The Dutch Fungivoridae in the collection of the Zoological Museum at Amsterdam

by

Dr. G. BARENDRECHT

The collection of Dutch Diptera in the Zoological Museum at Amsterdam consists for the greater part of the collection Prof. Dr. J. C. H. de Meijere brought together in some forty years. Most of the material was identified by the collector himself, leaving, however, such families as the Tendipedidae, Simulidae, Psychodidae, Sciaridae, and Fungivoridae entirely or partly to a specialist or some other person who could give all his time to one group. In this way the writer, then assistant to Prof. de Meijere, some years ago undertook the determination of the fairly extensive Fungivoridae material.

That at present the work on fungus gnats is so much more gratifying than twenty years ago is largely due to Landrock's monograph in Lindner: „Die Fliegen der paläarktischen Region" and to Edwards' work on the British Fungivoridae. Still, consulting the original literature, especially the papers of Dziedzicki, Lundstroem, Johannsen, Edwards, and Landrock, remains indispensable. For such keys and descriptions as are to be found in Landrock's monograph, are seldom sufficient, not because their being worse than others but owing to the difficulty of giving a verbal diagnosis of these gnats. Like in so many other families of Diptera satisfactory characters for separating the species can only be obtained from the male hypopygium. We are, therefore, largely dependant on the figures of these parts and it is much to be regretted that the numerous figures of hypopygia in Landrock's monograph are, on the whole, so badly reproduced. Hence, one is often compelled to consult the original figures of Dziedzicki, Lundstroem, and Edwards.

Except Prof. de Meijere's collection (including a small remnant of the collection van der Wulp) the Museum obtained a collection of fungus gnats reared from various species of mushrooms by Mr. and Mrs. Westenberg-Sorgdrager. This collection was also entrusted to the writer for examination. It appeared that in several cases species of Fungivoridae were reared from mushroom species in which they were not known to breed, so far as the data in Landrock's monograph go. The writer thought it of some interest to record these „new" food plants under the various species.

Although the writer has given three years to the study of this family of Diptera he is far from considering himself a specialist for this group, and moreover, he has not the opportunity to continue his work on these gnats in the future. Nevertheless, he met with several points of a more general interest. First a few species were found which are probably new to science, while in other cases species names had to be rectified. Then, the list of Dutch Fungivoridae was enlarged with 53 species. It was considered useful, therefore, to give a complete list of the Fungivoridae in the Amsterdam Museum.

The writer is much indebted to Mr. F. W. Edwards for his valuable advice on several difficult points as also for the donation of an authentic specimen of his species *Polyxena nitidula*.

Ditomyinae

Symmerus Walk.

annulata Meig.

Bolitophilinae

Bolitophila Meig.

glabrata Loew.

hybrida Meig.

From Clitocybe odora Bull.

pseudohybrida Landr.

From Paxillus involutus Batsch. and Clitocybe odora Bull. Considerable difficulty was met with in separating this species from *hybrida* Meig., Landrock laying much stress on the presence or absence of tp. In *hybrida* this cross vein according to the descriptions is always present. This species was represented, however, in the collection Westenberg-Sorgdrager by 118 specimens, partly showing, partly lacking tp! In this particular case the writer based his identification chiefly on the female ovipositor, the characters of the male hypopygium not being very satisfactory.

rossica Landr.

From Boletus elegans Sch.

Bolitophilella Landr.

cinerea Meig.

From Hypholoma fasciculare Huds.

Diadocidiinae

Diadocidia Ruthe

ferruginosa Meig.

Macrocerinae

Macrocera Meig.

angulata Meig.
centralis Meig.
fasciata Meig.
inversa Loew.
lutea Meig.
phalerata Meig.
stigma Curt.
stigmoides Edw.
vittata Meig.

Ceroplatinae

Asindulum Latr.

flavum Winn.

Ceroplatus Bosc.

Of this rare genus I found only four specimens, originally labelled *tipuloides* Bosc. In my opinion, however, this determination is not correct, two specimens belonging to *testaceus* Dalm. and the other two being very probably *winnertzi* Landr.

testaceus Dalm.
winnertzi Landr. ?

Cerotelion Rond.

lineatus Fabr.

Apemon Joh.

marginata Meig.

Zelmira Meig.

bicolor Macq.
discoloria Meig.
fasciata Meig.
flava Macq.

