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ON THE GENERIC POSITION OF « PLESIOCERA » FLAVIFRONS BECKER AND OF A FEW RELATED SPECIES (DIPTERA, BOMBYLIIDAE)

BY

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INTRODUCTION.

While sorting out material of varied origin I was struck by the peculiar appearance of the frons of some *Petrorossia*-like *Bombyliidae* hailing from countries as distant from each other as the U. S. A., South Africa, Europe and India.

The examination of the male genitalia revealed similar structures and made it quite evident that these could only belong to closely related species.

This gave rise to an interesting taxonomic problem because the species involved have been classified in at least three distinct genera. The problem is discussed in the following notes.

1. « *Plesiocera* » *flavifrons (auctorum)* BECKER 1915 not a *Plesiocera* but a *Desmatoneura* WILLISTON 1895. Comb. nov.

The generic position of « *Plesiocera* » *flavifrons* BECKER, has been persistently misunderstood. It cannot be a true *Plesiocera* (as opposed to *Stomylomyia* which ENGEL (1932-1937 : 390) has reduced to subgeneric rank) for the following reasons :

1. The face is not conically produced, only the oral margin is projecting and merely forms a narrow ridge.
2. The alula is not reduced and the axillary lobe not narrowed; vein R_{2+3} originates at right angles near the *r-m* transverse vein.
3. There is no bristly hair on the face, the vertex nor on the mesonotum.
4. The tumidly prominent frons is broad, shiningly pruinous (especially in the male sex) with very short, pale, soft hair only.

5. The phallosome is of an altogether different build from that of *Plesiocera* (figs. 12 a-b) (1).

In fact *flavifrons* belongs to a taxonomically well differentiated group of species which have been scattered among several genera and are readily recognizable through the frons as described in 4 above, the hollow first antennal joint and the quite homogeneous male genitalia (figs. 1-10). The species of this group, known to me, are the following : *Plesiocera flavifrons* BECKER, *Desmatoneura argentifrons* WILLISTON, *Chionamoeba nivea* ROSSI, *Chionamoeba meridionalis* HESSE, *Ch. frontalis* (WIEDEMANN), *Ch. choreutes* BOWDEN and probably a few others (? *Cytherea albifrons*, which I have not seen). Two undescribed oriental species, one from Ceylon and one from S. India belong here as well. The group thus ranges through four geographical regions : the Nearctic, Ethiopian, Palaearctic and Oriental.

As it would be taxonomically unsound to leave these species in their present position a question arises as to their generic assignment. This can only be to *Desmatoneura* since the species under discussion can by no means be considered as belonging to the genus *Plesiocera* and since *Desmatoneura* WILLISTON, a monospecific genus erected in 1895, has priority over *Chionamoeba* SACK 1909. The latter genus includes species (e.g. *lepida* HERMANN) which cannot be considered congeneric with *nivea* and *meridionalis* and for which a new genus will have to be erected (2). Indeed, « *Bibio* » *nivea* ROSSI being the type species of *Chionamoeba*, this genus must be sunk as a synonym of *Desmatoneura*.

2. Complementary description of *Desmatoneura* WILLISTON 1895 = *Chionamoeba* SACK 1909. Syn. nov.

As has just been shown the genus *Chionamoeba* SACK cannot be retained since its type species conforms to WILLISTON's genus. *Desmatoneura* can now be more completely characterized, with eight different species of it available. The additional features derived from these species are as follows.

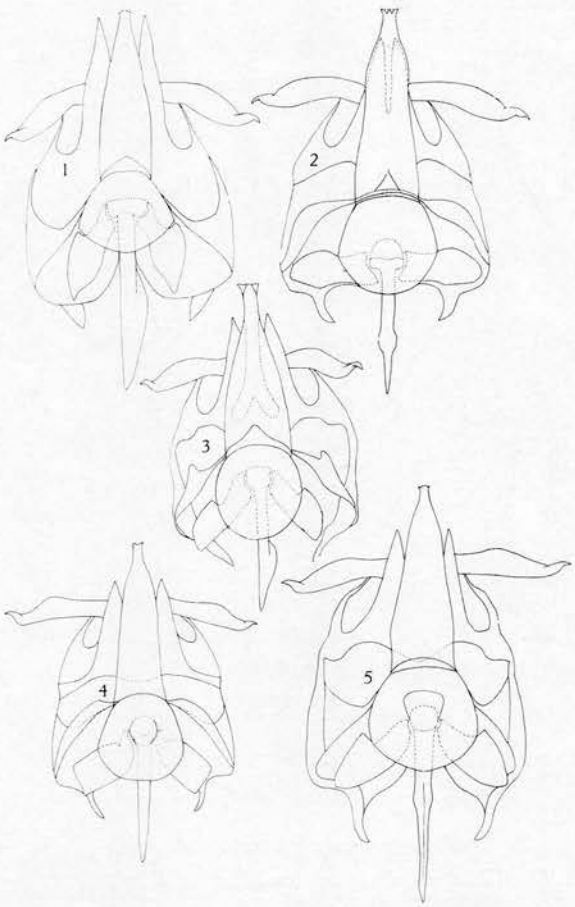
Small to medium-sized, pale-haired, silvery-scaled, *Petrorossia*-like flies; with head broader than thorax, the abdomen slender, elongate, tapering.

