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**TRANSACTIONS**  
OF THE  
**SOCIETY FOR BRITISH**  
**ENTOMOLOGY**

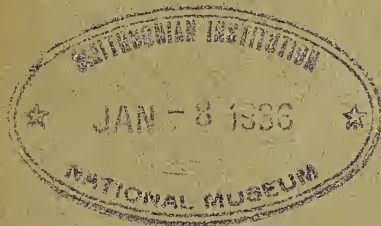
*(Formerly known as The Entomological Society of the South of England)*

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# TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

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VOL. 1.

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PART 2.

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## BRITISH LIRIOPEIDAE (DIPTERA, NEMATOCERA).

By H. AUDCENT.

### FOREWORD.

In spite of the considerable bibliography, the work done on the Liriopeidae is so scanty that a description of the British species may be useful. I have to thank Mr. A. Cheetham for the loan of a male *L. (P.) longicauda* Tonn., Mons. A. d'Orchymont, Brussels Museum, for the loan of a female of the same species and Mons. E. Séguy, Paris Museum, for kindly confirming the nomenclature of the wing-veins. My thanks are also due to Dr. F. W. Edwards, Dr. C. P. Alexander, Herr P. Riedel and others for advice and criticism. My son, Jacques, has drawn the illustrations under my guidance; those who have done similar work will appreciate the difficulty of expressing without shading the shapes and relative positions of the parts of the complicated male genitalia of a dried insect.

### CLASSIFICATION.

The Liriopeidae superficially resemble the genus *Pales* (Tipulidae), but they are easily distinguished by the unicolorous black mesonotum and by the lack of a discal cell in the wing. Their position in the Nematocera is probably next to the Psychodidae, genus *Phlebotomus*, but more work will have to be done on the male genitalia and on the larvae before their position is definitely fixed. Their nearest allies are undoubtedly the rather primitive Tanyderidae, which, at one time, were grouped with them. The Liriopeidae are divided into two subfamilies, of which one, Liriopeinae, differs from the other, Bittacomorphinae, by having, besides other differences, sixteen antennal segments instead of twenty and two forked veins at the apex of the wing instead of one. Species of Bittacomorphinae have been found only in N. America and in Japan, whereas species of Liriopeinae

are recorded from almost all over the world. In the Liriopinae there is only one genus, *Liriope*, and this genus contains eight European species, of which seven have been recorded in Great Britain. (*L. handlirschi* Cziz., distinguished from the other species by its yellow pleura, is recorded only from Central Europe.)

#### EXTERNAL MORPHOLOGY OF THE IMAGO.

The head (Fig. 4) is almost sessile; the fronto-clypeus is long, forming a rostrum; the maxillary palpi (Fig. 8) are long and slender, the last segment, which is usually curved, being longer than the preceding three together; the labial palpi are large and fan-shaped; the palpi are yellow; the antennae, which are longer and more slender in the male than in the female (Figs. 6 and 7), are each composed of sixteen segments; the two basal segments (scape) are short, broad, usually black but may be brown to yellowish; the other segments (flagellum) are black, the first of these is 2-3 times the length of the next one, the others are all about the same length except the apical one which is very short and easily broken off; there are a few bristles on each segment and the whole antenna is covered with fine silvery pubescence; the compound eyes are large, the ommatidia all of one size and unicolorous black; the eyes are equally distant in both sexes (dichoptic); there are no ocelli.

The thorax (Figs. 5 and 10) is somewhat gibbous; the pronotum is small and is distinctly divided into two portions; the suture dividing the mesonotum into praescutum and scutum is far back, it is U-shaped with the opening towards the head, and at the apex of each limb of the U a deep transverse groove goes down on either side of the mesonotum; on the praescutum there are two lateral longitudinal furrows which form prolongations of the limbs of the U, the raised middle part bears a shallow median longitudinal furrow; the surface is shining black, there are no bristles and very few fine yellow hairs; the scutellum is small and may be black or yellow at least in part, it bears no bristles; the pleura are shining black, devoid of bristles but may be covered with fine silvery pubescence and may bear a few yellow hairs especially on the pleurotergite; the mesothoracic meron is fused with the mesepimeron to form the meropleuron and the hypopleuron is composed of the metepimerite and metepisternite; the subalifer is clearly marked; the halteres, which are yellow, are long with a triangular knob.

The leg (Fig. 9) is moderately long (20-25 mm.) and slender; the femur, tibia and metatarsus are all long, the last four tarsal segments together are about half as long as the metatarsus; the ungues and empodia are small; the leg is deep yellow at the base and from the knee downwards it is more or less brown to black (the hind metatarsus of *L. albimana* Fabr. is usually

whitish-yellow); there are two moderately long tibial spurs; there are no bristles; the whole leg, including the spurs, is covered with a fine black pubescence.

The wing (Figs. 1, 2 and 3) is as long or longer than the abdomen (6-10 mm.) and rather broad; the subcostal vein (Sc)\* ends in the costa at about two-thirds of the length of the wing; the radial vein (R) has five branches,  $R_2$  forms a short transverse vein near the end of  $R_1$ , the basal portion of the lower three branches (Rs) varies in length and this variation is used as a specific character; the low median vein ( $MA_2$ ) has two branches and the fork formed by  $MA_{2a}$  and  $MA_{2b}$  is shorter than that formed by  $R_4$  and  $R_5$ ; the high cubital vein ( $CuA_1$ ) has two branches, the lower of which is sinuate in its apical half; the first anal vein (1A) is suddenly curved in its apical third and reaches the margin of the wing; traces of the upper branch of the low cubital vein ( $CuA_2$ ) can be seen below  $CuA_1$  and the posterior cubital (CuP) is clearly seen as a fold above 1A which it follows to the bend continuing its course straight on and ending in the margin of the wing (N.B.—*Liriope* is one of the few genera of Diptera in which there are traces of CuP); the high median vein ( $MA_1$ ) is clearly seen as a fold (vena spuria) between R and  $MA_2$ ; the second anal vein (2A) is seen as a short fold beneath 1A; the positions of the posterior median veins ( $MP_a$ ,  $MP_b$ ) have been indicated in Fig. 1 but they are not visible; the *r-m* and *m-cu* cross-veins may be in a line or not; the veins and the membrane, especially in the apical third of the wing, are covered with fine hairs (macrotrichia); in some species there are brown stains of various sizes on the wing.

The abdomen is long and slender, more slender in the male than in the female; in the male it is composed of nine segments, of which the first (basal) is very short, the second moderately long and slender, the third is more than twice the length of the second becoming gradually wider from base to apex, the next four segments are short and rather broad, the eighth is very short, the ninth forms part of the hypopygium; in the female the ninth segment seems to be fused with the ovipositor; the abdomen is shining black, sparsely covered with fine yellow hairs; there may be yellow transverse bands or spots on the tergites but melanism is not uncommon. In the hypopygium (Figs. 12, 13 and 15) the black ninth tergite (epandrium) has a deep median groove and the sides are produced to form a pair of yellow digitiform processes (surgonopods); the black ninth sternite (hypandrium) has a short median prolongation which is turned up; the styles (dististyles or claspers), which are yellow, form a pair of processes which vary in length, shape and secondary processes according to the species; the coxites (basistyles),

\* The nomenclature of the wing-veins is according to the Lameerian system as modified by Séguy and Vignon.

from which the styles spring, are usually broad and yellow (coxite + style = gonopod); the aedeagus (Fig. 14) consists of a brown chitinous plate with a short bifid penis in the centre; there are also two brown chitinous lateral plates (gonapophyses). In the males of some species there is an accessory sexual invagination on the fourth sternite (Fig. 32). In the female the ovipositor is yellow to brownish and this colour may extend to the apical abdominal segments; the tergal valves (cerci) are long, arched above and straight or slightly concave below; the sternal valves are short; the whole ovipositor is strongly compressed.

#### LIFE-HISTORY.

The small oval, whitish-yellow, striated eggs (1 mm.  $\times$  0.25 mm.) are laid singly to the number of 500 in the mud of shallow pools. The metapneustic larva, which may reach a length of 2-7 cm. when full-grown, lives on vegetable detritus; it is whitish-yellow, cylindrical, very slender with a long retractile tail, of which the tip is thrust into the air for respiratory purposes; at the base of the tail there are two short slender tracheal gills; the head is small, hard and black; the eye-spots are distinct; the antennae are very short; the mandibles are large and toothed, as is also the mentum; the labrum is ciliated; on the first three segments of the body there are pairs of pseudopods each of which bears a strong, hooked thorn; on the hind border of each abdominal segment there is a ring of strong backwardly-directed setae. The pupa is shorter and thicker than the larva; on the thorax it bears a long, slender respiratory tube and another short atrophied tube; the segments of the body bear circles of setae as in the larva. The imagines are found among tall plants growing in marshy ground or on the banks of ponds and sluggish streams. Their flight is not rapid and never long sustained. There are usually two generations per year. The imagines often have mites as ectoparasites, and endoparasites occasionally occur.

Some fossil Liriopidae have been found in the Upper Oligocene of Bohemia and in the Florissant Miocene of Colorado. Some insects which might be ancestral forms have been found in Mecklenburg Lias.

#### KEY TO SPECIES.

**Liriop** Meig. (*Nouv. Class.*, 14 (4), 1800.)

(PTYCHOPTERA Meig., *Ill. Mag.*, 2: 262 (14), 1803.)

(CTENOCERINA Rond., *Dipt. Ital. Prod.*, 1: 187, 4, 1856.)

GENOTYPE: *L. contaminata* Linn., 1758. (By designation of Latreille, *Con. Gen.*, 442, 1810; also genotype under Opinion 46 of Intern. Com. as the first species associated with the genus *Liriop* by Latreille, *Hist. Nat. Ins.*, 3, 1802.)

1. Rs longer than *r-m*, seldom produced backwards at the angle (Figs. 1 and 2); scutellum yellow at least in part; pleura silvery; sternite 4 not or only slightly modified in the male. (Subgenus **Liriope** Meig. s. str.) ..... 2.
  - Rs about length of *r-m*, often produced backwards at angle (Fig. 3); scutellum unicolorous, black or at most brownish; pleura not silvery; sternite 4 greatly modified in the male. (Subgenus **Parapychoptera** Tonn.) ... 5.
  2. Rs more than four times length of *r-m* (Fig. 1); small brown spot at base of wing ..... **contaminata** Linn.
  - Rs less than twice length of *r-m* (Fig. 2); usually no brown spot at base of wing ..... 3.
  3. Wing spotted; metatarsus of leg 3 usually whitish-yellow; thorax rather dull ..... **albimana** Fabr.
  - Wing clear; metatarsus of leg 3 always dark; thorax shining ..... 4.
  4. In hypopygium the prolongation of tergite 9 has a tooth on the inner edge and the style has a process on the inside about half-way down, anal opening visible from above (Figs. 19-22) ..... **scutellaris** Meig., ♂.
  - In hypopygium the prolongation of tergite 9 has no tooth and the style has a process on the inside almost at the apex, anal opening not visible from above (Figs. 23-25) ..... **minuta** Tonn., ♂.
  5. Abdomen unicolorous, black; in hypopygium prolongation of tergite 9 is 2-3 times length of tergite; middle branch of style ends in a point (Figs. 26-28) ..... **paludosa** Meig.
  - Abdomen with yellow bands or spots; may be melanic ... 6.
  6. In hypopygium the prolongation of tergite 9 is about as long as the tergite; the end of the middle branch of the style is blunt (Figs. 29-32) ..... **lacustris** Meig., ♂.
  - In hypopygium the prolongation of tergite 9 is more than three times the length of the tergite; middle branch of style spatulate (Figs. 33-35) ... **longicauda** Tonn., ♂.
- N.B.—The females of *L. scutellaris* Meig. and *L. minuta* Tonn. and those of *L. lacustris* Meig. and *L. longicauda* Tonn. are indistinguishable. Should the latter be melanic then they are indistinguishable from those of *L. paludosa* Meig.

#### DESCRIPTIONS OF SPECIES.

Subgenus **Liriope** Meig. s. str.

**L. contaminata** Linn. (*Syst. Nat.*, Ed. X, 586, 7, 1758).  
 (*L. fuscipes* Gmelin. *Syst. Nat.*, 5: 2819, 1782).  
 (? *L. divagor* Harr. *Exp. Brit. Ins.*, Pl. 48, 10, 1782).

7-11 mm. In this, as in all other species with spotted wings, the size and shape of the spots are not constant; the smaller

spots are often lacking and the larger ones become smaller and lighter. Normally this is the only species in which the wing has a spot near the costa further back than the base of Rs (Fig. 1); very occasionally this spot is found in other species. Usually, besides this spot, there are on the wing three large spots (one on base of Rs, one across the middle of the wing and one across the apices of  $R_1$  and  $R_2$  reaching to the base of the fork  $R_{4+5}$ ) and three small spots (one each on apices of Sc and  $R_3$  and one on the base of the fork  $MA_{2a}-MA_{2b}$ ). On the abdomen of the male there are more or less wide transverse yellow stripes on middle of segment 3 and bases of segments 4 and 5; in the female these stripes are reduced to side-spots; there is a tendency to melanism in all species of *Liriope*. Femora and tibiae yellow with dark apices, all tarsi dark brown to black. In the hypopygium (Figs. 12-15) the prolongations of tergite 9 are about one and a half times the length of the tergite; they are unbranched, slightly broader at the apex and curved towards each other with the apices touching. The styles are a little longer than these prolongations; the lower edge of each style is straight, the upper side bears two processes, a short odontoid one at the base and a longer straight one half-way along; the styles almost meet at the apices and are in the same plane as the prolongations of tergite 9. The aedeagus is a large brown chitinous plate, concave on the lower edge, bearing on the upper edge two teeth with a bifid penis between them. On each coxite there is a dark brown chitinous plate (gonapophysis) with straight lower edge and three short black teeth on the upper edge. All parts are more or less hairy.

This species is common and widely distributed.

**L. albimana** Fabr. (*Mant. Ins.*, 2: 323, 1787).

8-12 mm. The wing (Fig. 2) has normally three large spots (one in the centre, over the cross-veins, one over the apices of  $R_1$  and  $R_2$  extending to the base of the fork of  $R_{4+5}$ , and one over the base of the fork  $MA_{2a}-MA_{2b}$ ); these spots are often weak and the wing may even be quite clear. On the abdomen of the male there are more or less wide transverse yellow stripes on the bases of segments 4 and 5; in the female these stripes are reduced to side-spots. Femora yellow, darkened at apex; tibiae and tarsi dark brown to black, except the metatarsus of leg 3, which is usually whitish-yellow but not always so. In the hypopygium (Figs. 16-18) the prolongation of tergite 9 is about one and a half times the length of the tergite and bears at a little distance from the base a moderately long slender process; the style is slightly longer and broader than the prolongation of tergite 9; it bears a short rounded process at its base and a long broad process about half-way along its inner side. The aedeagus is large, rounded and bears tufts of long black hairs.

This species is perhaps the commonest of all and is widely distributed.

**L. scutellaris** Meig. (*Syst. Besch.*, 206, 1818).

(? *L. nigra* Fabr. *Syst. Antl.*, 21, 2, 1805.)

(? *L. lenta* Harr. *Exp. Brit. Ins.*, Pl. 48, 7, 1782.)

7-10 mm. Wing clear or at most with slight infuscations on the cross-veins, on apex of  $R_1$  and on the bases of the forks. On the abdomen of the male there are faint transverse greyish stripes on the last segments, the abdomen of the female is unicolorous black. Femora and tibiae yellow with black apices; tarsi light to dark brown. In the hypopygium (Figs. 19-22) the prolongation of tergite 9 is a little longer than the tergite, broad at the base then suddenly slender, broad part toothed on inner side and the two are usually curved so that the apices meet. The style hangs down; it has a hatchet-shaped process about half-way and this process forms an acute angle with the style; at the base of the style there is another slender curved process. The aedeagus resembles that of *L. contaminata* Linn. The anus is visible from above.

This species, though not rare, is by no means as common as the preceding species, but is widely distributed.

**L. minuta** Tonn. (*Ann. Soc. Ent. Belg.*, 59: 120, 1919).

6-8 mm. The male differs from that of *L. scutellaris* Meig. only in size and in the structure of its hypopygium (Figs. 23-25). The prolongation of tergite 9 is shorter than the tergite; it tapers gradually, is angularly bent and the apices cross. The style has a triangular process near the apex, a club-shaped one near the base and a short straight one at the base. The anus is not visible from above. There are no records of females caught *in copula*, but females, which are identical with those of *L. scutellaris* Meig., have been caught at the same time and in the same place as males of *L. minuta* Tonn. and so are presumed to be females of this species.

This species has been recorded from Scotland, Westmorland, Yorks, Cheshire, Notts, Herts and Hants. It has been confused with *L. scutellaris* Meig. and will probably be found to be as widely distributed as the latter.

Subgenus **Parapychoptera** Tonn. (*Ann. Soc. Ent. Belg.*, 59: 115, 1919).

SUBGENOTYPE: *L. (P.) paludosa* Meig. (by present designation).

**L. (P.) paludosa** Meig. (*Klass. Ins.*, 1: 82, 1804).

(? *L. fasciata* Scop. *Ent. Carn.*, 321, 855, 1763.)

7-10 mm. This and the next two species have in the male a curious auxiliary sexual invagination on the fourth sternite. On

this character, and on the lack of silvery pubescence on the pleura, Tonnoir proposed to erect a new genus for them. There is undoubtedly a marked resemblance in the male genitalia and in the wing venation of these three species and a marked difference from the male genitalia and wing venation of the other species. I do not consider the differences to be of sufficient importance to warrant a new genus, but I agree with Dr. C. P. Alexander in considering them worthy of subgeneric rank. The invagination on sternite 4 (Fig. 32) affects the greater part of the sternite and is not deep; it is roughly triangular in shape, its apex, towards sternite 3, is a gradual slope and its base is a prominent ridge; it is edged with long fine yellow hairs; the cavity, which is always empty and dry, is ridged at the bottom and the ridges may be hairy. The purpose of the invagination is undoubtedly to help in copulation, but the function is not understood and requires further investigation. A similar invagination is found in the males of certain Eriopterine Tipulidae (*Paratropesa* and *Teucholabis*).

The wing of *L. paludosa* Meig. (Fig. 3) has normally one large spot across the middle, another across the apices of  $R_1$  and  $R_2$  reaching to the base of the fork  $R_{4+5}$ , and small spots on the apex of Sc, on  $R_1$  and at the base of the fork  $MA_{2a}-MA_{2b}$ . Abdomen unicolorous black; femora and tibiae yellow with black apices, tarsi dark brown to black. In the hypopygium (Figs. 26-28) the prolongation of tergite 9 is 2-3 times as long as the tergite; it is unbranched, swollen at the base, then suddenly slender and the apices do not touch. The style is a little longer than the prolongation of tergite 9; it is slender and hairy only at the tip, which is a little swollen and shaped like a foot; at the base there is a knob bearing a number of strong black spines (not hairs as in the other two species) and on the opposite side there is another long process covered with long hairs. The cavity of the invagination on sternite 4 is divided longitudinally and the basal ridge is distinctly bilobed.

This species is uncommon but is widely distributed.

**L. (P.) lacustris** Meig. (*Syst. Besch.*, 6: 291, 1830).

7-10 mm. The wing has normally a large spot in the middle from the costa to the end of the cross-veins, another on the apices of  $R_1$  and  $R_2$  reaching to the fork  $R_{4+5}$ , a small one on  $R_1$  below apex of Sc, another small one at apex of  $R_3$  and one on base of fork  $MA_{2a}-MA_{2b}$ . In the male the abdomen has usually more or less broad transverse yellow stripes on the bases of segments 3 and 4; in the female the stripes are narrow or reduced to side spots or altogether lacking, in which case the female is indistinguishable from that of *L. paludosa* Meig. In the male the invagination on sternite 4 (Fig. 32) has an undivided cavity, the basal ridge is not lobed and bears two brushes

of long yellow hairs turned back over sternite 5. In the hypopygium (Figs. 29-31) the prolongation of tergite 9 is about half as long as the tergite, it tapers gradually and is unbranched. The style is slender, rounded at the apex where it bears a few hairs, the basal knob is flattened and bears only long hairs, the other process is wide and hairy. The femora are yellow with black apices, the tibiae are brown with darker apices and the tarsi are dark brown to black.

This species may be a little more common than *L. paludosa* Meig. and is widely distributed.

**L. (P.) longicauda** Tonn. (*Ann. Soc. Ent. Belg.*, 59: 121, 1919).

8-12 mm. The male is identical with that of *L. (P.) lacustris* Meig. except for the structure of the genitalia. The cavity of the invagination on sternite 4 is divided longitudinally into two compartments in each of which there is a brush of short hairs; the basal ridge is very prominent and concave in the middle. The prolongation of tergite 9 is unbranched, slender, more than three times the length of the tergite and twisted in the specimen examined by me. The style is long, slender and spatulate with a few hairs at the apex; the knob is short and rounded bearing a few hairs; the other process is long, slender and hairy. (The description is made from a single specimen which could not be dissected.)

So far there are only two British records: Herefordshire (Dr. J. H. Wood), no date, specimen in British Museum; Mickley Woods, Yorks (C. A. Cheetham), August, 1921, specimen in Mr. Cheetham's collection.

LIST OF SPECIES.

F. LIRIOPEIDAE

(PTYCHOPTERIDAE)

S. F. LIRIOPEINAE

**G. LIRIOPE** Meig.

(PTYCHOPTERA Meig.)

S. G. LIRIOPE S.S.

*contaminata* Linn.

*albimana* Fabr.

*scutellaris* Meig.

*minuta* Tonn.

S. G. PARAPTYCHOPTERA Tonn.

*paludosa* Meig.

*lacustris* Meig.

*longicauda* Tonn.

## BIBLIOGRAPHY.

- ALDRICH, J. M. 1895. The Tipulid Genus *Bittacomorpha* and *Pedicia*. *Psyche*, **7**: 201.
- ALEXANDER, C. P. 1913. A revision of S. American Dipterous Insects of the Family Ptychopteridae. *Proc. U.S. Nat. Mus.*, **44**: 331-335.
- 1919-20. The Crane-flies of New York. *Cornell Univ. Agr. Exp. Sta.*, Mem. **38**: 769-772.
- 1927. Ptychopteridae. *Genera Insectorum*, Fasc. 188.
- AUDCENT, H. 1929. Bristol Insect Fauna, Diptera, Part 2. *Proc. Bristol Nat. Soc.*, (4) **7**: 122.
- BARNES, H. F. 1924. Preliminary List of the Crane-flies of Carnarvonshire, N. Wales. *Ent. Mon., Mag.*, **60**: 227.
- BECKER, T., and others. 1903. Katalog. Palearkt. Dipteren, **1**.
- BELING, TH. 1886. Dritter Beitrag zur Naturgeschichte verschiedener Arten aus der Familie Tipuliden. *Verh. K.K. Zool.-Bot. Gesel. Wien*, **36**: 171.
- BERGROTH, E. 1889. Om Finlands Ptychopteridae och Dixidae. *Med. Soc. pro Faun. et Flor. Fenn.*, **15**: 158-165.
- BRAUER, F., and others. 1910. Süßwasserfauna Deutschlands, 2A, **1**: 74.
- BROCHER, F. 1913. L'Aquarium de Chambre. Payot edit., Paris.
- CAMERON, A. E. 1917. The insect association of a local environmental complex. *Roy. Soc. Edin. Trans.*, **52**: 37.
- CHEETHAM, C. A. 1922. Yorkshire *Ptychoptera*. *Naturalist*, **1922**: 153-154.
- CRAMPTON, G. C. 1923. Genitalia of male Diptera and Mecoptera. *Trans. Amer. Ent. Soc.*, **48**: 207.
- 1925. Phylogenetic study of the thoracic sclerites of the non-Tipuloid Nematocerous Diptera. *Ann. Ent. Soc. Amer.*, **18**: 49-74.
- 1926. Phylogenetic study of the thoracic sclerites of the Psychodoid Diptera. *Ent. News*, **37**: 33 and 65.
- CZIZEK, K. 1919. Die Mährischen Formen der Dipteren Familie (Liriopidae) Ptychopteridae. *Zeit. des Mähr. Landesm.*, **17**: 1-16.
- EDWARDS, F. W. 1921. Diptera Nematocera from Arran and Loch Etive. *Scol. Nat.*, **1921**: 91.
- ENDERLEIN, G. 1912. Studien über die Tipuliden, Limoniiden, Cylindrotomiden und Ptychopteriden. *Zool. Jahrb. Syst.*, **32**: 1-88.
- FABRICIUS, J. C. 1787. *Mantissa Insectorum*, **2**: 323.
- 1805. *Systema Antliatorum*, 21, 2.
- GEHUGHTEN, A. VAN. 1890. Recherches histologiques sur l'appareil digestif de la larve de la *Ptychoptera contaminata*. *La Cellule*, **6**: 185-290.
- GOFFE, E. R. 1928. Diptera in Hants during 1928. *Trans. Hampshire Ent. Soc.*, **1928** (4): 42-48.
- GROBEN, C. 1875. Über bläschenförmige Sinnesorgane und eine eigenthümliche Herzbildung der Larve von *Ptychoptera contaminata* L. *Sitzber. Acad. Wiss. Wien*, **72** (Ab. 1): 433-454.
- HAINES, F. H. 1926. Dorset and New Forest records of Tipulidae and allied families. *Entomologist*, **59**: 268.