In the collection de Meijere I found a male and a female, both of which, being collected at the same date and locality, I believe to belong to this species. In both specimens, however, r_4 ends far before the middle of r_1—r_5 in c! Yet the male hypopygium resembles closely Edwards' figure of this species.

macrocera Edw.
modesta Winn.
nemoralis Meig.
nigricornis Fabr.
pallida Staeg. ?

Only 1 female!

semirufa Meig.
zonata Zett.

Sciophilinae

Mycomyia Rond.

bicolor Dzied.
cinerascens Macq.
fissa Lundst.

The identification of this species is very dubious. In the collection de Meijere I found 3 males, collected at different dates at Hilversum. The only hypopygium with which that of these specimens shows a slight resemblance at least is that of *M. fissa* as figured by Lundstroem. The

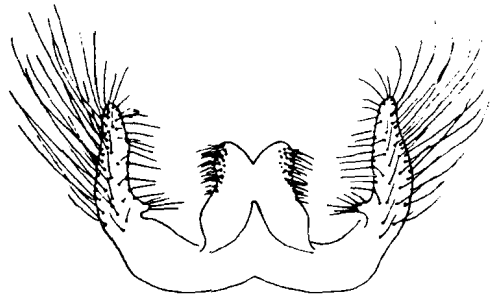

Fig. 1. Mycomyia fissa Lundst.

likeness being, however, only very superficial and this identification presuming, therefore, a considerable inaccuracy in Lundstroem's figure, I give here a figure of one of our specimens, so that the reader may judge for himself (fig. 1).

1 Female, labelled with this name, from the collection van der Wulp.

incisurata Zett.
limbata Winn.
pulchella Dzied.
tenuis Walk.
trilineata Zett.
winnertzi Dzied.

Neoempheria O. Sack.

striata Meig.

Leptomorphus Curt.

walkeri Curt.

Allocotocera Mik.

pulchella Curt.

Neurotelia Rond.

nemoralis Meig.

Paraneurotelia Landr.

dispar Winn.

Sciophila Meig.

hirta Meig.
lutea Macq.
nigronitida Landr.

Monoclona Mik.

rufilatera Walk.

Acnemia Winn.

nitidicollis Meig.

Speolepta Edw.

leptogaster Winn.

Coelosia Winn.

tenella Zett.
1 Male from Hilversum. The hypopygium is without any doubt identical with that figured in Pl. 5, fig. 38 of Landrock's monograph. There is a difference, however, between our specimen and Landrock's description, c ending halfway the distance r_5—m_1+_2 and the mesonotum being rather pale with three dark fused stripes.

Synapha Meig.

vitripennis Meig.

Boletina Staeg.

dispecta Dzied.
1 Male from Bussum. The hypopygium does not agree completely with any of the figures available, but Mr. Edwards to whom I sent a drawing of our specimen thought it very much like *dispecta* Dzied. (fig. 2).
dubia Meig.
gripha Dzied.
griphoides Edw.
sciarina Staeg.
To this species applies the same as to the *dispecta*. Of this identification I am not so sure neither.
silvatica Dzied.

Rondaniella Joh.

variegata Winn.

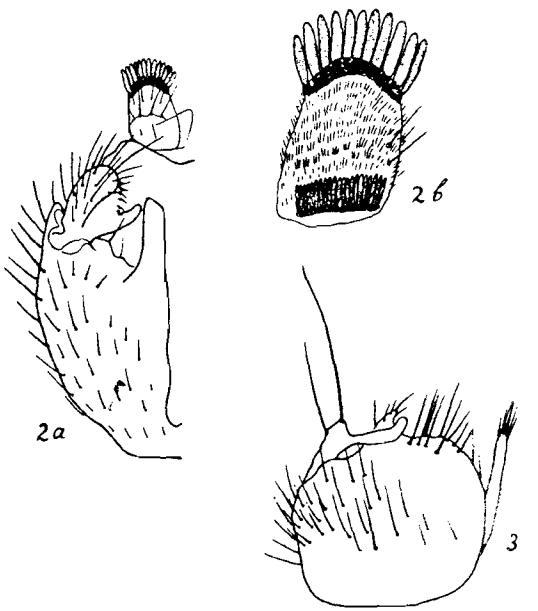

Fig. 2. Boletina dispecta Dzied.
Fig. 3. Leia longiseta nov. spec., lateral aspect.

