

Revision of the Norwegian material of the genus *Dasyphora* Robineau-Desvoidy (Diptera, Muscidae) with new records of species and localities

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Material of the genera *Dasyphora* Robineau-Desvoidy and *Pyrellia* Robineau-Desvoidy in the collections of Tromsø Museum, Tromsø; Museum of Zoology, Bergen; Museum of Zoology, Oslo (Siebke's collection); and the author have been examined and revised. *Dasyphora cyanella* (Meigen) is reported from Norway for the first time, records indicating a pronounced atlantic distribution, remarks on its biology given, and the cercal plate figured. Specimens collected in Troms, Northern Norway, determined as *D. cyanella* by Ringdahl, are shown to belong to *D. zimini* Hennig. Records of *D. zimini*, *D. cyanella* and *D. cyanicolor* (Zetterstedt) from Norway are listed and reliable finds mapped. Some notes on *Pyrellia ignita* Robineau-Desvoidy and *P. cadaverina* (L.) are given. Morphological differences between *D. zimini* and *D. cyanella* are discussed. Some aberrations in the chaetotaxy of the middle tibia are described. The amount and extent of dusting on the mentum usually separate *D. cyanella* and *D. zimini*. A key to Norwegian species of *Dasyphora* is given.

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INTRODUCTION

In the latest revision of the palearctic Muscidae to appear (Hennig 1955–64) a new species, *Dasyphora zimini* Hennig, 1964, was described. It is almost identical to its closest relative, *Dasyphora cyanella* (Meigen, 1826), from which earlier authors did not distinguish, it but differs in certain characters of the head and middle tibiae and in its geographical range. *D. zimini* is reported mostly from Northern and Middle Europe, while *D. cyanella* is present in Western and Southern Europe. From Scandinavia Hennig had, of these two species, seen *D. zimini* only and was inclined to believe that all published records of *D. cyanella* from Scandinavia belonged to *D. zimini*. He cites a number of publications of Ringdahl concerning Norwegian and Swedish records, and one of Tiensuu concerning Finnish records (Hennig 1964: 961–962). Hennig however, apparently did not examine specimens determined by Ringdahl or Tiensuu as *D. cyanella*. A more distant relative, *Dasyphora cyanicolor* (Zetterstedt, 1845) also is present in Scandinavia.

Recently, Pont (1971) confirmed *D. zimini* as a Swedish species by collecting a female specimen in Småland, Southern Sweden. Michelsen

(1977) recorded *D. cyanella* from Denmark. Neither *D. zimini* nor *D. cyanicolor*, however, are reported from Denmark.

D. zimini and *D. cyanicolor* only are previously known from Norway (Ringdahl 1952, Hennig 1955–64). During the last three years, however, a large number of a green metallic muscid fly have been collected by the author in the district around Stavanger, Norway, all belonging to *D. cyanella*. Thus all three species occur in Norway.

A revision of the Norwegian material of the genus *Dasyphora* Robineau-Desvoidy, 1830 seems desirable in order to confirm Hennig's assumptions about published records of *D. cyanella*, and in order to obtain basic knowledge of its Scandinavian distribution.

MATERIAL AND METHODS

The following museum material of the genera *Dasyphora* and *Pyrellia* Robineau-Desvoidy, 1830 were revised: 24 specimens in Tromsø Museum, Tromsø (mostly previously published by Ringdahl, 1928, 1944a), 6 specimens in Museum of Zoology, Bergen (previously unpublished), and 18 specimens in Museum of Zoology,

Oslo (mostly collected and previously published by Siebke, 1877).

In addition 156 specimens collected by me (2 deposited at Museum of Zoology, Copenhagen, the rest in the author's collection) were examined.

Identifications follow Ringdahl (1954), Hennig (1955–64) and Fonseca (1968).

All published records are dealt with. Only some unverified records have been regarded as reliable and are recorded on the maps.

In all lists of Norwegian localities Løken's (1973) modification of Strand's (1943) system has been used. A question-mark before a locality name means it has been added by the present author, a question-mark after the number of a year that the interpretation of the handwriting on a label is uncertain. All lists give the EIS square number for the locality in question, and the maps of Norway show the 189 EIS-squares for the country (cfr. Økland 1977).

