has figured *Anthocharis belemia* at rest. The forewings are so depressed that only the green mottled tips are visible when the wings are folded over the insect's back, *i.e.*, the pattern on fore- and hindwings is continuous. *Anthocharis belia* rests in a precisely similar attitude. *Euchloë eupheno* (*belia*) rests with the attennæ approximated and porrected; sometimes the costa of the hind-wing is considerably more forward than that of the forewing. That is to say, the forewings are sunk between the hind-wings so that only their tips appear. I noted that *Euchloë charlonia* rested with the fore- and hind-costæ exactly superimposed. Longstaff, however, notes this species as resting with the posterior costa advanced to lie forward of the anterior, though I never noticed this among two score or more of this species. *Pontia daplidice* rests with the hind-wing costa just a little in advance of that of the forewing, but this is not so marked as in *E. eupheno*.

I expect that many of the facts here recorded seem trivial and disconnected. More than once I have hesitated to draw any conclusions from my hasty observations, thinking that the facts are undoubted, while any theory I attempted to build upon them might easily be upset by a more gifted, fortunate, or leisured observer. The evidence for or against such theories as mimicry, sexual selection, protective odours or warning colours is, all of it, built up from isolated observations, some of which appear contradictory in the light of our very limited knowledge. It is by amassing more facts, insignificant individually, perhaps, that we shall eventually be led to sound conclusions in these matters. It is such considerations as these which must form my apology for troubling the reader with these rather detailed extracts from a day to day note book.

Note.—With the very kind assistance of Dr. F. A. Dixey I publish this synonomy; I trust it is correct, but the question is very difficult, and my main purpose is not to solve questions of priority, but to show what I refer to as "*belia*."

1. The Orange Tip.	*Euchloë eupheno*, L. =*belia*, L. (and Longstaff, *l.c.*).
2. The "white" with green and pearl underside hindwing.	*Anthocharis belia*, Cr. =*bellidice*, Hübn. =*bellezina*, Boisd. =*tagis*, Hübn. (not of course the Spanish species). =*crameri*, Butl.

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

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

The following paper is an attempt to rectify the errors in the determination of the sub-species of *Leptothorax tuberum*, Fabr., recorded and described by Farren White, E. Saunders, and others.

Until the year 1912, all examples of the *tuberum* group taken in Britain were recorded either as *nylanderi*, Foerst., or as *unifasciatus*, Latr., according as the antennal club in the ♀ was the same colour as the body, or darker. Mayr[1] and Forel[2] distinguish the ♀ of the former from the others chiefly by the impressed line between the mesonotum and metanotum, a character not made use of by either F. Smith, White, or Saunders. In the ♀ of *unifasciatus* one of the

[1] *Europ. Formic.*, 1861, p. 59.
[2] *Fourmis de la Suisse*, 1874, p. 84.

principal characters mentioned by continental myrmecologists is the distinct dark brown or black band across the base of the first segment of the gaster; Farren White[3], however, says that the abdomen in this subspecies is not so distinctly banded as in *nylanderi*, and Saunders[4] that the black bands on the body are narrower than in *nylanderi*, and often wanting. F. Smith himself realized that the determination of this ant as *unifasciatus* was incorrect, though he made no attempt to rectify it. He says[5], "The *unifasciatus* of British collections is not that which continental Hymenopterists consider to be Latreille's species . . . . the ☿ has the abdomen nearly entirely fuscous, only the base and apex pale; it cannot be said to have 'une bande noire transverse sur le bord posterieur du premier segment.'" Again he says[6], "*M. unifasciata* of Nylander is certainly not the *unifasciata* of Smith's Essay, nor have we seen it in any British collection."

Nylander[7], followed by Smith[8], suggests that Latreille confounded this species with *M. cingulata*, Schenck, which, however, differs in having its antennæ entirely yellow.

In August, 1912, I paid a visit to Dr. Forel in Switzerland, taking with me all the specimens of *Leptothorax* from the various Oxford and Cambridge Museum collections, as well as those from several private ones, for his inspection, and all the ants labelled *unifasciatus* were re-named by him *tuberum*, Fab. (*sensu stricto*), with two exceptions referred to below. Dr. Forel also named as *tuberum* (*s.str.*) all specimens labelled *unifasciatus* in the British Museum and Saunders collections shown him by my friend Mr. Donisthorpe, on his visit in October, 1912.