Leia Meig.

bimaculata Meig.
fascipennis Meig.
longiseta nov. spec.
In the collection de Meijere are 3 males belonging to a species which I believe to be new. After the very long bristles on the hypopygium I name this species *longiseta*.
Head brown, shining, palpi and lower part of the face yellow. Scape of antennae yellow, flagellum brown.
Thorax yellow, shining. Posterior $^2/_3$ of the mesonotum blackish; this part consists essentially of two nearly fused, very broad stripes. The greater part of the postnotum brown, scutellum yellow with 4 bristles.
Wings with a subapical fascia, hardly visible in the holotype but very distinct in one of the cotypes, beginning halfway r_1—r_5 and ending, very indistinctly, on the end of cu_1. In this specimen there is also a very faint spot on the basis of the m stem and ta, and on the middle of cu_2. r_1 almost = ta, a conspicuous but short.

Legs, spurs included, yellow, only the tip of f_3 slightly darkened.
Abdomen yellow with broad dark spots on the posterior margin of the tergites or segments entirely brown with the basal parts narrowly yellow.
Hypopygium fig 3.
3 mm, wing 3.5 mm.

Holotype : Male, labelled : Ommen, 25.VI.'16, de M.
Cotypes : 2 Males, 1 labelled : Ommen, 25.VI.'16, de M. and 1 : Amsterdam, 10.VII.'20, de Meijere.

winthemi Lehm.

Ectrepesthoneura End.

hirta Winn.

Tetragoneura Winn.

sylvatica Curt.

Docosia Winn.

gilvipes Hal.
sciarina Meig.

Fungivorinae
Anatella Winn.

ciliata Winn.
unguigera Edw.

Exechia Winn.

cincta Winn.
contaminata Winn.
crucigera Lundst.
dizona Edw.
dorsalis Staeg.
fimbriata Lundst.
frigida Holm.
fusca Meig.
indecisa Walk.
lundstroemi Landr.
nigroscutellata Landr.
nitidicollis Lundst.
pallida Stann.
parva Lundst.

Regarding this species a considerable confusion exists in literature. In 1924 Edwards[1]) made the following remark about the „variability" of this species :..... the ventral bristlebearing projections are also much longer in some specimens than is indicated in Lundstroem's figures".

[1]) Trans. Ent. Soc. Lond. 1924, pp 505—662.

Landrock gives a figure of the species he calls *parva* (Pl. 8, fig. 7) showing only a very slight resemblance to the original figures of Lundstroem[2]) (Pl. 10, figs. 104—105). Perhaps, only being acquainted with one of these

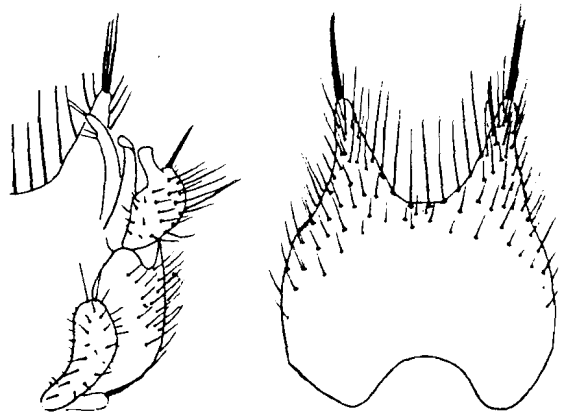

Fig 4. Exechia parva Lundst.

two forms, one might be inclined to disregard this difference, assigning decisive importance to the bristlebearing projections, not present elsewhere in the genus *Exechia*. In our material however, I found, 2 males, quite similar to Lundstroem's figures, and 5 males, belonging to the species on which probably Landrock's figure was based. The two males first mentioned obviously belong to the species *parva* Lundst.
The species represented by the other 5 specimens I should have named anew but for Mr. Edwards drawing my attention to the fact that in 1912 Johannsen described two American species of *Exechia* which might be identical with our species, *parva* Lundst. being = *capillata* Joh. So I sent drawings of the hypopygia of both species to Prof. Johannsen, who kindly answered that the drawing reproduced in fig. 5 would represent his *repanda* very well indeed. Therefore the 5 specimens mentioned above are recorded under the name E. *repanda* Joh.
On the other hand Prof. Johannsen considered *parva* Lundst, not identical with *capillata*. This point is, however, of more importance to the American entomologists

[2]) Acta Soc. Faun. Fl. Fenn. Vol. 32, 1909.

than to us, for, Lundstroem's species being the older, we may anyhow preserve the name *parva* for our specimens.

pulchella Winn.

repanda Joh.

