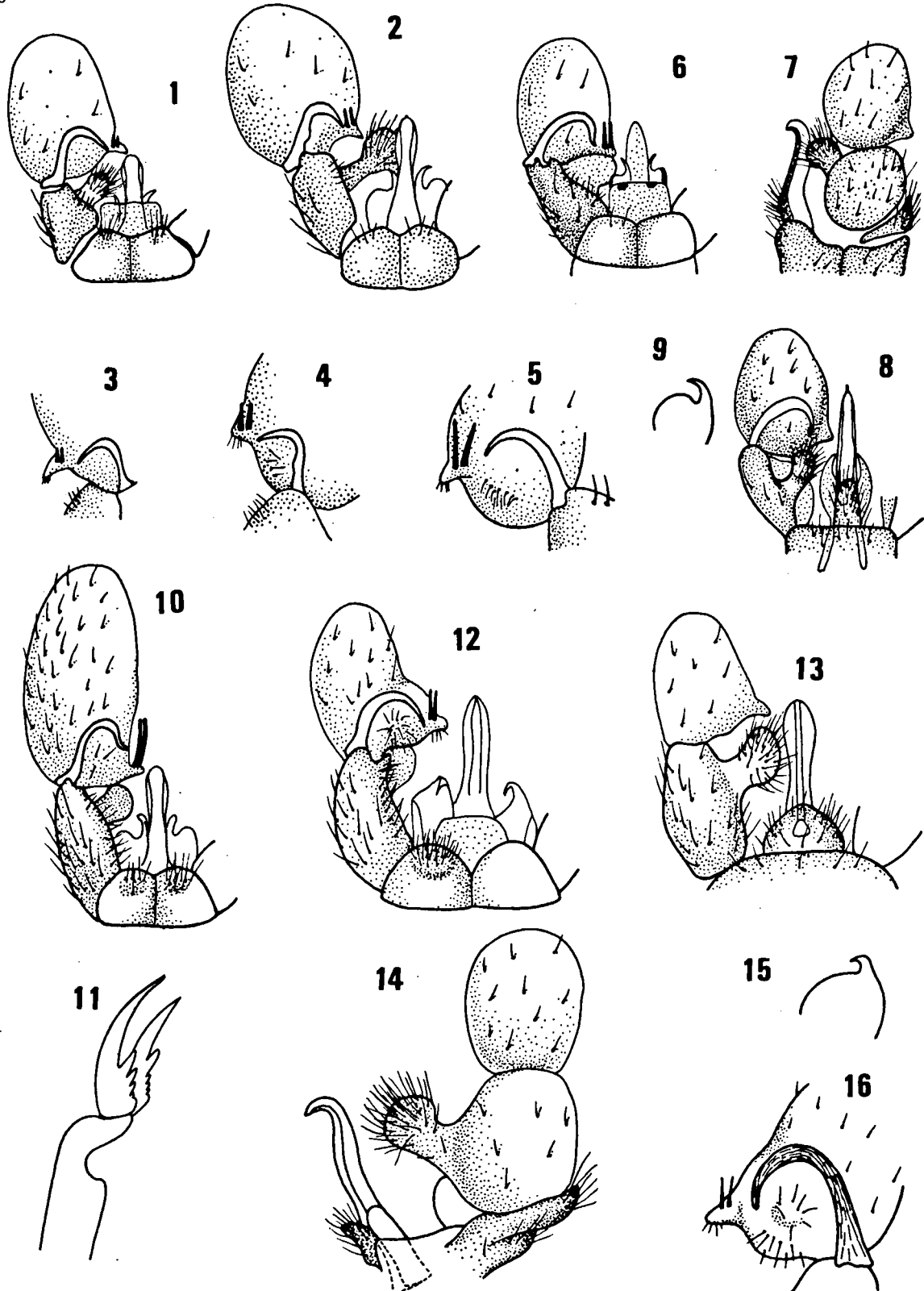
Genitalia ♂: 9th tergite with a light excision on dorsal posterior margin; 9th sternite is a small oblong plate at the base of the penis; basistyle yellowish-brown with an oval ventral lobe; outer style yellowish, oval to spherical with a short rostrum, bearing at its base two dark brown straight spines, slightly divergent, measuring 1.5 times the length of the rostrum; ratio basistyle : outer style, 6:7; inner style quite strong, bent at 90°; penis and parameres as in figs. 7-9.