The abbreviations for the museum or collection where specimens are deposited are as follows: TM = Tromsø Museum, ZMB = Museum of Zoology, Bergen, ZMC = Museum of Zoology, Copenhagen, ZMO = Museum of Zoology, Oslo, KR = author's private collection.

The terminalia of one completely dried male specimen were macerated, dissected and mounted in Euparal under coverglass.

The figures have been prepared by means of a WILD M 8 drawing tube.

DASYPHORA ZIMINI Hennig, 1964

Revised records

AKERSHUS:AK: Oslo, Tøyen 1 ♂ ?date, H. Siebke, EIS 28, ZMO no. 5938, (Siebke, 1877: 97 as *Pyrellia serena* Meigen). (This may well be the specimen from July 1850 mentioned by Siebke, *loc.cit.*, bottom line).

OPPLAND: Os: Ringebu, ?loc., 1 ♂, 25 July 1850?, H. Siebke, EIS 63, ZMO no. 5943, (Siebke, 1877: 98 as *P. cyanicolor* Zetterstedt). On: Dovre, Hjerkin, 1 ♂, 27 July 1852?, H. Siebke, EIS 71, ZMO no. 5949, (Siebke, 1877: 98 as *P. eriophthalma* Macquart).

BUSKERUD: Bø: Ringerike, Hønefoss, 1 ♀, ? date, H. Siebke, EIS 36, ZMO no. 5951, (Siebke, 1877: 98 as *P. eriophthalma*).

SØR-TRØNDELAG: STi: Oppdal, ?Kongsvoll, 1 ♂, ?date, H. Siebke, EIS 79, ZMO no 5950, (Siebke, 1877: 98 as *P. eriophthalma*). (The specimen is labelled «Dovre» only, but the locality is certainly right, since of the three localities mentioned by Siebke — «...ad Hønefos et in alpe Dovre ad Jerkin et Kongsvold legi...» (*loc.cit.*, line 8 and 9 from above) — the names of the first two ones have been

found on the labels of the remaining two specimens placed in the collection under *Dasyphora* (sic) *eriophthalma*, both identified above.); ?Trondheim, 1 ♂, ?date, H. Siebke, EIS 92, ZMO no. 5934, (Siebke, 1877:97 as *P. cadaverina* L.). (The specimen carries a small square white label with a printed (?) capital letter T. This must mean «Throndhjem» since only two localities are mentioned by Siebke — «Ad Løset in par. Aamodt 4 August 1870 et ad Throndhjem mihi obvia.» (*loc.cit.*, line 4 and 5 from below) — and the only other specimen placed in the collection under *P. cadaverina* is labelled «Aamot» and identified below (ZMO no. 5935)).

TROMS: TRy: Lenvik, Finnsnes, 2 ♂♂, 20 Sept. 1935, T. Soot-Ryen, EIS 154, TM, (Ringdahl, 1944a: 12 as *P. cyanella* Meigen); 1 ♀, 20 Sept. 1935, T. Soot-Ryen, EIS 154, TM, (Ringdahl, 1944a: 12 as *P. cyanicolor* Zetterstedt). (The latter is a misidentification. The right anterior spiracle is soiled and looks black, the left is yellow as normal but hidden by front leg.); Tromsø, Ramfjord, 10 ♀♀, 28 May 1924, T. Soot-Ryen, EIS 162, TM (Ringdahl, 1928: 8 as *P. cyanella*); Tromsdal, 2 ♀♀, ?date, O. Bidenkap, EIS 162, TM, (Bidenkap, 1901: 60 as *P. cyanicolor*, Ringdahl, 1928: 8 as *P. cyanella*); TRi: Balsfjord, Skjåvikør, 1 ♀, 28 May 1943, T. Soot-Ryen, EIS 162, TM, (Ringdahl, 1944a: 12 as *P. cyanella*); Malangen, 1 ♀, 11 April 1941, T. Soot-Ryen, EIS 154, TM, (Ringdahl, 1944a: 12 as *P. cyanella*).

These revised records from Troms, Northern Norway, favour the view that *D. zimini* equals *P. cyanella* as used by Ringdahl, and confirm Hennig's assumptions.

New records

AKERSHUS: AK: Oslo, Tøyen, 2 ♂♂, 14 April 1852, H. Siebke, EIS 28, ZMO nos. 5936, 5937. (These specimens are placed under *P. serena* in Siebke's collection, but the date indicates that they have never been published (cfr. Siebke 1877: 97, bottom line)).