- HANDLIRSCH, A. 1909. Zur Phylogenie und Flügelmorphologie des Ptychopteriden. *Ann. des k.k. Nat. Hofmus.*, Wien, **23**: 263-272.
- HARRIS, M. 1782. An Exposition of British Insects. Pl. 48, Figs. 7 and 10.
- HENDEL, F. 1928. Zweiflügler oder Diptera. *Tierwelt Deutschlands*, **11**: 59 and 118.
- LAMEERE, A. 1922. Sur la Nervation Alaire des Insectes. *Bull. Sci. Acad. Roy. Belg.*, **8**: 138-149.
- LINNAEUS, C. V. 1758. *Systema Naturae*, Holmiae. 586.  
 ——— 1761. *Fauna Suecica*, Stockholm. 1743.
- MACQUART, M. 1834-5. *Histoire Naturelle des Insectes, Diptères*, Paris. **1**: 76.
- MAGNAN, A. 1934. La locomotion chez les animaux. Le vol des insectes. Hermann edit., Paris.
- MEIGEN, J. W. 1800. Nouvelle Classification des Mouches à deux ailes. 14.  
 ——— 1803. *Illiger's Magazine*, **2**: 262.  
 ——— 1818-38. Systematische Beschreibung der bekannten europäischen Zweiflügeligen Insekten, Aachen. **1**: 206.
- MIALL, L. C. 1903. *Natural History of Aquatic Insects*. London. Pp. 170-175.
- NIELSEN, P. 1921. De danske Arter af Slaegten *Ptychoptera*. *Afh. og medd fl. og faun.*, **1**: 16-19.  
 ——— 1933. Bidrag til en Fortegnelse over Bornholms Insektfauna: Nematocera Polyneura. *Ent. Medd.*, **18**: 239.
- OSTEN-SACKEN, C. R. v. 1869. Monographs of the Diptera of N. America, Part IV. *Smiths. Misc. Coll.*, **8**: 313-319.  
 ——— 1887. Studies on Tipulidae. *Berl. Ent. Zeit.*, **31**: 226-230.  
 ——— 1892. On the characters of the three divisions of Diptera: Nematocera vera, Nematocera anomala and Eremochaeta. *Berl. Ent. Zeit.*, **37**: 417-466.
- PANTEL, J. 1914. Signification des 'glandes annexes' intestinales des larves des Ptychopteridae. *La Cellule*, **29**: 393-429.
- RÉAUMUR, R. A. F. DE. 1734-42. Mémoires pour Servir à l'Histoire des Insectes. Imp. Roy., Paris. 348.
- RIEDEL, M. P. 1921. Altes und Neues von Faltenmücken (Ptychopteridae). *Ent. Jarhb.*, 144-148.
- RONDANI, C. 1856-9. *Dipterologiae Italicae Prodomus*. Parma, **1**: 187.
- SCHINER, J. R. 1864. *Fauna Austriaca, die Fliegen (Diptera)*. Wien, **2**: 495.
- SCHRÖDER, C. 1912-26. *Handbuch der Entomologie*. Jena. **1**: 388, Fig. 278.
- SCOPOLI, J. A. 1763. *Entomologica carniolica*. Vindoboninae. 321 (855).
- SÉGUY, E. 1924. Les Insectes Parasites de l'Homme et des Animaux domestiques. *Encyl. pratique du Nat.* Paris. 163.  
 ——— 1925. Description d'un nouveau *Paraptychoptera*. *Encyl. Ent. Diptera*, **2**: 22.  
 ——— 1925. Nématocères Piqueurs. *Faune de France*, **12**: 7-17.
- SNODGRASS, R. E. 1904. The Hypopygium of the Tipulidae. *Trans. Amer. Ent. Soc.*, **30**: 179-236.
- TONNOIR, A. 1919. Notes sur les Ptychopteridae. *Ann. Soc. Ent. Belg.*, **59**: 115-122.
- TOPSENT, E. 1914. Etude sur le *Ptychoptera albimana* Fabr. *Arch. Zool. exp. et gen.*, **55** (Notes et Rev., No. 5): 81.

- VERRALL, G. H. 1886. List of British Tipulidae. *Ent. Mon. Mag.*, **23**: 117.  
 ———— 1901. List of British Diptera. Cambridge. 13.
- VIGNON, P. 1927. Sur la Nervation Primitive de l'Aile des Insectes. *C.R. Acad. Sci.*, **184**: 234-6.  
 ———— 1929. Introduction à de nouvelles recherches de morphologie comparée sur l'Aile des Insectes. *Arch. Mus. Hist. Nat.*, Paris (6), **4**: 89-123.  
 ———— 1932. Nomenclature des veines de l'Aile chez les Diptères. *Encyl. Ent., Diptera*, **6**: 133-143.
- VIGNON, P., and SÉGUY, E. 1929. Sur la présence de la Nervure Médiane Haute chez les Diptères. *C.R. Acad. Sci.*, **188**: 1699-1701.  
 ———— 1929. Sur la présence chez les Diptères de la Médiane Postérieure vraie, et sur la régression que subit la Médiane Haute chez les Syrphides. *Bull. Soc. Ent. France*, **14**: 227-230.
- WAHLGREN, G. 1905. Svensk Insektfauna. 11. Tråvingar. Diptera. Orthoptera. Nemocera. *Ent. Tidskr.*, **26**: 89-154.
- WALKER, F. 1856. *Insecta Britannica*, Diptera. London. **3**: 337.
- WESENBERG-LUND, C. 1915. *Insektlivet i ferske Vande*. Copenhagen. 348.
- WILLIAMS, I. W. 1933. External Morphology of the primitive Tanyderid Dipteron *Protoplasa fitchii* O.S. with notes on the other Tanyderidae. *Journ. N.Y. Ent. Soc.*, **41**: 1-35.
- WINGATE, W. J. 1906. Preliminary List of Durham Diptera. *Trans. Nat. Hist. Soc. Northumberland . . .* **2**: 64.
- YERBURY, J. W. 1920. List of Diptera hitherto recorded from the county of Devon. *Trans. Devon Ass. Adv. Sci.*, **52**: 343.
- ZETTERSTEDT, J. W. 1851. *Diptera Scandinaviae*. Lundae.



## EXPLANATION OF PLATES.

All drawings are original. All were drawn as seen under a 2 in. objective, except the gonopods, which were drawn under a  $\frac{1}{4}$  in. objective. The wings, antennae and leg were drawn by projection on paper from specimens mounted in gum-chloral; the head and gonopods were drawn from potash dissections, the other drawings were made from parts *in situ* on the dried insect. Hairs and obscuring details have been omitted in most drawings.

## PLATE X.

FIG. 1.—Wing of *L. contaminata* Linn. 1A.= First Anal; 2A.= Second Anal or Axillary (shows as a fold in the dry wing); C.= Costa; CuA<sub>1a</sub> and CuA<sub>1b</sub>=branches of High Cubital; CuA<sub>2</sub>= Low Cubital; CuP.= Posterior Cubital; H.= Humeral; M.A.<sub>1</sub>= High Median or Vena Spuria; MA<sub>2a</sub> and MA<sub>2b</sub>= branches of Low Median; M.Pa. and M.Pb.= position of branches of Posterior Median, of which no traces are visible; m-cu.= Medio-cubital cross-vein; R, Rs, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>= Radial and its branches; r-m = Radio-median cross-vein; Sc.= Subcostal.

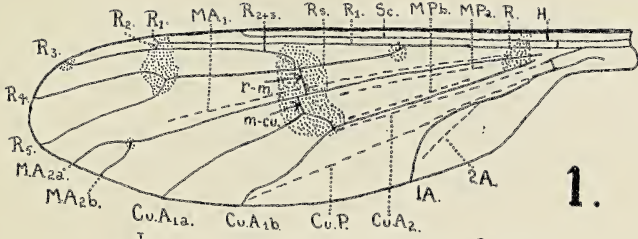
FIG. 2.—Wing of *L. albimana* Fabr.

FIG. 3.—Wing of *L. paludosa* Meig.

FIG. 4.—Head of *L. contaminata* Linn. An.= Scape of Antenna; E.= Eye; F.C.= Fronto-Clypeus; Lb.= Labrum; L.P.= Labial Palpus; M.P.= base of Maxillary Palpus; V.= Vertex.

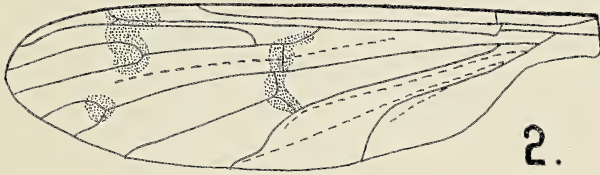
FIG. 5.—Side-view of Thorax of *L. contaminata* Linn. Ab.=Abdomen; Apn.= Antep pronotum; Cx.= Coxa; E.= Eye; F.C.= Fronto-Clypeus; Ep.= Mesepisternum; H.= Haltere; Hp.= Hypopleuron; Mn.= Mesonotum; Mp.= Meropleuron; M.P.= Maxillary Palpus; O.= Occiput; Plt.= Pleurotergite; Ppn.= Postpronotum; Prs.= Praescutum; Psn.= Postnotum; Saf.= Subalifer; Scl.= Scutellum; Sct.= Scutum; Sp<sub>1</sub>= Mesothoracic Spiracle; Sp<sub>2</sub>= Metathoracic Spiracle; Stp.= Sternopleuron; W.= position of Wing-base.

PLATE X.



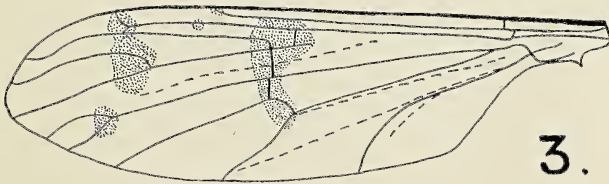
1.

*L. contaminata* Linn.



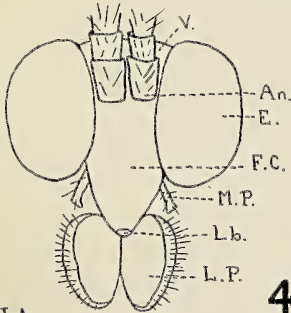
2.

*L. albimana* Fabr.



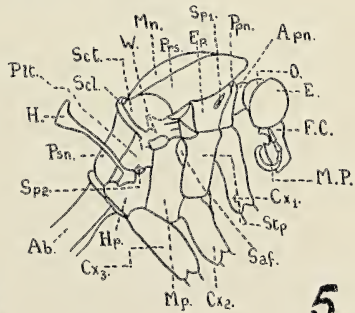
3.

*L. paludosa* Meig.



J.A.

4.



5.





## PLATE XI.

- FIG. 6.—Antenna of *L. lacustris* Meig. ♂.
- FIG. 7.—Antenna of *L. scutellaris* Meig. ♀.
- FIG. 8.—Maxillary Palpus of *L. lacustris* Meig.
- FIG. 9.—Third Leg of *L. contaminata* Linn. Cx.= Coxa; F.= Femur; M.T.= Metatarsus; Sp.= Spurs; T<sub>1</sub> to T<sub>4</sub>= Tarsi; Tb= Tibia; Tr.= Trochanter.
- FIG. 10.—Dorsal view of Thorax of *L. contaminata* Linn. Ppn.= Postpronotum; Prs.= Praescutum; Psn.= Postnotum; Scl.= Scutellum; Sct.= Scutum; Su.= Mesonotal Suture.
- FIG. 11.—Side view of Ovipositor of *L. contaminata* Linn. S.V.= Sternal Valve; T.V.= Tergal Valve.  
(N.B.—In this, and in subsequent drawings, the abdominal tergites and sternites are numbered.)
- FIGS. 12-15.—Hypopygium of *L. contaminata* Linn. FIG. 12.—Side view. FIG. 13.—Dorsal view. FIG. 14.—Gonopods and Aedeagus. FIG. 15.—End view. A.= Anus; Ad.= Aedeagus; C.= Coxite (Basistyle); G.= Gonapophysis; P.= Prolongation of Tergite 9 (Surgonopod); S.= Style (Dististyle or Clasper).  
(N.B.—This notation applies to all the figures on Plates XII and XIII.)

PLATE XI.

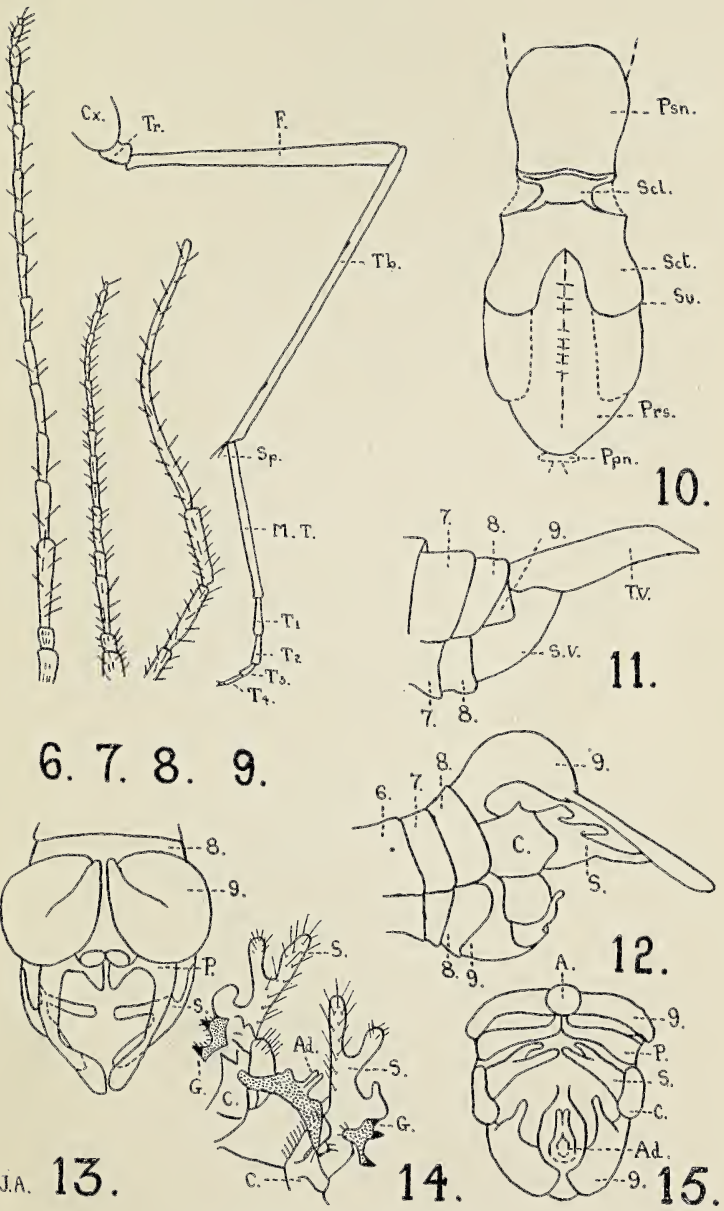
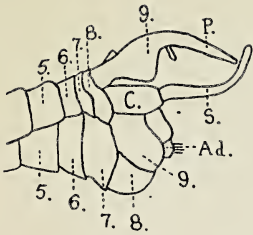
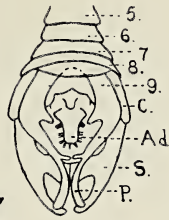




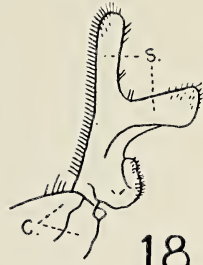
PLATE XII.



16.

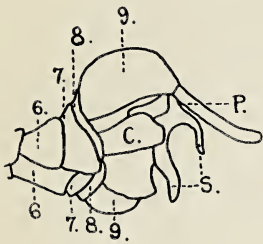


17.

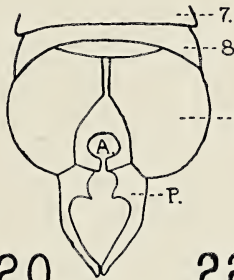


18.

*L. albimana* Fabr.



19.



20.

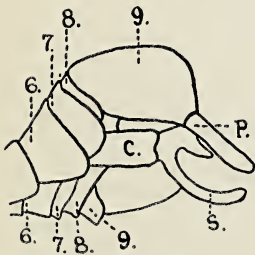


21.

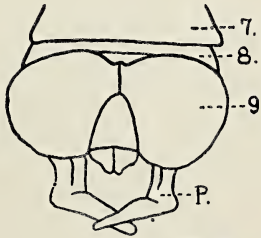


22.

*L. scutellaris* Meig.



23.



24.



25.

*L. minuta* Tonn.

J.A.

BRITISH LIRIOPEIDAE.

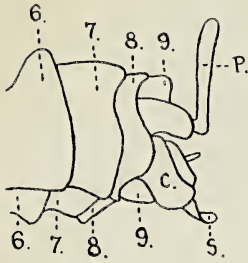
FIGS. 16-18.—Side view, Dorsal view and Gonopod of Hypopygium of *L. albimana* Fabr.

FIGS. 19-22.—Same of *L. scutellaris* Meig. FIGS. 21 and 22 are different views of the same gonopod.

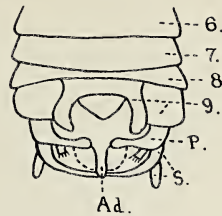
FIGS. 23-25.—Same of *L. minuta* Tonn.



PLATE XIII.



26.

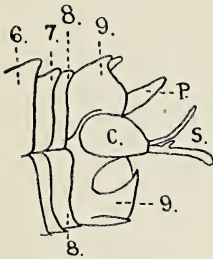


27.

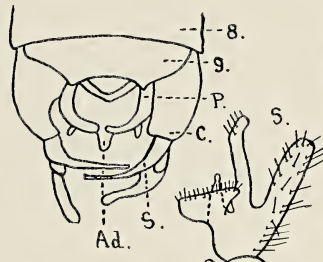


28.

*L. paludosa* Meig.



29.



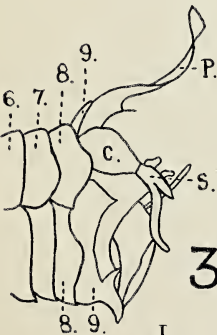
30.



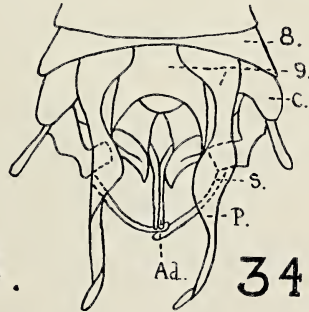
31.

32.

*L. lacustris* Meig.



33.



34.



35.

*L. longicauda* Tonn.

J.A.

BRITISH LIRIOPEIDAE.

FIGS. 26-28.—Side view, Dorsal view and Gonopod of Hypopygium of *L. paludosa* Meig.  
 FIGS. 29-31.—Same of *L. lacustris* Meig. FIG. 32.—Invagination on sternite 4 of ♂ *L. lacustris* Meig.  
 FIGS. 33-35.—Same of *L. longicauda* Tonn.

1875

## ON THE LIFE-HISTORIES OF SOME BRITISH HEMEROBIIDAE (NEUR.).

By FREDK. J. KILLINGTON, B.Sc., A.L.S., F.R.E.S.

(The Hope Department, University Museum, Oxford).

Four species are dealt with in the present paper, viz. *Hemerobius perelegans* Steph., *Boriomyia betulina* Strøm (= *nervosa* Fabr.), *Wesmaelius quadrifasciatus* Reut. and *Megalomus hirtus* Linn. Of these the first and last are extremely rare species, and I wish to express my great indebtedness to Mr. K. J. Morton, who, by sending me living imagines from which I have been able to obtain eggs, has made it possible to work out their early stages. Mr. Morton has also been kind enough to send a number of living females of *B. betulina* from time to time, and from the offspring of these many of the details of the life-history of this species have been obtained.

### I.—*Hemerobius perelegans* Stephens.

#### HABITAT AND DISTRIBUTION.

Although described as long ago as 1836, this species remained practically unknown until 1931, a position undoubtedly largely due to McLachlan's action (1868) in placing it in the synonymy of *Hemerobius subnebulosus* Stephens (now *Boriomyia subnebulosa*), of which species he considered it a form. In 1931 Morton established its claim as a good species and restored it to its proper genus.\*

Stephens' original description was made from a female believed to have been taken in the New Forest, Hants, but the occurrence of the species in this locality still needs confirmation. Apart from this one doubtful record for England, it has been obtained only in the following Scottish districts :

*Argyllshire* : a number taken in 1933 at Arinafad Beg (K. J. Morton). *Inverness-shire* : Aviemore (J. W. Yerbury ; specimen in the Hope Department, University Museum, Oxford). *Perthshire* : Rannoch (R. McLachlan, K. J. Morton). *Sutherland* : Loch Assynt and Lochinver (J. W. Yerbury).

*H. perelegans* appears to have been taken mainly from birch. Dr. Bo Tjeder informs me that he has obtained imagines from both birch and conifers in Sweden (the only country from which

\* For details of the synonymy of *H. perelegans* see Morton (1931a).

the species has been recorded outside the British Isles), but Morton's 1933 examples were captured in a locality from which conifers were absent.

#### OVIPOSITION.

#### EARLY STAGES.

A number of eggs were obtained at the end of May, 1933, from two females kept in captivity. They were laid singly at the margins and against the mid-vein of the undersides of leaves.

#### EGG.

Length 0.9 mm. ; breadth 0.38 mm.

Elongate-oval, in some cases with the longitudinal axis slightly curved; surface of attachment a little flattened. Colour when first laid cream-white. Under a high magnification the chorion is seen to be densely covered with minute raised white flecks. Micropylar projection a white rounded disc, the diameter of which is about three times the thickness.

As hatching approaches the egg becomes slightly darker, especially at the posterior end and where the pale reddish dorsal markings of the abdomen of the embryo show through the chorion; the eyes also become visible, first as reddish and then as blackish spots. Hatching occurs six to seven days after oviposition.

#### LARVA.

The newly-emerged larva is about 1.6 mm. in length. At this stage the head is translucent pale cream; antennae smoky-grey, the third segment darkest; palpi almost colourless except the third segment, which is smoky-grey; jaws pale, but tipped with orange-brown; eyes black. The abdomen bears faint traces of reddish latero-dorsal markings. Legs translucent grey, tarsi blackish apically; at the distal end of the femora a distinct transverse thickened black line.

On the second day faint orange-brown markings appear on the head and run in a curved line on either side from the eyes almost to the middle of the posterior margin (Pl. XV, Fig. 1); orange-brown markings also develop on the pronotum. The prothoracic sclerites now show distinctly as oblique smoky-grey spots, but the meso- and metathoracic sclerites are scarcely perceptible small grey dots. The sclerites of the ninth and tenth abdominal segments are brownish, so that the apex of the abdomen appears darker than elsewhere. There is little further development of the head markings in this instar.

The first ecdysis occurs on the third to the fifth day.

The second instar larva is similar to that of the third instar except that the colours are less bright.

The second ecdysis is on the second or third day after the first.

*Description of third instar larva* (Pl. XVI, Fig. 1).

Length when full fed about 9 mm.

Body primrose-yellow, with two latero-dorsal series of dull brownish-crimson blotches forming interrupted bands.

Somewhat resembles the larva of *H. simulans*, but the posterior portion of the head appears more strongly marked with dark grey, the ground colour of the body is more yellowish, the latero-dorsal markings are more extensive and redder, and the posterior subsegments of the pro- and mesothorax are crossed by the latter markings. From the larvae of *H. humulinus* and *H. lutescens* it may be known by its much more extensive markings, the pale median area being thus much narrower.

*Head* pale greyish-yellow; on each side a band of dark smoky-grey runs backwards from the eyes and expands across the posterior part of the head almost to the middle, and a median longitudinal wedge-shaped band of the same colour has its apex just before the hind margin and fades between the jaws. Palpi pale translucent grey, apical segment darker. Antennae smoky-grey, apical half darker. Eyes black.