Body length 6.5 mm; wing length 7.8 mm; halteres 1.8 mm.

♀ unknown.

Distribution.-

Central part of Switzerland, inner valleys of the Alps.



Figs. 1-16. 1: *Dicranomyia chorea*: genitalia ♂, dorsal view; 2: *D. luteipennis*: genitalia ♂, dorsal view; 3: *D. chorea*: right od, detail; 4: *D. luteipennis*: right od, detail; 5: *D. mattheyi*: right od, detail; 6: *D. mattheyi*: genitalia ♂, dorsal view; 7: *D. mattheyi*: genitalia ♂, lateral view; 8: *D. mattheyi*: genitalia ♂, ventral view; 9: *D. mattheyi*: left paramere; 10: *Dicranomyia mitis*: genitalia ♂, dorsal view; 11: *D. mitis*: tarsal claws; 12: *D. lorettae*: genitalia ♂, dorsal view; 13: *D. lorettae*: genitalia ♂, ventral view; 14: *D. lorettae*: genitalia ♂, lateral view; 15: *D. lorettae*: left paramere; 16: *D. lorettae*: right of, detail (enlargement of all the figures: 100x).

## Remarks.-

This species is easily distinguished from *luteipennis* by the dark brown head and praescutum and the ratio length of basistyle/length outer style (od), being almost 1:1 in *mattheyi* and 2:3 in *luteipennis*.

## Derivatio nominis.-

I am pleased to dedicate this species to my professor and master Dr. Willy Matthey, Neuchâtel.

*Dicranomyia* (D.) *mitis* (Meigen, 1830)

Figs. 10-11

*Limnobia affinis* Schummel, 1829: 127 (nomen oblitum).

*Limnobia mitis* Meigen, 1830: 278.

*Limnobia excisa* Walker, 1848: 47.

*Dicranomyia didyma*; Kuntze, 1920: 378, Fig. 1 (genitalia ♂).

*Dicranomyia mitis* var. *lutea* Lackschewitz, 1928: 213.

*Dicranomyia mitis* var. *infuscata* Lackschewitz, 1928: 213.

*Dicranomyia mitis* var. *imbecilla* Lackschewitz & Pagast, 1941: 30, Tafel VII, Fig. 56 (genitalia ♂).

*Dicranomyia mitis* var. *affinis*; Lackschewitz & Pagast, 1941: 30.

*Dicranomyia hygropetrica* Vaillant, 1952: 250, fig. 5 (wing), fig. 11 (tarsal claws), fig. 13-14 (genitalia ♂) (syn. nov.).

## Non:

*Limnobia didyma* Meigen, 1818: 135.

## Notes on synonymy.-

Vaillant (1952) described *Dicranomyia hygropetrica*, a species with hygropetric larvae from North Africa (Algeria). This species also occurs in France, Alpes Maritimes (Vaillant, 1956). The original description and the drawings accompanying it, do not permit to separate this species from *mitis*. Thanks to the kindness of professor F. Vaillant (Grenoble) however, we have been able to examine two microscopic slides with some types of *D. hygropetrica*. 1. A slide with the indication *Dicranomyia hygropetrica* Vaillant on one label and *Dicranomyia*, Kerrata, Elevage, Ecl. 4.4.51 on another. The two labels are white. The slide shows two wings, the end of a leg and a ♂ abdomen. 2. A slide with the indication *Dicranomyia hygropetrica* Vaillant on one label and *Dicranomyia*,

Constantine, Rhumel, avril 1950 on another. The two labels are white. This slide shows two wings, two ♂ abdomens, a head with part of the thorax and three legs. This second slide is probably the holotype (Vaillant, 1952: 250, "Type récolté, à l'état larvaire, dans les gorges du Rummel, à Constantine").

The differential characteristics between *mitis* and *hygropetrica* proposed by Vaillant are the following: *mitis* has the praescutum with three brown stripes, varying in width; the proximal teeth of the tarsal claws very small and the wing spots pale but clear; *hygropetrica* has praescutum with one median stripe, the proximal teeth of the tarsal claws well-developed.

