

A revision of the genus *Lucilia* Robineau-Desvoidy (Diptera, Larvivoridae), based on a comparative study of the male and the female terminalia

Preliminary communication

by

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Although the genus *Lucilia*, several species of which are of a major veterinary interest (e.g. *L. cuprina* Wied. and *L. sericata* Mg.), while other species belong to the most common insects (e.g. *L. caesar* L. and *L. illustris* Mg.), have been studied by a number of taxonomists, up till now little progress has been made as regards the identification of the females. Several suggestions have been made as to the possibility of making an exact distinction between the females by details of shape and chaetotaxy of the sclerites of the ovipositor. As yet, however, no comprehensive paper has been published on this object. AUBERTIN (1933) gave a revision of the genus, but chiefly dealt with the males. PATTON & CUSHING (1934) started a revision of the genus, based on a comparative study of the male and the female terminalia. This investigation has, however, never been finished.

Therefore, the present author, in the course of his study of the genus *Lucilia*, has paid much attention to the female genitalia. As will be seen, these organs actually have proved to be valuable for the identification of the females of several species. As a first object *L. ampullacea* Vill., *L. caesar* L. and *L. illustris* Mg. have been studied, three species, very common in Europe, the females of which were very difficult to distinguish. Of the result of this investigation this paper is only a preliminary communication. Within a few years, however, the author expects to publish a more elaborate study, comprising the species of the world.

Of the species *L. ampullacea* Vill., *L. caesar* L. and *L. illustris* Mg. the characteristics of the females used up till now were critically examined. The result was that the qualitative characteristics proved to be rather inconstant and that the quantitative ones, viz. the indices of the length of the antennae and the width of the frons, were of no use for separating the three species of this group as a whole. This will be demonstrated in the next notes on the separate species.

1. *L. ampullacea* Vill.: According to AUBERTIN (1933) and SÉGUY (1948) the anterior border of the wing should be slightly yellow. However, not every specimen has a yellow border, while on the other hand it is often found in *caesar*. In *illustris* it seems to be constantly wanting.

2. *L. caesar* L.: antennae long, ind. = 16; *L. illustris* Mg.: antennae short, ind. = 12 (SÉGUY, 1949).

Of each species 40 specimens were measured as to the length of the antennae, and this length was compared with the height of the head and the height of the face. The indices found in this way proved to be respectively 2.8 and 1.5 for both species and to have the same variation-width.

3. *L. ampullacea* Vill.: frons narrow; *L. caesar* L.: frons broader (SÉGUY, 1949).

As to this characteristic *caesar* appears to take an intermediate position, so that it is of no value for separating material in which *caesar* might be present.

4. *L. simulatrix* Pand. (= *illustris* Mg.): frons as wide or wider than the eye; *L. caesar* L.: frons not so wide as the eye ($\frac{3}{4}$ or a little more) (LUNDBECK, 1923).

Here too *caesar* shows all intermediate stages. LUNDBECK adds to this characteristic: *simulatrix*: cheeks broader than the orbits; *caesar*: cheeks not or only slightly broader than the orbits.

LUNDBECK's use of these two characteristics strongly suggests that his *caesar*-material has contained many females of *ampullacea*.