HEDMARK: HEn: Tynset, Tyldal, 1 ♀, 24 July 1848, H. Siebke, EIS 72, ZMO no. 5946; 1 ♀, ? date, H. Siebke, EIS 72, ZMO no. 5947. (Both specimens are placed under *P. cyanicolor* in Siebke's collection, but the locality is not mentioned by Siebke, 1877: 97–98).

UNKNOWN PROVINCE: ?loc., 1 ♂, ?date, H. Siebke, ZMO no. 5948. (The specimen is the only one placed under *Dasyphora* (sic) *lasiophthalma* Macquart in Siebke's collection, and it is labelled «var. coloroviridacuprio» in very small handwriting. Siebke (1877: 98, under the name *P. lasiophthalma* Meigen (sic)) mentions no own catches, the only statement is: «Ad Thynæs in par. Skogn a prof. Zetterstedt observata.» The specimen carries the ordinary label «Siebke» (in print), however, identifying the collector.)

Reliable published records

AKERSHUS: AK: Oslo, EIS 28.
HEDMARK: HES: Eidskog, Eidskog?, EIS 38? (Hening 1964: 962).
SØR-TRØNDELAG: ?STi, 3 ♂♂, 11 ♀♀, V. Storm, (Ringdahl 1944b, 1944c: 83 as *P. cyanella*). — I have in vain searched for these specimens. They are not present in Trondheim, Lund, or Stockholm. On the maps (Figs. 1 A, 2) they are recorded for EIS 92 and STi, respectively.

Unverified published record

VESTFOLD: VE: ?loc., ♂ ♀, 1891, O. Bidenkap, (Bidenkap, 1892: 239 as *P. lasiophthalma* Macquart). The specimen is probably lost and the record is not presented on the maps.

DASYPHORA CYANELLA (Meigen, 1826)

New records

ROGALAND: Ry: Hetland (?Sandnes), Dale, 1 ♀, 21 April 1968, T. Nielsen, EIS 7, ZMB; Stavanger: Aukland, Byhaugen, Gosen, Krossberg, Kvernevikskogen, Lærerskolene, Sunde, Tasta, Ullandhaug; Time, Njåskogen; Randaberg, Hålandsvatn, 38 ♂♂, 102 ♀♀, 7 April — 15 Oct. 1977—1979, K. Rognes, EIS 7, KR. Stavanger, Sunde, 1 ♂, 8 Oct. 1978, K. Rognes, EIS 7, ZMC; Krossberg, 1 ♀, 1 May 1977, K. Rognes, EIS 7, ZMC.

HORDALAND: HOy: Fana, Dolvik, 1 ♀, 12 Sept. 1937, N. Knaben, EIS 30, ZMB; Bergen, Muséhagen, 1 ♀, 28 Sept. 1936, N. Knaben, EIS 39, ZMB; Åsane, Steinestø, 1 ♂, 8 May 1966, A. Løken, EIS 39, ZMB.

These are the first records from Norway.

Note

In ZMB is a damaged specimen (SFi: Sogndal, Åberget, 1 ♀, 29 May 1948, A. Løken, EIS 50) determined by O. Ringdahl as *P. cyanella* Meig. belonging either to *D. zimini* or to *D. cyanella*.

DASYPHORA CYANICOLOR (Zetterstedt, 1845)

Revised records

HEDMARK: HEN: Åmot, ?Løset, 1 ♂, ?date, H. Siebke, EIS 64, ZMO no. 5935, (Siebke, 1877: 97 as *P. cadaverina*). (This must be the specimen from 4 Aug. 1870 since the only other specimen placed under *P. cadaverina* in the collection is a *D. zimini* from Trondheim (ZMO no. 5934), see above.); 1 ♂, 27 July 1848, H. Siebke, EIS 64, ZMO no. 5942 (Siebke, 1877: 98 as *P. cyanicolor*).

OPPLAND: On: Fron, ?loc., 1 ♂, H. Siebke, EIS 62?, ZMO no. 5945, (Siebke, 1877: 98 as *P. cyanicolor*). (The specimen from Hønefoss (Siebke 1877: 98 line 2 from above) is not in the collection. The specimen from Vang (On:Vang) (*loc.cit.*) is a misidentified female specimen of

Orthellia caesarion (Meigen, 1826) (ZMO no. 5944)).