In recent years several subspecies and varieties of *tuberum*, distinct both from *nylanderi* and that hitherto known as *unifasciatus*, have been discovered in this country. In April[9], 1904, I found an incipient colony (♀, ☿, and larvæ) near Pangbourne, which was named by Forel as "*corticalis*, Sch., var. with longer spines"; in June, 1912, I found a colony at Seaton, Devon (♂s, ♀s, ☿s), which Forel named "*tuberum*, F., var., approaching *interruptus*, Sch."; and in July, 1912, Donisthorpe and I found numerous colonies, with all sexes, of a sub-species named the same year by Forel "*tuberum*, F., var. *tubero-affinis*, For." Among the ants in the Hope-Westwood collection at Oxford were two ☿s from Hayling Island, presented by Saunders, that Forel named *affinis*, Mayr, and in the Cambridge Museum are a number of ☿s from the Isle of Wight (Perkins) that Forel considered "*tuberum*, F., with spines similar to *corticalis*, Sch." With these exceptions, all the ants labelled *unifasciatus* were re-named by Forel as *tuberum*, F., (*s.str.*) It seemed desirable, therefore, to correct the errors in the naming of this group of ants in Britain, and with this end in view I have made a careful examination of all the specimens in public and private collections throughout the country that I could obtain, in

[3] *Ants and their Ways*, 1883, p. 226.
[4] *Syn. of Brit. Heterogyn and Foss. Hy.*, 1880, p. 220.
[5] *Cat. Brit. Foss. Hy., Formicidae*, 1858, p. 31.
[6] *Cat. Hy. Ins. B.M.*, pt. vi., *Formicidae*, 1858, p. 120.
[7] *Syn. Form. France et Algérie*, Ann. Sci. Nat., 4 série, T. 5, p. 92, 1856.
[8] *loc. cit.*, p. 120.
[9] *Ent. Rec.*, vol. xxiv., no. 3, p. 63, 1912.

addition to numerous foreign examples that continental myrmecologists have kindly lent me.

The study of these ants presents considerable difficulty, owing to the scarcity of specimens, particularly of ♂s, and also the great variation among the ☿s of some of the sub-species. In this connection it may not be out of place to emphasize the great importance, when collecting ants, of keeping the specimens from each colony or nest separate; a letter or number on the labels showing this, is a great help, and, of course, whenever possible, all sexes should be taken and labelled so as to show they come from the same nests. Odd specimens, except in a few instances, are of very little value.

I have to thank my friend Mr. H. Donisthorpe for the use of his data for the distribution of the species, for references and the loan of specimens; Dr. A. Forel and Prof. C. Emery, for descriptions and drawings of specimens that I was unable to see; and Messrs. J. Bondroit (Belgium), and H. Scott (Cambridge Univ. Museum), for the loan of specimens from their collections.

Genus Leptothorax, Mayr. (*Form. austr.*, 1855, *p.* 159.)

WORKERS.

Table of ☿s.

Antennæ 11-jointed .. .. *L. acervorum*, F.
Antennæ 12-jointed .. .. 1.
1. Club no darker than rest of antenna .. .. 2.
Club darker ,, ,, ,, ... 3.
2. A slight impressed line between mesonotum and metanotum. Spines long .. .. *L. tuberum*, F., sub-sp. *nylanderi*, Foerst.
Without impressed line. Spines short .. .. .. sub-sp. *corticalis*, Sch.
3. Thorax coarsely rugose. Spines very long and narrow. Club only slightly darker .. .. sub-sp. *affinis*, Mayr.
Thorax finely rugose. Spines shorter. Club nearly black. Top of head dark brown .. .. sub-sp. *tuberum* (*s.str.*), F.
Like the preceding, but with longer curved spines and only front of head darker .. .. sub-sp. *interruptus*, Sch.
Paler; a sharply defined dark band across base of first segment of gaster. Club only slightly darker .. .. .. sub-sp. *unifasciatus*, Ltr.

Antennæ 11-jointed. Head and thorax rugose. An impressed line between the mesonotum and metanotum. Middle of clypeus almost always smooth, slightly concave from the anterior to the posterior border.