*Thorax.* The latero-dorsal markings almost cover the anterior subsegment of the prothorax, leaving only a thin line of pale ground colour along the anterior margin and narrow pale areas mid-dorsally and at the sides; on the middle subsegment they become narrower and are interrupted just beyond the sclerites, being continued again across the posterior subsegment. A median dark pulsating line begins on the middle subsegment of the prothorax and extends almost the whole length of the body. On the meso- and metathorax the markings are very broad anteriorly, narrowing behind and not quite reaching the hind margins. Prothoracic sclerites crescentic-oval, shining blackish-grey, surrounded by a fine pale line; meso- and metathoracic sclerites shining black, small and dot-like.

*Legs* pale smoky-grey, with the tarsi, the basal extremities of the tibiae and a broad band on the femora slightly darker grey.

*Abdomen.* The latero-dorsal markings of the abdomen are similar in form to those of the meso- and metathorax. On each segment are two broad brownish-crimson blotches leaving narrow areas of ground colour at the sides, the posterior margin and mid-dorsally. The blotches on segment one are smaller than those on the four or five following segments. On segment five the markings tend to fuse across the dorsum, and this fusion is more or less complete on segments six to eight. Segment nine is almost wholly covered by a dark fuscous sclerite, whilst the usual three small blackish, triangular sclerites are present on segment ten.

Laterally the abdomen is yellowish, with an interrupted series of reddish-grey subspiracular markings.

Underside of body pale yellow.

#### PUPATION.

The cocoon is spun from five to seven days after the second ecdysis. It consists of a few irregularly placed supporting strands of white silk, within which is constructed an oval envelope 4.5 mm. long and 2.5 mm. wide. The pupa is quite visible through the cocoon. Pupae obtained on the 21st June, 1933, had darkened in colour by the end of a fortnight, and it appeared that the imagines would shortly emerge as a second brood. This emergence, however, did not materialise, and after remaining alive until the 9th Nov., 1933, all of the pupae died.

#### SUMMARY OF LIFE-HISTORY.

Egg stage	-	-	-	-	-	6—7	days.
First instar	-	-	-	-	-	3—5	„
Second instar	-	-	-	-	-	2—3	„
Third instar or prepupal stage	-	-	-	-	-	5—7	„
Prepupal stage	-	-	-	-	-	15	„
Pupal stage	-	-	-	-	-	?	„

There is at present no record of a second brood, and imagines have been taken only in May, June and July.

#### II.—*Boriomyia betulina* Strøm.

An account of the early stages (together with figures of the larva and cocoon) is given by Strøm (1788) in his original description of the species\* ; but, although of considerable interest, his description of the larva is quite inadequate for present-day needs, and his figures somewhat crude. Withycombe (1923) states that he once took a larva of *B. betulina*, but, being under the impression that he had *B. subnebulosa*, failed to make an adequate description; he did, however, notice that the head markings of the larva differed from those of *subnebulosa*. The most complete account of the life-history yet given is that of Miles (1924), but this again gives no detailed description of the larva. In view of the statement by Miles that 'the larvae did

\* There has been considerable doubt as to whether Strøm's description of *betulina* applied only to one species, and many authors, including myself, have considered that he was probably dealing with both *Hemerobius nervosa* Fabr. and *H. subnebulosa* Steph. Since studying the larvae of both of these species, however, I feel that there can be no doubt but that he was, in fact, dealing only with the former. His figure of the larva, although rather crude, shows a definite attempt to depict the body markings, whereas he leaves the head clear of markings except for some shading at the posterior margin; and it seems certain that, if he had had the larva of *subnebulosa*, he would have indicated the extensive dark pattern of its head. For this reason I no longer hesitate to place *H. nervosa* Fabr. in the synonymy of *betulina* Strøm.

not cover themselves with the skins of their victims, as is the case with many other members of this genus, it is, perhaps, well to point out once again that the habit of carrying débris on the back is confined to the family Chrysopidae, and then only to certain species; no Hemerobiid larva is known to have this habit, neither is the body nor are the setae suitably modified for this purpose.

#### HABITAT AND DISTRIBUTION.

*B. betulina* occurs in deciduous woods, in hedges and in rank herbage. It has frequently been found associated with birch, alder and willow, and the larva has been swept from stinging-nettles infested with aphides. Very occasionally the imago has been beaten from conifers, but it seems unlikely that the species normally passes its life-history on these trees. It has been recorded from gardens (Handlirsch, 1886) and from orchards (Miles, 1924; Lundblad, 1926), but is much less common in such habitats than *B. subnebulosa*.

It has a wide distribution in Europe, extending from Spain, Corsica and Bulgaria in the south to the Arctic Circle in the north. It has been recorded from Madeira, and in the Hope Department, University Museum, Oxford, is a specimen taken in West Greenland (G. Hingston).

In the British Isles it is well distributed, but is a less common species than *B. subnebulosa* in the south of England. In parts of Scotland it has been found in some numbers. It has been recorded from the following counties:

*England and Wales.*—Berkshire, Cambridgeshire, Cheshire, Cornwall, Dorset, Durham, Essex, Glamorganshire, Gloucestershire, Hampshire, Isle of Man, Kent, Lancashire, Lincolnshire, Merionethshire, Northumberland, Nottinghamshire, Oxfordshire, Staffordshire, Suffolk, Surrey, Westmorland, Yorkshire.

*Scotland.*—Argyllshire, Banffshire, Edinburgh, Elgin, Inverness-shire, Perthshire, Ross, Sutherland.

*Ireland.*—Antrim, Armagh, Dublin, Westmeath.

#### OVIPOSITION.

#### EARLY STAGES.

Eggs are laid singly, attached by the dorsal surface, and usually placed on the undersides of leaves close to projecting veins; they may also be laid in the serrations of leaf margins or in the grooves of leaf stalks.

#### EGG (Pl. XIV, Fig. 5).

Length 0.7—0.8 mm.; breadth 0.33—0.4 mm.

Oval, with a small flattened knob-like micropylar projection. Chorion apparently smooth, but under a high magnification it is seen to be densely covered with minute raised granules which give the egg a reticulated appearance. When first laid the

colour is pale cream, the micropylar process white. As hatching approaches the egg becomes a deep pinkish-brown, and the eyes of the embryo become visible first as reddish and then as blackish dots; the micropylar projection, however, remains white, and around this is a pale circular patch where the raised granules are more numerous.

The egg stage lasts seven to ten days (eggs laid in June), or twelve to thirteen days (September and October).

#### LARVA.

The newly-hatched larva is about 1.75 mm. in length. The head is shining pale ochreous tinged with pink; eyes black; jaws pale translucent grey, the mandibles edged externally with pale pinkish-brown; antennae smoky-grey. On the second day the prothoracic sclerites, which at this stage are relatively large, become rather conspicuous as two greyish spots, and the sclerites of the ninth and tenth abdominal segments darken to greyish-brown. The legs are translucent pale grey, darker at the knees and the apices of the tarsi.

The first instar lasts two to three days in summer; in the case of several larvae under observation in October, 1932, the first moult occurred six days after hatching.

In the second instar the markings resemble those of the third, but the colour pattern is less intense. In the summer brood the second moult occurs three to five days after the first; of the autumn larvae referred to above, the length of the second instar varied from fifteen to twenty-one days.

#### *Description of the third instar larva* (Pl. XVII, Fig. 2).

Length when full fed 8—9 mm.

The larvae of *B. betulina* and *B. subnebulosa* are similar in their general appearance, but the body of the former is more speckled and the markings of the head are confined to the posterior portion.

*Head* dusky-yellowish, with two broad fuscous-brown patches on the posterior half extending towards the eyes; these markings are separated by a narrow median line of ground colour. The median elongate wedge-shaped mark so characteristic of most Hemerobiid larvae is very indistinct in *betulina*. Sides of head suffused with grey; underside translucent greyish-white. Eyes black and very conspicuous. Antennae approximately twice as long as the jaws; the basal segment brownish, the second and third blackish, but the second somewhat paler towards the base. Two basal segments of palpi translucent grey, apical segment dark grey. Jaws dusky-yellow, orange-brown apically.

*Body* cream-white to white, extensively mottled with dark reddish- or purple-brown, the largest and darkest markings being arranged as two irregular latero-dorsal bands. The an-

terior margin of the prothorax is cream-white. The latero-dorsal markings begin on the posterior half of the first subsegment as four more or less separated spots; these fuse on the middle subsegment, and show a tendency to suffuse across the dorsum. On the posterior subsegment are four spots, the two outer enclosing the spiracles. The prothoracic sclerites are large, oval, slightly crescentic, shining fuscous-brown plates embedded in the latero-dorsal markings.

The meso- and metathorax are broadly marked with colour, leaving small cream-white circular patches around the bases of the setae, and a narrow median cream-white band. This latter pale band runs from the prothorax to the eighth abdominal segment, but is interrupted by lines of colour at the sutures and folds and by suffusion of the latero-dorsal bands across the dorsum of segments five to eight; it is bisected by the usual pulsating dark line of the dorsal vessel. The meso- and metathoracic sclerites are small and blackish, each surrounded by a narrow pale line.

On the first eight segments of the abdomen the latero-dorsal bands are sinuous, the blotches forming them being placed obliquely; at the sutures and folds, the bands are transversely crossed by black on segments one to five (the metathorax is often similarly marked). At the posterior margin of segments one to eight a narrow line of colour passes laterally along the suture, connecting the latero-dorsal blotches with a spiracular and subspiracular line of paler reddish-brown. The ninth segment carries a transverse, shining, fuscous-brown sclerite which almost covers the dorsum when the larva is at rest. The tenth segment bears three small, narrowly separated, fuscous-brown sclerites.

Laterally a double row of white elongate spots runs along each side of the abdomen from segment one to eight.

Ventrally the body is greyish-white with transverse black intersegmental marks. Segments four to eight of the abdomen are often tinged with red except at the posterior margins; segment nine is fuscous-brown, with a narrow white mid-ventral line; segment ten wholly fuscous-brown.

*Legs* translucent grey; femora broadly shaded with darker grey, and tibiae dark grey basally; tarsi blackish.

Length of third instar to the spinning of the cocoon four to eight days (June), six to ten days (late autumn).

#### PUPATION.

Pupation takes place in a great variety of situations, the chief need being, apparently, a site providing some measure of protection. Galls are occasionally entered by the larva for this purpose: Fletcher (1881) records breeding an imago from a gall of *Andricus terminalis* Fabr., and Handlirsch (1886) states that

a specimen was obtained from the gall of *Cecidomyia rosaria* Löw. In the spring of 1932, Mr. E. E. Green, of Camberley, sent several dead hollow bracken stems containing cocoons, and these produced three *B. betulina*. In May and June of the same year I found a considerable number of cocoons under the loose bark of willows at Oxford; Handlirsch (1886) also found them under the loose bark of a plane tree. Lundblad (1926) records finding three thousand, seven hundred and seventy-one Hemerobiid cocoons, chiefly *B. betulina*, under corrugated paper bands placed round apple trees in Sweden, and a similar observation has been made in this country by Miles (1924). Finally, Cameron (1913) states that pupation occurs at the surface of light sandy soil.

The cocoon consists of an outer network of very fine white silk, with a more closely woven, elongate-oval envelope, measuring 6.5 mm. by 2.5 mm. within; the pupa can be seen quite easily through the two coverings.

The prepupal stage lasts about a week in summer, but in the case of larvae spinning in October and November pupation does not occur until the following March or April; much, however, depends on temperature. The pupal stage varies from ten to fourteen days in summer, and in early spring (overwintered prepupae) from thirteen to eighteen days; but these periods may be prolonged by a cold spell.

The pupa is not remarkable in any way. Several days before emergence the eyes and wings darken, and the final exit is made through an irregular opening cut in one end of the cocoon.

#### CHECKS.

The following parasites have been recorded from this species: *Anacharis ensifera* Wlk., *A. eucharoides* Dalm. (Miles, 1924); *A. typica* Wlk. (in Germany, Handlirsch, 1886); *Aegilips fumipennis* West. (Miles, 1924); *Homocidus* sp. and *Hemiteles* sp. (Killington, 1933).

#### SUMMARY OF LIFE-HISTORY.

The figures in the first column refer to a spring brood (May-June); those in the second to an overwintering brood.

Egg stage	- - - -	7—10 days.	12—13 days.
First instar	- - - -	2—3 "	6 "
Second instar	- - - -	3—5 "	15—21 "
Third instar to prepupal stage	- - - -	4—8 "	6—10 "
Prepupal stage	- - - -	6—8 "	6—7 months.
Pupal stage	- - - -	10—14 "	13—18 days.

There appear to be at least three broods in the year in the south of England, but these are not well defined, and there is

much overlapping; in Scotland it would seem that there are only two broods and that these have a clear gap between them. Imagines occur from early April to late October.

### III.—*Wesmaelius quadrifasciatus* Reut.

#### HABITAT AND DISTRIBUTION.

*W. quadrifasciatus* is always associated with conifers. Larch is undoubtedly a favoured tree, and where this occurs the species may sometimes be taken in large numbers. In May, 1932, over two hundred larvae and pupae were obtained from the lower branches of about a dozen larch trees in a clearing in Tubney Wood, Berks. It also occurs on spruce and Scots pine.

The species is widely distributed in Europe, but does not appear to be generally common. It occurs from the Pyrenees in the west to Hungary in the east, and extends northwards to Scandinavia and Scotland.

In the British Isles it is widely spread in England and Scotland, but it has not yet been recorded from Ireland. I have found it abundant in certain larch plantations in Berkshire and Hampshire, but usually it appears to be somewhat uncommon, occurring in small numbers. It has been noted from the following counties:

*England and Wales.*—Berkshire, Buckinghamshire, Cumberland, Derbyshire, Dorset, Durham, Gloucestershire, Hampshire, Lancashire, Lincolnshire, Merionethshire, Nottinghamshire, Somerset, Staffordshire, Suffolk, Surrey, Yorkshire.

*Scotland.*—Edinburgh, Inverness-shire, Ross.

#### OVIPOSITION.

#### EARLY STAGES.

The eggs are laid singly and placed in crevices of the bark of twigs, or between the scales at the base of the needles. The elongate lobes of the ninth sternite of the female are inserted into these positions and the egg is placed almost out of sight, so that only the anterior micropylar end is visible.

EGG (Pl. XIV, Fig. 4).

Length 1 mm.; breadth 0.45—0.5 mm.

The egg is elongate-oval, but not quite symmetrical, the ventral (upper) surface being more convex than the dorsal, while the posterior end is slightly broader than the anterior. The micropylar projection is very large, rounded and conspicuous, and remains pure white throughout embryonic development. The chorion is covered with minute glassy papillae. When first laid the egg is pale cream, but in a day or two darkens, becoming dark brown, with the exception of the micropylar projection, by the end of the first week.

Eggs laid in mid-August, 1932, remained in this condition until the early spring of 1933, so that both species of *Wesmaelius* are alike in overwintering in the egg stage; this is the only British genus in which this is known to occur.

#### LARVA.

The first instar larva has not been seen, the eggs obtained having been damaged in an attempt to photograph them just before hatching.

Second instar larvae were obtained in mid-April, 1933, and apart from a generally paler coloration did not differ from third instar larvae.

#### *Description of third instar larva* (Pl. XVI, Fig. 2).

Length when full fed 9—10 mm.

Head almost entirely blackish-brown; body cream-white with two irregular deep chocolate-brown latero-dorsal bands. Very similar to the larva of *W. concinnus*, but differs from it in having the anterior subsegments of the abdomen pale laterally.

*Head* with a very dark blackish-brown, wedge-shaped median band arising just before the middle of the posterior margin and broadening to the anterior margin between the jaws. Sides of head behind the eyes broadly blackish-brown; on the back of the head these lateral markings expand, but leave a narrow pale space behind the apex of the median mark. Behind the antennal bases and between the median and lateral markings are two small rather indistinct wedges of blackish-brown. All of these markings are separated from one another by narrow lines of dusky yellow. Jaws blackish, tinged apically with orange-brown. Palpi reaching almost to the tips of the jaws, translucent grey, the distal segment darker. Antennae a little longer than the jaws, blackish. Underside of head pale cream, marked at the sides with blackish-brown.

*Thorax.* Prothorax pale cream-white with two more or less regular and subparallel chocolate-brown latero-dorsal bands running the whole length of the two anterior subsegments; in the middle subsegment, embedded in the bands, are two shining black, elongate-oval and slightly crescentic sclerites, narrowly edged internally with cream-white. Posterior spiracular subsegment almost wholly cream-white.

The latero-dorsal bands are represented on the large subsegments of the meso- and metathorax by two large irregularly triangular blotches, their apices directed backwards. Laterad to each blotch, and usually connected to it anteriorly and posteriorly to enclose an elongate spot of ground colour, is a narrow curved line of paler brown. Embedded in the latero-dorsal markings of each segment is a pair of small, round, black sclerites, narrowly edged with cream-white.

The thorax is often marked with brown around the bases of the coxae.

A dark median pulsating line, the dorsal vessel, begins on the prothorax or on the mesothorax and is continued along the body to the eighth abdominal segment.

*Legs* blackish-grey, femora pale apically.

*Abdomen* cream-white with a pair of large latero-dorsal blotches on each of the first eight segments; the pale ground colour of the median area expands laterally on the posterior portion of each of these segments and may completely isolate the blotches of one segment from those of the next. On the anterior subsegments the latero-dorsal blotches do not run solidly down the sides as in *W. concinnus*. Segment nine with a dark fuscous transverse sclerite, and segment ten with three smaller triangular fuscous sclerites, two placed laterally and the third posteriorly. A longitudinal brown line runs through the spiracles, and below this is a subspiracular line, the two often transversely connected by brown colouring along the sutures and folds, forming two lateral series of cream-white spots.

Ventrally the abdomen is greyish-white, tinged faintly with reddish-brown, or there may be pale reddish-brown transverse bands on the anterior portions of segments one to eight.

Length of third instar to the spinning of the cocoon, five to eight days.

#### PUPATION.

The cocoon (Pl. XV, Fig. 3) resembles that of *W. concinnus*. There are two distinct envelopes of coarse yellowish silk: the outer is loosely spun with a wide mesh, and its form and size varies according to the position of the cocoon; the inner is oval, more closely woven, and measures about 6 mm. by 3.5 mm. The pupa or prepupa is easily visible through both coverings.

Many cocoons were found on larch in 1932 and 1933, and these were spun in the following situations:

(a) In the centre of needle clusters. This was the most usual position.

(b) On slender twigs at the bases of the scaly excrescences from which the needles arise; usually some of the needles were incorporated in the outer envelope.

(c) More rarely in crevices of bark and in the forks of twigs.

In the two latter positions two, three or four cocoons were frequently in contact. The toughness of the silk of these structures is evidently sufficient protection against wind and rain, for although so exposed to weather, cocoons of previous years were often found, still intact and recognisable.

The prepupal stage lasts from five to seven days.

The pupa is typical (Pl. XV, Fig. 4).

Emergence of the imago takes place ten to fourteen days after pupation.

## CHECKS.

Two parasites, both Ichneumons, have been recorded from this species, viz. *Hemiteles rubripes* Thoms. and *H. wesmaelii-cida* Rom. (Killington, 1933, 1934).

## SUMMARY OF LIFE-HISTORY.

Egg stage	-	-	-	-	-	7—8 months.
First instar	-	-	-	-	-	?
Second instar	-	-	-	-	-	?
(Larvae in this stage taken in April.)						
Third instar to prepupal stage	-	-	-	-	-	5—8 days.
Prepupal stage	-	-	-	-	-	5—7 „
Pupal stage	-	-	-	-	-	10—14 „

There is only one brood in the year, the imagines occurring from May to August.

IV.—*Megalomus hirtus* Linnaeus.

## HABITAT AND DISTRIBUTION.

*M. hirtus* is found in low herbage. J. J. F. X. King (1917) took a short series by sweeping along cliffs, and more recently K. J. Morton (1931 *b*) has obtained it in some numbers by sweeping grass, thyme, wood-sage and other low plants on rock masses at the foot of cliffs and in similar situations; the majority of Mr. Morton's specimens were taken from wood-sage.

The exact distribution abroad is uncertain, as the different species of *Megalomus* do not appear to be well understood. It is, however, decidedly uncommon. Stitz (? 1927) states that it occurs from Spain to Scandinavia and Finland; McLachlan records it from the Tyrol, Germany and Switzerland; while I possess examples from the Pyrenees and the Basses Alpes in France.

In Britain the species is extremely rare and has been noted only from Exeter, Devon (Parfitt, 1879), and one or two localities on the east coast of Scotland. Parfitt's record needs confirmation. In Scotland a few specimens have been taken at Muchalls, Kincardineshire (J. W. H. Trail, J. J. F. X. King); one at Duddingston, near Edinburgh (J. C. Dale); a number in several localities in the neighbourhood of Edinburgh (K. J. Morton).

## OVIPOSITION.

## EARLY STAGES.

From three females kindly sent to me by Mr. Morton early in June, 1933, some thirty eggs were obtained. When received all the females had the abdomen greatly distended with eggs. They were placed in large glass tubes with a variety of plants infested with aphides, but did not begin to oviposit until the end of a fortnight. Eggs were laid singly, mainly on the undersides of the leaves of wood-sage, but occasionally on the uppersides.

and on the leaf-stalks, the dorsal surface attached to the leaf or stalk.

EGG (Pl. XIV, Fig. 3).

The eggs vary slightly both in size and shape. Of thirty eggs measured, the smallest was 0.81 mm. in length and 0.45 mm. in breadth, the largest 0.91 mm. in length and 0.45 mm. in breadth.

Oval, the length being approximately twice the greatest breadth. Colour cream-white with a tinge of pale biscuit-brown. Under a low magnification the chorion appears smooth; but is seen to be covered with closely placed raised granules when examined with a higher power. The micropylar projection is a white, flattened, round disc, slightly depressed in the centre.

On the tenth or eleventh day the embryonic eyes are visible through the chorion as two clusters of orange-brown spots near the micropyle. Before hatching the eye-spots turn blackish, and the upturned portion of the abdomen can be seen; at this stage the egg is pinkish-brown.

Hatching occurs on the seventeenth or eighteenth day after oviposition.

LARVA.

The larva of this species differs from all other known larvae in markings, in the form of the antennae and palpi, in the apparent absence of latero-dorsal prothoracic sclerites, and, in the later stages, in the greater number of body setae. These characters are discussed in the description of the third instar larva.

In the newly-emerged larva (Pl. XV, Fig. 2) the dorsal surface of the head is almost entirely smoky-grey. A pale, almost colourless Y-shaped line runs from the middle of the posterior margin, its arms curving towards the lateral prominences from which the antennae arise; at their anterior ends, between these prominences, the arms of the Y are connected by a slightly curved transverse pale line so that a median, shield-shaped, dark area is marked off. The sides of the head and the portion before the transverse line are darker than the median area. Jaws of a translucent grey, orange-brown apically. Antennae pale smoky-grey. Eyes blackish and rather prominent. Palpi translucent pale grey, the two basal segments narrowly annulated with blackish.

The body is a pale biscuit colour, the abdomen very faintly marked latero-dorsally with brown; ninth segment with a pale grey transverse dorsal sclerite; tenth with three dark grey dorsal sclerites, two placed laterally and one apically.

Legs grey; the tarsi, as in other first instar Hemerobiid larvae, with two simple curved claws and an elongate trumpet-shaped empodium.

On the second day the jaws become smoky-grey except at the apex, the antennae darken, and the body is dark in the region of the mid-gut due to the food-contents. The sclerites of the ninth and tenth abdominal segments also darken.

The first moult occurs seven to nine days after hatching.

At first the second instar larva closely resembles that of the first instar. The mid-gut region is still the darkest part of the body, but on segments five to eight of the abdomen there are transverse greyish-brown markings which are most distinct near the posterior margins of the segments. Towards the end of the instar the gut contents show less plainly and the colour pattern of the third instar develops.

The second moult takes place on the ninth day after the first.

*Description of third instar larva* (Pl. XVII, Fig. 1).

Length when full fed about 9 mm.

The head is almost wholly dark fuscous, the body dull reddish-brown with a narrow cream longitudinal median band along the dorsum and less noticeable small cream latero-dorsal markings; the posterior half of the body is more decidedly reddish (less greyish) than the anterior half. When the larva is at rest the head is usually strongly retracted into the prothorax so that only the anterior margin is visible.

*Head* broad, rounded anteriorly, scarcely narrowed posteriorly. Dorsum fuscous, somewhat darker at the sides behind the eyes; a median, elongate, shield-shaped area is marked off as in the first instar; behind the eyes there is a small pale mark. Eyes black, rather prominent. Antennae longer than the head, blackish, the three segments very different in form; basal segment short, stout and cylindrical; second segment elongate, more slender than the first and about five times as long, tapering slightly towards the apex; third segment scarcely longer than the first, but very slender, bearing at its apex several minute outstanding hairs and a terminal bristle as long as the segment (Pl. XIV, Fig. 1A). Palpi with the two basal segments very short and annulated with blackish; distal segment translucent pale grey, very long and swollen, fusiform, the apex pointed and projecting beyond the tips of the jaws (Pl. XIV, Fig. 1B). Jaws stout, shorter than the head, grey, with the apices orange-brown.