See *parva* Lundst.

separata Lundst.

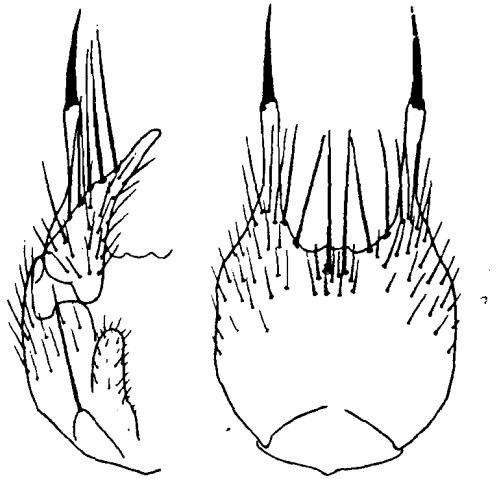

Fig. 5. Exechia repanda Joh.

In my opinion this species is undoubtedly synonymous with E. *lateralis* Dzied. (nec Meig.?). Cf. Dziedzicki's figs. 253—254[3]) and Lundstroem's figs. 87—89[4]). In Landrock's monograph the name *lateralis* does not appear except as synonymous with *fusca* Meig. I do not know the motives for suppressing the name *lateralis* but am much inclined to restore it for *separata* Lundst.

spinuligera Lundst. (*spinigera* Landr., nec Winn.)

Landrock considers this species, described in 1912 by Lundstroem[5]), synonymous with *spinigera* Winn. Probably this is not correct. For, Lundstroem, having previously identified his specimen as *spinigera* Winn. sent it to Dziedzicki, and this authority, having been able to

[3]) Atlas des organes génitaux (Hypopygium) des types de Winnertz et des genres de sa collection de Mycétophiles. Publications de la Société des Sciences de Varsovie 1915.

[4]) E. concinna Winn., l.c.

[5]) Acta Soc. Faun. Fl. Fenn. Vol. 36, 1912.

examine Winnertz' type, found Lundstroem's specimen not identical with Winnertz' species. There may be observed an obvious difference between Dziedzicki's figures 270—271[3]) and Lundstroem's 85—86[6]) the latter being adopted by Landrock. In our material I found several specimens which could readily be identified as *spinu-*

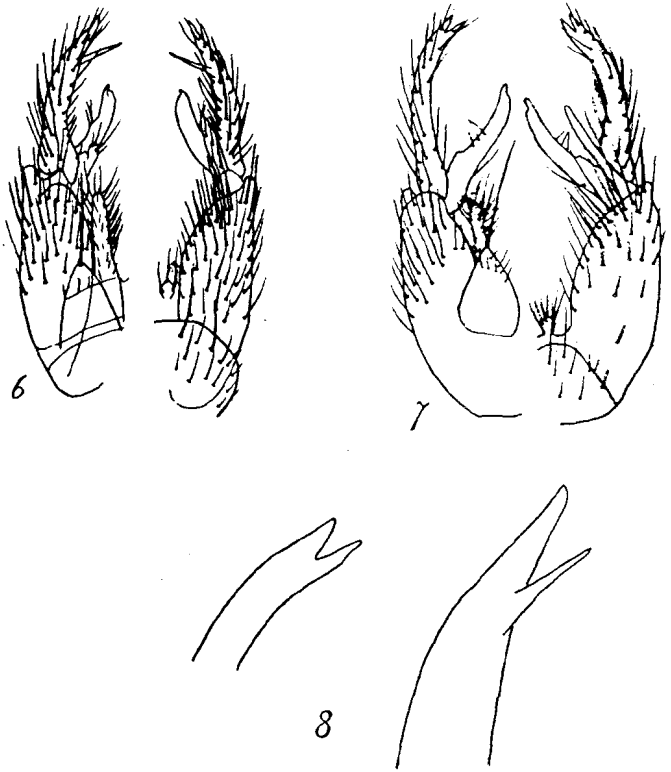

Fig. 6. Exechia spinuligera Lundst.
Fig. 7. Exechia frigida Holm.
Fig. 8. E. frigida Holm (left) and E. spinuligera Lundst. (right), tip of the upper clasper.

[3]) See p. 43.