NORDLAND: Nsi: Rana, Krokstrand, 1 ♂, 18 Aug. 1926, A. Grønlie, EIS 124, TM, (Ringdahl 1944a: 12 as *P. cyanicolor*).

TROMS: TRi: Målselv, Bjerkgeng, 3 ♀♀, 13 June 1897, O. Bidenkap, EIS 154?, TM, (Bidenkap, 1901: 60 as *P. serena* Meigen. In this publication the date and sex are wrong. Ringdahl, 1928: 8 as *P. serena*); Frihetsli, 1 ♂, 29 July 1922, T. Soot-Ryen, EIS 147, TM, (Ringdahl, 1928: 8 as *P. serena*). (The female specimen from Finnsnes (Ringdahl 1944a: 12 — *P. cyanicolor*) is a misidentified *D. zimini*, see above).

New records

AKERSHUS: AK: Oslo, Tøyen, 1 ♀, 23 April 1848, H. Siebke, EIS 28, TM.

HEDMARK: HEN: Åmot, ?Løset, 1 ♂, ?date, H. Siebke, EIS 64, TM.

OPPLAND: On: Fron, ?loc., 1 ♀, H. Siebke, EIS 62?, ZMO no. 5939. (This specimen is placed in the collection under the name *P. serena*.)

BUSKERUD: Bø: Flesberg, Belgen, 1 ♂, 27 July 1979, K. Rognes, EIS 27, KR; Hvila, 27 July 1979, 2 ♂♂, K. Rognes, EIS 27, KR; Kongsberg, Hvitingsfoss, 1 ♂, 1 ♀, 6 Aug. 1979, K. Rognes, EIS 19, KR; Ringerike, Løvli, 1 ♀, 31 July 1977, K. Rognes, EIS 36, KR.

VESTFOLD: VE: Hof, Thorrud, 3 ♂♂, 3 ♀♀, 28 July 1979, K. Rognes, EIS 28, KR.

TELEMARK: TEy: Drangedal, Tørnes, 1 ♀, 28 June 1978, K. Rognes, EIS 18, KR.

AUST-AGDER: AAy: Tvedestrand, Fiiane, 1 ♀, 27 June 1979, Ø. Rognes, EIS 6, KR.

HORDALAND: HOy: Tysnes, Ånuglo, 1 ♂, 13 May 1970, Museum of Zoology, Excursion, EIS 23, ZMB.

Reliable published records

SØR-TRØNDELAG: ?STi, 1 ♂, 1 ♀, V. Storm, (Ringdahl, 1944c: 83 as *P. cyanicolor*). I have in vain searched for these specimens, see above under *D. zimini*. On the maps (Figs. 1 C, 3) I have recorded them for EIS 92 and STi, respectively.

NORDLAND: Nnø: Tysfjord, ?loc., ?sex, ?date, E. Strand, (Strand, 1903: 7 as *P. cyanicolor*, E. Girschner det., Ringdahl, 1928: 8 as *P. serena*). On the maps (Figs. 1 C, 3) I have recorded this specimen for EIS 139? and Nnø, respectively. I do not know where, if anywhere, the specimen is deposited.

Unverified published records

BUSKERUD: Bv: Ål, ?loc., ?sex, ?date, E. Strand, (Strand, 1900: 70 as *P. serena*). Not recorded on the maps.

VESTFOLD: VE: ?loc., ♂ ♀, 1891, O. Bidenkap, (Bidenkap, 1892: 239 as *P. cyanicolor*). This is an unreliable record (cfr. Bidekap's determination

of the two female specimens of *D. zimini* from Tromsdal, see above), and not recorded on the maps. These specimens probably are lost.

PYRELLIA IGNITA Robineau-Desvoidy, 1830

In Siebke's collection there are one male and one female specimen of *Pyrellia ignita* (ZMO nos. 5940, 5941, respectively) each carrying a small square black label in addition to the label with the museum number. They are placed in the collection under the name *P. aenea* Zetterstedt. No other information is supplied, neither collector, locality nor date. Siebke (1877) does not refer to them. They have probably not been found in Norway.