Besides these characteristics a few details in the original description of *hygropetrica* are different from *mitis*: od 1.2-1.5 times as long as wide (*mitis* 2.0 times); coloration of the body ochraceous (*mitis* greyish-yellow to brownish-yellow).

The coloration of *mitis* is very variable, as is the ornamentation of the praescutum, which can have one to three stripes or none at all. The wing spots may be clearly marked, just visible or absent except for the stigma. The only differential criteria that can be accepted are the structure of the ♂ genitalia and the claws of the tarsus. The material available, dissected and on slides, does not allow any account to be taken of coloration. Precise measurements show that the od of the three male genitalia is 1.75 to 1.95 times as long as wide, depending on the point at which the measurements are taken (the genitalia being in resin, the od has undergone changes in its original form). These measurements correspond to those taken on *mitis*. No difference is to be observed between the other parts of the genitalia of both species. Nor does a comparison of the claws of the tarsus of *hygropetrica* with several specimens of *mitis* reveal any remarkable difference: the largest of the proximal teeth is always less than half as long as the principal tooth (fig. 11) and the others are progressively smaller. These observations make it clear, that *hygropetrica* Vaillant,

1952 = *mitis* (Meigen, 1830).

**Descriptive remarks.-**

This species is strongly variable in size and coloration. There are some specimens of the size of *chorea* f. *lutescens*, very light, and other much larger of the size of *conchifera*, and brown. The wing spots may be very clearly marked or absent altogether. It is the only species of this group which sometimes has a hairy Sc.

Genitalia ♂: 9th tergite with slight indentation; basistyle cylindrical, with an oval basal lobe; od 1.5 times as long as the basistyle with short rostrum, bearing two long distal spines, spines 2.5 times the length of the rostrum, parallel and slightly bent.

**Distribution.-**

Palearctic region.

*Dicranomyia (D.) lorettae* sp.n.

Figs. 12-16

**Material.-**

Holotype. 1♂: Vezia (CH-TI), 410 m, Swiss coordinates 716.400/98.500, light trap (LT), 8-14.X.1979, W. Geiger & C. Dufour leg. in Musée d'Histoire naturelle de la Ville de Neuchâtel (MNHVN), preserved in 70% alcohol.

Paratypes. 1♂: as holotype, 6-12.VIII.1979 in coll. Dr. J. Stary, Olomouc; 1♂: as holotype, 30.VII-5.VIII.1979 in MNHVN; 1♂: Gandria (CH-TI), 340 m, LT, 21-30.IX.1979, L. Rezbanyai leg. in MHNVN; 1♂: Gandria, *ibid*, 15.IX.1979 in Naturmuseum Luzern; 1♂: Genestrerio (CH-TI), 330 m, 6-18.VIII.1979, W. Geiger & C. Dufour leg. in MHNVN; 1♂: *ibid*. 27.VIII-2.IX.1979 and 1♂: *ibid*. 20-26.VIII.1979 both in MHNVN; 1♂ Vernayaz (CH-VS), 460 m, 18.VI.1979, W. Geiger leg. in MHNVN; 1♂: Fully (CH-VS), 550 m, LT, 1-7.IX.1980 in Zoologisch Museum Amsterdam; 3♂ *ibid*, 8-14.IX.1980, 1♂ *ibid*, 22-28.IX.1980 and 3♂ *ibid*, 6-9.X.1980 all in MHNVN; 1♂ Verschiez (CH-VD), 540 m, LT, 9-15.VI.1980, W. Geiger & C. Dufour leg. in MHNVN; 1♂: Altdorf (CH-UR), 465 m, LT, 15.IX.1979, L. Rezbanyia leg. in MHNVN; 1♂: Kleinbörsingen (CH-FR), 490 m, 2.IX.1980, W. Geiger leg. in MHNVN. All preserved in 70% alcohol.

**Description.-**

General appearance as *D. mitis* (Meigen); basic coloration of body yellowish; wings transparent, with a well visible stigma and three brown spots on the costal margin.