*Thorax.* When the larva is at rest the first subsegment of the prothorax appears almost wholly dull reddish-brown, usually with a narrow cream space at the centre, but when fully extended the anterior portion of the subsegment is seen to be cream and shows conspicuously pale behind the dark head. The large middle subsegment of the prothorax is largely reddish-brown, with the anterior margin, a median longitudinal band and latero-dorsal markings cream. The posterior, spiracle-bearing

subsegment is broadly reddish-brown latero-dorsally, cream at the centre and at the sides. The prothoracic sclerites, which are a conspicuous feature of other Hemerobiid larvae, are not visible in *M. hirtus*.

Meso- and metathorax similarly marked, with two rather large blackish-brown latero-dorsal blotches on the anterior portion of the segment and two smaller spots near the sclerites. Each of these two segments bears a pair of very small black sclerites.

*Legs* translucent smoky-grey, with transverse black thickenings at the joints; tibiae somewhat darker basally; tarsi, as in other genera, with two simple curved claws and a small pad-like empodium.

*Abdomen* with the markings of the first eight segments similar to those of the metathorax, but the latero-dorsal markings become paler and more reddish towards the eighth segment. Laterally on each of the first four or five segments a cream line curves from the posterior margin towards the spiracle, and may run into a small pale spot which surrounds the spiracle. From the fourth to the eighth segment the colour is more suffused, the pale areas being thus less apparent. The ninth segment bears a dark grey transverse sclerite, and the tenth three blackish sclerites as in the first instar. Below the spiracles the abdomen is broadly marked with reddish-brown, with a varying amount of black at the sutures. Both the thorax and abdomen are more abundantly provided with setae than in other genera.

Underside of the body cream, suffused laterally with pale reddish-brown on the thorax, and transversely shaded with the same colour on the abdomen; segments five to nine may be almost wholly reddish-brown. Segment ten carries a black median ventral sclerite.

#### PUPATION.

The cocoon is spun seventeen to nineteen days after the second moult. All the larvae kept in captivity have spun between the corks and the sides of the glass tubes in which they were confined, first constructing an open framework of supporting strands from glass to cork and then, within this, spinning an oval envelope 6.5 mm. long and 3 mm. wide. The silk used is white and very fine, the network very open, and the whole structure is the flimsiest cocoon known to me.

The prepupal stage lasts seven to nine days.

The pupal markings resemble those of the larva, although the thorax is much paler, the wing-cases pale cream, the palpi, antennae and legs colourless. Strong, internally lobed jaws are present, and the third and fourth abdominal segments are each provided with two pairs of chitinised dorsal hooks. A few days before metamorphosis the wing-cases darken and finally appear

blackish, and the body colour of the imago becomes visible. The pupa escapes from the cocoon through an irregular hole cut in one end.

The pupal stage lasts from thirteen to fifteen days (second brood). About half of the larvae under observation, however, had not pupated by November, 1933, and were apparently going to overwinter before spinning; unfortunately these died during the winter. The second brood may thus be only a partial one.

#### SUMMARY OF LIFE-HISTORY.

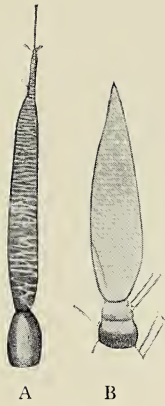
##### Second brood (eggs laid in June).

Egg stage	-	-	-	-	17—18	days.
First instar	-	-	-	-	7—9	„
Second instar	-	-	-	-	9	„
Third instar to prepupal stage	-	-	-	-	17—19	„
Prepupal stage	-	-	-	-	7—9	„
Pupal stage	-	-	-	-	13—15	„

#### REFERENCES.

- CAMERON, A. E. 1913. General survey of the insect fauna of the soil within a limited area near Manchester: a consideration of the relationships between soil insects and the physical conditions of their habitat. *Journ. Econ. Biol.*, **8**: 159-204.
- FLETCHER, J. E. 1881. Additions to the Casual Inhabitants of Galls. *Entomologist*, **14**: 21.
- HANDLIRSCH, A. 1886. Die Metamorphose zweier Arten der Gattung *Anacharis* Dalm. *Verh. k.-k. zool.-bot. Gesell. Wien*, **36**: 235-237.
- KILLINGTON, F. J. 1933. The parasites of Neuroptera with special reference to those attacking British species. *Trans. Ent. Soc. S. Eng.*, **8** (2): 84-91.
- 1934. Hymenopterous parasites bred from Hemerobiidae (Neur.) in 1933. *Journ. Soc. Brit. Ent.*, **1** (1): 6-7.
- KING, J. J. F. X. 1917. Occurrence of *Megalomus hirtus* L. in Kincardineshire. *Ent. Mon. Mag.*, **53**: 87.
- LUNDBLAD, O. 1926. Några försök med fångstgördlar mot äpplevecklaren (*Carpopapsa* [*Laspeyresia*, *Cydia*] *pomonella* L.). *Medd. Centralanst. försöks. jordbruks.*, no. 298 [Ent. avdel. no. 48].
- MCLACHLAN, R. 1868. A Monograph of the British Neuroptera-Planipennia. *Trans. Ent. Soc. Lond.*, **1868**: 145-224.
- MILES, H. W. 1924. On the Life-history of *Boriomyia* (*Hemerobius*) *nervosa* Fab. (Planipennia, Hemerobiidae). *Bull. Ent. Res.*, **14** (3): 249-250.
- MORTON, K. J. 1931a. *Hemerobius perelegans* Stephens: a good species. *Entomologist*, **64**: 197-201.
- 1931b. *Megalomus hirtus* Linn. at Edinburgh. *Ent. Mon. Mag.*, **64**: 233-234.
- PARFITT, E. 1879. The Fauna of Devon. Neuroptera. *Rep. and Trans. Devonshire Assoc. Adv. Sci., Lit., and Art.*, **11**: 403-407.
- STEPHENS, J. F. 1836. *Illus. Brit. Ent.*, Mand., **6**.
- STITZ, H. ? 1927. Die Tierwelt Mitteleuropas, **6** (1). Netzflügler.
- STRØM, H. 1788. Nogle Insect-Larver med deres Forvandlinger. *Nye Saml. Kong. Norske Vid. Selsk. Skr.*, **2**: 375-400.
- WITHYCOMBE, C. L. 1923. Notes on the biology of some British Neuroptera (Planipennia). *Trans. Ent. Soc. Lond.*, **1922**: 501-594.

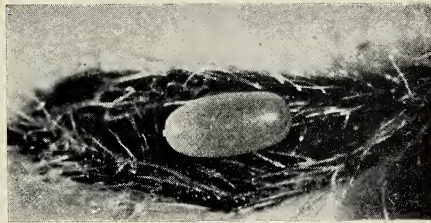
PLATE XIV.



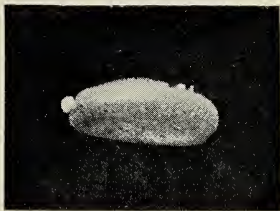
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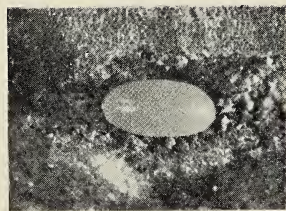
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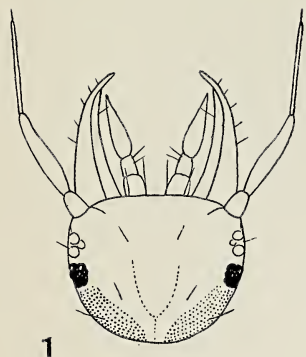
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FIG. 1.—*Megalomus hirtus* Linn. A—Antenna of second instar larva; B—palpus of second instar larva. FIG. 2.—*Wesmaelius quadrifasciatus* Reut. A—Antenna of third instar larva; B—basal portion of second segment of same, more enlarged, to show thickenings. FIG. 3.—Egg of *Megalomus hirtus* Linn. FIG. 4.—Egg of *Boriomyia betulina* Ström. FIG. 5.—Egg of *Wesmaelius quadrifasciatus* Reut.

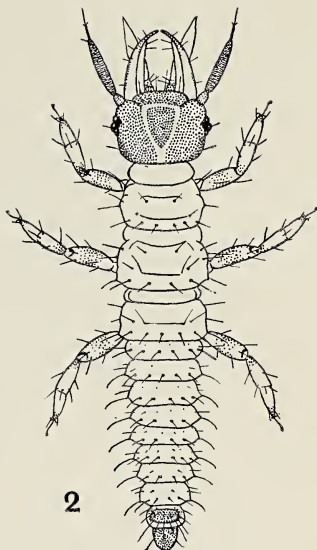
[Figs. 1 and 2, F. J. Killington del. Figs. 3 and 5 from photographs by L. A. Clinkard, Imperial Forestry Institute, Oxford. Fig. 4 from a photograph by W. H. Pratt, Nottingham.]



PLATE XV.



1



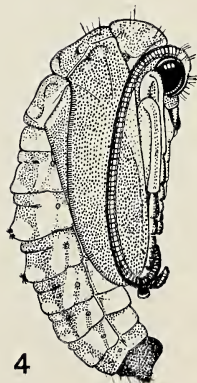
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5



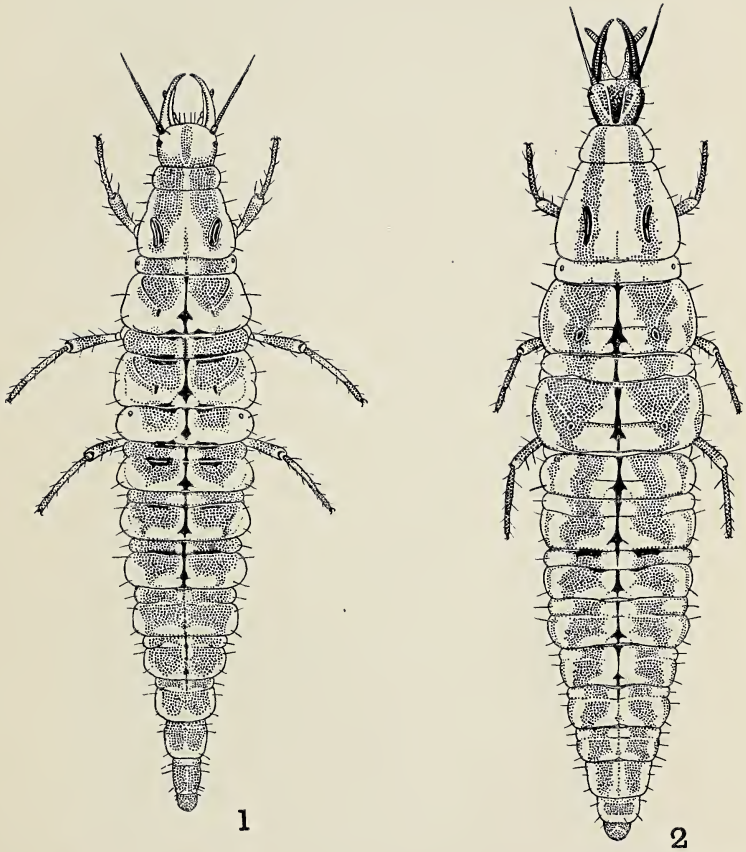
4

F. J. Killington del.

- FIG. 1.—*Hemerobius perelegans* Steph. Head of first instar larva about to undergo ecdysis. The head has moved backwards within the old skin and the black eyes are seen to be behind their previous coverings.
- FIG. 2.—*Megalomus hirtus* Linn. First instar larva, first day.
- FIG. 3.—*Wesmaelius quadrifasciatus* Reut. Cocoon in cluster of larch leaves.
- FIG. 4.—*Wesmaelius quadrifasciatus* Reut. Pupa.
- FIG. 5.—*Wesmaelius quadrifasciatus* Reut. Dorsal hooks on abdomen of pupa.



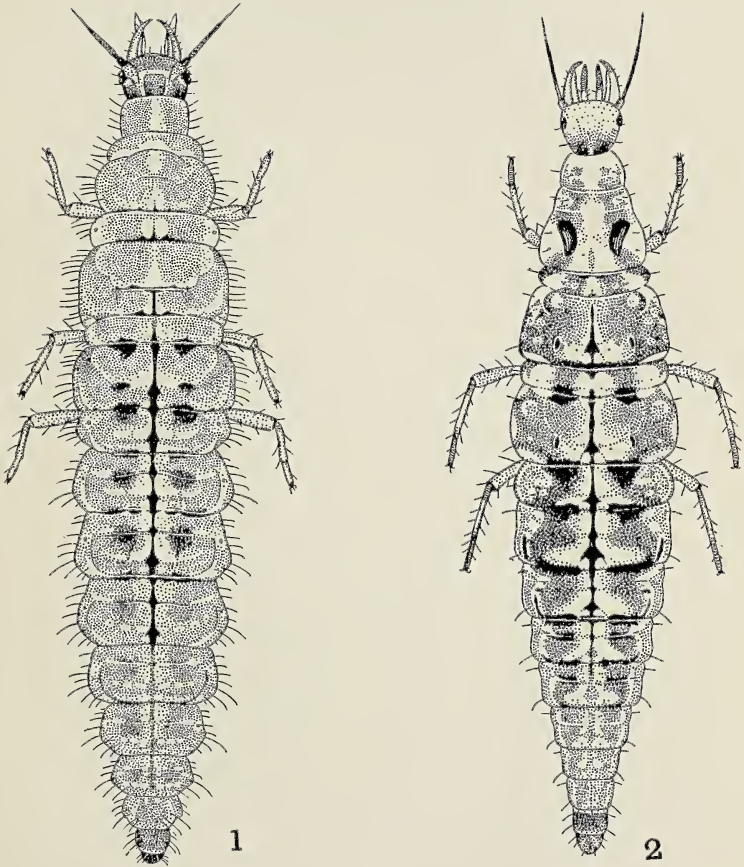
PLATE XVI.



F. J. Killington del.  
FIG. 1.—Third instar larva of *Hemerobius perelegans* Steph.  
FIG. 2.—Third instar larva of *Wesmaelius quadrifasciatus* Reut.



PLATE XVII.



F. J. Killington del.

FIG. 1.—Third instar larva of *Megalomus hirtus* Linn.

FIG. 2.—Third instar larva of *Boriomyia betulina* Strøm.



## NOTES ON THE VARIATION OF THE ICHNEUMONIDS, *ANGITIA CEROPHAGA* GRAV., & *A. FENESTRALIS* GRAV. (HYM.).

By D. O. BOYD, B.Sc., D.I.C.  
(Dept. of Entomology, Reading University.)

Several species of the genus *Angitia* (subfam. Ophioninae) are well known to be variable, not only in taxonomically unimportant characters, but also in those which some authors have used to separate species.

For the present study two batches of insects, bred in 1932 and 1933 from *Plutella maculipennis* Curt. (Lep., Plutellidae) on cabbage at the Imperial College Field Station, were used. The commoner species was *A. cerophaga*, of which 125 females and 134 males were obtained. There were 17 females and 9 males of *A. fenestralis*. The males of these species are only separable with difficulty.

I am much indebted to Mr. J. F. Perkins for pointing out how the two species may be separated. Dr. O. W. Richards kindly supplied the bred material. My thanks are also due to Prof. J. W. Munro for extending to me the laboratory facilities of the Imperial College Field Station, and to Mr. W. E. H. Hodson for laboratory facilities.

### THE SEPARATION OF THE FEMALES.

#### *A. cerophaga.*

1. Recurrent nerve received beyond the centre of the areolet (Pl. XVIII, Fig. 1).
2. Ovipositor shorter. (Length of ovipositor palps about 0.85 mm.)
3. Fore coxae mainly yellowish.
4. Pterostigma more or less darkened; at any rate with dark margins on all sides.

#### *A. fenestralis.*

1. Recurrent nerve received at, or before, the centre of the areolet (Pl. XVIII, Fig. 2).
2. Ovipositor longer. (Length of ovipositor palps about 1.25 mm.)
3. Fore coxae entirely, or mainly, black.
4. Pterostigma pale whitish yellow, even the costal margin hardly darkened.

In the males of both species the fore coxae are much more largely yellow than in the females. Some males with the areolet character of *A. fenestralis* have the fore coxae only blackened proximally. Such specimens have a paler pterostigma than the

males of *A. cerophaga*. In the males of that species the pterostigma is quite often brownish and always has at any rate narrow dark margins.

#### METHOD OF STUDY.

Each individual was examined, and the condition of the following characters tabulated:— 1, The shape of the areolet. 2, The size and position of the fenestrae in the disco-cubital and recurrent nerves. 3, The number of segments in the antennae. 4, The colour of the legs. 5, The colour of the abdomen.

The following statements refer to females of *A. cerophaga* unless otherwise indicated.

#### VARIATION ENCOUNTERED.

##### 1. *The Areolet.*

The shape varies considerably, particularly as regards the length of the areolar petiole. The following classes could be recognised, though intergrading:

##### (a) Areolet almost pentagonal (Pl. XVIII, Fig. 3).

<i>A. cerophaga</i> females	None.
<i>A. cerophaga</i> males*	1 (0.77% of specimens).
<i>A. fenestralis</i> females	None.
<i>A. fenestralis</i> males	None.

##### (b) Areolet sesile (Pl. XVIII, Fig. 4).

<i>A. cerophaga</i> females	10 (4.69% of specimens).
<i>A. cerophaga</i> males*	22 (16.79% of specimens).
<i>A. fenestralis</i> females	2 (11.77% of specimens).
<i>A. fenestralis</i> males	7 (22.27% of specimens).

##### (c) Areolet petiolate (Pl. XVIII, Figs. 1 and 2).

<i>A. cerophaga</i> females	113 (95.31% of specimens).
<i>A. cerophaga</i> males*	108 (82.44% of specimens).
<i>A. fenestralis</i> females	15 (88.23% of specimens).
<i>A. fenestralis</i> males	7 (77.78% of specimens).

Among the females of *A. cerophaga* two abnormal specimens were encountered (and were not included in the figures above). One had the right areolet petiolate and in the left wing no closed areolet—an extreme form of the petiolate type (Pl. XVIII, Fig. 5). The other had the right areolet petiolate and the left sessile.

Three abnormal specimens occurred among the males of *A. cerophaga* (and were also excluded from the above figures). Two of these had the areolet of the right wing petiolate and the left

\* Specimens marked thus are almost certainly *A. cerophaga*. Certain individuals, however, show rather indefinite characters, although on the whole they appear closer to *A. cerophaga* than to *A. fenestralis*.

sessile. The third had the right areolet sessile and the left almost pentagonal.

The separation of *A. cerophaga* from *A. fenestralis* by means of the areolet can only be attempted when the latter is more or less normally developed.

### 2. *The Fenestrae.*

These are the small unpigmented regions occurring in the disco-cubital and recurrent nerves (Pl. XVIII, Figs. 1 and 2). It is possible that they indicate where the wing was folded in the pupa. In both species the fenestrae are variable in length and in the distance separating them from the nearest point of the areolet.

### 3. *The Antennae.*

Variation in the number of segments encountered is shown in Tables 1 and 2.

Table 1.—*A. cerophaga.*

Number of segments.	Female specimens.		Male specimens.*	
	Number.	Percentage.	Number.	Percentage.
24	5	4.32%	1	0.80%
25	69	59.47%	8	6.45%
26	42	36.21%	59	47.58%
27	—	—	49	39.52%
28	—	—	7	5.65%
29	—	—	—	—

Table 2.—*A. fenestralis.*

Number of segments.	Female specimens.		Male specimens.	
	Number.	Percentage.	Number.	Percentage.
24	—	—	—	—
25	9	33.34%	—	—
26	16	59.25%	—	—
27	2	7.41%	1	10.00%
28	—	—	5	50.00%
29	—	—	4	40.00%

*Note.*—In Table 2 the number of specimens examined was increased from 26 to 37, by the addition of figures relating to the

\* See footnote to p. 136.

number of antennal segments in 1 male and 10 females bred in 1934, from the same host and locality. These figures were recently received from Dr. O. W. Richards, and included in the table to increase its significance.

#### 4. *The Legs.*

The most important variation in the leg colour occurs in the fore and mid-coxae, and is best seen in Table 3.

Table 3.

Species and sex.	Fore coxae.	Mid coxae.	Hind coxae.
<i>A. cerophaga</i> males.	Always almost entirely yellow.	Darkened proximally—30 (22.55%). Entirely yellow—103 (77.45%).	Always entirely dark.
<i>A. cerophaga</i> females.	Darkened proximally—72 (57.59%). Entirely yellow—55 (42.41%). (Rarely darkened for more than the proximal half. Actually only two were marked in this way.)	Darkened proximally—104 (83.20%). Entirely dark—21 (16.80%). (Rarely less than the proximal half dark.)	Always entirely dark.
<i>A. fenestralis</i> males.	Entirely yellow—7 (77.78%). Darkened proximally—2 (22.27%). (Never darkened for more than the proximal quarter.)	Always darkened proximally.	Always entirely dark.
<i>A. fenestralis</i> females.	Darkened proximally—7 (41.18%). Entirely dark—10 (58.82%). (Never darkened for less than the proximal three-quarters.)	Always entirely dark.	Always entirely dark.

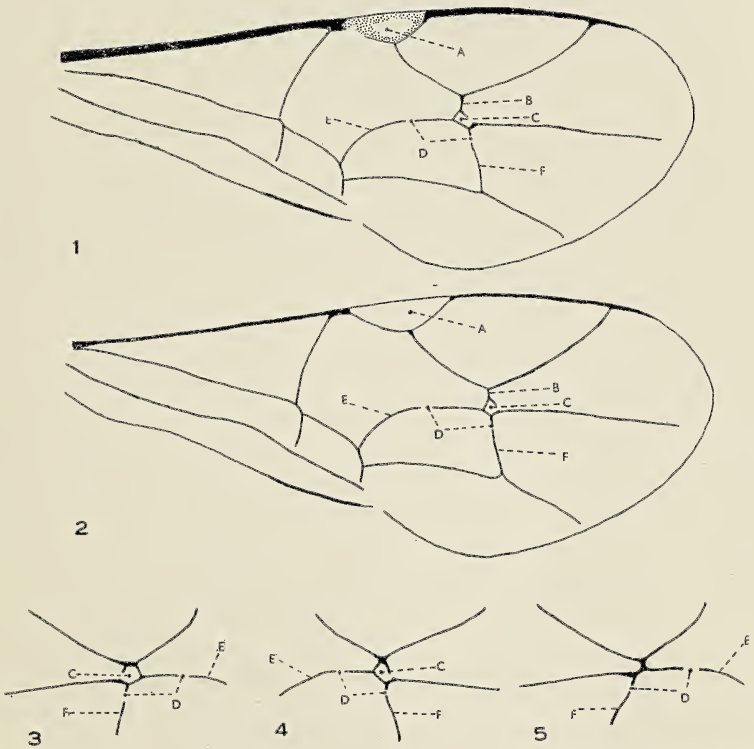
NOTE.—The figures for *A. fenestralis* in this table are not so reliable as those for *A. cerophaga*, as the number of specimens of the former species available was small.

The colouring of the other parts of the legs does not show significant variation. It is usually constant, except for slight variations in the depth and extent of the markings on the first trochanters (of all legs), femora, and tibiae.

#### 5. *The Abdomen.*

The abdomen is black. On the second tergite there occur two relatively unpigmented areas, in dried specimens often appearing as reddish marks. Sometimes this pale area is divided by a black streak. This is one of the ventral sclerites brought close to the dorsal surface of the abdomen in the course of drying.

PLATE XVIII.



D. O. Boyd del.

FIG. 1.—Right wing of *A. cerophaga* Grav.

FIG. 2.—Right wing of *A. fenestralis* Grav.

FIG. 3.—Areolet from left wing of *A. cerophaga* Grav.

FIG. 4.—Aerolet from right wing of *A. cerophaga* Grav.

FIG. 5.—Aerolet from left wing of *A. cerophaga* Grav.

NOTATION.—(A) Pterostigma. (B) Petiole. (C) Areolet. (D) Fenestrae.  
(E) Disco-cubital nerve (Schmiedeknecht). (F) Second recurrent  
nerve (Schmiedeknecht).



ENGLISH NAMES REGULARLY USED FOR  
BRITISH LEPIDOPTERA UP TO THE END OF  
THE EIGHTEENTH CENTURY, WITH A BIO-  
GRAPHICAL ACCOUNT OF WILLIAM JONES  
OF CHELSEA.

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Lond., Corpus Christi College, Oxford; and H. M. EDELSTEN,  
F.R.E.S.