Hennig (1963: 942) records *P. ignita* from Norway, referring to it the following way: «...Norwegen (Tysfjord u.a.: Ringdahl 1928)...». But in Ringdahl's paper this locality is mentioned with explicit reference to Strand under the name «*P. serena* (Meig.) Stein» which is a synonym to *D. cyanicolor*. In Strand's own paper (Strand 1903: 7) the locality is mentioned under the name «*P. cyanicolor* Zett.» and the species, like all the other ones published in that paper, has been identified by E. Girschner. Hennig's record is probably due to some misunderstanding. Ringdahl (1952) does not record the species from Norway. Strand's record is placed among the reliable published records of *D. cyanicolor* (see above).

PYRELLIA CADAVERINA (L.)

Unverified published record

TROMS: TRi: Målselv, Maukstad, 1 ♀, 16 June 1897, O. Bidekap, EIS 154, (Bidekap, 1901: 60 as *P. aenea* Zetterstedt, Ringdahl, 1928: 8 as *P. cadaverina*). Ringdahl says: «Eine ♀ Ex. das wahrscheinlich dieser Art zugehörig ist, ist von Bidekap bei Maukstad gefunden.» The specimen is not present in TM, ZMO or ZMB. This somewhat doubtful record is the only Norwegian one. In Denmark the species has not been collected since 1911 (Michelsen 1977). It is not on the British list (Pont 1975). In Sweden, Ringdahl (1952) records it from Skåne and Gotland. The species in all probability does not occur in Norway at present.

GEOGRAPHICAL DISTRIBUTION

D. zimini (Figs. 1A, 2) seems to avoid the westernmost part of Scandinavia. Outside that region it has been reported from mountainous regions in Central Europe: Germany (with terra typica), Czechoslovakia, Austria, Switzerland, The French Alps, Yugoslavia, USSR (Hennig 1964: 962).

D. cyanella (Figs. 1B, 2) in this very northernmost part of its range has a pronounced atlantic

preference. Outside Scandinavia it has been reported from Scotland, England, Netherlands, France, Spain, Portugal (including the Azores), Hungary, from several localities in the Mediterranean region (Italy, Yugoslavia, Greece, Israel), and even from Iran, but not from Germany (Hennig 1963: 951 f). An immigration to Norway from the British Isles, where it is very common (Fonseca 1968), seems plausible. Michelsen (1977) suggests that it has been expanding its range northwards relatively recently, having reached the southern parts of Denmark during the last decades, since all Danish records date from the 1970's. The Norwegian records from 1936 and 1937 seem to indicate that this has occurred earlier, if recently at all.

D. cyanicolor (Figs. 1C, 3) is widespread in Scandinavia. It is reported to be common in the north of Great Britain, but to become uncommon and local towards the south (Fonseca 1968). The lack of records from Denmark is surprising, especially since it has been recorded from Germany and France. It also occurs in North America (Hennig 1963).

REMARKS ON THE BIOLOGY OF D.CYANELLA IN THE STAVANGER AREA

All the localities where the species has been caught by the author lie within about 500 m from a field where cattle graze for parts of the year. The larvae develop in cow droppings (Hennig 1964).

The imago survives the winter (Hennig 1964) which explains its early occurrence in the spring and late occurrence in the autumn. I have only one find from June and one from July, but at present I think this reflects a rather low collecting activity in the suitable areas at that time of the year. Outdoors the fly has been captured on walls, tree trunks, leaves and flowers. 24 May 1979 I observed and caught numerous females on newly laid cow droppings, but I could not ascertain whether they were ovipositing. Thomson (1937) says that it is very occasionally that two females are seen ovipositing on the same dungcake. Nearby some females were caught on male *Salix* catkins in full bloom.

On two occasions *D. cyanella* has been taken indoors: a female 8 April 1977 and a male 6 Oct. 1978, the first one probably having just escaped from its winter quarters, the second one looking for one. Both Graham-Smith (1918) and Thomson (1937) report to have seen *D. cyanella* overwintering in houses.