Head yellowish-brown, rostrum pale yellowish, palpi yellowish-brown, head with two diffuse brown spots on the posterior part behind the eyes; antennae 14-segmented, scape, pedicel and flagellum brownish; pedicel spherical, other segments oblong to spindle-shaped; verticils shorter than the respective segments. Thorax yellow-brown; pronotum yellow, praescutum yellow-brown with a central brown stripe; scutum brownish, scutellum yellowish, postscutellum brown; pleurae yellowish; coxae pale yellow, legs yellow with a dark brown ring at tip of femora; wings transparent with yellowish-brown veins, Sc<sub>1</sub> ending in front of Rs-base, Sc<sub>2</sub> half-way along Sc; stigma oval, yellowish-brown; two dark brown spots on Sc<sub>2</sub> and on Rs-fork, a small light-brown spot at base of fork R<sub>2+3</sub>/R<sub>4+5</sub>; discal cell closed, m-cu at base of discal cell, transverse veins and tip of R<sub>2+3</sub>, M<sub>1+2</sub>, M<sub>3</sub>, M<sub>4</sub> and Cu with a light brown halo; halteres pale yellow. Abdomen brownish.

Genitalia ♂: 9th tergite with a V-shaped excision on dorsal posterior margin; 9th sternite is a small plate at base of penis; basistyle yellowish, with an oblong ventral lobe; outer style (od) yellowish, larger at base than at tip; rostrum short, slightly bent with at the base two yellowish-brown spines, slightly divergent, measuring 1.5 times the length of the rostrum; ratio basistyle: outer style is 6:7; inner style slight, regularly bent and progressively tapering towards the tip; penis and parameres as in figs. 10-13.

Body length 7 mm; wing length 8 mm; halteres 1.3 mm.

♀ unknown.

**Remarks.-**

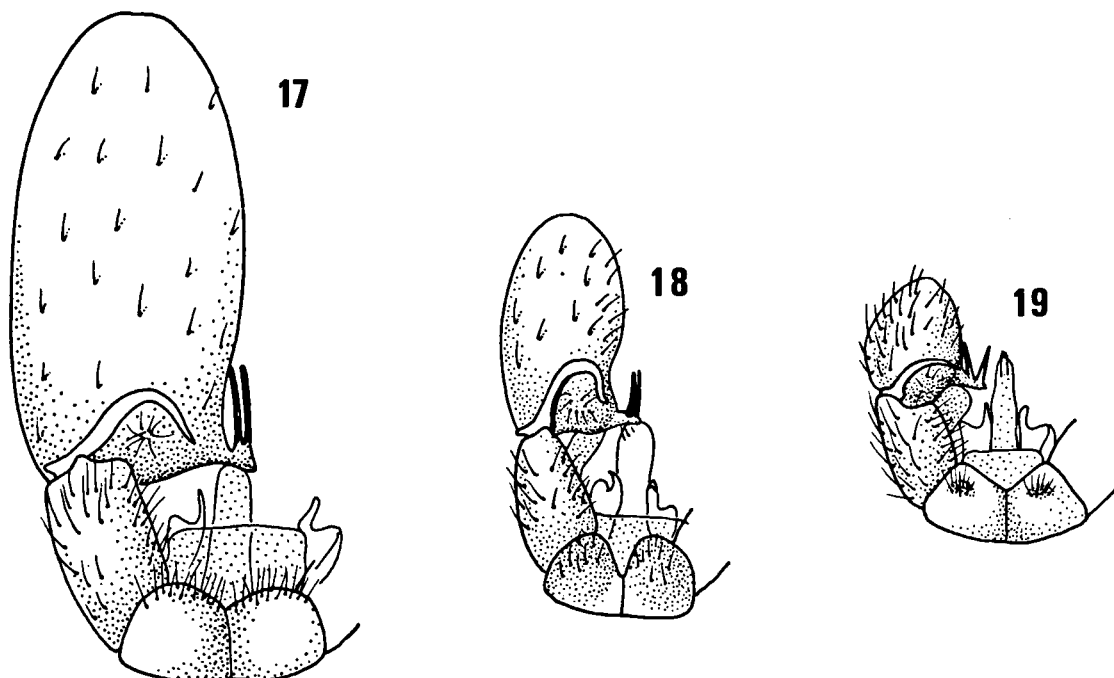
This species is easily distinguished from *D. mitis* by the V-shaped excision of the 9th tergite and the spines of the rostrum being 1.5 times as long as the rostrum.