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I. WILLIAM JONES OF CHELSEA.

By E. B. POULTON.

A brief but excellent account of the life of this great and insufficiently appreciated naturalist (Pl. XIX) was published, eleven years after his death in 1818, by Thomas Faulkner, in the second edition of his historical and topographical description

of Chelsea.<sup>1</sup> Inasmuch as this work may not be readily accessible to many readers, I venture to reprint the whole passage :—

‘WILLIAM JONES, ESQ., AGED 83.<sup>2</sup>

‘This gentleman, who resided at No. 10, in Manor Street, had retired to Chelsea, after having realized a handsome fortune as a wine merchant in London. His learning and abilities were of the most superior order; he was eminently skilled in the Hebrew and Greek languages, and possessed a happy talent of poetical composition. But it is in the character of a naturalist that he must be principally regarded, Mr. Jones having painted from nature about fifteen hundred species of butterflies, in the most masterly and elegant manner, and not only painted but arranged and characterised them in the Latin language in the Linnean manner; and to these he added about five hundred more from the works of Cramer, Esper, and others. These drawings were so much admired by the celebrated Fabricius, that during his journies to England and his examinations of the Entomological cabinets of London, he described from the above-mentioned drawings a great many; and in the last journey alone, above two hundred new species, which he named, described, and published, and which drawings were the original authority for the same. These paintings still exist with his heir, in four [six] quarto volumes. He further collected, personally, about eight hundred species of *British Lepidoptera*, in the

<sup>1</sup> T. Faulkner, 1829, ‘An historical and topographical description of Chelsea, and its environs; interspersed with biographical anecdotes of illustrious and eminent persons who have resided in Chelsea during the three preceding centuries,’ 2nd Edn., London, 2: 84, 85.

The silhouette on Pl. XIX is reproduced (enlarged to rather over 1½) from the original presented to the Hope Dept. by Dr. F. D. Drewitt. The following printed advertisement fixed to the back of the frame records the name of the artist.

‘LIKENESES Taken, in Miniature, profile and finished, on Glass, with Gold Ground. Also Coats of Arms, Crests, Cyphers, Writing, or any Sort of Device, wrought in the above Manner, by a Method entirely new. Persons having Likenesses, in Shade, of their deceased Friends, may have them reduced, and emblematically represented in a curious Manner. Large Shades reduced within the Compass to be worn in a Ring, or Bracelet, finished in an elegant Manner on Ivory, or Paper; and Profiles accurately copied, by T. RIDER, No. 8, Charles-Street, Covent-Garden.’

<sup>2</sup> Dr. F. D. Drewitt has kindly ascertained from St. Luke’s Vestry, London, S.W.3, that William Jones was buried in the Churchyard on 1 April, 1818, and that his age is recorded as 68—a wide divergence from Faulkner’s statement. The Churchyard is now a playground with the tombstones arranged in rows. Most of the inscriptions have perished and no further information could be derived from this source.

The following addresses appear on letters from Jones’ friends and (the last two) in the 1792-1818 lists of the Linnean Society:—Grange Walk, Bermondsey, Southwark (1786-8); Great Cheyne Row (1789-94); Manor Street (1796-1818). I have not found any other mention of L. Sloane Street, recorded in St. Luke’s Register.

vicinity of London, which was one of the best collections of the day; and in point of neatness, arrangement, and excellence of condition, yielded to none. No small praise is due to Mr. Jones for having, by his instruction, produced one of the most able and skilful entomologists of the present age, who has expressed his gratitude to his master in the glowing language of affection and esteem.<sup>3</sup> He painted in oil very successfully, which the various pictures that adorned his house abundantly testified. In his manners, he was amiable, mild, fluent, and instructive, eminently just and pious, and in the latter part of his life favoured the doctrines of Emanuel Swedenborg.'

A very interesting brief record of William Jones' life and interests is given<sup>4</sup> by his collateral descendant, Dr. F. Dawtrey Drewitt, D.M., F.R.C.P., of Christ Church, Oxford, who presented the precious six volumes of 'Jones' Icones,' his collection, and many valuable manuscript notebooks to Oxford University; also some of the materials with which the beautiful and enduring work was done, as explained in a note on p. 89 of 'The Apothecaries' Garden': 'The water-colour drawings, known to entomologists as "Jones' Icones," have not faded—some of the half-used cakes of colour have Chinese stamps on them, showing their origin.' Referring to these paints, my kind friend the author wrote: 'If J. W. M. Turner had used them instead of more modern ones possibly his grand water-colour drawings would not have faded.'

The generous donor has also presented to Oxford the originals of three letters written to William Jones by his friend Sir J. E. Smith, the founder of the Linnean Society. In the above-mentioned work Dr. Drewitt has published a large part of these letters and of Jones' replies which appear in the correspondence of Sir J. E. Smith.<sup>5</sup> Somewhat fuller quotations, printed below, reproduce nearly the whole of every passage

<sup>3</sup> 'These public testimonials of my gratitude, however, are in a more especial manner due to my much esteemed and very able preceptor in the science of entomology, W. Jones, F.L.S., to whom my best thanks, and best wishes, are but a feeble and inadequate return for the extensive sum of instruction which has emanated from that respected friend towards his edified and grateful pupil.—*Haworth, Lep. Brit. prefat.*, p. 30.' Many other references to his 'tutor in Entomology,' 'friend and Tutor,' or 'respected tutor,' appear in the body of the work (pp. 57, 91, 198, 201, 264, 269, 300, 353). Specimens in Jones' collection are quoted as 'In Musæo D. [Domini] Jones' (pp. 468, etc.), and 'In Museo amicissimi mei D. Jones' (p. 119).

<sup>4</sup> 1928, 'The Romance of the Apothecaries' Garden at Chelsea,' 3rd Edn., Cambridge: 89-91, 101-6.

<sup>5</sup> 1832, 'Memoir and correspondence of the late Sir James Edward Smith, M.D. Edited by Lady Smith,' London, 1, 2. William Jones is described in this work as 'An excellent entomologist, well known in the scientific world, though, like other men of superior genius, modest and retiring from the observation he so well deserved.' (Vol. I, p. 174, n.)

referring to the proposed Society in the letters which passed between the two friends, beginning with J. E. Smith's letter, dated 8 Sept., 1786, from Paris:—

'I have had a letter from Mr. Marsham.<sup>6</sup> . . . He is very anxious about the success of our new society, which however I think had better be kept quite in embryo at present; I have every day more reason to think it likely to become very respectable, and have it constantly in view: I rely on you to be one of its chief supports: in the mean time I wish you would minute down any thing that comes into your mind respecting it, that we may all lay our heads together, and not do anything unwisely or hastily.'

William Jones replied on September 20:—'Mr. M[arsham], as you say, I find very anxious about the success of the new society.' Then follows a long paragraph advising caution, and ending: 'I have been united in societies of various kinds, and have been heartily vexed and dissatisfied. Omit it a few years: at the end of the first weigh every objection, and demur a little, and I think that afterwards the spirit of procrastination will increase; yet I would not have the thought wholly laid aside. We may enjoy every satisfaction from each other's information and company, as we might have done in society, and this by a breakfast to our select friends, once a quarter, either by you, or alternately as agreed. By this will be discoverable the probable success of such a society; and if it ever matures, let it come forth. Even the idea of associating should be foreign to our first purposes, and only meet as select friends. Under this view we raise no envious spirit against us from the present existing society; and prevent in future that acrimony which, I am sorry to say, exists too much amongst ingenious<sup>7</sup> people. In short, I am horribly afraid of a wasp's nest. St. Paul's advice to Timothy was a good one, even in common life: "Lay hands suddenly on no man."' (Lady Smith, *loc. cit.*, 1: 175.)

Mr. S. Savage, Assistant Secretary of the Linnean Society, kindly informs me that "the present existing society" was undoubtedly the Society for Promoting Natural History, which the Linnean Society really grew out of, since our three Founders, Sir J. E. Smith, Goodenough and Marsham, belonged to both. The Linnean was founded in 1788, but the earlier society

<sup>6</sup> T. Marsham became Secretary of the Linnean Society and signed the receipt of William Jones' subscription (p. 143) for the Treasurer. The use of the word 'respectable' is an interesting example of its earlier and more exalted meaning. For another instance see p. 143.

<sup>7</sup> Dr. Drevitt suggests in 'The Apothecaries' Garden' that 'the old meaning may be rendered as *interested in intellectual or scientific pursuits*' (p. 103, n). For another example see William Jones' letter on p. 143.

lingered on until 1822, leaving its books, a small amount of invested capital, and the ivory gavel (still used by the President) to its successor.'

J. E. Smith, writing from Rome, 19 Feb., 1787, thanks William Jones for his 'observations on my project of a new society,' and continues:—'I shall endeavour to profit by your *greater* experience and judgement in such matters, although I myself have had *some* experience in societies, and some trouble, yet I think on the whole more pleasure and advantage. I cannot help flattering myself that such an association as we have thought of would be useful and respectable in the world and consequently agreeable to the members of it; and conversations which I have had in the course of my journey, with no small share of the scientific people of Europe, have confirmed me in my opinion that a society for the cultivation of Nat<sup>l</sup> history strictly, is much wanted, and would be ably supported; where then can it be fixed with such advantages as in London, amid the first collections and libraries, and indeed amid the best naturalists that I have known or heard of? I have already engaged many very desirable persons to join us whenever we think proper to bring the scheme forward; in the mean time allow me to advise with you at least, and if you approve of the thing when it has acquired something like a shape, I hope you will not refuse your assistance *in augendo amabilem scientiam.*'

This was followed by a letter of 9 Apr., 1787, addressed by Jones to Milan, and after a few opening lines, continuing:—'I feel in myself too much ignorance when with the ingenious and scientific, to conceive myself entitled to it [the scheme]. This, and an indolence of mind that frequently accompanies me, seem to throw obstructions where otherwise my ambition might tempt me. To cultivate your esteem, I shall be always proud of communicating the little I know, and I am afraid so little, though all, that I shall hardly merit it; . . .' (Lady Smith, *loc. cit.*, 1: 224.)

J. E. Smith replied 7 July, 1787, from Genoa:—'Am glad I have satisfied you for the present about the Linna<sup>a</sup> Society; so we need say no more about that matter till we meet, when you shall give your assistance to that project of mine in any manner or degree you please; at least I rely on your counsel.'

The Linnean Society was founded in 1788, and William Jones' receipt for ten guineas 'in lieu of all annual subscriptions,' dated 26 Nov., 1791, is included in the manuscript presented to Oxford University by Dr. F. D. Drewitt.

The following extract from a letter in the possession of the Linnean Society, and endorsed by J. E. Smith 'Mr. Jones, June 29, 1793,' leads to the conclusion that the friend who wrote

thus to the founder was not altogether pleased with the new Society:—

‘I am happy to find our friend Marsham more profitably employed than attending the Linnæan Society—When they altered the hours they never could expect my Company and I am so well reconciled to it as to make up my Mind that all hours shall be the same to me—but why do you call them horrid hours—you say in excuse you did not vote for them but they had your Sanction and Approbation—but altering the hours I think is not the only oversight I have seen in the Society but I have done on that subject lest I may incur the Censure of Prejudice.’

The change of the hour of meeting from 6.0 p.m. to 7.0 p.m. was made on 17 April, 1792.<sup>8</sup>

The only published scientific paper written by William Jones appeared in the Linnean Society’s Transactions for 1794 (see p. 145). Here, following Linnaeus, he writes of ‘Papilios,’ as equivalent to ‘Butterflies,’ and in this paper summarises the results of his long and careful work upon all known species—the material illustrated in the ‘Icones’—in a new classification based on wing venation. The following reference to the paper

<sup>8</sup> ‘From the foundation, there were two kinds of meetings, the General Meetings open to all members and to visitors, held on the first Tuesday of every month, and the Fellows’ Meetings, open to Fellows only (= present Council Meetings), held on the third Tuesday of every month. Both sets of meetings were held in the evening at six, which hour was changed on 17 April, 1792, to seven. At first these Meetings went on all the year, but on 17 February, 1789, it was resolved to adjourn on the third Tuesday in July to the first Tuesday in October in every year.

‘I might add that the Society continued to meet on Tuesdays till 1857, when it moved into *Old Burlington House* (now the Offices of the Royal Academy), and changed its Meeting Day to Thursday because the Royal Society and the Chemical Society met on that day. In those years tea was provided simultaneously for the three Societies occupying *old Burlington House*.’

Mr. Savage has very kindly given me, in addition to the information contained in the two paragraphs printed above, the following records of attendances at Meetings of the Society:—

FELLOWS’ MEETINGS:—William Jones was present on 20 December, 1791, and 20 March, 1792. [He was elected F.L.S. on 15 November, 1791.]

GENERAL MEETINGS:—On 5 July, 1791, is recorded ‘Mr. Jones, Visitor.’

On 4 October, 1791. ‘The President read a paper from Mr. Wm. Jones on the production of Fairy Rings.’

6 December, 1791. ‘Mr. Jones attending signed the Rules having previously paid his admission and full composition.’

6 March and 3 July, 1792. Wm. Jones present.

24 May, 1802. (First Anniversary Meeting under the Charter.) Wm. Jones present, and signed his name in the Roll and Charter Book with many other Fellows who attended that Meeting.

From 1806 onwards, the full attendances are not recorded: ‘*and others*’ is merely added to a few of the names of Fellows attending.

is quoted from a letter in the Linnean Society. The second paragraph is included as throwing light on the beliefs and customs of the day. It is addressed to the President, as 'Doctr. Smith, Great Marlbro' Street.'

'Chelsea. 15th Janry 1793.

'If you mean by my Paper on the Papiliones that which treats of a clearer division of that Genus—I answer tis with you—I never saw it since the Evening you approved of its being Printed—when you have found it do me the favour to read it over least [? lest] partial to my own Brat I have (wrote nonsense and) not discovered its deformity.

'I am sincerely sorry for your Indisposition but if you will take Dr. Jones's<sup>9</sup> advice you may prevent another by avoiding the Evening Air.—I find no remedy like keeping within as snug as a Snail in its shell during the cold raw damp weather.'

Williams Jones' classification of butterflies was quickly recognised as a most significant advance. Thus J. E. Smith wrote in 1797 of Jones' knowledge of the group as 'perhaps unequalled' (see p. 149), and A. H. Haworth, in the Preface to 'Lepidoptera Britannica' (1803), although considering Yates' system as an improvement, continues:—'This alteration, however, I have not adopted, because the whole Genus *Papilio* has undergone a complete revision and arrangement, derived from the anatomy of the wings, since the death of Yates, by my very able and much respected friend W. Jones; in the 1st [2nd] vol. of the *Transactions of the Linnean Society*' (p. xvii).

My friend Dr. Karl Jordan, F.R.S., has very kindly written the following appreciation of William Jones' paper:—

'VIII. A NEW ARRANGEMENT OF PAPILIOS, IN A LETTER TO THE PRESIDENT.<sup>10</sup> By MR. WILLIAM JONES, F.L.S.

Read July 5, 1791.

'A comparison of "more than 1,000 species in the various cabinets in London and 400 more figured in various publications" convinced W. Jones that the definitions characterising the divisions of the genus *Papilio* in Linnaeus, "Syst. Nat.," were too loose and that in consequence a number of species had been placed in the wrong divisions. The discovery of "anatomical characters" which "with certainty distinguish each family from others" enabled Jones to supplement the Linnaean classification of the Butterflies by more precise definitions. The "anatomical," or as we should say, morphological distinctions were discovered by Jones in the wing-neuration—a remarkable step

<sup>9</sup> Doubtless a humourous reference to the writer himself.

<sup>10</sup> 1794, *Trans. Linn. Soc. Lond.*, 2: 63-9, tab. VIII.

forward. Neither Linnaeus nor contemporary authors had taken notice of these differences, so obvious in the better kind of figures published before and at his time. When drawing butterflies, Jones was not working merely mechanically, but was evidently also thinking. He found that all the Equites (our "Swallowtails") had four veins branching off from the posterior side of the cell of the forewing instead of the three "visible in any other family," and that there was, in the centre of the hindwing of the Equites, Heliconii<sup>11</sup> and Danaï, a "connecting nerve" which was absent in the Nymphales and Plebeii (in which he was not quite correct). Accordingly he placed *Parnassius apollo*, *P. mnemosyne*, *Zerynthia rumina*, *Papilio dissimilis*, and others among the Equites, removing them from the Heliconii and Nymphales where Linnaeus had erroneously put them, and observed that *Caligo teucer*, *Morpho menelaus*, *M. nestor*, etc., belonged to the Danaï and Nymphales and not to the Equites. The "Cramerian Argonauts,"<sup>12</sup> selected by Cramer from the Linnaean Equites Achivi, were recognised by Jones as being true Nymphales; but there were other species among the Papilios, such as the Uraniid moths *leilus* and *orontes*, placed with the Equites by Linnaeus, and the Castniid moths *licus*, *syphax*, *cochrus*, etc., classified by Fabricius as Danaï, which Jones could not fit into any of the five main divisions of *Papilio*. For these he accordingly proposed a new division of *Papilio* called Romani. Jones perceived that these species stood out from among the butterflies, but it did not occur to him that they were in reality moths. At the end of the letter there is a succinct table of the families of *Papilio* illustrated by a plate. The figures on this plate show distinctly that in some families the males have two pairs of walking legs, in others three pairs; but Jones did not make use of this difference, on which Rösels, for instance, laid great stress.'

In the following letter William Jones makes humorous refer-

<sup>11</sup> 'The Heliconii of Linnaeus included Heliconiinae, *Parnassius*, *Tenaris*, *Stalactis* (Riodinidae), some Acraeinae and Ithomiinae.

'His Danaï—the Pieridae, Danainaë, some Satyrinae and Brassolinae.

'His Nymphales—the Nymphalinae, Satyrinae and a few species of other families and subfamilies, such as *Papilio dissimilis*, *panope* and *clytia*, and *Nemeobius lucina*.

'His Plebeii included two sections: Rurales (Lycaenidae) and Urbicolae (Hesperiidae).

'His Equites Achivi included Swallowtails other than the Equites Trojani (*Pharmacophagus* or *Aristolochia* Swallowtails), but also Morphos, Caligos; with large Castniid and Uraniid moths.'

<sup>12</sup> 'By the "Cramerian Argonauts" Jones referred to the tailed Nymphalids—*Charaxes*, *Cyrestis*, *Anaea*, *Megalura*, etc., separated by C. Stoll in 1782 as Argonautes in his essay on the classification of Lepidoptera. C. Stoll, 1782, 'Essai d'un Ordre Systematique des Insectes A Ailes Farineuses. Lepidopteræ' (in P. Cramer, 'Papillons Exotiques,' Amsterdam, 4: 1-29, issued with part 34).

ence to the gift of the two folio volumes of J. Abbot and J. E. Smith's 'The Natural History of the rarer Lepidopterous Insects of Georgia,' London, 1797, presented by the editor J. E. Smith.

9 Sept., 1797 Referring to the 'magnificent present' which he had with some difficulty obtained from the bookseller, he wrote:—'I took it under my arm, but soon found it sufficiently weighty. Did you ever see a caricature of a three-pounder going up Hampstead Hill to dinner?—a man oppressed with his own weight, yet surmounting all difficulties that he might enjoy the pleasures of the table. So I laboured abundantly with my load, in expectation of high gratification from the contents when I should get home,—and truly I was not disappointed; but I disclaim all merit, unless you maintain that such is due to every one that stands sponsor to a child, if such child should turn out a worthy member of society. No, Sir, the merit is yours; the demerit attaches to the engraver and colourer, for there are some faults; but upon the whole it has the three great requisites to a modern publication,—good letter, good paper, and showy plates.' After expressing his 'grateful acknowledgements' for the 'genteel manner' in which he had been noticed in the volume, he makes this criticism:—'You are certainly wrong in naming the fly *Argiolus*, Tab. 15. I have both male and female among my drawings without a name. *Argiolus* is certainly different.' (Lady Smith, *loc. cit.*, 1: 446-7.)

The Lycaenid, beautifully represented, together with its food-plant, on Plate 15 of Vol. I, is determined as 'Papilio argiolus. Little blue Argus butterfly,' on the opposite page 29, '*Linn. Syst Nat.* 790' being given as the reference. The following statement is made in the concluding paragraph:—'That this is certainly no other than the *Argiolus* of Linnæus, an English insect, appears from his own cabinet. We do not answer for its name in other writers, and therefore have not hazarded any synonyms. Nothing is more pernicious than the too usual way of copying synonyms upon trust without examination, by which we so frequently find not only errors of judgment propagated from one author to another, but also errors of the press; by these last such indolent plagiarists are sure to be detected.'

Being unable to visit either London or Oxford at the time, I have relied upon the kind friends mentioned below. Mr. N. D. Riley writes from the British Museum (*Nat. Hist.*):—'The butterfly figured on Plate 15 of "Abbot & Smith," Vol. I, is now known as *Lycaenopsis pseudargiolus* Bdv. & Lec. The figures in our copy of the book are badly discoloured, so I cannot say to which of the many named varieties the specimens figured belong. Some people, as you know, regard *pseudargiolus* as conspecific with the palaeartic *Lycaenopsis argiolus*. Undoubtedly it is very close, but in my opinion distinct.'

Dr. B. M. Hobby and Commander Walker kindly examined the 'Icones' and found 'on Plate XLII, Vol. V, four figures shewing upper- and underside of both male and female of a *Lycaenid* of the *argiolus* group. The figure of the male upper-side appears to be unfinished, but it agrees with fig. 1 of Plate *Lycaena* II [Plate 50 in MS.] in W. H. Edwards, 1884, "The Butterflies of North America," Boston, i.e. *pseudargiolus*, ♂. The figure of the female upperside corresponds very well with more than one (cf. figs. 2, 4, 6, 17) of the figures of *pseudargiolus* females in the same work, but the two undersides figured are more like those of our own *argiolus* with the bluish tint somewhat exaggerated. Jones' figures are without any particulars, except "Drury" indicating that they were copied from Drury's figures or specimens.' Commander Walker and Dr. Hobby were satisfied that these unnamed figures in the 'Icones' are the ones about which Jones wrote to J. E. Smith. They also examined the Radcliffe Library copy of 'Abbot and Smith' and agreed 'that the figures of *argiolus* are *pseudargiolus* Boisd. et Leconte nec *argiolus* Linn., as pointed out by W. F. Kirby, 1871, "A Synonymic Catalogue of Diurnal Lepidoptera," London: 371.'

Dr. Hobby has also found that *argiolus* itself is figured on Plate LX, of Vol. V of the 'Icones.' Above the figures are the words: 'Linnaeus No. 234 *Argiolus* Jones.' The figures include the male upperside, female underside, and female upperside. Beneath are these words adopted from Linnaeus: 'Alis ecaudatis: Supra cæruleis margine nigris: subtus cærulescentibus punctis nigris dispersis.—habitat in Europa. Similis philiasi—, sed minor: subtus puncta pauciora dissita absque ocellis nigris.'

Dr. Hobby writes that 'The uppersides of Jones' figures of *argiolus* are darker than his figures of *pseudargiolus*; the female upperside is without the dark costal band, the dark spot about half way along the anterior margin, and the whitish patch on the forewing. The upperside of the female hindwing has smaller marginal spots. The spots on the underside of the hindwing are smaller and blacker, and the marginal row of spots is replaced by a fine blue line. The painting of the male upperside is finished, and has the venation indicated by black lines. The outer margin of the forewing has a fine black line, narrower than in *pseudargiolus*.'

We are led to the conclusion that Jones was right in correcting J. E. Smith's determination, but that the difference between these two well-known forms, the European *argiolus* and the North American *pseudargiolus*, is perhaps not quite so wide as he supposed. It is indeed possible that the opinion of some naturalists that the two are geographical races of a single species may be generally accepted.

The 'grateful acknowledgements' expressed in Jones' letter of 9 Sept., 1797 (p. 147), referred to the following words on p. iii of the Editor's Preface:—'In the genus of *Papilio* the editor has derived great assistance from his accurate and liberal friend, Mr. Jones, of Chelsea, whose knowledge of that tribe is perhaps unequalled, and whose drawings are themselves the original authority for many of Professor Fabricius's recently published *Papiliones*, which were actually described from thence alone.'

In the following letter William Jones refers to Fabricius's work upon the 'Icones.'

*Aug., 1787, to J. E. Smith in Paris*:—'Fabricius is in London, and much wishes to see you, but will certainly leave us before your return; he is going through my drawings, to correct, amend, and add to a Mantissa<sup>13</sup> that he has now in hand; yet I have more than he will be able to accomplish in the time he has limited to stay. I am sorry you are from home for your own sake; he is a man that must please;—open, free, easy, candid, unaffected; in short, I like him, and think *you* must.' (Lady Smith, *loc. cit.*, 1: 264.)