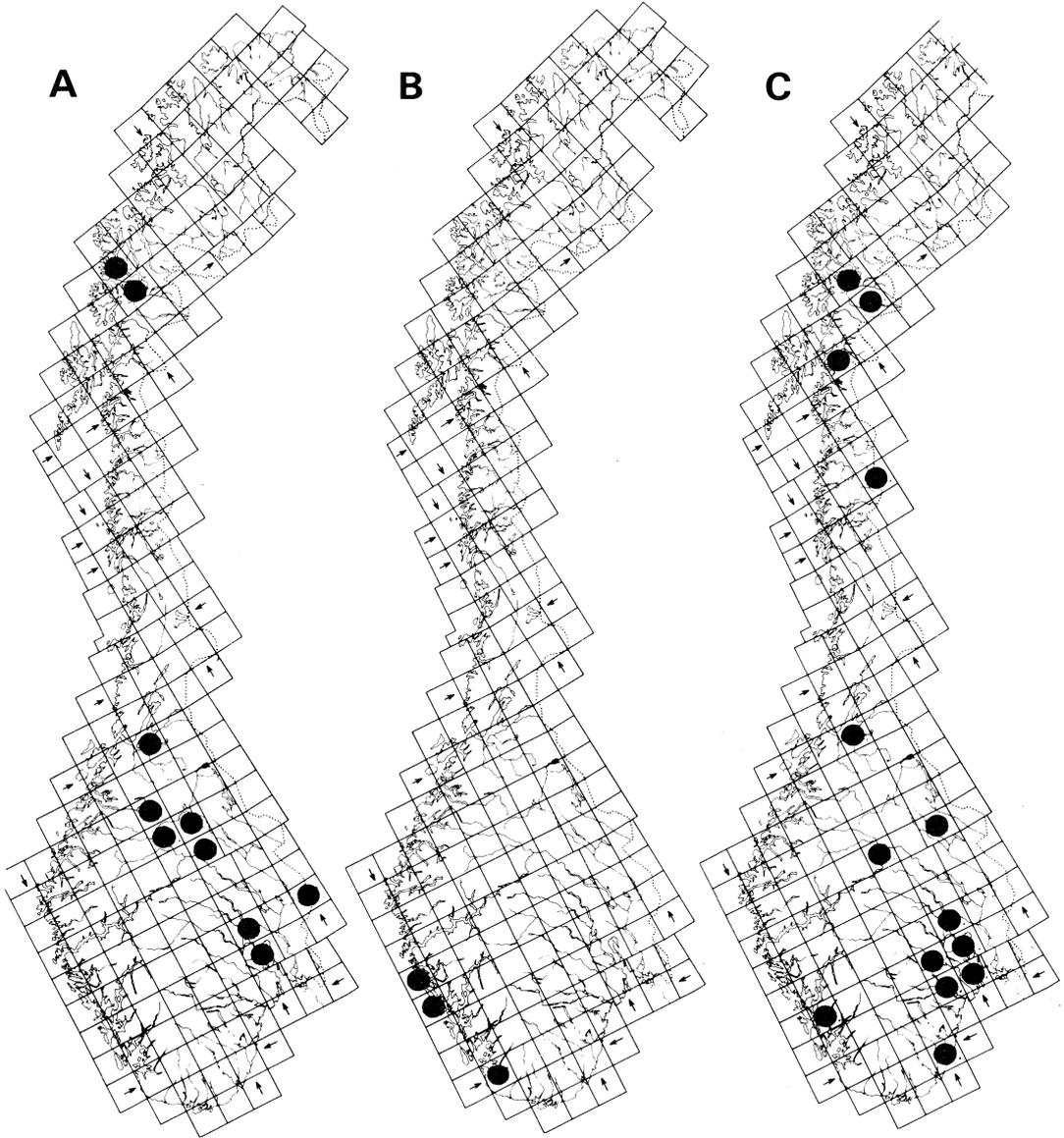


Fig. 1. Records of *Dasyphora* Robineau-Desvoidy from Norway. — A) *D. zimini* Hennig, B) *D. cyanella* (Meigen), C) *D. cyanicolor* (Zetterstedt).

MORPHOLOGICAL DIFFERENCES BETWEEN *D. ZIMINI* AND *D. CYANELLA*

Morphological differences mainly relate to the width of frons (Hennig 1964) (Fig. 4), the chaetotaxy of the middle tibia, and certain characteristics of the mouthparts. The latter two points will be considered in some detail.