[6]) E. spinigera Winn., Acta Soc. Faun. Fl. Fenn. Vol. 32, 1909.

ligera Lundst. Lundstroem's figure not being very exact, I made a new drawing of the *spinuligera* hypopygium (fig. 6). Beside this figure the species is portrayed I considered as the real *spinigera* Winn. (fig. 7), until Mr. Edwards told me that this specimen probably belongs to the species *frigida* Holm. Apparently *spinigera* Winn., *spinuligera* Lundst., and *frigida* Holm. are closely related species, the main difference between *spinuligera* and *frigida* concerning the tip of the upper claspers (fig. 8).

trivittata Staeg.

Rhymosia Winn.

affinis Winn.

> *domestica* Meig.

From Clitocybe clavipes Pers.

fasciata Meig.

fenestralis Meig.

From Clitocybe clavipes Pers., Boletus subtomentosus L., Lepiota procera Scop.

signatipes v. d. W.

1 Male from the collection van der Wulp and labelled Rh. *signatipes* v. d. W. This is surely not the species Dziedzicki[1]) in his Rhymosia monograph took for *signatipes*, the hypopygium being identical with that of *truncata* Winn., as represented in the same paper. Very little doubt

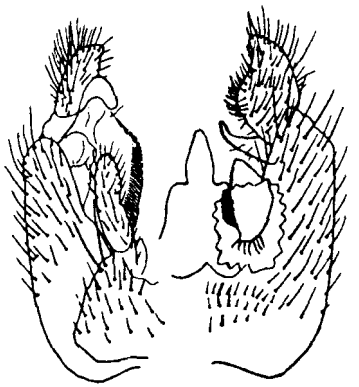

Fig. 9. Rhymosia tarsanii Dzied.

indeed obtaining about the identity of our specimen as the type of van der Wulp's species and considering, on the other hand, that Dziedzicky has examined the type

[1]) Horae Soc. Ent. Ross. Vol. 39. 1909.

Winnertz' species, changing these two names is inevitable. Henceforth *truncata* Winn. has to be called *signatipes* v. d. W., this name being the older one. For *signatipes* auct., nec v. d. W. I propose the name *winnertzi*.

tarnanii Dzied.

Dziedzicki's original figures of the hypopygium not being very accurate, this is once again figured (fig. 9).

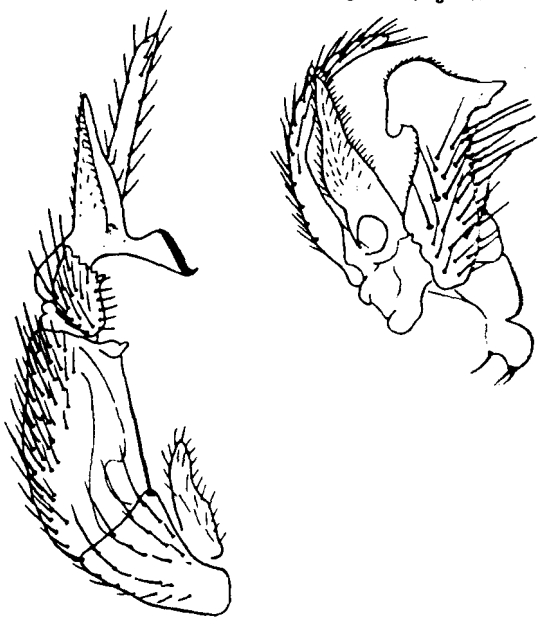

Fig. 10. Allodia batava nov. spec., dorsal aspect of half the hypopygium with part of the upper clasper removed, and lateral aspect of the clasper complex.

Allodia Winn.

This genus I consider as one of the most difficult in the *Fungivorinae*, the hypopygium of many species, besides having to be prepared very carefully, showing a strong resemblance. In this respect we owe very much to the work of Mr. Edwards[1]).

alternans Zett.

batava nov. spec.

In the collection de Meijere I found 2 specimens probably belonging to this genus, though showing also some re-

[1]) See p. 41.

semblance to *Rhymosia*, and which I believe to be new. Head brown. Palpi yellow. Scape of antennae and base of first flagellar segment yellow, flagellum brown. Mesonotum grizzly brown, towards the shoulders somewhat yellowish. Scutellum brown with 2 bristles. Postnotum brown. Pleurae yellowish brown. 1 Propleural bristle ? Halteres yellow. Wings spotless, a fairly conspicuous. Legs yellow. Abdomen in the holotype yellow with brown spots, the latter extending dorsally almost over the whole length of the segments but laterally restricted to the posterior part. Posterior segments brown. In the cotype the brown colour is more extensive but less dark. Hypopygium fig. 10. 2,5 mm. wing 2,5—3 mm.