William Jones' kindly words about this illustrious naturalist form an appropriate conclusion to these few records, which it is hoped will help to show the greatness of the writer himself.

## II. WILLIAM JONES AS A STUDENT OF BRITISH LEPIDOPTERA.

By B. M. HOBBY and E. B. POULTON.

In an account of 'The Society of Entomologists of London,' 1780-1782,<sup>14</sup> attention was directed to 'the general, indeed well-nigh exclusive use of English names for British Lepidoptera up to the closing decades of the eighteenth century,' as clearly proved by William Jones' two notebooks containing respectively the manuscript Proceedings and Diary of this ancient Society; and by his other extremely interesting manuscript notebooks on British Lepidoptera, together with his copy of Haworth's 'Prodromus' containing the English names written by William Jones and printed in this memoir. The 'Prodromus Lepidopterorum Britannicorum,' by a Fellow of the Linnean Society, 1802, is as stated in the above-quoted paper (p. 98), 'known to have been written by A. H. Haworth, who . . . Dr. Drewitt wrote, "lived in Chelsea and was a great friend and admirer of William Jones, as may be inferred from the preface of his 'Lepidoptera

<sup>13</sup> 'Mantissa' is defined in the 'Oxford English Dictionary' as 'An addition of comparatively small importance esp. to a literary effort or discourse' (p. 261).

<sup>14</sup> E. B. Poulton, 1933, *Proc. Roy. Ent. Soc. Lond.*, 8: 97-104.

Britannica' (1803), the work in which he admits the authorship and also that he was the founder of the Aurelian Society."'

The 'Prodromus' and all the notebooks referred to above were presented to Oxford University by Dr. F. Dawtry Drewitt, D.M., F.R.C.P., of Christ Church, Oxford, the generous donor of the priceless 'Jones' Icones' briefly described in the 'Report of the Hope Professor of Zoology, 1925.'<sup>15</sup>

William Jones' copy of the 'Prodromus' is provided with interleaves ruled by him for the addition of manuscript numbers, names and notes, thus brought into correspondence with the opposite printed pages. The interleaves opposite TORTRIX, TINEA, and ALUCITA (pp. 31-39) are unruled for the addition of names and without MS., but a few numbers in pencil and two corrections of spelling in ink appear among the printed pages. The system adopted up to the beginning of TORTRIX was incompletely carried out in the Addenda, where pencilled names and notes were written on printed pages 3 and 5, two names being rewritten in ink on one interleaf (opposite p. 3), which itself also bears faint pencil manuscript. The printed names of the 'Prodromus' were also occasionally underlined, corrected or supplemented in manuscript, as explained in notes 21, 24, 34, and on pp. 162-163. An index in Jones' beautiful handwriting and printed script occupies all but one side of the three blank pages following the Addenda. It concludes with a list, giving the number under each group, of 'The Amount of Lepidoptera in this Catalogue.'

The study of the manuscript notebooks yields a great deal of information about the localities and methods of the early British entomologists and also raises some fascinating questions. Thus, in one notebook—that which contains the extracts from Drury's journal—William Jones had recorded as the method of taking the Emperor Moth—"Symboling." The probable meaning was tested by turning to his suggestion for the 'Great Egger,' where 'Symboling' was also given, and it became clear that he had written the word as a rendering of the, to him, unfamiliar 'sembling.' The 'Oxford English Dictionary' under 'semble' quotes '1870 *Hardwicke's Sci. Gossip* 153, a group [of moths] the females of many of which are noted for the peculiar property they possess of collecting, or, as the old entomologists named it, "sembling," the males from long distances.' A much earlier instance is given by Haworth on p. 82 of his 'Lepidoptera Britannica' (1803), where, under 'The large

<sup>15</sup> 1929, *Hope Reports*, 1915-29, 15 (No. 25): 17, 18. One of the manuscript notebooks, containing extracts from Drury's Journals is referred to in 1933, *Proc. Roy. Ent. Soc. Lond.*, 8: 97, and, with others, in 'The Report of the Hope Professor of Zoology, 1932-33,' pp. 18, 19, to appear in a future volume of *Hope Reports*.

Eggar,' he describes the behaviour of the males at considerable length, and adds, 'The Aurelians call such a wedding as the above, a *sembling* (*assembling*) *match!* and never succeed with any but a virgin female!' (p. 82).

The extracts from Drury's journals for 1764-66 contain many fascinating records of captures and favourite localities. 'Enfield Chace,' or 'the Chase,' are often mentioned, and the relation between this and other spots visited in a collecting expedition appears in the entry for 20 May, 1765:—'On the Chase and thro Usage wood, Southgate, Bedstile Wood Tottenham Wood to Hornsey—being on my return from Enfield to London.'<sup>16</sup>

The importance of Hornsey, which enters into the English names of various moths, is also evident in the entry for Aug. 5 of the same year:—'Went to the Horns at Hornsey serching for Water Insects and found a very great Plenty more than usual in the Spring a variety superior to anything I expected and what has opened a scene of wonder I before had no idea of.'

We cannot resist the temptation to quote a few more entries in Drury's journal for 1764:—

*March 29.*—'Took many Orange Underwings in Hanging Wood a Confirmation that they are found at more places than

<sup>16</sup> Mr. O. J. Janson, F.R.E.S., has very kindly written the following account of the present condition of the localities here mentioned by Drury:—

'Enfield Chace is now mostly built over and Enfield West Tube Station is about the old centre; it extends south and west to Southgate, Chase Side, and Chase Road. There is or was a few weeks back, a large pond or lake in Arnos Grove, Southgate, near the Southgate end of Bounds Green Rd.; this is marked on an old map of 1827 as Bety's Style (?Bedstile); the Wood S.W. is Holleck Wood and the N.E. half is Cullands Wood, now Arnos Grove. The latter is rapidly being built over and the lake is not likely to exist long now. It should be a good or likely spot, but is on private property. Part of Cullands Wood is now Broomfield Park and includes the lakes, which might produce something for the collector.

'Usage Wood is Ussage (1827), since Osage and Ossidge. It belonged to Sir T. Lipton until his death, but has now been sold for building. A foot-path leads across it to the Church.

'The Horns must I think be the New River Reservoirs now, near the Station, where a large piece of water with some old Carp in it was drained a year or so ago. Fishing permits are granted free for the New River which runs through this area and there may still be some of the old water left, or in the adjacent Conservative Club grounds. It was recently reported in the Press that flood water had killed a great many fish in Grovelands Park lake, a very deep piece of water covering part of the Chase about half a mile north of Broomfield Park. Winchmore Hill Woods were cut up for building some fifteen years ago, but up to this time good insects and plants could be found and the wood ant nested there; now the Grovelands Park is all that is left.

'Hornsey Wood has been Finsbury Park for over 50 years; Tottenham Woods would be the Lea Valley and parts of Epping Forest fringing thereon and these are practically the only collecting grounds left round here that are worthy of a visit.'

Hornsey NB the best way to take this fly is on a Day windy but not boisterous chuse a part of the wood cleared of the undergrowth—let one beat with one stroke of a club the body of a young arbeal or alder left singly by the woodmen whilst another stands with a net under the wind to take them the moment they fly.'

June 9.—'Warnham in Sussex Swallowtails very plentiful in that Country the first brood being nearly past on the 12th caught one on Leigh hill but very ragged on the 13 in St Leonards forrest took a Beetle a Scarabeus he'd never seen before.'

July 1.—'On the Chace Yellow Shoulder Stripe some wasted some Good Black veind white Butterfly plentiful and fine.'

July 9.—'At Coombe found the purple Emperor plentiful some fine and some wasted the best time to take this fly is about 12 o'clock they fly freely about the Oak never lower 20 or 30 feet from the Ground—they are bold and will suffer you easily to put a net over them being seldom frightened.'

July 22.—'On the Chace . . . A very remarkable large Mag-pye (in the Eveng) without any blk spots on it scarcely an Extraordinary odd Fly.'

There appears to be little doubt that the last note records the capture of the var. *lacticolor* or a form closely resembling it.

An interesting problem arose in connection with a manuscript notebook purchased by the Hon. Charles N. Rothschild in Germany, given to Dr. F. D. Drewitt in 1913, and presented by him to Oxford University in 1931.<sup>17</sup> It contains a list of British Lepidoptera, giving in columns a great deal of information about the life-histories and localities. It is so precisely similar in many of the details to one of William Jones' notebooks that one had obviously been copied from the other. At first sight it appeared impossible to gain any information about the date at which either had been written. With a wealth of data concerning the months of appearance, etc., it seemed that no year was ever mentioned. Finally, however, 'No. 107. Hebrew Character' was given the date '28 Feb. 1779' in Jones' notebook and in the other 'took one the 28th Feb. 1779 at Charlton.' This suggested that the latter was the original, but further evidence pointed even more strongly in the other direction. Jones gives the name of '36. Wood white' as 'Sinapis,' but the 'n' is so formed that it might easily be mistaken for an 'r,' and the word appears in the other book as 'Sirapis.' It seems probable that the copy was made by or for a friend who had given the date in 1779 to Jones and added the locality to his own book. There are other interesting differences which would

<sup>17</sup> 1933, *Hope Reports*, 1929-1933, 19 (No. 16): 20, 21.

occupy too much space to describe, but we think it is reasonable to suppose that while Jones' notebook was copied by or for another entomologist, the two friends kept in touch and made subsequent additions or alterations, sometimes indicated by a less formal style of handwriting. That Jones helped his friends in this way is proved by a list of moths, with English and Linnaean names, food, how best procured, etc., now in the Linnean Society. The manuscript belonged to Sir J. E. Smith and was inscribed by him: 'Copied from a Ms. of Mr. Wm. Jones—Chelsea.' It will be interesting to compare this list, which is not in the handwriting of either naturalist, with Jones' notebooks at Oxford. We have only just known of this copy, and owe the information to the kindness of Mr. S. Savage, Assistant Secretary of the Linnean Society.

We have indicated a few examples out of the wealth of interesting data recorded in these notebooks and have mentioned two of the problems which presented themselves in the course of our study. Without occupying any more space, we feel sure that it will be realised that William Jones was a most careful and accurate, as well as an enthusiastic, student of the British Lepidoptera and that we may feel confidence in the old English names employed by him. These names appear again and again in the notebooks, as well as in the beautiful print-like script added to his copy of Haworth's 'Prodromus,' which itself published only the scientific names as known to the author. However, in the year 1803 Haworth began the publication in London of the 'Lepidoptera Britannica,' continuing to issue parts for twenty-five years, although there is some uncertainty about the date of the last to appear.<sup>18</sup> Haworth in the Preface to this work makes ample acknowledgment of the help he owed to his friend (see p. 141, *n.* 3).

The English names, omitted by Haworth from the 'Prodromus,' are printed in his 'Lepidoptera Britannica,' the principles on which they were chosen being explained in the Preface, pp. xxv, xxvi. The first part of the passage is quoted by Mr. Hemming on pp. 155-156, while the remainder is reproduced below:—

<sup>18</sup> F. J. Griffin (1932, 'A note on Haworth's "Lepidoptera Britannica" etc., 1803-1828,' *Ann. Mag. Nat. Hist.*, Ser. 10, 9: 531-2) gives the dates of publication as follows:—Part I, pp. xxvi+1-136, 1803; Part II, pp. 137-376, 1809; Part III, pp. 377-512, 1811; Part IV, pp. 512-609, 1828. The re-issue of page 512 'has a variation of spelling in the name *Erminea evonymè* [1st issue], it being later spelled *evonymi* [2nd issue]. Apparently the earlier page is more often preserved, since on its reverse is a page of text, whilst the reverse of the 2nd issue is no more than a half-title to "Pars IV." . . . It would, moreover, appear that these pages—512 to 536—must date earlier than 1828, but until conclusive evidence is forthcoming I prefer to assume that the "legal" date is as stated on the wrapper to Part IV.'

'Miller was formerly, and is still, in some parts of England, a common term for any large *Moth*. In Westmoreland the larger Moths are often called *Bustards* and *Owls*. In Sussex *Owls*. In Yorkshire, and the neighbourhood of London, *Moths* only; or *Hawk-Moths*, or *Clear-winged Moths*, if they belong to the genus *Sphinx*. *Small Moths* in Lincolnshire and Yorkshire, when they fly into burning candles, which they very frequently do, are called *Soles*. The term *Moth*<sup>19</sup> is the only one in *general acceptation* throughout England, for our nocturnal *Lepidoptera*, as that of *Butterfly*, or *Fly*, is for our diurnal species; all the other appellations being strictly provincial, and frequently unknown in the next county to that in which they are used.'

The 'Lepidoptera Britannica' contains the names of many of the smaller moths passed over by William Jones in his copy of the 'Prodromus.' These are omitted from our list, which is restricted to Jones' manuscript and to those names in the 'Lep. Brit.' which shew the agreement and difference between the two naturalists.

Twenty interesting examples of English names written in the 'Prodromus' by William Jones are printed, together with the equivalents<sup>20</sup> to the corresponding scientific names determined by Mr. W. H. T. Tams, on p. 103 of 1933, *Proc. Roy. Ent. Soc. Lond.*, 8, where on the following page the hope was expressed that the complete list might be published in the near future. And now that this hope is fulfilled we have ventured in this introduction (pp. 149-150) to quote freely from the brief paper in which the subject was brought forward. Although, when the words were written, there seemed to be very little chance of publication within a reasonable time, it soon appeared that a peculiarly appropriate medium might become available in the pages of the Transactions of the 'Entomological Society of the South of England' under its new name, 'Society for British Entomology.'

<sup>19</sup> 'Moths are divided into several generical heads by our English Aurelians. My *Zygænæ* they call *Burnets* or *Foresters*; my *Hepiali* they term *Swifts*; my *Noctuæ* are called *Full-bodies*; and my *Bombyces*, *Feathered Full-bodies*; because the male antennæ are pectinated; my *Phalænæ* are denominated *Slender-bodies*; my *Geometræ*, *Feathered Slender-bodies*; and the *Larvæ* of both the last are distinguished from all other *Larvæ*, by the expressive appellation of *Loopers*; my *Pyrilides* they separate into families, the names of which will be given when I come to the Genus *Pyrilis*: all the remaining Moths (except my *Alucitæ*, which are very properly called *Plumes*) pass under the comprehensive denomination of *Small-Moths*, or *Tinææ*. These definitions appear to be sufficiently apt; but that of *Looper* is perfectly typical of the geometrical motion, which is so conspicuous in all the *Larvæ* of my *Geometræ* and *Phalænæ*.'

<sup>20</sup> Two of these determinations have been corrected by Mr. H. M. Edelsten and Mr. Tams in the present paper (Notes 37, 44, on pp. 161, 162).

When the preparation of this paper was begun we soon realised that, the 'Lepidoptera Britannica' being rare and in many cases inaccessible, it was obviously desirable to include all such data as would shew, clearly and fully, the relation between the two lists of English names—those in the manuscript of William Jones and those published by A. H. Haworth. This meant a considerable addition to the skilled investigation necessary for determining the equivalents to the scientific names given by Haworth as corresponding to Jones' and his own English names. We feel confident that these difficulties have been overcome and that the labours of our friends, including Mr. W. H. T. Tams and Mr. F. J. Killington, who have often helped in the work, have produced a paper of great historic interest and lasting value.

B.M.H., E.B.P.

### III. NOTES 1—16 ON THE SCIENTIFIC EQUIVALENTS TO THE NAMES USED FOR BRITISH RHOPALOCERA BY A. H. HAWORTH IN HIS 'PRODROMUS' AND 'LEPIDOPTERA BRITANNICA.'

By FRANCIS HEMMING.

At the request of Professor E. B. Poulton, I have supplied the modern equivalents to the scientific names used for the Rhopalocera by Haworth in his 'Prodromus' and 'Lepidoptera Britannica.'

The generic names employed call for no comment here, for the grounds on which they have been adopted are fully explained in Part 2 of 'The Generic Names of British Insects,' published 23 Feb., 1934, by the Royal Entomological Society of London.

It is interesting to note that there is a considerable divergence between the English names recorded in William Jones' MS. and those employed for the same species by Haworth himself in 1803 in his 'Lepidoptera Britannica,' the latter being far more like those now in use. Haworth's own attitude to the English names of the period was defined on p. xxv of the preface to that work as follows:—

'The *English names* of the British *Lepidoptera*, as far as they are unobjectionable, and have been used by Ray, Petiver, Harris, Wilks, Berkenhout, Donovan, and others; I have carefully preserved in parentheses immediately following the Latin names; and to all the other species I have added the names which have been assigned them by the Aurelian Society. These names may be thought frivolous and uninteresting by many; but there are others who will probably be of a different opinion. The sanction of the great and pious Ray is alone sufficient to

rescue anything which he adopted, from the charges of triviality. Some of the English appellations, it is true, are highly fanciful, not to say absurd, and lead to no information: such for instance as *The Miller of Mansfield*, etc. All of this cast, except in the Genus *Papilio* [i.e.—in the whole of the Rhopalocera as understood to-day], I have rejected.'

As regards the specific and subspecific names and some of the English names employed, I think it desirable to add a few brief notes. These are indicated by the addition of numbers, corresponding with those in the following list, to certain names in the first, second and fourth columns of the tabular statement on pp. 164-167.

1. This and similar additions printed in italics are in the ordinary handwriting of W. Jones—not the print-like script of his English names and numbers.

1a. Unusual spelling or lettering of the 'Lep. Brit.', 'Prodromus,' and of William Jones' manuscript additions to the latter has been carefully retained. A few examples are indicated in the tables.

2. The English equivalents were not added by William Jones to the following names given by Haworth in the 'Prodromus': *P. podalirius*, *edusa alba*, *hero*, *typhon*, *charlotta*, *hyacinthus* and *paniscus*.

3. Two of the species given by Haworth in the 'Prodromus,' viz. *P. podalirius* and *P. virgaureae*, are not British species.

4. For the correct name of the species often wrongly known as *Coenonympha tiphon* (Rott., 1775) see my note on page 21 in 'The Generic Names of British Insects' (Roy. Ent. Soc. Lond., 23 Feb., 1934). The identity of the insects called *hero* and *typhon* by Haworth can be established by reference to that author's 'Lepidoptera Britannica.' His *hero*, for which he gave 'Habitat in comitatu Lancastriense prope Manchester uliginosis,' is the dark race from Lancashire and Westmorland, usually known as *philoxenus* Esp. [1780]. His *typhon*, for which he gave the locality 'Comitatus Eboracensis,' is the so-called Middle English form of this species. It was named *polydama* by Haworth (1803, 'Lep. Brit.': 16), and it is probably desirable that it should be known by that name, at least until the characters of the type race, *tullia* Müller, from Denmark, and of *tiphon* Rott., the race from Germany, have been definitely established.

5. At the time of the publication of the 'Prodromus,' *charlotta* Haworth was a *nomen nudum*, but in 1803 it was validated in his 'Lep. Brit.' (p. 32). The original specimen of this aberration was taken at Bedford.

6. The name *Papilio diclynna* given in the 'Prodromus' is a mis-print for *Papilio dictynna* Esp., 1777, a name of an allied but distinct species that was erroneously applied to *Melitaea athalia* (Rott., 1775) by Haworth in this work and by one or two earlier British authors.

7. Haworth's *mægera* and the commonly used *megaera* are both mis-spellings of the name *megera* Linn.

8. It should be noted that the first publication of the name *dispar* Haw. is in the 'Prodromus' published in 1802, and not, as is usually stated, in Haworth's 'Lepidoptera Britannica' published in 1803. In the 'Prodromus,' Haworth stated (in a footnote on page 3) that he proposed this name for the insect called *hippotoë* by Lewin and Donovan, which was not the species so named by Linnaeus. He added that it had recently been discovered in England by himself and his friends W. and F. Skrimshire; and that it had been previously taken in Wales by the celebrated botanist Hudson. In the 'Lep. Brit.' (p. 40) he amplified this statement by saying that it was in the fens of Cambridgeshire that he had discovered *dispar*. He added that Donovan was mistaken in affirming that this species had ever been taken in Scotland.

9. The reasons for suppressing the name *thetis* Rott. are given in my note on page 29 of 'The Generic Names of British Insects.'

10. The name *Papilio hyacinthus* was given by J. W. Lewin (1795, 'The Papilios of Great Britain,' London, pl. 37) to an insignificant aberration of *Polyommatus icarus* (Rott., 1775). The name is invalid, as it is a homonym of *Papilio hyacinthus* Cram., 1775. It does not need replacing, as so unimportant an aberration should not be given a separate name.

11. The reasons for suppressing the name *medon* Hufn. are given in my note on page 28 of 'The Generic Names of British Insects.'

12. The reasons for suppressing the name *sylvanus* Esp. are given in my note on page 39 of the work cited above.

13. The need for substituting the name *sylvestris* Poda, 1761, for *flava* Brunnich, 1763, is explained in my note on page 38 of the work cited above.

14. On page 37 of my recent paper referred to above I used the generic name *Syrichtus* Boisd. [1834] for this species. I have since shown (1934, *Entomologist*, 67: 112-3) that it should be referred to the genus *Pyrgus* Hübner [1823], of which it was selected as the type by Westwood in 1841.

15. The name *Papilio lavaterae* was given by Fabricius (1787, 'Mantissa Ins.,' 2: 91) to the well-known white-streaked aberration of *Pyrgus malvae* (Linn.). The name is invalid, as it is a homonym of *Papilio lavatherae* Esp., 1783, the species now known as *Carcharodus lavatherae* (Esp.). The valid name for this aberration of *malvae* Linn. is *taras* Bergstr., 1783.

16. In his MS. list, Jones included two species, *chryseis* and *ligea*, neither of which was included by Haworth in the 'Pro-dromus.' The first-named was, however, given by Haworth in his 'Lep. Brit.' (p. 41).

(a) *Lycaena hippothoë* (Linn., 1761).

There is no reason to suppose that this was ever a British species, though it was accepted as such as late as the time of Stephens, who called it the 'Dark-underwinged Copper' (J. F. Stephens, 1829, 'A Systematic Catalogue of British Insects,' London, 2: 22). Its reputed localities were Epping (from which place Dr. Leach is said to have received five specimens in several successive years) and Ashdown Forest.

(b) *Erebia ligea* (Linn., 1758).

There are no authentic records of the capture of this species in Great Britain, though it would not be surprising if it really had been taken in Scotland. Its reputed localities are the Isle of Arran (where it is said to have been taken by Sir Patrick Walker and Mr. Alexander Macleay) and the Isle of Mull.

F. H.

#### IV. NOTES 16A—50 ON THE SCIENTIFIC EQUIVALENTS TO THE NAMES USED FOR BRITISH HETEROCERA BY A. H. HAWORTH IN HIS 'PRODROMUS' AND 'LEPIDOPTERA BRITANNICA.'

By H. M. EDELSTEN.

The scientific names of the Geometrid moths in the fourth column of the list (pp. 168-184)—the 'More Recent Equivalents'—are those given by L. B. Prout in A. Seitz (1912, 'The Macrolepidoptera of the World,' Stuttgart, 4); for the remaining moths, R. South (1908, 'Moths of the British Islands,' London, 1, 2) and J. H. Leech (1886, 'British Pyralides,' London) have been followed, but as the nomenclature of the British insects is now under revision, a great many of the names will probably be altered. The identification of all must be taken with a certain amount of reserve, as Haworth in the 'Lepidoptera Britannica' does not always quote the reference numbers from the 'Pro-dromus'; also some of Jones' English names

do not agree with those in the 'Lepidoptera Britannica.' In the many difficulties which arose in the course of the work I have received the kindest help from Mr. W. H. T. Tams.

The notes in the following list refer to certain names in the tabular statement on pp. 168-184.

**16a.** William Jones' observation quoted by Haworth in 'Lep. Brit.' (p. 57) is an interesting early record of this now well-known sound:—

'My tutor in Entomology once had a male and a female of *S. Atropos* brought him alive in the winged state; both which, when he had occasion to destroy them, uttered plaintive sounds, which he compared to the squeaking of a mouse.' For references on sound-production in this species see H. N. Moseley (1872, 'On the sound made by the Death's Head Moth, "*Acherontia atropos*,"' *Nature*, **6**: 151-3) and J. W. Tutt (1904, 'A natural history of the British Lepidoptera,' London, **4**: 444-53).

**17.** Nos. 8 and 10 represent Lineata and Celerio of the 'Pro-dromus,' respectively, names left blank by W. Jones. Beyond this point, blanks will be indicated by the missing numbers only.

**18.** The word 'Hornet' is represented by 'Do' in the script. Similarly among the Rhopalocera many repeated names are indicated by a dotted line. Such names are here printed in full.