**Distribution.-**

Switzerland, particularly Ticino and Valais.

**Derivatio nominis.-**

It is with gratitude that I dedicate this species to my wife Lorette.



Figs. 17-19. 17: *Dicranomyia conchifera*: genitalia ♂, dorsal view; 18: *D. strobli*: genitalia ♂, dorsal view; 19: *D. incisurata*: genitalia ♂, dorsal view (enlargement of all the figures: 100x).

*Dicranomyia (D.) conchifera* (Strobl, 1901)

Fig. 17

*Limmobia conchifera* Strobl, 1901: 189.

Descriptive remarks.-

Large species (10.5 mm); light yellow; wings with four small brown spots, the transverse veins infuscated.

Genitalia ♂: very voluminous; 9th tergite with slight indentation; cylindrical basistyle with oval ventral lobe; od cylindrical, three times as long as the basistyle, rostrum short with two long slightly curved spines.

Distribution.-

Central and Western Europe, Italy, Balkans.

KEY FOR THE IDENTIFICATION OF THE CENTRAL AND WESTERN EUROPEAN SPECIES OF THE *DICRANOMYIA*

CHOREA GROUP

1. Spines of rostrum very long (2.5. times as long as the rostrum), slightly bent; od cylindrical to reniform, twice as long as wide..... 2
- Spines shorter (1.5 times as long as the rostrum or less), straight; od spherical to ovoid, 1.5 times as long as wide or less..... 4
2. Posterior margin of the 9th tergite with at most a slight indentation; thorax yellowish-grey to yellowish-brown, or light yellow..... 3
- Posterior margin of the 9th tergite with a deep and narrow excision; thorax dark brown with a grey pollinosity with silvery sheen (fig. 18)..... *strobli* Pagast
3. Large light yellow species; transverse veins clearly infuscated; od 3 times as long as the basistyle (fig. 17)..... *conchifera* Strobl
- Smaller species; wings with spots hardly marked or absent; the small forms yellow, the larger ones brownish-yellow; od 1.5 times as long as the basistyle (figs. 10, 11)..... *mitis* (Meigen)
4. Posterior margin of the 9th tergite with a deep V-shaped excision..... 5
- Posterior margin of the 9th tergite with at most a slight indentation..... 6
5. Wings without spots, stigma very pale; thorax dark brown with silvery-grey pollinosity; spines of the rostrum straight and very divergent (figs. 19)..... *incisurata* Lackschewitz
- Anterior margin of the wing with stigma and three fairly well marked spots; thorax yellowish-brown; od slightly conical; spines 1.5 times as long as the rostrum, implanted at its base, slightly divergent (figs. 12-16)..... *lorettae* sp.n.
6. Spines implanted in the centre of the rostrum, very short..... 7
- Spines implanted at the base of the rostrum, 1.5 times as long as the rostrum.... 8
7. Spring form; greyish-brown; anterior margin of the wing with stigma and three well-marked spots (figs. 1, 3)..... *chorea* f. *griseescens* Lackschewitz

- Autumnal form; yellow; wings with stigma and spots hardly marked or absent (figs. 1, 3)..... *chorea* f. *lutescens* Lackschewitz
8. Od as long as the basistyle; thorax brown (figs. 5-9)..... *mattheyi* sp.n.
- Od 1.5 times as long as the basistyle; thorax yellowish-brown to yellowish-red (figs. 2, 4)..... *luteipennis* Goetghebuer

## ACKNOWLEDGEMENTS

I should like to thank Dr. W. Matthey (Neuchâtel), Dr. h.c. H. Mendl (Kempten), Dr. Theowald van Leeuwen (Amsterdam), Dr. J. Stary (Olomouc) for all their valuable advices, and Dr. L. Matile (Paris) and Dr. F. Vaillant (Grenoble) for kindly making available to me the material of *D. lutea* Meigen and *D. hygroptetrica* Vaillant, respectively. My thanks are also due to Madame A. L'Eplattenier (Neuchâtel) for translating the article into English, and to all those who have helped me to collect the material of the two new species, especially Dr. C. Dufour (Neuchâtel) and Dr. L. Reser (Luzern).

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Received : 3.I.1984

Distributed : 29.III.1985