Holotype: 1 Male, labelled: Nederland, de M.

Cotype: 1 Male, labelled: Zandvoort, VIII.'94, de M.

bicolor Macq.

Very dubious, only 1 female, from the collection van der Wulp and labelled with this name.

crassicornis Stann.

fissicauda Lundst.

flaiventris v. d. W.

This species is represented only by the irrecognizable fragments of a female from the collection van der Wulp.

grata Meig.

From Pluteus spec., Lepiota acutesquamosa Weinm., Psathyra spadiceo-grisea Schaeff. ?

griseicollis Staeg.

lugens Wied.

From Psathyra spadiceo-grisea Schaeff. ?, Paxillus involutus Batsch., Boletus subtomentosus L., Mycena galericulata Scop.

lundstroemi Edw.

ornaticollis Meig.

From Armillaria mellea Vahl., Boletus subtomentosus L., Hebeloma spec.

ruficauda v. d. W.

Of this species ? I found 1 female, not to be identified, and 1 pair of wings, both from the collection van der Wulp. A male from the collection van der Wulp turned out to be *grata* Meig.

sericoma Meig.

truncata Edw.

Polyxena Meig.

bergensis nov. spec.

In the collection Westenberg-Sorgdrager I found 6 *Polyxena's*, reared from Russula's collected at Bergen (N.H.) and probably belonging all to the same new species.

This species, which I name *bergensis*, is closely related

to nitidula Edw. as regards the male hypopygium and the female ovipositor. The male antennae in this species have, however, only 2 + 11 segments, in *nitidula* 2 + 13. In the females there is still more resemblance, this sex in both species having 2 + 9 antennal segments and the ovipositor showing only a very little difference. Cf. fig. 12 with Edwards' fig. Head blackish brown, male antennae 2 + 11 segments, female antennae 2 + 9 segments. Flagellum brown, scape brighter. Second segment

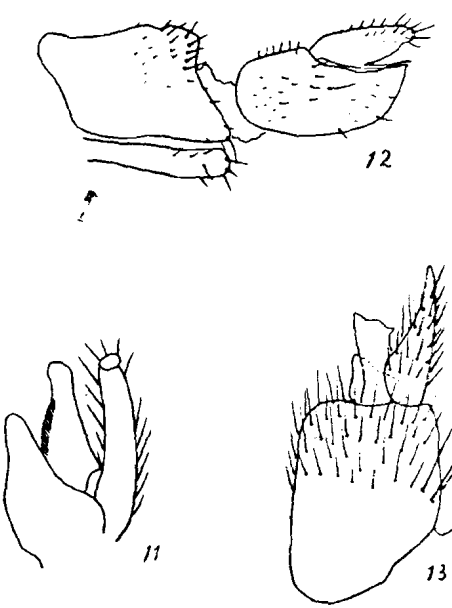

Fig. 11. Polyxena bergensis nov. spec., hypopygium lateral aspect.
Fig. 12. Polyxena bergensis nov. spec., lateral aspect of the ovipositor.
Fig. 13. Polyxena sixi nov. spec., lateral aspect of the hypopygium.

of palpi brown, frontside somewhat yellow. Thorax dark brown, mesonotum towards the front margin a little paler, shining. Legs in the holotype quite yellow, in the cotype tip of f_2 and f_3 darkened. M_3 abbreviated, base of cubital fork beyond that of medial fork. Halteres yellow. Abdomen blackish brown. Hypopygium fig. 11. Ovipositor fig. 12. 2,5 mm., wing 2—2,5 mm.

Holotype: 1 Male, reared 1.IX.1931 from Russula fragilis Pers. ?, collected 19.VIII.1931 at Bergen (N.H.).
Cotypes: 1 Male and 4 females, reared 5.IX.1931 from Russula alutacea Pers. ?, collected 16.VIII. 1931 at Bergen (N.H.).

brevicornis Staeg.
crassicornis Meig.
fasciata Meig.
fissa Edw.

From Russula spec.

flaviceps Staeg.
fusca Meig.
murina Winn.
parvipalpis Edw.
sixi nov. spec.