Head. — Face with a more or less distinct ridge along the anterior part of the oral opening, this ridge sometimes flattened, sometimes pro-

(1) Thanks to the kindness of Dr H. SCHUMANN, *Institut für spezielle Zoologie und Zoologisches Museum der Humboldt-Universität zu Berlin*, I have had the opportunity to examine the type of « *Anthrax* » *inaequalis* BECKER 1906 = *Plesiocera algira* MACQUART 1840.

(2) *Chiasmella* BEZZI 1924 may meet the case but the identity of this genus is not clear to me, nor to ENGEL who successively considers it a subg of *Chionamoeba* (1932-1937 : 357) then a synonym (ibid. : 414).

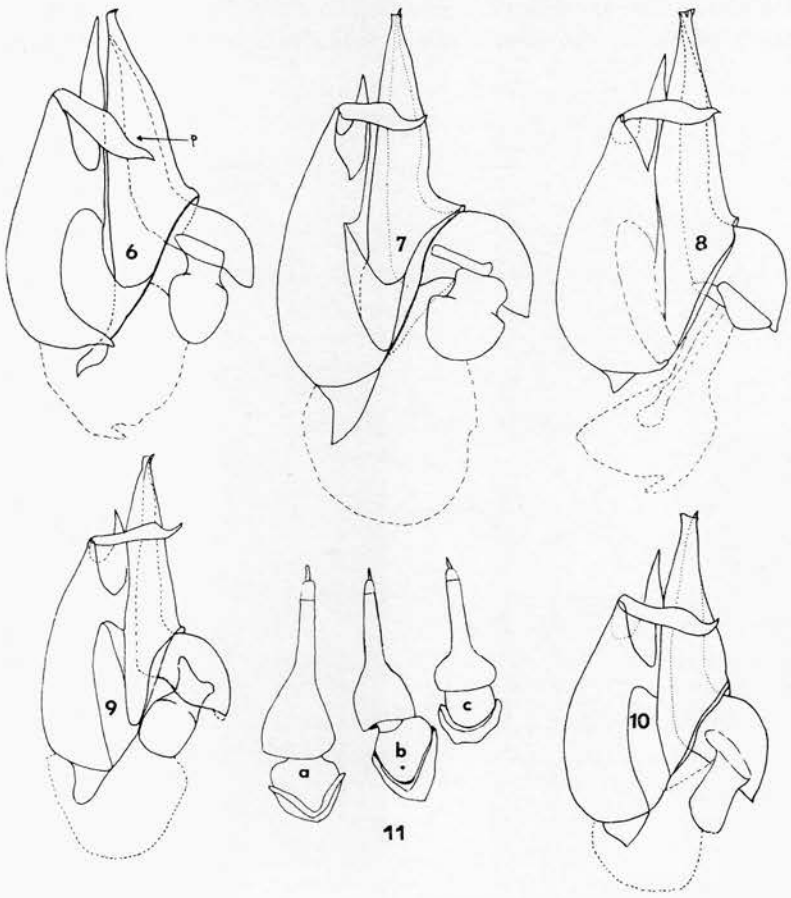
duced into a small snout-like projection; antennae (fig. 11 a, b, c) very much oblique, well separated at their bases, sometimes sunk in a depression, first joint at times much reduced and then hardly projecting from the frons on superior part, always hollow, socket-like, housing joint two which is rounded, cylindrical or subspherical and bears small, rigid hairs except on its inner aspect, third joint variable in shape : either more or less conical or onion-shaped, with a long style-like projection ending in a short terminal joint which in turn bears a style, and sometimes a few fine hairs; discal part of frons broad, tumidly prominent, at its most so just above the antennae, in the male frons and face shiningly pollinose, white or yellow, in the female black, with the white or yellow pruinosity



Hypopygium, ♂ ventral view, of :

fig. 1 : *Desmatoneura (Chionamoeba* olim) *meridionalis* (HESSE).
fig. 2 : *Desmatoneura sp.* (S. India).
fig. 3 : *D. argentifrons* WILLISTON.
fig. 4 : *D. sp.* (Ceylon).
fig. 5. : *Desmatoneura (Plesiocera* olim) *flavifrons* (BECKER).