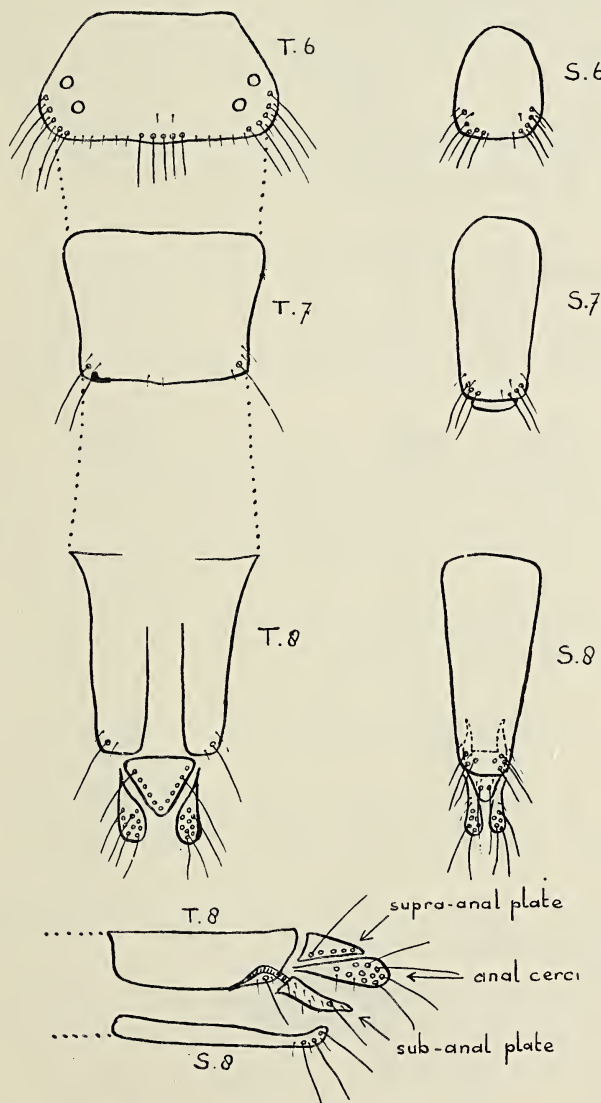


Fig. 1. Ovipositor type I, *Lucilia caesar* L.

5. *L. illustris* Mg.: bristles on subcostal sclerite less distinct than in *L. caesar* L. and *L. ampullacea* Vill. (AUBERTIN, 1933).

It appears, that these bristles are only distinct in *ampullacea*.

6. *L. caesar* L.: front tibiae with five bristles on the dorsal side and one or none on the ventral side; hind tibiae with three bristles on the dorsal and one on the ventral side, or with two bristles on the dorsal and two on the ventral side.

L. simulatrix Pand. (= *illustris* Mg.): front tibiae with 3 + 2 bristles on the dorsal and one on the ventral side; hind tibiae with two bristles on the dorsal and two on the ventral side. (VIMMER, 1937).

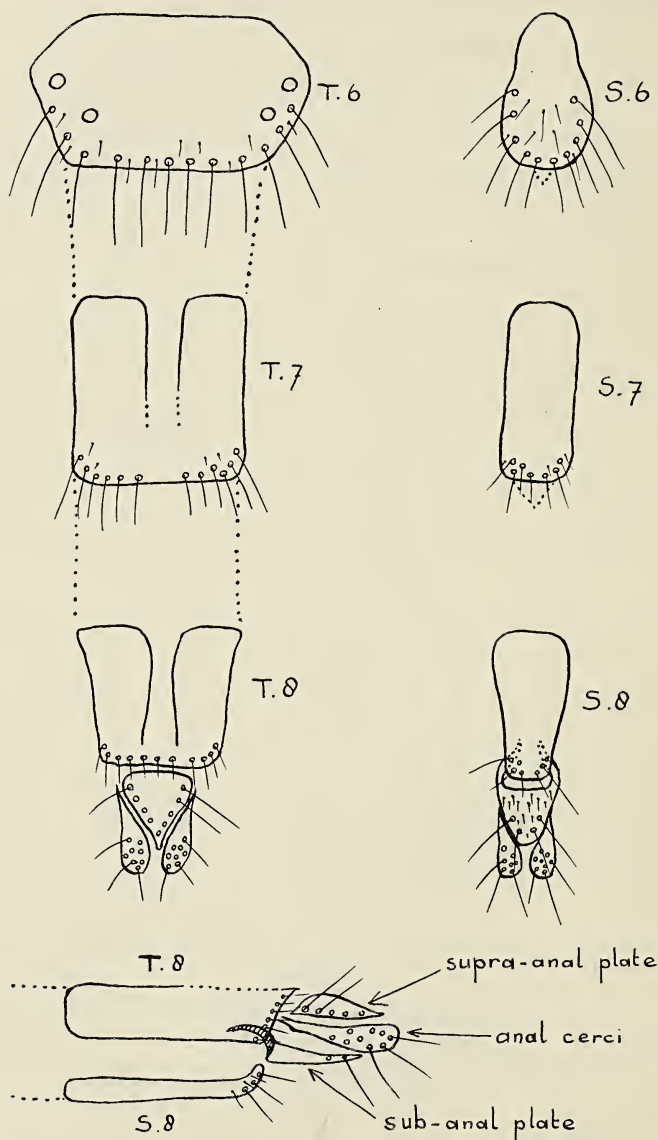


Fig. 2. Ovipositor type II, *Lucilia ampullacea* Vill. and *L. illustris* Mg.

Only the number of bristles on the dorsal side of the front tibiae should be constant, but this characteristic also appeared to be variable in my specimens (5 till 7 for both species).

An examination of the ovipositors of 106 females (41 *caesar*, 42 *illustris*, 23 *ampullacea*) has led to the following conclusion, which, however, has still to be verified by rearing. There are in this group two types of ovipositor i.e. type I in *caesar*, type II in *ampullacea* and *illustris* (see figs.). The principal differences are to be found in shape and chaetotaxy of tergite 6 and in the length of sternite 8. In this way we can recognize *caesar* at once.

The most typical characteristic for *ampullacea* I consider the bristles on the subcostal sclerite. In *ampullacea* this sclerite is slightly coloured, so that the black bristles stand out clearly. In *caesar* and *illustris* this sclerite is much darker and pubescent, so that the black bristles are difficult to see.

