

with yellowish buff patch as above, on fore wings; whitish, freckled with brown chiefly on costal area, black discoidal spot, and blackish somewhat interrupted postmedial line, on the hind wings.

Expanse, 40 millim.

One male specimen from Arizan.

NOCTUIDÆ.

Trachea subfusca, sp. n.

♂. Fore wings greyish brown, suffused with fuscous; four pale brown dots on costa towards apex; orbicular and reniform stigmata hardly paler than the general colour, partly outlined in black, space between them blackish; antemedial line black, sinuous, indistinct towards dorsum; postmedial line black, dentate, curved round end of cell, outwardly edged with pale brown; veins marked with black on terminal area; subterminal line pale brown, fairly distinct on costa, continuation indicated by dots on the veins. Hind wings pale brown, suffused with blackish, fringes paler. Under side pale brown, powdered with darker, chiefly on fore wings and outer area of hind wings; a dusky postmedial line on all wings, and a blackish discoidal spot on hind wings; four pale brown marks on costa of fore wings beyond postmedial.

♀. Similar to the male, except that the antemedial line is more distinct.

Expanse, ♂ 46 millim.; ♀ 48 millim.

One example of each sex from Kanshirei; male, August 14th, 1907; female, August 17th, 1905.

NOTES ON THE BRITISH MOSQUITOS (CULICINÆ).

BY F. W. EDWARDS, B.A., F.E.S.

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(Concluded from p. 220.)

Genus 3. AÆDES.

A. cinereus, Mg.—Scales of head broad and flat, except for a patch of narrow ones behind, extending in front in a narrow median area to the eyes. Scales yellowish, but two patches of black ones, variable in size. Thorax reddish, clothed with golden-brown scales. Abdomen blackish-brown above, sides and venter pale ochreous. Legs and wings with dark brown scales, femora pale beneath. Average length, 5 mm.

Probably fairly common. I have seen specimens from Wicken, Chippenham, and Baitsbite (Cambs); New Forest; Bournemouth; Studland (Dorset); Crymlin Bog (Glamorgan); Ormesby (Norfolk). Mr. J. E. Collin has it from Tuddenham (Suffolk) and Edinburgh.

There may be two nearly allied species here, as Theobald describes the hind claws as being simple; this, however, is very likely an error. Kertész states that they are toothed, and this agrees with my observations. A specimen of Zetterstedt's *Culex nigritulus* lent to me for examination was a typical *A. cinereus*; this confirmed a suspicion I had previously entertained that the two names apply to the same species.

Genus 4. TÆNIORHYNCHUS.

1. *T. richiardii*, Fic.—A rather obscure-looking insect, but easily distinguished from the other British species by having all the wing-scales rather broad; the wings are speckled as in several species of *Ochlerotatus*. Thorax reddish-brown, with golden-brown scales. Abdomen blackish, unbanded, but with pale lateral spots. Legs speckled; indistinct pale rings at the bases of the tarsal joints, and in the middle of the metatarsi. Length about 6 mm.

Not common. Patching and Angmering ponds, Sussex, and Littlesea, Dorset (*Rev. A. E. Eaton*); Cambridge (*F. Jenkinson*); Sutton Coldfield (*R. C. Bradley*); Wye, Kent, and Norwich (*Theobald*).

Theobald's record of this species from Toronto really refers to *T. perturbans*, Walk., which is distinguished from *T. richiardii* by having a pale ring near the apex of the tibiae. The name of this species is spelt wrongly in Theobald's monograph, and in the 'List of British Diptera' (1901).

Genus 5. THEOBALDIA.

1. *T. annulata*, Schrank.—Wings spotted as in *A. maculipennis*. Cross-veins in one line. Femora with narrow pale rings near the tip. Broad whitish rings at the base of each tarsal joint, and in the middle of the metatarsi. Segments of abdomen brown with whitish basal bands, the second segment with a median whitish longitudinal stripe. Average length, 7·5 mm.