confined to face, to internal orbits and pre-antennal area; apex always dark in both sexes; hair on frons and face never coarse, always short or very short, white or whitish, more dense on face than on frons in males, tiny white scales present on lower half of frons of females; distance between the eyes at apex variable in males, sometimes hardly broader than ocellar tubercle or a little more than twice as broad, in females eyes at vertex widely separated; hind margin of eyes angularly or sub-angularly indented with at times only a barely indicated bisecting



Hypopygium, ♂ lateral view, of :

fig. 6 : *D. (Chionamoeba* olim) *meridionalis* (HESSE)
fig. 7 : *D.* (*Plesiocera* olim) *flavifrons* (BECKER)
fig. 8 : *D. sp.* (S. India)
fig. 9 : *D. sp.* (Ceylon)
fig. 10 : *D. argentifrons* WILLISTON
fig. 11 : antenna (frontal view) of
a. *Desmatoneura* (*Chionamoeba* olim) *meridionalis* (HESSE)
b. *D.* sp. (India)
c. *D. argentifrons* WILLISTON.

line or with such a line distinct and about as long as the two basal antennal joints.

T h o r a x . — With prealar and postalar bristles of varying size and strength, the row of bristly hairs on hind margin of scutellum sometimes hardly differentiated from the soft, white pile of the body, which is otherwise entirely devoid of bristles; only anterior part of pleurae hairy; plumula feeble, vestigial or absent.

A b d o m e n . — With dorsum (like mesonotum) covered with small depressed, hair-like scales and at times with relatively dense, erect and pale hair; dense silvery white scaling can be present in males on abdomen above; erect hair on sides of abdomen and on venter longer and thicker than on dorsum.

H y p o p y g i u m (figs 1-10). — Small, lateral, concealed in a generally well developed 8th tergite. Male genitalia of a quite distinctive but simple build : gonostyli very long and slender, gonocoxites apically produced into two pointed prongs of varying length, phallosome shaped like a funnel wich lodges the phallus.

W i n g s . — Variable in shape, sometimes rather narrow, they can also be relatively broad but, in contrast to *Petrorossia,* the alula is always lobe-like and the axillary lobe at least normally developed; vein R_{2+3} originating at right angles (or nearly so) from vein R_{4+5} and at

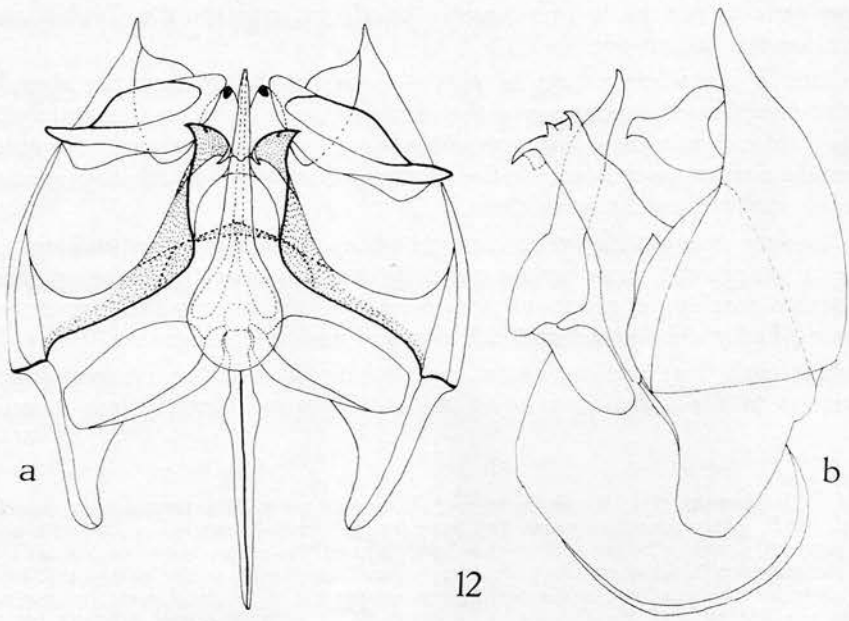


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fig. 12 : Hypopygium ♂, a. ventral, b. lateral view, of « *Anthrax* » *inaequalis* BECKER, 1906 (type) = *Plesiocera algira* MACQUART, 1840.

a distance from r-m of at most twice the length of latter vein; R_{2+3} without any basally directed stump near its origin and with a more or less distinct forward bend or kink just before the apical loop; never more than two submarginal cells; all four posterior cells and anal cell open at apex.