In the collection de Meijere I found a *Polyxena* male from the collection van der Wulp, the original determination of which could not be traced. The specimen is gummed laterally on a slip of cardboard but for the rest in a fairly good condition. After preparation of the hypopygium it turned out to belong to a new species, which I name, after the collector Mr. Six, *sixi*. Like most *Polyxenas* this species is to be distinguished almost solely by the male hypopygium, the antennae unfortunately being broken off. Head blackish brown, second segment of palpi black. Thorax on the whole dark brown, only the mesonotum paler, little shining. Legs yellow? M_3 ending near to the wing margin but not reaching it. Cubital fork somewhat before medial fork. Abdomen brown, underside of first three segments paler. Hypopygium fig. 13. 2 mm. wing 2 mm.
Type: 1 Male, labelled: Driebergen, 10. Six.

Trichonta Winn.

atricauda Zett.
terminalis Walk.

Phronia Winn.

Although in this genus the hypopygia of the various species differ very much and are easily distinguished, yet they offer one particular difficulty. That is, being very complicated, they are often rather inaccurately figured, a circumstance which makes identification often very troublesome. I have, therefore, in a few cases made new figures.

basalis Winn.
conformis Walk.
dubia Dzied.
egregia Dzied.
exigua Zett.

flavipes Winn.
forcipata Winn.
mutabilis Dzied. Fig. 14.
nitidiventris v. d. W.

Recent writers (Landrock, Edwards) apply to this spe-

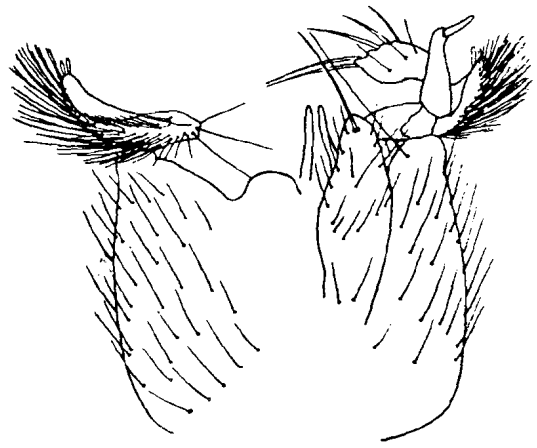

Fig. 14. Phronia mutabilis Dzied.

cies the name *vitiosa* Winn. notwithstanding their doubt as to its correctness. We have 1 male, from the collection van der Wulp, labelled *nitidiventris* v. d. W., the hypopygium of which is readily identified with that of *vitiosa* Winn., as figured by Dziedzicki [3]). It is labelled H. $^5/_5$, which means that it is collected at the Hague in the earlier years of van der Wulp's activity, before 1859, the year of publication of this species. This is, therefore, almost with certainty, the type of van der Wulp's species. Hence the name *vitiosa* Winn. has to be suppressed for *nitidiventris* v. d. W.

It will be generally known that *Ph. nitidiventris* Winn., Dzied. nec v. d. W. is quite another species which has been named *praecox* by Edwards in 1924.

obscura Dzied.
praecox Winn. M.S. (Edwards 1924).
tarsata Staeg.

Very dubious, only 2 females, one identified by Strobl in 1901 and one coming under this name from the collection van der Wulp.

[3]) See p. 43.

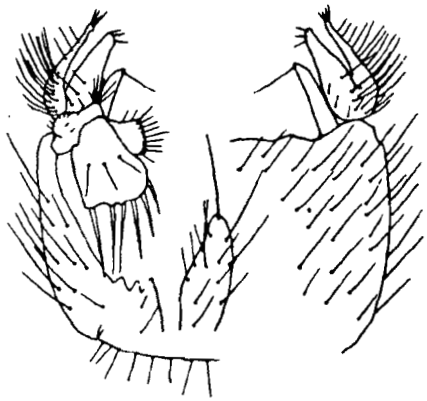

Fig. 15. Phronia tenuis Winn.

tenuis Winn.
Fig. 15.

Dynatosoma Winn.

fuscicorne Meig.

Fungivora Meig.

