

is any difference between the forewings of fig. 2 *lefebvrei*, and fig. 4 *melas*. These are in some degree exceptional. In *melas*, fig. 4 is a fairly usual example and agrees with fig. 5 in having veins 6, 7, and 10 well separate at their origins. In *lefebvrei*, fig. 2, it will be seen that though vein 10 is well separate, vein 6 is not. The most usual form in *lefebvrei* is shown in fig. 3, in which veins 7 and 10 originate almost together. But frequently they quite coalesce at their origins and vein 10 may arise from vein 6, even a considerable way along it as in fig. 1. In *melas* the origin of vein 10 is fairly constant as in the figures presented. In the hindwing there is no appreciable difference unless it be that, similarly to the forewing, veins 6 and 7 are rather closer together in *lefebvrei*.

The essential difference between the two species then is, that in *E. melas*, the forewing has veins 6, 7, and 10, well separate in origin from the cell, and varies little and rarely from that arrangement.

*E. lefebvrei* may be almost the same as *E. melas* but rarely, usually either vein 6 or vein 10 arises in common or almost in common with 7 or even arises out of that vein; it is more variable than *melas*.

## EXPLANATION OF PLATES.

Male appendages  $\times 16$ .

Plate 8.—Figs. 1, 2, 3, 4,	<i>E. lefebvrei</i> (Canigou).
Plate 9.—Fig. 5,	„ „ „
„ —Fig. 6,	„ „ „
„ —Figs. 7, 8,	„ „ (Gavarnie).
Plate 10.—Fig. 9,	„ „ „
„ —Fig. 10,	<i>E. lefebvrei</i> ab. <i>astur</i> (Picos de Europa).
„ —Fig. 11,	<i>E. scipio</i> (Larche).
„ —Fig. 12,	<i>E. prono?</i>
Plate 11.—Fig. 13,	<i>E. melas</i> (Carniolia).
„ —Fig. 14,	„ „ (Gorizia).
„ —Fig. 15,	„ „ (Greece).
„ —Fig. 16,	<i>E. nerine</i> (Mendel).

## Neuration.

Plate 12.—Fig. 1,	<i>E. lefebvrei</i> (Canigou).
„ —Fig. 2,	„ „ (Gavarnie).
„ —Fig. 3,	„ „ (Canigou).
„ —Fig. 4,	<i>E. melas</i> (Herculesbad).
„ —Fig. 5,	„ „ „

A Revision of the Genus *Leptothorax*, Mayr., in the British Isles.

By W. C. CRAWLEY, B.A., F.E.S.

(Concluded from page 96.)

## MALES.

TABLE OF  $\sigma \sigma$ .

Antennæ 12-jointed. Mandibles without teeth	.. .. .	<i>L. acervorum</i> , F.
Antennæ 13-jointed. Mandibles dentate	.. .. .	.. .. . 1.
1. Mesonotum smooth and shining between the converging lines	.. .. .	.. .. . 2.
Mesonotum finely rugose between the converging lines	.. .. .	.. .. . 3.
2. Epinotum with tooth-like tubercles	<i>L. tuberum</i> , F. subsp. <i>corticalis</i> , Sch.	
Epinotum without tooth-like tubercles	.. .. .	.. subsp. <i>nylanderi</i> , Foerst.
3. Joints 2-5 of funiculus as broad as long	.. .. .	.. subsp. <i>interruptus</i> , Sch.
Joints 2-5 longer than broad	.. .. .	.. .. . 4.
4. Epinotum with tooth-like tubercles	.. .. .	subsp. <i>tuberum</i> ( <i>s.str.</i> ), F.
Epinotum without tooth-like tubercles	.. .. .	.. .. . 5.
5. Pedicel very long and cylindrical	.. .. .	.. subsp. <i>afinis</i> , Mayr.
Pedicel not quite so cylindrical; petiole slightly raised in		
centre	.. .. .	.. subsp. <i>unifasciatus</i> , Ltr.

Antennæ twelve-jointed. Scape shorter than the second joint of funiculus, which is very long. The funiculus thickens slightly towards the end, but forms no club. Mandibles short, narrow, blunt at end, without teeth. Wings clear, radial cell open.