**18a.** Under *perfuscus* 'Lep. Brit.' 100: 27 gives the following references:—'*B. Torva* Hüb. *Schmet.* 7.27.?—*B. perfuscus* *Prod. Lep. Brit.*—*B. camelina* *Harris Eng. Ins. t.* 13.5.' Hübner's Fig. 27 is the *tritophus* of Schiff and Harris' figure is also *tritophus*. It is as well to mention that in the British Museum and Hope Department copies of Hübner's Pl. 7, Fig. '27' of the legend should be 29, and Fig. '29' should be 27. Commander Walker suggests that as *N. tritophus* was not recorded as British before 1842 (*cf.* South, *op. cit.*, **1**: 72-3), Haworth may have been referring to the dark form of *N. dromedarius* which occurred in the north of England and Ireland.

**19.** Added in print-like script by W. Jones.

**20.** The 'Ermines' have been wrongly named for years through a mistake by Esper. The 'Buff Ermine' is *S. lutea* Hufn. The 'White Ermine' is *S. lubricipeda* Linn.

**21.** Underlined by W. Jones, also the following to which he gave no English names—9:48 *Fuscus*, 10:69 *Grammicus*, 15:90 *Ligustrina*, 21:17 *Pantaria*? and in Addenda, 3A:2 *Occultina*, 5A:8 *Sylvata*, 5A:2 *Tridactyla*, 6A:3 *Tetradactyla*.

**22.** 'Beautiful yellow Underwing' is *Anarta myrtilli* Linn.

23. The 'Water Betony,' 167:21 of 'Lep. Brit.,' is *scrophulariæ* Hübn.

24. Spelling corrected by W. Jones, as here indicated by name in italics.

25. The 'Straw-coloured Footman' is *L. griseola* ab. *flava*; *lutarella* of the 'Lep. Brit.' (Lutarina of 'Prodromus') is an ab. of *C. mesomella* Hübn.

26. In 'Lep. Brit.' *G. mellonella* is 'The Honey-comb Moth,' and *Achroea grisella* Fab. is 'The Honey-Moth.'

27. Cannot trace *Leucogona* M. or *Tenuina* B. in 'Lep. Brit.' Sherborne, in 'Index Animalium,' p. 6419, says of the latter 'nomen nudum.' Jones also added M to his manuscript names for 15:76, 18:143, 18:147, and 18:154, in the 'Prodromus.' We are unable to explain this addition, but observe that all five, including *Leucogona*, differ, by their classical derivation, from nearly the whole of his other names.

28. *Gracilina* B. of the 'Prodromus' 14:53 is 'The Slender-bodied' of the 'Lep. Brit. '; *Noctua retusa* Fab. of the 'Lep. Brit.' 251:269 is 'The double Kidney.' A footnote (§§) on p. 3 of the Addenda of the 'Prodromus' reads: 'Gracillina, in priore pagina apud Pseudo-pyralides, lege Chrysoglossoidina.' Jones struck out the last two words and wrote above, in pencil, 'est Vetulina H.'

29. The *Phalæna Tortrix prasinana* Linn., ('Faun. Suec.,' 1306), given as the same species as *Tortrix quercana* Hübn. ('Schmet. Tort.' 25:159), in 'Lep. Brit.,' is *Hylophila prasinana* Linn. ('The small Green-silver-lines' of 'Lep. Brit.'). Haworth's synonym is mistaken in 'Prodromus' and 'Lep. Brit.'

30. The following paragraph is quoted from the Postscript of 'Lep. Brit.,' p. 589: 'To conclude, it may be added, that *Bombyx dominula* and *Bombyx fuliginosa* of authors, have been casually omitted above, although not uncommon English species. But these, together with a great many newer discoveries of Lepidopterous Insects inhabiting Great Britain, will be duly described in their proper places, and with an improved nomenclature, should the Public require another edition of *Lepidoptera Britannica*.'

31. J. Curtis (1823-40, 'British Entomology,' Systematic Edn., London, 5: fol. 495, pl. 76) states that 'This charming moth is no less esteemed for its rarity than for its lovely colours; the specimens in Mr. Stephens's cabinet, as well as those in the British Museum, are from Windsor; and it has been taken by the late Mr. Jones in his garden at Chelsea. Its favourite food is the larkspur. . . .' Quotations from this account are given by J. Duncan (1836, 'British Moths, Sphinxes, etc.,' in Sir W. Jar-

dine's 'The Naturalist's Library,' 1st Edn., Edinburgh, Entomology, 4: 237) and by F. D. Drewitt (1928, 'The Romance of the Apothecaries' Garden at Chelsea,' 3rd Edn., Cambridge: 91 n.), but one of Jones' MS. notebooks records that the moth was 'bred 22 June 95 in my garden.'

32. The synonymy of these *Plusias* is rather involved in the 'Lep. Brit.'

33. It is impossible to determine whether *psi* or *tridens* or both species are intended.

34. 'B' added by W. Jones to *Ranunculina* and erased from *Grandina* (see p. 163). He also added 'D' to *Straminina*, for which he gave no English name.

35. Nos. 118:66, 222:179 and 224:184 in the 'Lep. Brit.' refer to the same insect—*Agrotis vestigialis* Hufn.

36. See 48.

37. This was inadvertently identified in 1933, *Proc. Roy. Ent. Soc. Lond.*, 8 (2): 103, as *Thalera fimbrialis* Scop., 'thymiararia' being a synonym of both species. Cf. *ibid.*, 9 (3 May, 1934).

38. *Carpinaria* 22:40 in 'Prodromus' appears to be a synonym for 22:45 (*Fuscantaria*, B.), for which no English name is given by Jones.

38a. 'Lep. Brit.' 294:63 under *Tiliaria* refers to '*Geometra Alniaria* Hüb. *Schmet. Geom.* 5. 26,' which is *E. autumnaria* of Werneburg (teste L. B. Prout). Commander Walker suggests that Haworth may be referring to a form of *E. alniaria* which resembled Hübner's figure. *E. autumnaria* 'was first definitely ascertained to occur in Britain in 1855, but it had been reported as British at a much earlier date, and was figured by Wood in 1839' (cf. South, *op. cit.*, 2: 270).

39. Both 308:102 and 309:103 of 'Lep. Brit.' are *Cidaria spadicearia* Schiff.

40. W. Jones has here written the English name or note in pencil. The entries opposite 27:50, 27:62, 27:66 and 28:68 are near the centre of the page, so that a blank space is left for the insertion of the name in its usual place.

41. Jones was perhaps mistaken in applying the name 'Tissue Likeness' to *P. transversata* (*rhamnata*). He may have been misled because the next name in the 'Prodromus' is 'The Tissue' (*T. dubitata*). 'Tissue Likeness' would be an appropriate name for the 'Scarce Tissue' (*Calocalpe cervinalis*).

41a. Jones inadvertently crossed the 'l' instead of the 't' in his print-like script of Bulstrode. The vertical strokes are unmistakable and correct. The 'Lep. Brit.' states that this species

'has sometimes been called the Bullstrode [sic] Carpet' (p. 329). Bulstrode Park, Bucks, was the seat of the Duchess of Portland, to whom the 'Lep. Brit.' refers (p. 264) as 'that great patroness of Natural History.' The same passage indicates that William Jones was acquainted with her collection.

42. The 'Chimney Sweeper's Boy' was erroneously supposed to refer to the same species as the 'Chimney Sweeper' in 1933, *Proc. Roy. Ent. Soc. Lond.*, 8(2): 103. The former is a Psychid moth ('Lep. Brit.', p. 473), as is pointed out in the Proceedings of 3 May, 1934. A recently studied notebook possessed by William Jones contains these entries: '275, Chimney Sweeper: Chaerophyllata: beginning of June: in woods.' Also '276, Chimney Sweeper's Boy: Atra: 4th week in May: tread up in grassfields.'

43. No. 68, the seven succeeding numbers, and a few others elsewhere were omitted by W. Jones, as indicated by square brackets.

44. Inadvertently identified in 1933, *Proc. Roy. Ent. Soc. Lond.*, 8(2): 103, as *Schistostege decussata* Schiff., *decussata* being a synonym of *Eupithecia venosata* Fab. Cf. *ibid.*, 9: 3 May, 1934.

45. 'The small Tabby' of 'Lep. Brit.' 372: 20 is *Aglossa cuprealis* Hübn.

46. 'The clay Fanfoot' of 'Lep. Brit.' 369:12 is *Herminia derivalis* Hübn.

47. 'A' in this and the succeeding references in this column indicates the separately paged Addenda of the 'Prodromus.'

48. At the foot of page 3 of the Addenda, Jones wrote, in pencil, '*Dilutina est Geminoidina* 162 . . .' and '*Chenopodina est Infracina* 136.' The full references to the 'Prodromus' are 19: 162 and 18: 136 respectively.

49. The English name or note was added in pencil by W. Jones to the printed page of the 'Prodromus' and not to the interleaf. Only the interleaves to pages 3 and 4 of the Addenda are ruled for the addition of MS. names (see also p. 150).

50. W. Jones has here written the name and note in pencil. The note begins on the interleaf and continues on the left hand margin of the printed page. The name 'Chestnut' is added to the right hand margin of the printed page.

Notes 1-50 should be supplemented by the following information. Both interleaves and printed pages of Jones' copy of the 'Prodromus' contain many faint pencil numbers of which the meaning cannot now be made out, and so are omitted. Against Eborina 13: 38 is the letter 'F,' and opposite *Pullina* 19: 173 are

the letters 'LT,' both additions being in pencil. Tripunctata, F. 34:68, is corrected, in ink, to Tripunctana; Interragatiana, D. 32:23, to Interrogatiana; Bipunctadactyla, V., Addenda 6:7, to Bipunctidactyla. Traces of erasures occur at intervals through the volume.

The first column of the following lists reproduces the British names, written in his beautiful print-like script by William Jones, together with occasional additions or comments in his ordinary handwriting. These are indicated by italics. Some of them were evidently added at a later date to fill in names left vacant when the print-like script was written. This column follows the original precisely, except that words indicated by repetition marks are here printed in full.

The relatively few italicised names in the third column are thus printed in the 'Prodromus.' The few corrections or additions, also indicated by italics, were made in MS. by William Jones. The letters which follow certain names in this column are explained by Haworth in the Preface, as follows: 'All the names in this catalogue occur with their synonyms in the several works of Linnæus, Fabricius, Villers, Hubner, Panzer, Lewin, Donovan, Curtis, and the Transactions of the Linnæan Society; except a few which it was thought proper to insert to elucidate the sections, marked with the initial of this country, B.'

A manuscript note by the late J. H. Durrant in the British Museum (Nat. Hist.) copy of the 'Prodromus' states that 'B = sp.n.'

H.M.E

V. ENGLISH NAMES USED FOR BRITISH RHOPALOCERA BY A. H. HAWORTH AND WILLIAM JONES, WITH THEIR SCIENTIFIC EQUIVALENTS. BY FRANCIS HEMMING.

Numbers 1 to 16 refer to the notes on pages 155 to 158.

English names with 'Prodromus' numbers in MS. of William Jones.	English names in 'Lep. Brit.' with numbers of page and species.	Names in 'Prodromus' with numbers of page and species.	Equivalents determined by Francis Hemming.
1, 1A. 1 taken in <i>May in Bedfordshire</i> Dr. Abbot	1A. 2. the scarce Swallow-tail 5:2	Podalirius 1:1	3. <i>Iphicidides podalirius</i> (Linn., 1758).
2 Swallowtail	The Swallow-tail 5:1	Machaon 1:2	<i>Papilio machaon</i> Linn., 1758.
3 Blackvein White	The black-veined White 6:3	Cratægi 1:3	<i>Aporia crataegi</i> (Linn., 1758).
4 Large Garden White	The large White 7:4	Brassicæ 1:4	<i>Pieris brassicæ</i> (Linn., 1758).
5 Small Garden White	The small White 8:5	Rape 1:5	<i>Pieris rapæ</i> (Linn., 1758).
6 Green vein White	The green-veined White 9:6	Napi 1:6	<i>Pieris napi</i> (Linn., 1758).
7 Wood White	The Wood White 9:7	Sinapis 1:7	<i>Leptidea sinapis</i> (Linn., 1758).
1, 8 Marble White taken beginning of June in Cambridge; Dr. Abbot	The green-chequered White 10:8	Daphnice 1:8	<i>Pontia daphnice</i> (Linn., 1758).
9 Orange Tip	The Orange Tip 11:9	Cardamine 1:9	<i>Euchloe cardamines</i> (Linn., 1758).
10 Brimstone	The Brimstone 14:14	Rhamni 2:10	<i>Gonepteryx rhamni</i> (Linn., 1758).
11 Pale clouded Yellow	The pale clouded Yellow 13:13	Hyalæ 2:11	<i>Colias hyalæ</i> (Linn., 1758).
12 Clouded Yellow	The clouded Yellow 11:10	Edusa 2:12	<i>Colias croceus</i> (Fourc., 1785).
13	The white clouded Yellow 12:11	Edusa alba, B. 2:13	<i>Colias croceus</i> (Fourc.) ab. <i>helice</i> (Hübner, [1799]).
14 Ringlet	The Ringlet 14:15	Hyperantus 2:14	<i>Aphantopus hyperantus</i> (Linn., 1758).
15	The small Ringlet 15:16	Hero 2:15	4. <i>Coenonympha tullia philoxenus</i> (Esp., [1780]).

16	2.	The scarce Heath	16 : 18	...	Typhon, B. 2 : 16	...	4.	<i>Coenonympha tullia polydama</i> (Haw., 1803).
17		Gatekeeper	...	...	Pamphilus 2 : 17	...		<i>Coenonympha pamphilus</i> (Linn., 1758).
18		Large Tortoise-shell	...	...	Polychloros 2 : 18	...		<i>Nymphalis polychloros</i> (Linn., 1758).
19		Small Tortoise-shell	...	...	Urticæ 2 : 19	...		<i>Aglais urticae</i> (Linn., 1758).
20		Comma	...	...	C. album 2 : 20	...		<i>Polygonia c-album</i> (Linn., 1758).
21		Admirable	...	...	Atalanta 2 : 21	...		<i>Vanessa atalanta</i> (Linn., 1758).
22		Camberwell Beauty	...	...	Antiope 2 : 22	...		<i>Nymphalis antiopa</i> (Linn., 1758).
23		White Admirable	...	...	Camilla 2 : 23	...		<i>Limenitis camilla</i> (Linn., 1764).
24		Silver Wash	...	...	Paphia 2 : 24	...		<i>Argynnis paphia</i> (Linn., 1758).
25		High Brown	...	...	Adippe 2 : 25	...		<i>Argynnis cydippe</i> (Linn., 1761).
26		Dark green	...	...	Aglaia 2 : 26	...		<i>Argynnis aglaia</i> (Linn., 1758).
27		Queen of Spain	...	...	Charlotta 3 : 27	...	5.	<i>Argynnis aglaia</i> (Linn.) ab. <i>charlotta</i> (Haw., 1805).
28		Queen of Spain	...	...	Lathonia 3 : 28	...		<i>Argynnis lathonia</i> (Linn., 1758).
29		Pearl border	...	...	Euphrosyne 3 : 29	...		<i>Argynnis euphrosyne</i> (Linn., 1758).
30		Small pearl border	...	...	Selene 3 : 30	...		<i>Argynnis selene</i> (Schiff., 1775).
31		Pearl border likeness	...	...	Dielyna 3 : 31	...	6.	<i>Melitæa athalia</i> (Rott., 1775).
32		Glanville	...	...	Cinxia 3 : 32	...		<i>Melitæa cinxia</i> (Linn., 1758).
33		Greasy	...	...	Artemis 3 : 33	...		<i>Euphydryas aurinia</i> (Rott., 1775).
34		Burgundy	...	...	Lucina 3 : 34	...		<i>Hamearis lucina</i> (Linn., 1758).
35		Emperor	...	...	Iris 3 : 35	...		<i>Apatura iris</i> (Linn., 1758).
36		Peacock	...	...	Io 3 : 36	...		<i>Nymphalis io</i> (Linn., 1758).
37		Painted Lady	...	...	Cardui 3 : 37	...		<i>Vanessa cardui</i> (Linn., 1758).
38		Grayline	...	...	Semele 3 : 38	...		<i>Eumenes semele</i> (Linn., 1758).
39		Wall	...	...	Mægera 3 : 39	...	7.	<i>Pararge megera</i> (Linn., 1767).

English names with 'Pro-dromus' numbers in MS. of William Jones.	English names in 'Lep. Brit.' with numbers of page and species.	Names in 'Prodrromus' with numbers of page and species.	Equivalents determined by Francis Hemming.
40 Speckled Wood	The speckled Wood 23 : 26 ...	<i>Aegeria</i> 3 : 40 ...	<i>Pararge aegeria</i> (Linn., 1758).
41 Marmores	The marbled White 22 : 24 ...	<i>Gaithaea</i> 3 : 41 ...	<i>Satyrus galathea</i> (Linn., 1758).
42 Meadow brown	The Meadow Brown 23 : 27 ...	<i>Jurtina</i> 3 : 42 ...	<i>Maniola jurtina</i> (Linn., 1758).
43 Orange Field	The large Heath 24 : 28 ...	<i>Pilosellæ</i> 3 : 43 ...	<i>Maniola tithonus</i> (Linn., 1771).
44 Hippothoe	The large Copper 40 : 51 ...	<i>Dispar</i> 3 : 44 ...	8. <i>Lycæna dispar</i> ([Haw.], 1862).
45 Scase Copper	The middle Copper 41 : 52 ...	<i>Virgaureæ</i> 4 : 45 ...	3. <i>Lycæna virgaureæ</i> (Linn., 1758).
46 Copper	The common Copper 42 : 54 ...	<i>Phicæa</i> 4 : 46 ...	<i>Lycæna phlæas</i> (Linn., 1761).
47 Hairstreak brown	The brown Hair-streak 37 : 47 ...	<i>Betulæ</i> 4 : 47 ...	<i>Thecla betulæ</i> (Linn., 1758).
48 Hairstreak Purple	The purple Hair-streak 38 : 49 ...	<i>Quercus</i> 4 : 48 ...	<i>Thecla quercus</i> (Linn., 1758).
49 Hairstreak Black	The black Hair-streak 38 : 48 ...	<i>Pruni</i> 4 : 49 ...	<i>Strymon pruni</i> (Linn., 1758).
50 Hairstreak Green	The green Hair-streak 39 : 50 ...	<i>Rubi</i> 4 : 50 ...	<i>Callophrys rubi</i> (Linn., 1758).
51 Blue Large	The large Blue 43 : 55 ...	<i>Arion</i> 4 : 51 ...	<i>Maculinea arion</i> (Linn., 1758).
52 Blue Chalkhill	The Chalk-hill Blue 43 : 56 ...	<i>Corydon</i> 4 : 52 ...	<i>Lysandra coridon</i> (Poda, 1761).
53 Blue Celestial	The Clifden Blue 44 : 57 ...	<i>Adonis</i> 4 : 53 ...	9. <i>Lysandra bellargus</i> (Rott., 1775).
54 Blue Coñon	The common Blue 45 : 58 ...	<i>Icarus</i> , Lew. 4 : 54 ...	<i>Polyommatus icarus</i> (Rott., 1775).
55	2. The light Blue 45 : 59 ...	<i>Hyacinthus</i> , Lew. 4 : 55 ...	10. <i>Polyommatus icarus</i> (Rott., 1775) aberration.
56 Blue Silver spotted	The silver-studded Blue 46 : 60 ...	<i>Argus</i> 4 : 56 ...	<i>Plebejus argus</i> (Linn., 1758).
57 Brown Argus	The brown Argus 46 : 61 ...	<i>Idas</i> 4 : 57 ...	11. <i>Aricia agestis</i> (Schiff., 1775).
58 Scotch Argus	The Scotch Argus 47 : 62 ...	<i>Artaxerxes</i> 4 : 58 ...	<i>Aricia agestis artaxerxes</i> (Fab., 1793).
59 Blue Azure	The azure Blue 47 : 63 ...	<i>Argiolus</i> 4 : 59 ...	<i>Lycænopis argiolus</i> (Linn., 1758).
60 Blue Mazarine	The Mazarine Blue 48 : 64 ...	<i>Cymon</i> , Lew. 4 : 60	<i>Cyaniris semiargus</i> (Rott., 1775).
61 Blue Small	The small Blue 48 : 65 ...	<i>Alsus</i> 4 : 61 ...	<i>Cubido minimus</i> (Fuessl., 1775).
62 Skipper Large	The large Skipper 50 : 68 ...	<i>Sylvanus</i> 4 : 62 ...	12. <i>Ochlodes venata septentrionalis</i> (Verity, 1919).
63 Skipper Pearl	The silver-spotted Skipper 50 : 67 ...	<i>Comma</i> 4 : 63 ...	<i>Hesperia comma</i> (Linn., 1767).

64	2. The chequered Skipper 49: 66	Paniscus 5: 64	... <i>Carterocephalus palaemon</i> (Fall., 1771).
65	Skipper small	Linea 5: 65	13. <i>Adophea sylvestris</i> (Poda, 1761).
68 [66]	Skipper dingy	Tages 5: 66	... <i>Erymnis tages</i> (Linn., 1758).
67	Grizzel	Malvæ 5: 67	14. <i>Pyrgus malvæ</i> (Linn., 1758).
68	Scarse Grizzel	Lavateræ 5: 68	15. <i>Pyrgus malvæ</i> (Linn.) ab. <i>taras</i> (Bergstr., 1783).
1.	To the above may be added		
	Chryseis taken by Mr. Plasted in Sussex.		16. <i>Lycæna hippothoë</i> (Linn., 1761).
	Ligea taken by Mr. McLeay in Scotland		16. <i>Erebia ligea</i> (Linn., 1758).
	Ditto		
	a small Fritillary taken		

VI. ENGLISH NAMES USED FOR BRITISH HETEROCERA BY A. H. HAWORTH AND WILLIAM JONES, WITH THEIR SCIENTIFIC EQUIVALENTS. BY H. M. EDELSTEN.

Numbers 16a to 50 refer to the notes on pages 158 to 163, 1 and 1a to notes on page 156.

	English names with 'Pro-dromus', numbers in MS. of William Jones.	English names in 'Lep. Brit.' with numbers of page and species.	Names in 'Prodrromus' with numbers of page and species.	More recent equivalents determined by H. M. Edelsten.
16A. 1	Death Head ...	The Death's-Head Hawk 56:1	Atropos 5:1 ...	<i>Acherontia atropos</i> Linn.
2	Unicorn ...	The Unicorn Hawk 58:2 ...	Convolvuli 5:2 ...	<i>Sphinx convolvuli</i> Linn.
3	Privet ...	The Privet Hawk 59:4 ...	Ligustri 5:3 ...	<i>Sphinx ligustri</i> Linn.
4	Pine ...	The Pine Hawk 59:5 ...	1A. Pinestri 5:4 ...	<i>Hyleoicus pinastri</i> Linn.
5	Eyed ...	1A. The eyed Hawk 63:11 ...	Ocellata 5:5 ...	<i>Smerinthus ocellatus</i> Linn.
6	Poplar ...	The Poplar Hawk 64:12 ...	Populi 5:6 ...	<i>Smerinthus populi</i> Linn.
7	Lime ...	The Lime Hawk 64:13 ...	Tiliae 5:7 ...	<i>Diina tiliae</i> Linn.
9	Spotted Elephant ...	The scarce Elephant Hawk 61:8 ...	Euphorbiae 5:9 ...	<i>Deilephila euphorbiae</i> Linn.
11	Elephant ...	The Elephant Hawk 62:9 ...	Elpenor 6:11 ...	<i>Choerocampa elpenor</i> Linn.
12	Small Elephant ...	The small Elephant Hawk 63:10 ...	Porcellus 6:12 ...	<i>Metopsilus porcellus</i> Linn.
13	Humming bird ...	The Humming-bird 65:14 ...	Stellatarum 6:13 ..	<i>Macroglossa stellatarum</i> Linn.
1. 14	Bee with broad bordered wing ...	The broad-bordered Bee 67:15	Fuciformis 6:14 ...	<i>Hemaris fuciformis</i> Linn.
1. 15	Bee with narrow bordered wing ...	The narrow-bordered Bee 68:16 ...	Bombyliformis 6:15	<i>Hemaris tityus</i> Linn.
16	Hornet ...	The Hornet 68:17 ...	Apiformis 6:16 ...	<i>Trochilium apiformis</i> Clerck.
18. 17	Hornet Lunar ...	The lunar Hornet 69:18 ...	Crabroniformis 6:17	<i>Trochilium crabroniformis</i> Lewin.
20	Currant ...	The currant Clear-wing 70:21	Tipuliformis, H. 6:20	<i>Sesia tipuliformis</i> Clerck.
21	Yellow tail'd ...	The yellow-tailed Clear-wing 70:22 ...	Æstriformis, H. 6:21	<i>Sesia vespiformis</i> Linn.