Legs hairy. Spines of epinotum long, about two-thirds as long as the basal face of epinotum. Red or reddish brown. Club of antennæ, top of head and gaster, and often middle of femora and a patch on the metanotum, darker brown. L. 3·2-3·7mm. . . . *L. acervorum* (*s.str.*), Fabr.

Widely distributed and common. Colonies small, with one or more queens, which are hardly larger than the workers. (Saunders[10], in his remarks on the genus, states that "the ♀ is small, scarcely larger than the ☿"; this only applies to *acervorum*, as the ♀s of the *tuberum* group are not at all ergatoid in form, and much larger than the ☿s.) The nests are usually situated in old stumps, roots, and under bark, and often in stumps in the centre of nests of *Formica* (*Raptiformica*) *sanguinea*, *Formica rufa*, or *F. exsecta*, and the ants seem to be unnoticed by the larger species.

[10] *loc. cit.*, p. 218.

Antennæ 12-jointed. Clypeus not concave in the middle, but generally with a small median ridge and two or more lateral striæ. Legs without hairs.
L. tuberum, Fabr.

Thorax finely rugose. A slight impressed line between the mesonotum and metatotum. Spines of epinotum broad at base, and long, about two-thirds as long as the basal face of epinotum.
Yellow; club of antennæ, legs and mandibles of the same colour; top of head often darker; a broad dark band across the base of the first segment of gaster.
L. 2·5-3·0mm. . . . . Subsp. *nylanderi*, Foerst.

Widely distributed and fairly common. Colonies small, with one or more queens. Nests usually in stumps and roots.

Thorax not quite so finely rugose as in the preceding. Spines very broad at base, horizontal, and extremely short.
Reddish yellow; club of antennæ, mandibles and legs of the same colour; top of head darker; first segment of gaster dark brown.
L. 2·5-3·2mm. . . . . Sub-sp. *corticalis*, Sch.

I have taken this description partly from Schenck,[11] and partly from Forel,[12] as I have been unable to see a typical example. This subspecies may be distinguished from *nylanderi* by the absence of the impressed line between the meso- and metanotum, the shorter spines, and darker colour. A variety with longer spines was taken by me near Pangbourne in 1904, and named by Forel. The following is the description of the ☿.

Thorax finely rugose, less than in *nylanderi*. Spines very broad at base, long, about two-thirds as long as the basal face of epinotum.
Reddish yellow; mandibles, whole of antennæ, and legs of the same colour; top of head dark brown; whole of gaster as seen from above, except a small patch on the front of first segment, black-brown.
L. 2·3mm. Sub-sp. *corticalis*, Sch., var. with longer spines.

As mentioned above, a ♀ and ☿, with larvæ, were found in an empty beech-nut in a wood near Pangbourne. Forel[13] mentions a similar variety from the Tyrol. According to Schenck[14] and Forel[15] *corticalis* nests almost entirely under bark. Among the ants in the Cambridge University Museum are the following: a single ☿ from the Isle of Wight (Perkins), that Forel says is "nearly *corticalis*." It has the antennal club no darker, and the short broad spines and coloration of the typical *corticalis*. As there is only one ☿, I have not placed it under *corticalis*, though I have little doubt that it is this subspecies. Also a number of ☿ ☿ (no data except "Perkins collection"), called by Forel "*tuberum* with spines almost *corticalis*." The spines are very short, but the antennal club is dark brown, and in other respects the ants are exactly similar to *tuberum* (*s.str.*), so I prefer to consider them a short-spined variety of *tuberum* (*s.str.*).

All the following subspecies have the club of the antennæ darker than the rest, in some cases nearly black.

Thorax coarsely rugose. Spines long, more than two-thirds as long as the basal face of epinotum, extremely narrow, hardly wider at the base than at the point, and slightly curved.

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[11] *Besch. Nassau. Ameis.*, 1852, p. 100.
[12] *Loc. cit.*, p. 85.
[13] *Ameis. Zool. Mus. München*, 1911, p. 268.
[14] *Loc. cit.*, p. 101.
[15] *Fourm. de la Suisse*, 1874, p. 180.

Yellow, slightly reddish; whole of top of head, middle of femora, upper surface of gaster except the front of the first segment, brown; club of antennæ generally brown, sometimes only dark red.