Thorax coarsely rugose. Pedicel and gaster smooth and shining. Whole body with long whitish hairs.

Black; legs dark brown, joints and tarsi paler.

L., 3.7mm.-4.5mm. . . . L. *acervorum*, (*s.str.*), Fabr.

Antennæ thirteen-jointed. Scape much longer than second joint of funiculus, which is as short as the others following. The last four joints form a narrow club. Mandibles broad at end, dentate. Antennæ sparsely clothed with hairs, legs almost without hairs. Wings clear, radial cell closed.

. . . . L. *tuberum*, Fabr.

Joints 2-5 of funiculus about twice as long as broad. Head finely rugose; mesonotum smooth and shining. The petiole viewed in profile somewhat raised in centre; post-petiole about as high as long. Epinotum without tooth-like tubercles.

Brown-black; mandibles, antennæ, legs, and extremity of gaster, yellow, more or less clear.

L. 2.5mm.-3.2mm. . . . Sub-sp. *nylanderi*, Foerst.

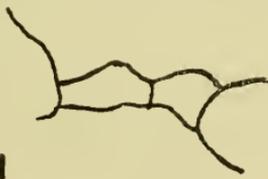
I have not been able to see a British ♂ of *nylanderi*, and so far as I know, one has never been taken in this country. The specimen in the Saunders Collection, in the British Museum, has the funiculus joints not so long as in *tuberum*, (*s.str.*), but I have followed Forel<sup>20</sup> and Emery in the description. Forel<sup>21</sup> says that the small *nylanderi* have

<sup>20</sup> *F. de la Suisse*, p. 88.

<sup>21</sup> *loc. cit.*, p. 89.

these joints almost as broad as long. I have not been able to see a ♂ of *corticalis*, nor even a description of it. In the Smith collection in the British Museum is a ♂ from Naples, labelled "*corticalis* var.," of which the following is a description:—

Joints 2-5 of funiculus much longer than broad. Head rugose; mesonotum smooth and shining between the converging lines; pedicel slightly rugose, and shaped as in *nylanderi*; gaster smooth and shining; epinotum with slight tooth-like tubercles. Too faded to judge of colour.



Pedicel of *L. nylanderi* ♂.

(Continental).

Joints 2-5 of funiculus longer than broad. Mandibles quadridentate. Head, mesonotum and pedicel, finely rugose. Gaster smooth and shining. Petiole even more elongate and cylindrical than in *tuberum*, (*s.str.*). Epinotum without tooth-like tubercles.

Brown-black; mandibles, antennæ, and legs clear pale yellow.

L. 2.5mm.-2.7mm. . . . Sub-sp. *affinis*, Mayr.

From 3 ♂♂ taken by Donisthorpe at Yvorne in 1912. I have been unable to find a description of this ♂.

Joints 2-5 of funiculus twice as long as broad. Mandibles quadridentate. Head, mesonotum and pedicel finely rugose. Gaster smooth and shining. Petiole viewed in profile slightly raised in centre and rounded on top, postpetiole slightly longer than high. Epinotum with two blunt tooth like tubercles.

Brown-black ; mandibles, antennæ, and legs paler.  
 L. 2·5mm.-3·2mm. . . . Sub-sp. *tubерum* (*s.str.*), Fabr.



Pedicel of *L. tubерum* (*s.str.*), ♂.  
 (Continental).



Pedicel of *L. tubерum* (*s.str.*), ♂.  
 (British).

Joints 2-5 of funiculus much longer than broad, but not so long as in the preceding. Mandibles quinquidentate. Head, thorax and pedicel finely rugose ; gaster smooth and shining. Epinotum without tooth-like tubercles.

Brown-black ; mandibles, antennæ, and legs paler.

L. 2·7mm. . . . Sub-sp. *tubерum*, (*s.str.*), Fabr. Var. passing to *interruptus*, Sch.

From two ♂ s from the Seaton colony.