The middle tibia of both sexes of *D. zimini* carries, according to Hennig (1964), one or two shorter setae above and in line with the comparatively large anterodorsal seta, while in *D. cyanella* no such smaller setae are present. This is the case with most specimens in the material seen by the author (Figs. 5A, where even three

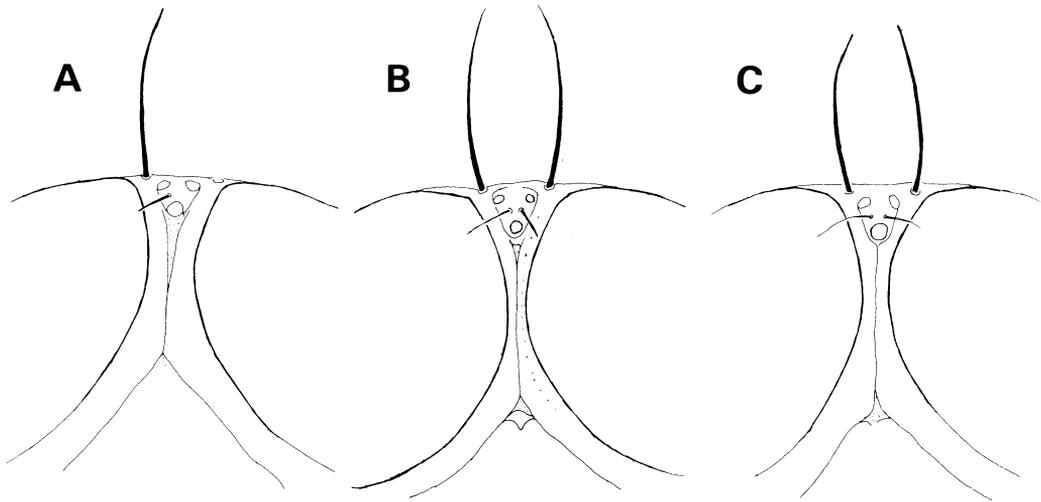


Fig. 4. Frons, frontal view. — A) *D. zimini* Hennig (male, TRy: Lenvik, Finnsnes 20 Sept. 1935), B) *D. cyanella* (Meigen) (male, Ry: Stavanger, Ullandhaug

8 Aug. 1978), C) *D. cyanella* (same specimen as in Fig. 5 C).

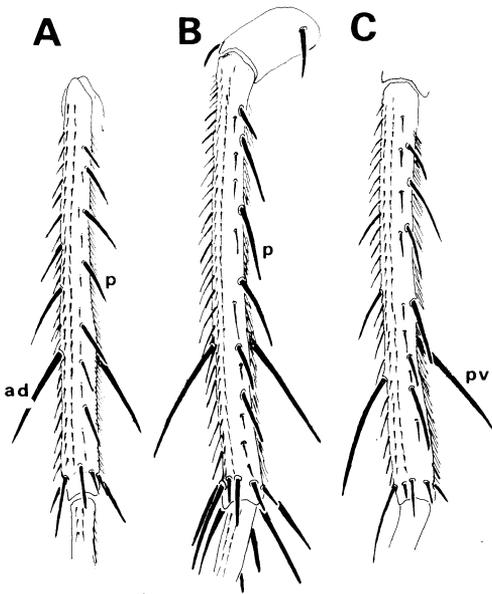


Fig. 5. Left middle tibia. — A) *D. zimini* Hennig (female, TRy: Tromsø, Ramfjord 28 May 1924), B) *D. cyanella* (Meigen) (male, Ry: Stavanger, Ullandhaug 8 Aug. 1978), C) *D. cyanella* (aberrant male, Ry: Stavanger, Krossberg 1 Oct. 1978). — ad = anterodorsal seta, pv = posteroventral seta, p = posterior setae.

actually touches the upper lateral margin of the mentum, thus making it very similar to that of *D. zimini*.

The terminalia of one male specimen of *D. cyanella* is shown in Fig. 7. They appear identical to the British specimen of *D. cyanella* illustrated by Patton & Gibbins (1934: 576—577). Hennig

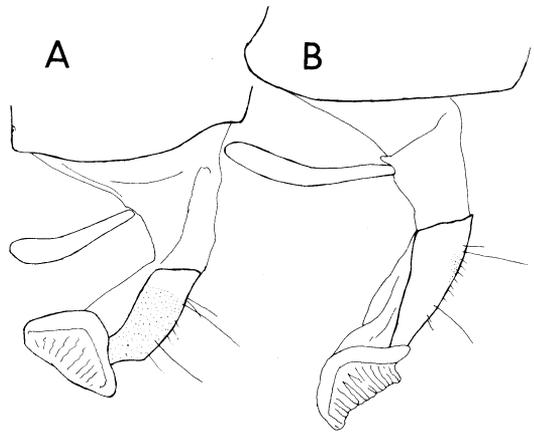


Fig. 6. Proboscis. — A) *D. zimini* Hennig (female, TRy: Tromsø, Ramfjord 28 May 1924), B) *D. cyanella* (Meigen) (female, Ry: Stavanger, Krossberg 1 Oct. 1978). Setae except on mentum omitted.