Legs. — Slender, all tibiae with small spicules, femora with a few, poorly developed and very short spines on second and third pair, front femora with either no spines at all or one or two very small ones, apical spurs on tibiae present, of varying length, front tarsi much shortened, hairy.

3. Discussion.

I am aware of the fact that such characters as the shape of the wing, the distance between the eyes at their apex in the males, the presence or absence of a distinct bisecting line on hind border of eyes, the presence or absence of spicules on front femora, a flat or snout-like produced mouth margin, etc., might be considered good enough to justify the existence of several genera to include these five species. But for all we know at present about these little studied groups, such characters might have no generic value at all. Generically significant characters are not consistently the same among *Bombyliidae*. If, disregarding the fundamental unity of these species I were to consider such characters as being of generic standing it would, to be consistent, prove necessary, not merely to maintain *Desmatoneura* and *Chionamoeba*, but to erect three new genera, one for « *Plesiocera* » *flavifrons*, one for the Ceylon and one for the Indian species (3).

Such a procedure would be apt to throw confusion into the already quite complicated taxonomy of the border groups between the *Bombyliidae homoeophthalmae* and *tomophthalmae*. It would moreover be quite inconsequential in the face of the obvious affinity which the five species under study show between them.

Pending the gathering of enough material to solve the problem, it seems, at present, more to the point to lump together, by showing their intrinsic kinship, a group of species which are now widely scattered among badly delimitated and not always homogeneous genera.

Nor shall I at present hazard an opinion on whether *Desmatoneura* belongs to the *Lomatiinae* or to the *Anthracinae*. Nevertheless it must

(3) To illustrate this : if one chose to link, in one genus, *Chionamoeba meridionalis* with the S. Indian species, because they have similar broadish, vitreous wings, with pale yellow veins and a broad axillary lobe and because the males show, on apical half of the abdomen, a dense covering of silvery scales, one would, on the other hand, have to overlook the fact that, while the former species has a feeble plumula, no distinct bisecting line on hind margin of eyes, and vein R_{2+3} with its origin distinctly before transverse vein r-m, the latter species has no plumula at all, a distinct and rather long bisecting line on hind margin of eyes and vein R_{2+3} originating almost on top of *r-m*.

be pointed out that the simplicity and homogeneity of the male genitalia (a characteristic which they have in common i.a. with the genus *Lomatia*) are in striking contrast with the intricacy and extreme variability met with among the *Anthracinae*. On the other hand, the fact remains that in both *Desmatoneura* and the subfamily *Anthracinae*, the phallus is entirely or almost entirely sheathed.

Externally *Desmatoneura* is nearest to *Petrorossia*. *Petrorossia* differs however by the following characters : frons much narrower, not extensively pollinose in male, not tumidly prominent, covered with dense, erect, coarse hair; well developed bristles on thorax; an often vestigial alula and a narrow axillary lobe; the costal cell longer, vein R_{2+3} issuing from vein R_{4+5} at a greater distance before *r-m*, about midway between base of 3rd vein and middle cross-vein; the antennae less oblique, much more approximate at their base, first joint larger and broader, not socket-like, with 2nd joint not lodged inside it; the genitalia large, conspicuous, symmetrically placed, with the gonopods not hidden by the 8th tergite and the epandrium.

RESUME.

La prise en considération de certains caractères morphologiques méconnus révèle comme congénériques des espèces classées jusqu'à présent dans trois genres distincts. *Desmatoneura* WILLISTON 1895 étant de ces trois genres le plus ancien il en résulte que :

Plesiocera flavifrons BECKER = *Desmatoneura flavifrons* (BECKER) Comb. nov.

Chionamoeba nivea (ROSSI) = *Desmatoneura nivea* (ROSSI) Comb. nov.

Chionamoeba meridionalis HESSE = *Desmatoneura meridionalis* (HESSE) Comb. nov.

Chionamoeba frontalis (WIEDEMANN) = *Desmatoneura frontalis* (WIEDEMANN) Comb. nov.

Chionamoeba choreutes BOWDEN = *Desmatoneura choreutes* (BOWDEN) Comb. nov.

L'espèce type du genre *Chionamoeba* SACK, *Ch. nivea*, étant impliquée ici, il en résulte que :

Chionamoeba SACK 1909 = *Desmatoneura* WILLISTON 1895, Syn. nov.

Certaines espèces classées jusqu'à présent dans le genre *Chionamoeba* ne sont pas congénériques avec *Ch. nivea* et un genre nouveau devra être érigé à leur intention.

Desmatoneura, d'uniquement néarctique qu'il était auparavant, devient en outre un genre paléarctique, éthiopien et oriental.

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