L. 2·6mm.-3·3mm. . . . . Sub-sp. *affinis*, Mayr.

Two ☿ s in the Hope-Westwood collection at Oxford were named *affinis* by Forel. These ants were taken by Saunders in Hayling Island, 1883, and labelled *unifasciatus*. Saunders[16] says he found large colonies of "*unifasciatus*" at South Hayling under stones. *Affinis*, however, in Switzerland is, so far as I know, only found in hollow twigs and under bark, principally of walnut trees and oaks. Donisthorpe found a colony in walnut tree twigs near Yvorne in October, 1912, containing ♂ s and one queen. Before definitely establishing this sub-species as British, it will be necessary to see more ☿ s and also a ♂ and ♀.

Thorax finely rugose. Spines narrow at base, variable in length, generally half as long as basal face of epinotum.

Yellow or reddish-yellow; club of antennæ dark brown, almost black; top of head and vertex, and an irregular patch across the base and extending up each side of the top of first segment of gaster, dark brown.

L. 2·3mm.-2·7mm. . . . . Sub-sp. *tuberum* (*s.str.*), Fabr.

This is the ant almost universally labelled in British collections as *unifasciatus*, Latr. It may readily be distinguished from the latter by the absence of the clearly defined dark-brown band across the lower half of the first segment of gaster and by the dark top of head and antennal club, the latter in particular being much darker than in *unifasciatus*. This sub-species is variable, passing into *affinis* on the one hand, and into *interruptus* on the other (v. below). Forel[17] says that those colonies that inhabit bark merge into *affinis*, and those that live under stones, into *interruptus*. Some varieties with shorter spines and paler antennæ approach *corticalis* (v. above). The following is its distribution (where not otherwise indicated, it has been recorded as *unifasciatus*, Latr.); Colney Hatch Wood (Smith); Lambeth (Wing); New Forest and Lulworth (Dale); Coombe Wood (Smith); Dover (Curtis); Gravesend (Baly); Landslip, Isle of Wight (Lewis); Torquay (Hamm coll.); Isle of Wight (Smith); Isle of Wight, Seaton, Devon, and Portland (Dale); Hayling (Saunders); Stoke Fleming (Perkins); Weymouth (Dale); Ventnor, Isle of Wight (Saunders); Fairlight and Hastings (Vict. Hist. Sussex); Lyme Regis (Nevinson); St. Margaret's Bay, Kent (Donisthorpe); Sherborne (Bignall); Worcester (Fletcher); Black Pond, Oxshott (in coll. Arnold); St. Margaret's Bay, Kent (Donisthorpe, as *tuberum*, 1912).

In St. Margaret's Bay, Donisthorpe and I have found nests in the sand on the cliffs.

Thorax finely rugose. Spines as in *tuberum* (*s.str.*). Reddish-yellow; club of antennæ, front of head, but not vertex, and an irregular patch on the base of first segment of gaster, dark-brown.

L. 2·5mm.-2·7mm. . . . . Sub-sp. *tuberum* (*s.str.*), Fabr., var. passing to *interruptus*, Sch.

At Seaton, Devon, in June, 1912, I found in moss under flints on the cliffs a small colony of this variety, consisting of 16 ☿ s, one ♂, several pupæ of all sexes, and larvæ. The ☿ pupæ, some days before

[16] *Hy. Acul. Brit. Isles*, 1896.

[17] *loc. cit.*, p. 85.

emergence, present a striking appearance, the gaster assuming a bright orange colour. Forel, to whom I sent some ☿ s, named them as above. He says in his letter ". . . . it has the head brown in front, and reddish behind, which brings it very close to a slight variety which I have called *tubero-interruptus*, because the character of its colour brings it near to *interruptus*. We consider the forms *unifasciatus*, *interruptus*, *nigriceps*, and *affinis*, as sub-species of *tuberum* in spite of a considerable difference, precisely because of numerous bastard or intermediary forms found between them."

It will be seen from my description that the sole difference from *tuberum* (*s.str.*), is in the coloration of the head, which in *tuberum* (*s.str.*), is entirely dark, except in occasional specimens. The ♂ and ♀ of this variety, however, show rather more distinct differences, but it can only be considered a very slight variety of *tuberum* (*s.str.*).