With the above mentioned characteristics we come to the following table.

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|---|-------------------------|
| 1. Subcostal sclerite slightly coloured, little pubescent, black hairs distinctly visible | <i>ampullacea</i> Vill. |
| Not so | 2 |
| 2. Tergite 6 with bristles along the whole of the posterior border, sternite 8 at most as long as tergite 8 | <i>illustris</i> Mg. |
| Tergite 6 only bristled at the corners and in the middle of the posterior border, sternite 8 much longer than tergite 8, covering a greater part of the subanal plate | <i>caesar</i> L. |

Besides these differences between *illustris* and *ampullacea* there appeared to be a few more, which although variable and not practicable when used separately, proved to be independent of one another, and can give, when used in combination, a definite result. The next table can be given with them.

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| 1. Cheeks as broad as orbits. |
| Greatest width of eye more than that of the vertex (ind. 1.1—1.4). |
| Greatest width of eye much more than width of frons at base of antennae (ind. 1.3—1.5). |
| Frons much higher than broad (ind. 1.2—1.5). |
| Head more than three times as wide as vertex, (ind. 3.1—3.9) <i>ampullacea</i> Vill. |
| 2. Cheeks wider than orbits. |
| Greatest width of eye less than that of vertex (ind. 0.8—1.0). |
| Greatest width of eye hardly as much as width of frons at base of antennae (ind. 1.0—1.2). |
| Head less than three times as wide as vertex (ind. 2.5—3.1) ... <i>illustris</i> Mg. |
| (Note: the diagrams forming the basis for these data will still be published). |

This investigation chiefly included Dutch and French material. For non-European material the value of these characteristics exacts further examination.

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Tipula (*Schummelia*) *yerburi* Edw. trouvée en France. Lors d'une excursion à Roscoff (Finistère), organisée par le professeur H. ENGEL du Musée Zoologique d'Amsterdam, 2 ♂ et 1 ♀ de *T. yerburi* Edw. ont été recoltés (Landivisiau, 28.VI.1953; Berrien et Huelguat, 29.VI.1953).

On a trouvé cette espèce à plusieurs endroits en Angleterre, où elle est cependant rare (EDWARDS, 1924; COE, 1950). Elle est aussi capturée en Allemagne (Bonn-Siegburg, 1916, MANNHEIMS) et en Espagne (Andalusie, Algeciras, 1925, ZERNY). Cette année elle a été récoltée pour la première fois en Hollande.

L'espèce se distingue d'avec les autres *Schummelia*-species par la couleur sombre et non-annulée du flagellum d'antenne et par la forme caractéristique du tergite 9 chez les mâles.

Autant que j'en puis juger on n'a pas encore trouvé cette espèce en France.

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Catocala's op smeer. De schuwheid der weeskinderen is haast spreekwoordelijk. TER HAAR raadt dan ook aan, ze met het net en liefst met een helper bij de hand te vangen. Mij is dit seizoen echter gebleken, dat het met die schuwheid nogal losloopt, mits gebruik gemaakt wordt van een sterke lichtbron. Hoe feller het licht, hoe rustiger de dieren blijven zitten. Indien echter de lichtbundel even afzwaait of wordt onderbroken, al is het maar voor een zeer kort ogenblik, dan is het dier verdwenen.

Met fel flashlight en een vangglas met minstens 10 cm wijde mond is het nuttig effect vrijwel 100%. Rustig handelen en niet spreken of krachtig uitademen zijn hierbij belangrijke factoren. Het vangglas moet over de vlinder op de boom gezet worden, niet de vlinder erin tikken !

Catocala sponsa L., dit jaar (1953) geregeld op smeer, heeft naar mijn ervaring twee vliegtijden per avond, de ene in de prillste schemering, de tweede veel later. In het eerste geval is de vangst inderdaad moeilijk. De dieren zijn dan uiterst schuw en vliegen reeds bij de eerste nadering elegant weg. Licht heeft vrijwel geen invloed, het is nog bijna dag. In de tweede vliegtijd is de zaak anders. De dieren blijven nu rustig op de stroop zitten, meest met gedekt rood, en laten zich nu een langdurig bekijken kalmpjes welgevallen.

Catocala promissa Schiff. vliegt later, is minder schuw. Het is zelfs wel gebeurd, dat we met zijn drieën bij een smeerplek stonden te discussiëren en de plek met drie lampen belichtten, totdat we een *promissa* ontdekten, die kalmpjes zuigend onderaan een droppel gemorste stroop zat ! Bij broeierig weer werden nog exemplaren om en bij één uur 's nachts gevangen, echter van geen der andere soorten.

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