Common. A particularly bad biter.

2. *T. morsitans*, Theo.—Wings unspotted. Cross-veins separated by nearly the length of the posterior. Proboscis and palpi of female black-scaled, the palpi white-tipped. Scales of thorax partly dark brown and partly golden, the golden ones tending to be arranged in longitudinal lines. Abdomen dark brown, the segments with broad whitish basal bands. Femora without pale rings. Tibiæ and metatarsi striped with yellowish white on the sides. Tip of metatarsus and second tarsal joint narrowly yellowish, broader yellowish areas at the bases of the first three, narrower ones at the bases of the last two tarsal joints. Metatarsus of the front legs of the male distinctly longer than the remaining four joints together (120:105). About seven teeth in the pecten of the air-tube of the larva, no spines beyond the pecten. Average length, 6·5–7·5 mm.

Probably common. Rochford, Essex; Patching and Angmering, Sussex; Woking, Surrey; Brockenhurst, Hants; Longner Hall, Shrewsbury.

3. *T. theobaldi*, Meij.—The adults are difficult to separate from those of *T. morsitans*, though the larvæ are very distinct. In the male of *T. theobaldi* the front metatarsus is scarcely at all longer than the remaining four joints together. In the female the proboscis has numerous pale scales, especially in the middle at the sides. Eight or nine teeth in the pecten of the larval air-tube, placed more transversely than in *T. morsitans*; five or six spines beyond the pecten. Meijere states that the larva is yellowish or greenish white, while that of *T. morsitans* is blackish grey. He also says that the air-tube of the larva of this species is relatively shorter and broader, but I do not find this to be the case. Figures 3 and 4 represent the larval air-tubes of *T. morsitans*.



Fig. 2.—*Theobaldia theobaldi* (Meij.). Air-tube of larva.

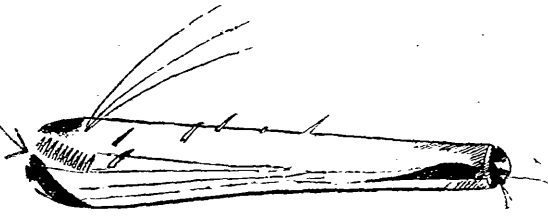


Fig. 3.—*Theobaldia morsitans* (Theo.). Air-tube of larva.

tans and *T. theobaldi* respectively; they were drawn by my wife from specimens taken in the New Forest by Mr. C. O. Waterhouse, and mounted in balsam.

Quite as common as *T. morsitans*. Has been taken in Scotland at Dingwall, Cromarty (*Lt.-Col. Yerbury*).

The specimens described by Theobald (*Mon. Cul.* i. p. 335) as *Culex ficalbii* (so named by Prof. Grassi) are *T. theobaldi*, and were certainly, I think, wrongly named, as *C. ficalbii* was originally described as having spotted wings. Specimens answering Noë's description have been received at the British Museum from the Punjab; one of these was recorded by Theobald as *C. annulatus*. It is improbable that the true *Th. annulata* occurs in India.

Genus 6. CULEX.

1. *C. pipiens*, L.; the Common Gnat.—Thorax brick-red to dark reddish-brown. Abdomen dark brown, the segments with basal yellowish bands. Legs dark brown, the femora pale beneath. First fork-cell very long, quite four times as long as its stem. Average length, 5 mm.

Common everywhere.

A small dark variety (?) of this species has been described by Theobald as *Culex nigrifolius*, Zett. It is certainly not *C. nigrifolius*, which is a synonym of *Aedes cinereus*, Mg. At first sight this variety appears to be totally distinct from *C. pipiens*, as it is much smaller (only 3–3.5 mm. in length) and darker, the thorax being without any reddish tint. No external structural differences, however, are observable, and after carefully comparing the larvæ of this and typical *C. pipiens* I could find no differences whatever. However, it seems worthy of a name, varietal if not specific, and I propose to call it *C. pipiens* var. *doliorum* (nov.). I found it swarming in water-barrels at Kingswear, South Devon, last autumn; all the adults were of uniform small size and dark grey-brown colour. The male genitalia differ from those of typical *C. pipiens* in having the basal process of the harpes quite well developed; I cannot detect the small third plate of the harpagones described by Dyar and Knab as characteristic of *C. pipiens*.