Joints 2-5 of funiculus as broad as long. Mandibles quadridentate. Head, thorax, and pedicel finely rugose ; mesonotum sometimes somewhat smooth in front. Gaster smooth and shining. Petiole viewed in profile rising from the anterior end to a high point, descending vertically, then continuing horizontally to its junction with postpetiole, which is higher than long. Top of petiole broad and flat. Epinotum with two blunt tooth-like tubercles.

Brown-black ; mandibles, antennæ, and legs paler.

L. 2·5mm. . . . Sub-sp., *interruptus*, Sch.

From ♂ s from the New Forest colony, and descriptions and drawings by Forel and Emery. There seem to be very few of these ♂ s in collections ; Forel, when sending me a description of the pedicel, mentions that he has only one, and Emery possesses two, which came from Forel. The form of the pedicel distinguishes this ♂ from any of the others, and led me to consider the New Forest specimens a distinct sub-species and not the var. *tubero-affinis*, For.,



Pedicel of *L. interruptus* ♂.  
 (British).



Pedicel of *L. interruptus* ♂.  
 (Continental).

5

since the pedicel of *affinis* is even more elongate than in *tubерum*, (*s.str.*), and still further removed from the New Forest specimens. The descriptions and drawings from Forel and Emery show the pedicel of

the continental *interruptus* to be similar to that of the New Forest specimens, and the single *interruptus* ♂ in the Saunders collection in the British Museum (ex coll. Smith, from Schenck), has a similar pedicel. The short joints of the funiculus are also characteristic.

Joints 2-5 of funiculus longer than broad (not so long as in *tubерum*, (*s.str.*)). Mandibles quadridentate. Head, mesonotum, and pedicel finely rugose. Gaster smooth and shining. Pedicel as in *tubерum*, (*s.str.*). Epinotum without tooth-like tubercles.

Brown-black; mandibles, antennæ, and legs paler.

L. 2·5mm.-3·5mm. . . . Sub-sp. *unifasciatus*, Latr.

From a single ♂ from Bondroit, measuring 3·0mm. The other measurements are from Forel<sup>22</sup>. Schenck<sup>23</sup>, speaking of the pedicel, says, "Der stiel ist lang, die knoten dünn, besonders der erste, sehr verlängerte und fast walzenformig." This applies equally well to *tubерum*, (*s.str.*).

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### Erebia manto and E. gavarniensis. (With a plate.)

By B. C. S. WARREN, F.E.S.

Owing to my absence from home for four months I have been unable to reply sooner to Dr. Chapman's criticism, in the February number of the Magazine, of my article on the above-mentioned species (*Ent. Rec.*, vol. xxv., p. 273).

Dr. Chapman contends that *gavarniensis* is only a geographical race of *manto*. There does not seem to me to be sufficient ground for this contention, so far as the present evidence is concerned.

Dr. Chapman now finds that there is nothing in the genitalia to distinguish the two insects, but that in both there is considerable variation on similar lines. This, by itself, could not be taken as conclusive proof, and especially not in this case, where, as Dr. Chapman tells us, the male appendages in *ligea* and *euryale* (species admittedly distinct from *manto*) show no further differences either.

With the various points of difference which I gave in the neuration of the two species, Dr. Chapman does not agree, so it will be necessary to consider these again. In the plate which Dr. Chapman used to illustrate the neuration, the specimens of *manto* are, in two cases, exactly the same size as those of *gavarniensis*, and the others only very slightly smaller. This is most unusual, as *manto* does not vary very greatly in size, such specimens being quite abnormal. I, therefore, give another plate made from specimens of average size. This average being taken not merely from the specimens in my own collection, but also from the large amount of material in the collection of the late Mr. Fison, of Charpigny.

A careful examination of a great number of specimens has shown that in its neuration *manto* varies much more than I thought it did, or, indeed, thought it possibly could. In one case I found nervure five missing on both hindwings (see Pl. XIII., figs. 16 and 17). The points mentioned below do not always occur, but as they were present in about five-sixths of the specimens examined, one can but take them as typical of the

<sup>22</sup> *loc. cit.*, p. 89.

<sup>23</sup> *Beschr. Nassau. Am.*, 1852, p. 103.