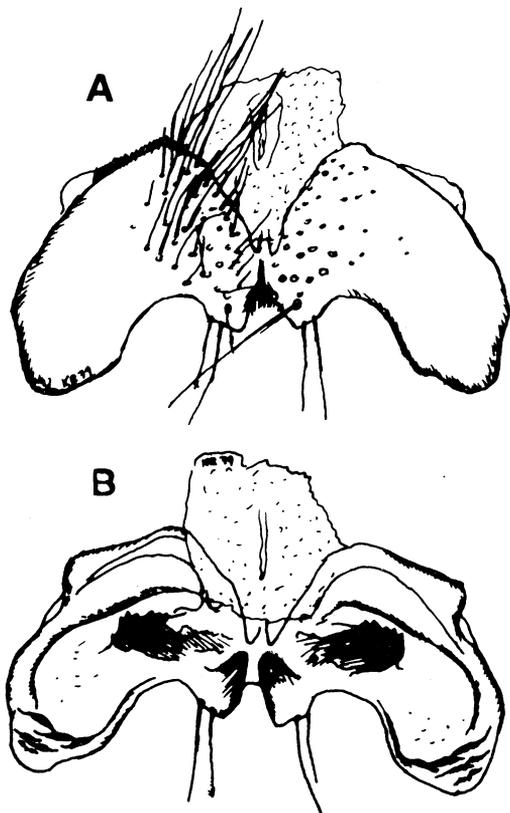


Fig. 7. Cercal plate of *D. cyanella* (Meigen). — A) Viewed from convex side (setae omitted on right side). B) Viewed from concave side. (Some distortion due to compression). (Male, Ry: Stavanger, Krossberg 1 Oct. 1978) (G.pr. 1).

(1964: 962) also finds agreement between the illustrations by Zimin of the genitalia («Mesolobus und Surstylus») of *D. zimini* and the figures by Patton & Gibbins. A renewed dissection of *D. zimini* may determine to what extent the two species have identical genitalia.

KEY TO NORWEGIAN SPECIES OF *DASYPHORA* ROBINEAU-DESVOIDY

- 1(2) Largest anterodorsal seta of middle tibia situated between posteroventral seta and apex of tibia, its base separated from base of posteroventral seta by at least width of tibia, anterodorsal seta about half as long as posteroventral seta; eyes almost naked; anterior spiracle brownish black; front of humerus strongly dusted; front of thorax with median broad band of strong white dusting, and lateral band of weaker dusting, about half as

broad, visible in strong light when viewed tangentially, (front of thorax, apart from humeri, apparently with a single white band); thorax and abdomen shining dark blue-green; mentum greyish dusted

D. cyanicolor (Zetterstedt)

- 2(1) Largest anterodorsal seta of middle tibia situated at about same height on tibia as posteroventral seta and of approximately same length; eyes densely haired (less so in females); anterior spiracle orange; front of humerus strongly dusted; front of thorax with median broad band of strong white dusting, and lateral narrower band of equally strong dusting, (front of thorax, apart from humeri, apparently with three white bands); thorax and abdomen shining green.
- 3(4) Middle tibia without smaller setae above and in line with large anterodorsal seta; mentum shining brownish black with an almost imperceptible dark greenish sheen, normally practically undusted or with some dust medially below; male frons narrow, about 1.5 times wider than width of front ocellus, about half as broad as width of third antennal segment

D. cyanella (Meigen)

- 4(3) Middle tibia with one to three smaller setae above and in line with large anterodorsal seta; mentum greyish dusted all over except for a shining brown band at hind third or fourth; male frons relatively wide, about 3 times wider than width of front ocellus, about as broad as width of third antennal segment

D. zimini Hennig

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At last I want to express my gratitude to Verner Michelsen, Museum of Zoology, Copenhagen, for having verified my determinations of a large part of my own material of *D. cyanella* and *D. cyanicolor* and for pointing out important characteristics of the proboscis of *D. cyanella* and *D. zimini*.

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