REPUTED BRITISH SPECIES.

Stephens records the following as British, but no recent examples have been found:—*Culex calopus*, Mg.; *C. ornatus*, Mg.; *C. domesticus*, Germar; *C. bicolor*, Mg.; *C. punctatus*, Mg.; *C. lutescens*, F.; *C. rufus*, Mg. With the exception of the first two, these have not been recognized by any recent author. Theobald regards *C. punctatus* as synonymous with *C. rusticus*, Rossi, and it was included in the last British List under this name.

Culex fumipennis, Stph., and *C. marginalis*, Stph., were originally described from Britain, but are probably unrecognisable unless from types.

KEY TO THE KNOWN LARVÆ OF BRITISH CULICINÆ.

- | | |
|--|--------------------------|
| 1. Air-tube absent | <i>A. maculipennis</i> . |
| Air-tube present | 2. |
| 2. Air-tube quite six times as long as its breadth in middle | 3. |
| Air-tube at most four times as long as its breadth in middle | 5. |
| 3. Several scattered hair-tufts on air-tube | <i>Culex pipiens</i> . |
| Only one tuft of long hairs close to base | 4. |
| 4. Five or six smooth spines on air-tube beyond pecten | <i>Th. theobaldi</i> . |
| No spines on air-tube beyond pecten | <i>Th. morsitans</i> . |

5. Hair-tuft close to base of air-tube; pecten teeth hair-like	<i>Th. annulata.</i>
Hair-tuft near or beyond middle of air-tube; pecten teeth not hair-like	6.
6. Air-tube quite four times as long as broad; hair-tuft well beyond middle	<i>A. cinereus.</i>
Air-tube less than four times as long as broad; hair-tuft near middle	7.
7. Pecten of air-tube with detached teeth outwardly	<i>O. vexans (sylvestris).</i>
Teeth of pecten evenly spaced	8.
8. Hair-tuft in a line with the pecten	9.
Hair-tuft not in a line with the pecten	<i>O. diversus.</i>
9. Pecten with about 24 teeth, each with 4-6 serrations	<i>O. cantans.</i>
Pecten with about 18 teeth, each with 1-2 serrations	<i>O. nemorosus and O. dorsalis.</i>

The above table is mainly drawn up from specimens preserved in balsam by Mr. C. O. Waterhouse, taken in the New Forest and at Burnham Beeches. The larvæ of *O. vexans* have not been found, as far as I am aware, in Europe, but as the North American *sylvestris* is almost certainly the same, I have made use of the characters given for it by Dyar and Knab.

NOTES FROM AN ESSEX LEPIDOPTERIST'S DIARY FOR 1911.

By Paymaster-in-Chief GERVASE F. MATHEW, R.N., F.E.S., &c.

(Continued from p. 229.)

AUGUST 23rd was fine and warm. A boy brought me a fine large female *Sphinx convolvuli* which he had found on a bush. It was in a large wide-mouthed pickle bottle, had sustained no injury, and looked as if it had only just emerged. The first *T. amataria* of the brood mentioned on the 15th inst. appeared on the 23rd. Eleven others were bred subsequently, and the remaining larvæ are hibernating.

Of two rather large broods of larvæ of *Acidalia emutaria*, from ova laid by females taken early in July, only six larvæ fed up; the first moth came out on the 24th, and the last not until Sept. 26th. The other larvæ are hibernating. I do not think that this is an easy species to get through the winter, as I have tried several times and have always failed; some kind of fungus attacks the larvæ. Another *L. favicolor* was bred on the 24th; in all I bred twenty-eight, the last one as late as Nov. 8th.