Forel[18] gives the following intermediary forms as occurring in Switzerland :—*nylandero-corticalis ; nylandero-unifasciatus ; tubero-nigriceps ; tubero-affinis ; tubero-interruptus ; unifasciato-interruptus.*

Thorax finely rugose. Spines narrow, long, about two-thirds as long as the basal face of epinotum, and slightly curved.

Yellow or reddish-yellow ; club of antennæ, front of head, but not vertex, and often an indistinct patch on the base, and extending up the sides, of the top of first segment of gaster, dark brown.

L., 2mm.-2·3mm. Sub-sp. *interruptus*, Schenck.

This sub-species is new to the British Isles. It was found by Donisthorpe and myself at Beaulieu Road, New Forest, in July, 1912. There were numerous colonies, many containing ♂ s and winged ♀ s, and the nests were either alone in the earth, or actually in the sides of nests of *Tetramorium caespitum*. A solitary deälated ♀ was found in the earth of a nest of the latter species. Judging from the experiment of placing colonies of the two species together in an artificial nest, I conclude that though not actively hostile, the *Tetramorium* and *Leptothorax* avoid contact with each other as much as possible. The latter may find protection in their proximity to the more powerful and populous colonies of *Tetramorium*.

As stated above, Forel named these ants "*tuberum* var. *tubero-affinis*," but after examining the ♂ s, and comparing them with drawings and descriptions kindly supplied by Emery and Forel, and also with the *interruptus* ♂ in the Saunders' collection in the British Museum, presented by Schenck, I have no doubt that they are true *interruptus*, Sch.*

Thorax finely rugose. Spines about one half as long as basal face of epinotum.

Yellow ; front of head and club of antennæ red or reddish brown ; a clearly-defined band across the base of the first segment of gaster, dark brown, the top of the segment bright yellow.

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

Although not yet found in Britain, I have included this sub-species in order to emphasize its difference from *tuberum* (*s.str.*). The clear-cut dark band on the gaster, standing out against the bright yellow above it, at once distinguish *unifasciatus* from any of the others.

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[18] *loc. cit.*, p. 86.

* Bondroit, to whom Donisthorpe sent some specimens, considered them to be *interruptus*, Sch.

Note. The following remarks may be of some help to beginners in myrmecology in naming the ☿s of this genus.

1. Antennæ uniform in colour. *L. nylanderi* and *corticalis*. The former has a slight impressed line between the mesonotum and metanotum, and long spines. The latter has no impressed line, and very short spines, except in the variety.

2. Antennal club darker than the rest. *L. affinis* has very long, thin, curved spines, and club of antennæ only slightly darker. *L. tuberum* (*s.str.*) has shorter and broader spines, whole of head dark, and club extremely dark.

L. interruptus has long spines, only the front of head dark, and club very dark. *L. unifasciatus* always has sharply defined dark band across the first segment of gaster, and spines short. Front of head and club only slightly darker.

FEMALES.

Table of ♀♀.

Antennæ 11-jointed .. .. *L. acervorum*, F.
Antennæ 12-jointed .. .. 1.
1. Club no darker than rest of antenna .. .. 2.
   Club darker ,, ,, ,, ... 3.
2. A sharply defined broad dark band across base of first segment of gaster, and a narrow one on each of the following segments. Spines long. *L. tuberum*, F. sub-sp. *nylanderi*, Foerst.

   Gaster without bands. Spines short .. .. .. Sub-sp. *corticalis*, Sch.
3. Spines long .. .. 4.
   Spines short .. .. 5.
4. Mesonotum coarsely striated. Club brown .. .. sub-sp. *affinis*, Mayr.
   Mesonotum and scutellum finely striated. Club nearly black sub-sp. *tuberum* (*s.str*.), F.
   Like the preceding, but with scutellum smooth and shining in centre, and longer spines .. .. sub-sp. *interruptus*, Sch.
5. A sharply-defined broad dark band across base of first segment of gaster, and a narrow one on each of the following segments sub-sp. *unifasciatus*, Latr.

Antennæ 11-jointed. Radial cell open. Middle of clypeus almost always smooth, slightly concave from the anterior to the posterior border.

Spines as in ☿. Wings clear, legs hairy. Colour as in ☿; upperside of head, thorax and often pedicel, gaster, and antennal club, dark blackish brown. Mesonotum sometimes yellow with patches of dark brown.

