

NOTES ON AUSTRALIAN DIPTERA. XXX.

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(Communicated by Dr. G. A. Waterhouse.)

(One Text-figure.)

[Read 27th April, 1932.]

Family CALLIPHORIDAE.

Genus CALLIPHORA Robineau-Desvoidy.

When I wrote my paper on this genus in 1927 (These PROCEEDINGS, 52, p. 299) I intended merely to make available to Australian students of these flies such data as were necessary to prompt some resident entomologist to tackle the elucidation of the closely allied species the limits of which were not at all clear to me. One of the species which I considered required elucidation was *hilli* Patton, as I pointed out there was a possibility that one or more of the species names which Major Patton had listed as synonyms of *stygia* (Fabricius) would prove to be valid species and that it might be that *hilli* would prove to be a synonym of one of them. My own material was quite limited and from only the localities listed, there being no specimens from the western portions of Australia and none from the south or Tasmania. It was therefore of interest to me to note the appearance of a paper by G. H. Hardy (*Bull. Ent. Res.*, 21, pt. 4, 1930, 441) in which there was an attempt made to divide the complex further. As I have, since the appearance of my first paper, received many specimens of the genus and quite a few that fall within the scope of what very probably has been accepted as *stygia* by most systematists, I considered it worth while to check up the available material with the published findings of Hardy. I present below the data obtained from my survey.

CALLIPHORA HILLI Patton.

I had the males of but one species before me when I wrote my paper, and this has the fore coxae fuscous in front and much darker than the bases of the femora. It runs down to the first section of Caption 6 in Hardy's key and there he places *hilli* and *rufipes* Macquart, both with an added question mark. Evidently we agree in this respect, though it is difficult to understand how he arrives at the conclusion that I had probably two other species which he describes as new confused under *hilli*. I now have *fulvicoxa* as noted below.

CALLIPHORA FULVICOXA Hardy.

This species is readily distinguished from *hilli* as accepted by me by the fulvous yellow fore coxae, and the almost invariable presence of three pairs of presutural acrostichal bristles. It may be noted that Hardy mentions in his paper that Bezzi and Malloch "have used the bristles of the scutellum and thorax for discriminating the species with more or less success", and that "with certain

alterations their characters may be used advantageously". It is very rarely the case that the presutural acrostichals vary, and when they do it is usually the anterior pair or pairs that lack either one or other of the bristles; when there are three pairs present the posterior pair is close to the suture and generally well developed. In the case of two females with three pairs of presutural acrostichals which I noted in my previous paper, it appears that these, though not the male from the same locality, Eungella, Queensland, are *fulvicoxa*.

I have now specimens of this species from Barrington Tops, Feb., 1925, Allyn Range, on *Leptospermum* (S.U. Zool. Exped.).

CALLIPHORA AURIVENTRIS Malloch.

This species was known to me only from one female, but apparently Hardy has seen the male. It has entirely black legs and is readily distinguished from the others in this group.

CALLIPHORA TIBIALIS Macquart.

This species has the femora black, tibiae reddish-yellow or brownish, and the tarsi black. The almost invariable presence of a strong lower anterior sternopleural bristle is a good distinguishing character.

I have seen some additional material since my paper appeared, some very large examples from Barrington Tops taken under the same circumstances as the specimens of *fulvicoxa* recorded above.

CALLIPHORA STYGIA (Fabricius).

Similar in coloration to *hilli* as accepted herein, the fore coxae being dark in front, but the enlarged eye-facets of the male readily distinguish it.

CALLIPHORA STERNALIS, n. sp.

♂, ♀. Very similar to *tibialis* Macquart, but in both sexes there are many fulvous yellow hairs on the pleura and venter of abdomen and on the extreme base of the first visible abdominal tergite there are some brownish-yellow hairs; the apices of the femora are usually brownish or yellowish, more noticeably so in the female, and on the mid and hind legs; the tibiae are fulvous yellow; hairs on disc of lower calypter fulvous; bases of wings yellowish.

Structurally distinguishable from *tibialis* by the wider frons in the male, the widest part being distinctly greater than the width across the posterior ocelli and noticeably greater than the width of the third antennal segment. The presutural acrostichals are in two pairs, and the posterior sublateral bristle is present. The most striking structural character for separating the male from that of *tibialis* is the form of the fifth abdominal sternite, this being radically different from that of any other species known to me, as shown in Figure 1a, the other species having the same sternite consisting of two long broadly rounded lobes separated by a deep cleft (Fig. 1b). Length, 8-10 mm.