This large genus is represented bij a considerable number of species. On the whole, the identification of the males offered little difficulty, except in the *signata* group. It is, therefore, not impossible that a few of the *signatoides* specimens will turn out to be *signata* or *sigillata*.
On the other hand, in my opinion, the determination of the females is hardly possible, colour and chaetotactic characters being both too variable to be relied upon. Some remarks are made on this point under the various species.

bimaculata Febr.
blanda Winn.
cingulum Meig.
In a few specimens there are 2—3 ventral bristles on t_2.
confluens Dzied.
finlandica Edw.
This species can only be identified with fig. 37 of Lundstroem[8]) (M. *lunata* Lundst., nec Meig.)
formosa Lundst.
fraterna Winn.
fungorum de G.

[8]) Acta Soc. Faun. Fl. Fenn. Vol. 29 1907.

guttata Dzied.
lineola Meig.
luctuosa Meig.
From Armillaria mellea Vahl.
In this species much variation in the bristles on t_2 was met with. Most specimens have 2, a few, however, 3—4 internal bristles. And not a few specimens are asymmetrical in this respect. The ventral bristles are varying from 2—5 and often asymmetrical too.
marginata Winn.
One specimen has 3 ventral bristles on t_2.
obscura Dzied.
ocelus Walk.
semifusca Meig.
signatoides Dzied.
As stated above, the identification of this species is not always beyond doubt.
sordida v. d. W.
The only specimen from the collection van der Wulp is

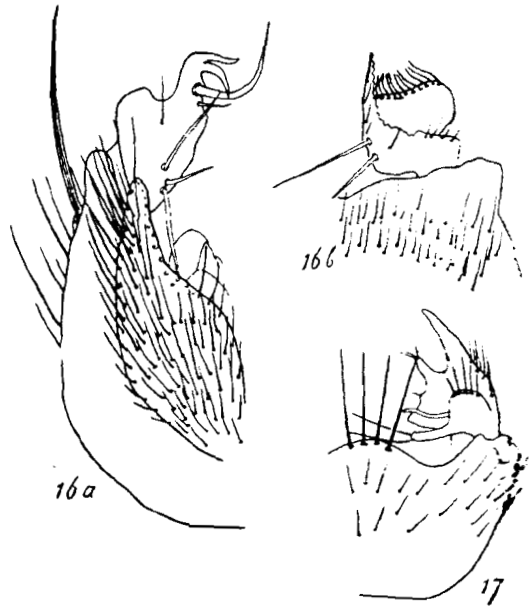

Fig. 16. Fungivora unicolor Stann.
Fig. 17. Zygomyia setosa nov. spec.

in a very bad condition and hardly to be identified. We have, however, a specimen, collected by Prof. de Meijere at Zandvoort of which the hypopygium is readily identified with that figured by Lundstroem[8]).

spectabilis Winn.
strigata Staeg.
trinotata Staeg.
unicolor Stann.
vittipes Zett.

Only 1 female probably belonging to this species.

Zygomyia Winn.

flaviventris Winn.

Rather dubious, only 1 irrecognizable fragment of a specimen identified by van der Wulp.

humeralis Wied.
notata Stann.
setosa nov. spec.

In the collection de Meijere I met with 1 male, belonging to a new species, which I have named *setosa* after the long bristles on the hypopygium.

Head brown, palpi yellow, scape of antennae and base of 1st flagellar segment yellow, rest of the flagellum brown. Thorax brown, mesonotum at the shoulders with a very small yellow spot. The specimen having been moistened, nothing can be recorded about the degree of shining. Legs yellow, tip of f darkened. Only one middle leg left. The tibia of this leg bears : 1 big and 3 small internal, 4 dorsal, 1 ventral, and 2 external bristles. Halteres yellow.

Wings spotless, somewhat yellow. Abdomen brown, the ventral side a little more yellow. Hypopygium fig. 17. 2,5 mm, wing 2,75 mm.

Type : 1 Male, labelled : Amsterdam, X,'91, de M.

valida Winn.
vara Staeg.

Sceptonia Winn.

costata v. d. W.

This species, described in 1859[9]) after a female, in the Diptera Neerlandica was suppressed by the author himself and fused with *nigra* Meig. Hence, this species is wanting in the „Nieuwe Naamlijst" and its supplements. Edwards has, however, restored this species when it turned out to be different from nigra not only in the colour, but in the male hypopygium too. In addition to the type some specimens collected afterwards are present in the collection of the museum.

[8]) Acta Soc. Faun. Fl. Fenn. Vol. 29. 1907.
[9]) Tijdschr. v. Ent.. XXXX 1859. Vol. 2, pp. 159—185.