L. 4mm.-4·5mm. . . . . *L. acervorum* (*s.str.*), Fabr.

Antennæ 12-jointed. Clypeus not concave in middle, but longitudinally striate. Wings clear; radial cell small and closed. Legs without hairs.

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

Mesonotum finely striated longitudinally. Middle of scutellum smooth and shining. Spines long, one-third as long as basal face of epinotum.

Yellow; club of antennæ no darker; a broad band across the base of first segment of gaster, and a narrow one across the bases of the following segments, dark blackish-brown. The head, thorax, and pedicel sometimes dark brown.

L. 4·2mm.-4·5mm. . . . . Sub-sp. *nylanderi*, Foerst.

Mesonotum and scutellum finely striated longitudinally. Spines short, nearly horizontal.

Antennæ, mandibles, and legs entirely reddish-yellow; the rest of the body dark brown.

L. 3·5mm.-4mm. . . . . Sub.-sp. *corticalis*, Sch.

This description is taken partly from Schenck and partly from Forel (v. sub. ☿).

Mesonotum finely striated longitudinally. Middle of scutellum smooth and shining. Spines long, about one-third as long as basal face of epinotum.

Antennæ, mandibles, mesonotum, legs, and front of first segment of gaster, entirely reddish-yellow; head, scutellum, and remainder of gaster, dark brown.

L. 3·7mm. . . . . Sub.-sp. *corticalis*, Sch., var. with longer spines.

From the ♀ found at Pangbourne.

Mesonotum coarsely striated longitudinally, middle of scutellum smooth and shining. Spines medium length or long.

Colour varying from yellow to dark reddish brown; antennal club brownish, middle of femora brown.

L. 3·6mm.-4·5mm. . . . Sub-sp. *affinis*, Mayr.

This description is taken partly from Forel[19] and partly from Donisthorpe's ♀, the only one I have been able to examine. This ♀ is of the dark variety, the whole of the gaster being dark blackish-brown, and the ant measures 3·6mm.

Mesonotum and scutellum finely striated longitudinally. Spines medium, longer than in *unifasciatus*, but not so long as in *nylanderi*. Dark brown; club of antennæ dark blackish-brown, rest of antennæ, mandibles, legs, and sometimes a patch on the front of the first and second segment of gaster, yellow.

L. 3·7mm.-4·0mm. . . . . Sub-sp. *tuberum* (*s.str.*), Fabr.

Mesonotum more coarsely striated than in *tuberum* (*s.str.*). Scutellum smooth and shining in centre. Spines rather shorter than in *tuberum* (*s.str.*).

Club of antennæ, top of head and thorax, pedicel, and a broad indistinct band across the middle of the first segment of gaster, and a narrow one across the succeeding segments, dark blackish-brown. Mandibles, legs, and rest of antennæ yellow.

L. 3·6mm. . . . Sub.-sp. *tuberum* (*s.str.*), Fabr., var. passing to *interruptus*, Sch.

From two ♀s bred in the nest taken at Seaton.

Mesonotum finely striated longitudinally. Scutellum smooth and shining in centre. Spines long, longer than in *tuberum* (*s.str.*).

Dark brown, often blackish; mandibles, antennæ except the club, legs, and a small indistinct patch on the front of first segment of gaster, yellow.

L. 3·7mm. . . . Sub-sp. *interruptus*, Sch.

Mesonotum finely striated longitudinally. Scutellum smooth and shining in centre. Spines extremely short.

Yellow; club of antennæ, top of head, scutellum, pedicel, middle of femora, and a broad distinct band across the middle of the first segment of gaster, and a narrow one across the succeeding segments, dark brown.

L. 4mm.-4·5mm. . . . . Sub-sp. *unifasciatus*, Latr.

(*To be concluded.*)

Lepidopterology.*

By Dr. T. A. CHAPMAN, F.E.S.

The two volumes, one of text and one of plates, constituting the VIIth Fasciculus of the *Lépidoptérologie comparée*, are a splendid monument to the talent and energy of M. Oberthür. It begins with a resumé of the action of the Entomological Congress of 1912, and a criticism of its proceedings and deliberations on the subject of nomenclature, and especially on the question of good figures. Much of this

[19] *F. de la Suisse*, p. 88.

* *Études de Lépidoptérologie comparée*, par Charles Oberthür. Fasc. VII.