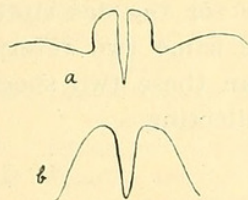


Fig. 1.—Outline of apex of fifth sternite of (a) *Calliphora sternalis* and (b) *C. tibialis*.

Type, male, allotype, one male and two female paratypes, Barrington Tops, February, 1925, Allyn Range, on *Leptospermum* (S.U. Zool. Exped.); female paratypes, Wondandian Cr., 26.12.1927 (Mackerras); Milson Is., 19.12.1909.

This may be the species, referred to by Hardy as being in the possession of Dr. Mackerras, that seems to run to couplet 5 in his key, but is quite distinctive in its genitalia and is represented by a unique male. My material was sent to me about two years ago by Dr. Mackerras, but has been laid aside waiting on an opportunity for a report until now. I am returning all material except one male and one female to Dr. Mackerras for disposal in some Australian museum.

CALLIPHORA RUFIPES Macquart.

This species was originally described from Java, and though it was subsequently recorded from Tasmania by its describer (*Dipt. Exot.*, Suppl. 2, p. 99), he there mentions that the specimens in hand differed from the original in certain colour characters, which leads me to believe that the second record does not belong to the same species. The description of the thorax as black-blue and the abdomen as blue does not indicate that the species was one of the same group as *tibialis*, which is fairly accurately described as to the pollinose dorsum of the abdomen with the distinct checkering.

Patton has placed *rufipes* as a synonym of *stygia*, but whether he saw the real type or not I do not know. In any case, I do not believe it is Australian, and it is certainly not one of the present group.

It may be of interest to note that Patton places *Calliphora rufipes* Macquart as a probable synonym of the American species (*Hemilucilia*) *segmentaria* (Fabricius) on a subsequent page of the paper above referred to (*Phil. Journ. Sci.*, 27, No. 3, 1925, p. 401). The reason for this statement is not given, and Aldrich, in writing up the group to which this species belongs, did not include *rufipes* as a synonym of *segmentaria*.

CALLIPHORA AUSTRALIS Boisduval.

Patton has placed this species as a synonym of *stygia* in the paper above referred to, but whether he is correct in doing so, or Hardy is correct in accepting it provisionally as a species occurring in Western Australia, there may be no means of determining unless the type is extant.

In my opinion, it is best to drop the species *rufipes* Macquart from the Australian list. This will leave *hilli* as accepted by me, and apparently also by Hardy, as a definite name for a well established species, but in the case of *australis* it would appear best to relegate the species to the list of those that are unrecognizable, unless one accepts Patton's decision that it is a synonym of *stygia*. In either case the action would leave the way clear for the description of the two western species now before me and possibly the same two referred to by Hardy in his paper. Whether there may be more than these two species in that region remains to be determined by more extensive collecting.

CALLIPHORA VARIFRONS, n. sp.

♂, ♀. Very similar in most respects to *hilli*, differing in the much more conspicuous white dusting on the frontal orbits and upper parafacials in the male, and the more distinctly checkered appearance of same. It is noteworthy that the postocular orbits are also densely silvery-white dusted, whereas in *hilli* they are yellowish-grey dusted. These colour differences hold also for the females.

Structurally similar to *hilli*, with two pairs of presutural acrostichal bristles, and the posterior sublateral bristle generally present. The frons of the male

is wider than in *hilli*, being about twice as wide as the distance across the posterior ocelli, and the parafacials are wider in profile. Length, 7-9 mm.

Type, male, and allotype, Mundaring, W.A., 23.8.1926 (E. W. Ferguson); paratypes, one female, Perth, W.A., 15.11.1924 (Nicholson); one female, Wyalkatchem, W.A., 1.9.1926 (E. W. Ferguson). One female will be retained by the author and the others returned to Dr. Mackerras.

CALLIPHORA ALBIFRONTALIS, n. sp.

♂. Similar to the preceding species, but owing to the much narrower frons and slightly narrower parafacials the white dust is less conspicuous and not noticeably checkered; the postocular orbits are white-dusted, but not as markedly checkered as in the preceding species. Both specimens before me have a dark-brown stripe on the posterior surface of the fore femur which is widest and most distinct basally, in addition to the brownish stripe usually present in this group on the apical half of the anterior surface of this femur.

Structurally the species differs from the preceding one in having the narrowest part of the frons not as wide as the distance across the posterior ocelli, the parafacials narrower, the presutural acrostichals in three pairs, and a quite evident but not very strong lower anterior sternopleural bristle. This last feature is lacking in most of the species with the yellow femora, but well developed in those in which the femora are black or largely so. Length, 7-9 mm.

Type and one paratype, Mundaring, W.A., 23.8.1926 (E. W. Ferguson). Type will be returned to Dr. Mackerras, the paratype retained meanwhile by the author, but probably sent later to Australia.

Female unknown.

Although I realize that there are more species of this group yet to be obtained, especially in the west, I present a key to those listed above in the hope that it may be useful in connection with that already published by the author and the one by Hardy.

Key to males of species related to *stygia* Fabricius.

1. Facets on the upper half of eyes strikingly larger than those of the lower half; presutural acrostichals in three pairs; fore coxae darkened in front; femora and tibiae yellow *stygia* (Fabricius)
- Facets of upper half of eyes not much larger than those of the lower half 2
2. Fore coxae entirely yellow; presutural acrostichals in three pairs; frontal orbits yellow-dusted *fulvicoxa* Hardy
- Fore coxae distinctly blackened in front at least 3
3. Femora of all legs largely or entirely blackened 4
- Femora of at least the mid and hind legs fulvous yellow and not darker than the tibiae 7
4. Tibiae always distinctly paler than at least the basal halves of the femora; sternopleurals 2+1 5
- Tibiae not noticeably paler than the femora, the legs entirely black 6
5. Femora partly yellowish apically; fifth abdominal sternite with a pair of closely approximated processes in centre of apex (Fig. 1); posterior sublateral bristle of mesonotum present; narrowest part of frons fully as wide as third antennal segment *sternalis*, n. sp.
- Femora entirely black; fifth abdominal sternite normal, with a deep central cleft; posterior sublateral bristle almost invariably lacking; narrowest part of frons not as wide as third antennal segment *tibialis* Macquart
6. Abdomen with some yellow hairs; narrowest part of frons about as wide as distance across posterior ocelli; frontal orbits silvery-white dusted .. *canimicans* Hardy
- Abdomen without any yellow hairs; narrowest part of frons about as wide as anterior ocellus; frontal orbits yellow-dusted *auriventris* Malloch

7. Presutural acrostichals in three pairs; narrowest part of frons not wider than the distance across posterior ocelli; frontal orbits and upper portion of parafacials, and the postocular orbits, densely white-dusted *albifrontalis*, n. sp.
Presutural acrostichals in two pairs 8
8. Narrowest part of frons about twice as wide as width across posterior ocelli, the frontal orbits, upper half or more of parafacials, and the postocular orbits densely silvery-white dusted and quite noticeably checkered .. *varifrons*, n. sp.
Narrowest part of frons not noticeably wider than distance across posterior ocelli, the frontal orbits, parafacials, and postocular orbits yellowish, greyish, or white-dusted 9
9. Narrowest part of frons about as wide as distance across posterior ocelli; frontal orbits white-dusted *hilli* Patton
Narrowest part of frons not as wide as distance across posterior ocelli; frontal orbits yellow-dusted *fallax* Hardy

N.B.—It will be necessary to check up identifications made by the use of the key with the descriptions in the various papers on the group. There are some minute distinctions in the form of the inner processes of the male hypopygia shown by Hardy in his figures, but these require careful checking, and there may be slight variations in the different species, which only comparative work on large series will establish.

Subgenus PROEKON Surcouf.

I have not cared to use the subgenera suggested by Hardy in my papers because they do not appear to be well established, and the character of colour has never appealed to me as a good one for subgeneric segregations. However, I do not propose to raise the question of the validity of these group names here, but merely point out that there may be some question of the validity of the species name *lateralis* Macquart as the species was described as *Ochromyia lateralis* and there is another *lateralis* Macquart (*Dipt. Exot.*, 2, pt. 3, 1843, 277) on a previous page in the same volume, which, though described as a *Bengalia*, is an *Ochromyia*, these generic names being applicable to the same concept.

It is thus evident that even if this second *lateralis* Macquart is not, as stated by Patton, a synonym of *augur*, it has no standing in our classification.

Genus ONESIA Robineau-Desvoidy.

Bezzi used in his paper on the Calliphoridae of the Pacific Islands and Australia the following characters for distinguishing *Calliphora* as a subgenus from *Onesia*:

- "Parafacials narrow, bare or only slightly pilose above; squamae blackish *Calliphora*
Parafacials broad and pilose above, chiefly in the female; squamae broadly whitish; peristomalium black, with black hair; scutellum with two laterals; arista with rather long bare terminal portion *Onesia*"

These characters will not distinguish two groups; if they are made use of for that purpose we will then have several additional groups containing one or more species in different parts of the world which will require recognition also. As a matter of fact, *Onesia* cannot be clearly distinguished from *Calliphora* except in so far as the genotypes are concerned, and there are so many intergrading forms that the recognition of them as separate genera or subgenera is impossible.



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