23	Red Belted	...	The red-belted	Clear-wing	Culiciformis 6 : 23	<i>Sesia culiciformis</i> Linn.
27	Burnet	...	71 : 26	...	Filipendulæ 6 : 27	<i>Zygaena filipendulæ</i> Linn.
28	5 Spot Burnet	...	The six-spot Burnet 73 : 2	...	Lonicere, H. 6 : 28	<i>Zygaena lonicerae</i> Esp.
29	Forrester	...	The five-spot Burnet 74 : 3	...	Staticee 6 : 29	<i>Ino staticee</i> Linn.
1	Goat	...	The green Forester 73 : 1	...	Cossus 7 : 1	<i>Cossus cossus</i> Linn.
2	Pine	...	The Goat 89 : 14	...	Pinus 7 : 2	<i>Dendrolimus pini</i> Linn.
3	Lappett	...	The Pine Lappet 80 : 4	...	Quercifolius 7 : 3	<i>Gastropacha quercifolia</i> Linn.
4	Buff Tip	...	The Lappet 95 : 19	...	Bucephalus 7 : 4	<i>Phalera bucephala</i> Linn.
5	Puss	...	The Buff Tip 92 : 15	...	Vinulus 7 : 5	<i>Dicranura vinula</i> Linn.
6	Leopard	...	The Puss 86 : 10	...	Æsculus 7 : 6	<i>Zeuzera pyrina</i> Linn.
7	Kentish Glory	...	The Leopard 89 : 13	...	Versicolorus 7 : 7	<i>Endromis versicolor</i> Linn.
8	Large Eggar	...	The Kentish Glory 80 : 3	...	Quercus 7 : 8	<i>Lasiocampa quercus</i> Linn.
9	Fox	...	The large Eggar 81 : 5	...	Rubus 7 : 9	<i>Macrorthylactia rubi</i> Linn.
10	Grass Eggar	...	The Fox 83 : 7	...	Trifolius 7 : 10	<i>Lasiocampa trifolii</i> Esp.
11	Drinker	...	The Grass Eggar 83 : 6	...	Potaturus 7 : 11	<i>Cosmotriche potatoria</i> Linn.
12	Large Tiger	...	The Drinker 84 : 8	...	Calus 7 : 12	<i>Arctia caia</i> Linn.
13	Cream spot Tiger	...	The Garden Tyger 93 : 16	...	Villicus 7 : 13	<i>Arctia villica</i> Linn.
14	Lobster	...	The cream-spot Tyger 94 : 17	...	Fagus 7 : 14	<i>Stauropus fagi</i> Linn.
15	Black Arches	...	The Lobster 85 : 9	...	Monachus 7 : 15	<i>Lymantria monacha</i> Linn.
16	Emperor	...	The black Arches 87 : 11	...	Pavonus 8 : 16	<i>Saturnia pavonia</i> Linn.
17	Gipsev	...	The Emperor 78 : 1	...	Disparus 8 : 17	<i>Lymantria dispar</i> Linn.
18	Light Tussock	...	The Gipsy 88 : 12	...	Pudibundus 8 : 18	<i>Dasychira pudibunda</i> Linn.
19	Dark Tussock	...	The pale Tussock 101 : 30	...	Fascelinus 8 : 19	<i>Dasychira fascelina</i> Linn.
20	Great Prominent	...	The dark Tussock 102 : 31	...	Tritophus 8 : 20	<i>Notodonta trebida</i> Esp.
21	Swallow	...	The great Prominent 98 : 24	...	Tremulus 8 : 21	<i>Pheosia tremula</i> Clerck.
22	Iron Prominent	...	The Swallow Prominent 99 : 25	...	Dromedarius 8 : 22	<i>Notodonta dromedarius</i> Linn.
1. 23	Iron Prominent <i>the lesser</i>	...	The Iron Prominent 100 : 28	...	<i>Dromedarulus</i> 8 : 23	<i>Notodonta dromedarius</i> Linn.
18A. 24	Dark Prominent	...	The small Iron Prominent 101 : 29	...	<i>Perfuscus</i> 8 : 24	<i>Notodonta tritophus</i> Schiff.
25	Pebble	...	The dark Prominent 100 : 27	...	Ziczacus 8 : 25	<i>Notodonta ziczac</i> Linn.
26	Cockscomb	...	The Pebble Prominent 99 : 26	...	Camelinus 8 : 26	<i>Lophopteryx camelina</i> Linn.
27	Maple	...	The Cockscomb Prominent 96 : 21	...	<i>Capucinus</i> 8 : 27	<i>Lophopteryx cuculla</i> Esp.
28	Pale	...	The Maple Prominent 97 : 22	...	Palpinus 8 : 28	<i>Pterostoma palpina</i> Linn.
29	Herald	...	The pale Prominent 96 : 20	...	Libatrus 8 : 29	<i>Scoliopteryx libatrix</i> Linn.
		...	The Herald 98 : 23	...		

English names with 'Pro-	English names in 'Lep. Brit.'	Names in 'Prodrromus'	More recent equivalents deter-
dromus' numbers in MS.	with numbers of page and	with numbers of page	mined by H. M. Edelsten.
of William Jones.	species.	and species.	
30 V nigrum ...	The black V. 107: 41 ...	<i>V. nigrorus</i> 8: 30 ...	<i>Leucoma v-nigrum</i> Fab.
31 Sattin ...	The Satin 107: 42 ...	<i>Salicinus</i> 8: 31 ...	<i>Stilpnolia salicis</i> Linn.
32 Yellow Tail ...	The yellow Tail 108: 43 ...	<i>Aurifluus</i> 8: 32 ...	<i>Porthesia similis</i> Fues.
33 Browntail ...	The brown Tail 109: 45 ...	<i>Phæorrhœus</i> 8: 33 ...	<i>Euproctis chrysothoea</i> Linn.
34 Cream dot Stripe ...	The spotted Buff 110: 47 ...	19. <i>Chrysorrhœa</i> L. ...	
35 Large Ermine ...	The large Ermine 111: 48 ...	<i>Lubricipedatus</i> 8: 34	20. <i>Spilosoma lutea</i> Hufn.
36 Water Ermine ...	The Water Ermine 112: 49 ...	<i>Menthastrus</i> 9: 35 .	<i>Spilosoma lubricipeda</i> Linn.
37 Spotted Muslin ...	The spotted Muslin 112: 50 ...	<i>Papyratus</i> 9: 36 ...	(= <i>menthastris</i> Esp.).
38 Sprawler ...	The Sprawler 106: 40 ...	<i>Mendicinus</i> 9: 37 ...	<i>Spilosoma urticae</i> Esp.
39 Powdered Quaker ...	The powdered Quaker 122: 79	<i>Cassinius</i> 9: 38 ...	<i>Diaphora mendica</i> Clerck.
42 Quaker ...	The common Quaker 123: 80	<i>Sparsus</i> , B. 9: 39 .	<i>Brachionycha sphinx</i> Hufn.
43 Quaker likeness ...	The conjoint'd Quaker 123: 81	<i>Cerasus</i> 9: 42 ...	<i>Taenioecampa gracilis</i> Fab.
44 Small Quaker ...	The small Quaker 123: 82 ...	<i>Junctus</i> , B. 9: 43 ..	<i>Taenioecampa stabilis</i> View., ab.
45 Nuttree Tussock ...	The Nut-tree Tussock 102: 32	<i>Nanus</i> , B. 9: 44 ...	<i>junctus</i> Haw.
46 Green Dot ...	The green-brindled Dot 120: 70	<i>Corylus</i> 9: 45 ...	<i>Taenioecampa pulverulenta</i> Esp.
47 Scarce Gothic ...	The feathered Gothic 117: 63	<i>Oleaginus</i> 9: 46 ...	<i>Valeria oleagina</i> Fab.
49 Sword blade grass	The small Sword Grass 114: 51	<i>Popularius</i> , F. 9: 47	<i>Epineuronia popularis</i> Fab.
likeness ...	The small Sword-grass 217: 154	<i>Spiniferus</i> 9: 49 ...	<i>Agrotis ypsilon</i> Rott.
50 Brindle Heart & Dart	The brindled Dart 115: 57 ...	<i>Stigmaticus</i> 9: 50 ..	<i>Agrotis segetum</i> Schiff.
57 Antler ...	The Antler 117: 64 ...	<i>Gramineus</i> 10: 57 ..	<i>Charaxes graminis</i> Linn.
58 Wood Tiger ...	The Wood Tyger 94: 18 ...	<i>Plantaginus</i> 10: 58 .	<i>Parasemia plantaginis</i> Linn.
59 Orange Underwing .	The Orange Underwing 135: 98	<i>Parthenius</i> 10: 59 ..	<i>Brephos parthenus</i> Linn.
60 Clouded Buff ...	The clouded Buff 133: 96 ...	<i>Sannius</i> 10: 60 ...	<i>Diactisia sanio</i> Linn.
61 Vapourer ...	The Vapourer 132: 92 ...	<i>Antiquus</i> 10: 61 ...	<i>Orgyia antiqua</i> Linn.
62 Scarce Vapourer ...	The scarce Vapourer 132: 93	<i>Gonostigmatus</i> 10: 62	<i>Orgyia gonostigma</i> Fab.
63 Lacquey ...	The barr'd Tree-Lacquey 129: 87	<i>Neustrius</i> 10: 63 ...	<i>Malacosoma neustria</i> Linn.
64 Small Eggar ...	The small Eggar 124: 84 ...	<i>Lanestrosus</i> 10: 64 .	<i>Eriogaster lanestris</i> Linn.

65	December	...	The December	Moth	127 : 85	Populeus	10 : 65	...	<i>Poecilocampa populi</i> Linn.
66	Scarce Lacquey	...	The Ground	Lacquey	128 : 86	Castrosus	10 : 66	...	<i>Malacosoma castrensis</i> Linn.
67	Chocolate Tip	...	The Chocolate	Tip	130 : 89	Curtulus	10 : 67	...	<i>Pygaera curtula</i> Linn.
68	Small Chocolate Tip	...	The scarce	Chocolate	Tip	131 : 90	Anachoretus	10 : 68	<i>Pygaera anachoreta</i> Fab.
70	Kitten	...	The Kitten	103 : 33	...	Furculus	10 : 70	...	<i>Cerura furcula</i> Linn.
71	Oak Moth	...	The lunar	marbled	Brown	Roboreus	10 : 71	...	<i>Drymonia chaonia</i> Hübn.
72	Figure of 8	...	The figure of 8	105 : 39	...	Cœruleocephalus	10 : 72	...	<i>Diloba cœruleocephala</i> Linn.
73	Oak Eggar	...	The Oak	Eggar	105 : 37	Cratægus	10 : 73	...	<i>Trichiura crataegi</i> Linn.
74	Chinese Character	...	The Chinese	Character	110 : 46	Compressus	10 : 74	...	<i>Cilix glaucata</i> Scop.
75	Feather'd Rustic	...	The feather'd	Rustic	133 : 94	Phæus	11 : 75	...	<i>Rusina tenebrosa</i> Hübn.
77	Hebrew Character	...	The Hebrew	Character	119 : 69	Gothicus	11 : 77	...	<i>Taeniocampa gothica</i> Linn.
1	Cliefden Nonpariel	...	The Nonpareil	267 : 1	...	Fraxina	11 : 1	...	<i>Catocala fraxini</i> Linn.
2	Old Lady	...	The great	Brown-bar	269 : 6	Maurina	11 : 2	...	<i>Mormo maura</i> Linn.
3	Red Underwing	...	The red	underwing	268 : 2	Nuptina	11 : 3	...	<i>Catocala nupta</i> Linn.
4	Crimson Underwing	...	The dark	Crimson-underwing	268 : 3	Sponsina	11 : 4	...	<i>Catocala sponsa</i> Linn.
5	Large yellow Underwing	...	The large	Yellow-underwing	160 : 1	Pronubina	11 : 5	...	<i>Triphaena pronuba</i> Linn.
6	Beautiful yellow Underwing	...	The Broad	border	161 : 3	Fimbrina	11 : 6	...	<i>Triphaena fimbria</i> Linn.
7	Common yellow Underwing	...	The lesser	Yellow-underwing	161 : 4	Orbonina	11 : 7	...	<i>Triphaena comes</i> Hübn.
8	Lesser broad border'd Yellow Underwing	...	The lesser	Broad-border	162 : 7	Janthina	12 : 8	...	<i>Triphaena ianthina</i> Esp.
9	Least broad border'd Yellow Underwing	...	The Least	Broad-border	162 : 8	Fimbrina minor,	V.	...	<i>Triphaena interjecta</i> Hübn.
10	Clover Feeder	...	The marbled	Clover	263 : 26	<i>Dipsacta</i>	12 : 10	...	<i>Heliolhis dipsacea</i> Linn.
11	Small beautiful yellow Underwing	...	The beautiful	Yellow-underwing	162 : 9	Myrtillina	12 : 11	...	<i>Anarta myrtilli</i> Linn.
12	Smallest yellow Underwing	...	The minute	Yellow-underwing	265 : 33	Arbutina	12 : 12	...	<i>Heliaca tenebrata</i> Scop.
13	Copper Underwing	...	The copper	Underwing	163 : 11	Pyramidina	12 : 13	...	<i>Amphipyra pyramidea</i> Linn.

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14 Straw collour'd Underwing	The straw Underwing 161: 6	Cytherina 12: 14 ...	<i>Cerigo matura</i> Hufn.
15 Burnet Companion ...	The Burnet 265: 31 ...	Glypticina 12: 15 ...	<i>Euclidia glyptica</i> Linn.
16 Shipton ...	The Shipton 265: 32 ...	Milina 12: 16 ...	<i>Euclidia mi</i> Clerck.
18 Sword blade ...	The large Sword-Grass 168: 24	Exoletina 12: 18 ...	<i>Calocampa exoleta</i> Linn.
19 Shark ...	The large pale Shark 164: 14	Umbaticina 12: 19	<i>Cucullia umbratica</i> Linn.
1. 20 Water Betony Likeness from <i>Wisbeech</i>	The Starwort 168: 22	Asterina 12: 20 ...	<i>Cucullia asteris</i> Schiff.
21 Water Betony ...	The Mulllein 167: 20 ...	Verbascina 12: 21 ...	<i>Cucullia verbasci</i> Linn.
22 Wormwood ...	The Wormwood 168: 23	<i>Absinthina</i> 12: 22 ...	<i>Cucullia absinthii</i> Linn.
1. 23 Water Betony Likeness <i>Curtis</i>	The Chamomile Shark 165: 15	Fissina, B. 12: 23 ..	<i>Cucullia chamomillae</i> Schiff.
25 Cat-tail rush Moth ...	The twin-tailed Shark 166: 19		
26 Light Arches ...	The Bullrush 173: 35	Typhina, B. 12: 25	<i>Nonagra typhae</i> Thunb.
27 Wainscot Comma ...	The light Arches 169: 25 ...	Perspicillina 12: 26 .	<i>Xylophasia lithoxylea</i> Fab.
	The Shoulder-stripe Wainscot 174: 38 ...	Commaina 12: 27 ..	<i>Leucania comma</i> Linn.
28 Wainscot Smoaky ...	The smokey Wainscot 174: 39	Fulgosina, B. 12: 28	<i>Leucania obsoleta</i> Hübn.
29 Wainscot Pale ...	The common Wainscot 175: 42	Pallensina 13: 29 ...	<i>Leucania pallens</i> Linn.
1. 30 Wainscot red ...	The red Wainscot 175: 41 ...	Rufescensina, B. 13: 30 ...	<i>Leucania pallens</i> Linn., ab. <i>rufescens</i> Haw.
1. 31 Wainscot dotted border	The dotted-bordered Wainscot 174: 40 ...	Punctina, B. 13: 31	<i>Leucania impura</i> Hübn.
1. 32 Wainscot pale dusty .	The powdered Wainscot 175: 43	Atomina, B. 13: 32	<i>Arsilonce albovenosa</i> Goeze.
1. 33 Wainscot small red ...	The small Rufous 260: 16 ...	24. <i>Ruferculina</i> , B. 13: 33	<i>Coenobia rufa</i> Haw.
1. 34 Wainscot small pale dusty	The small Wainscot 176: 46 .	<i>Rufesculina</i> ...	<i>Tapinostola fulva</i> Hübn.
35 Large Spotted Footman	The large Footman 146: 1 ...	Pygmina, B. 13: 34	<i>Oeonesti quadra</i> Linn.
36 Striped Footman ...	The common Footman 147: 3	Complanina 13: 36 .	<i>Lithosia complana</i> Linn.

- 37 Straw colour'd Footman ... Footman 147 : 4
- 38 Small Spotted Footman ... Footman 147 : 6
- 39 Dew Moth ... 148 : 8
- 41 Orange Footman ... 147 : 5
- 42 Red Arches ... 149 : 10
- 43 Red neck Footman ... 149 : 9
- 47 Honey Moth ... 392 : 2
- 48 Black neck ... 359 : 11
- 49 Leucogona M ...
- 50 Large Sattin Carpet ...
- 51 Small Sattin Carpet ...
1. 52 *Beckwith's anastomosis* ...
1. 53 *something similar* ...
- 55 Burdock ...
- 56 Buff Arches ...
- 57 Clouded Sallow ...
- 58 Pale clouded Sallow ...
- 59 Orange Upperwing ...
- 61 Barr'd Sallow ...
- 64 Border'd Sallow ...
19. 65 Heart Moth ...
- 66 Bedford Moth ...
- 67 Brownline bright eye ...
- 69 Clay Colour ...
- 70 Orange with dark spot in middle ...
- 71 Bright ey'd Clay ...
- 72 Bright-line brown eye ...
- The straw-coloured Footman 147 : 4
- The four-spct, small Footman 147 : 6
- The dew Moth 148 : 8
- The orange Footman 147 : 5
- The red Arches 149 : 10
- The Black Footman 149 : 9
- The Honey-Moth 392 : 2
- The Blackneck 259 : 11
- The satin Carpet 252 : 273
- The lesser satin Carpet 253 : 274
- The double Kidney 251 : 269
- The Slender-bodied 251 : 268
- The frosted Orange 234 : 216
- The buff Arches 244 : 253
- The pink-barr'd Sallow 236 : 220
- The common Sallow 236 : 221
- The orange Upperwing 238 : 227
- The barr'd Sallow 235 : 218
- The bordered Sallow 235 : 217
- The heart Moth 238 : 225
- The dusky Sallow 237 : 223
- The brown-line Bright-eye 239 : 229
- The blossom Underwing 241 : 233
- The brick Moth 239 : 230
- The bright-eyed Clay 229 : 200
- The bright-line Brown-eye 193 : 93
25. *Lithosia griseola* Hübn., ab. *flava* Haw.
- Cybosia mesomella* Hübn.
- Ivorina*, L. 13 : 39
- Aurantina*, B. 13 : 41
- Rosina* 13 : 42
- Rubicollina* 13 : 43
- Mellonina* 13 : 47
24. *Lusina* 13 : 48
- Lusorina*
- Tenuina*, B. 14 : 49
- Similina*, B. 14 : 50
- Dissimilina*, B. 14 : 51
- Chrysglossina* 14 : 52
- Gracilina*, B. 14 : 53
- Lappina* 14 : 55
- Derasina* 14 : 56
- Flavago* 14 : 57
- Fulvago* 14 : 58
- Croceago* 14 : 59
- Aurago* 14 : 61
- Marginago* 14 : 64
- Lewin*
- Ooina* 14 : 65
- Citrina*, D. 14 : 66
- Conigerina* 14 : 67
- Serratina*, B. 15 : 69
- Unimaculina*, B. 15 : 70
- Unipunctina*, B. 15 : 71
- Oleracina* 15 : 72
- Cannot be traced.
- Palimpsestis fluctuosa* Hübn.
- Palimpsestis duplaris* Linn.
- Plastenis retusa* Linn.
- Plastenis retusa* Linn.
- Ochria ochracea* Hübn.
- Habrosyne derasa* Linn.
- Xanthia lutea* Strom.
- Xanthia fulvago* Linn.
- Xantholeuca croceago* Fab.
- Ochria aurago* Fab.
- Pyrrhia umbra* Hüfn.
- Dicycla* oo Linn.
- Eremobia ochroleuca* Esp.
- Leucania conigera* Fab.
- Taeniocampa miniosa* Fab.
- Amathes macilenta* Hübn.
- Leucania lithargyria* Esp.
- Mamestra oleracea* Linn.

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73 Satellites ... ..	The Satellites 229 : 201 ... ..	Satellitina 15 : 73 ... ..	<i>Scopelosoma satellitia</i> Linn.
74 Flounced Chesnut ... ..	The flounced Chesnut 229 : 202 ... ..	Ferrugina 15 : 74 ... ..	<i>Amathes helictis</i> Linn.
75 Beaded Chesnut ... ..	The beaded Chesnut 230 : 205 ... ..	Sphaerulatina 15 : 75 ... ..	<i>Amathes lychnidis</i> Schiff.
76 Sexpunctata M ... ..	The pale Beaded - chesnut 231 : 206 ... ..	Sexpunctina 15 : 76 .	<i>Amathes lychnidis</i> Schiff.
78 Chesnut ... ..	The Chesnut 233 : 212 ... ..	Vaccina 15 : 78 ... ..	<i>Orrhodia vaccini</i> Linn.
79 Carmelite ... ..	The dark Chesnut 233 : 214 ... ..	Castanina 15 : 79 ... ..	<i>Orrhodia ligula</i> Esp.
81 Ingrail'd Clay ... ..	The ingrail'd Clay 226 : 194 .	Alcatorina, B. 15 : 81 ... ..	<i>Noctua primulae</i> Esp.
82 Dunbar ... ..	The Dun-bar 246 : 257 ... ..	Trapezina 15 : 82 ... ..	<i>Calymnia trapezina</i> Linn.
83 Broom ... ..	The Broom 193 : 94 ... ..	Pisina 15 : 83 ... ..	<i>Mamestra pisi</i> Linn.
84 Scarce Green silver line ... ..	The Green-silver-lines 395 : 1 ... ..	Prasinina 15 : 84 ... ..	<i>Hylophila bicolorana</i> Fues.
85 Green Silver-line ... ..	The small Green-silver-lines 395 : 2 ... ..	Fagina 15 : 85 ... ..	<i>Hylophila prasinana</i> Linn.
86 Marvel de jour ... ..	The Marvel Du Jour 200 : 112 ... ..	Aprilina 15 : 86 ... ..	<i>Agriopis aprilina</i> Linn.
87 Scarce marvel de jour ... ..	The scarce Marvel Du Jour 200 : 113 ... ..	<i>Ludificina</i> 15 : 87 ... ..	<i>Diphthera orion</i> Esp.
1. 88 <i>Præcox bred the middle of August</i> ... ..	The Portland Moth 201 : 114 ... ..	Præcocina 15 : 88 ... ..	<i>Agrotis præcox</i> Linn.
89 Marvel de jour Com-panion ... ..	The brindled Green 199 : 111 ... ..	Virensina 15 : 89 ... ..	<i>Eumichtis protea</i> Bork.
91 Frosted Yellow ... ..	The frosted Green 202 : 117 .	Ridensina 15 : 91 ... ..	<i>Polyloca videns</i> Fab.
92 Bishop ... ..	The marbled Green 203 : 118 ... ..	Lichenina 16 : 92 ... ..	<i>Bryophila glandifera</i> Hübn.
93 Ealing glory ... ..	The green-brindled Crescent 201 : 115 ... ..	Oxyacanthina 16 : 93 ... ..	<i>Miselia oxyacanthiae</i> Linn.
30. 94 Scarlet Tyger ... ..	The pink Underwing 150 : 12 ... ..	Dominulina 16 : 94 .	<i>Callimorpha dominula</i> Linn.
95 Pink Underwing ... ..	The Angleshades 244 : 251 ... ..	Jacobeina 16 : 95 ... ..	<i>Hipoerita jacobaeae</i> Linn.
30. 96 Ruby Tyger ... ..	The Peach-blossom 245 : 254 .	Fulginosina 16 : 96 .	<i>Phragmatobia fuliginosa</i> Linn.
97 Angleshades ... ..		Meticulosina 16 : 97 .	<i>Phlogophora meticulosa</i> Linn.
98 Peach Blossom ... ..		Batisina 16 : 98 ... ..	<i>Thyatira batis</i> Linn.

31. 99 Pea Blossom ...  
 100 Whitespot pinion like-ness ...  
 101 Whitespot pinion ...  
 102 Burnish Brass ...  
 1. 103 Burnish Brass from *Yorkshire* ...  
 104 Gold Spot ...  
 106 Silver Y ...  
 1. 107 Silver Y from *Essex* ...  
 1. 108 Silver Y from *Yorkshire* ...  
 1. 109 Golden Y where the spots are united ...  
 110 Golden Y ...  
 111 Beautiful Golden Y ...  
 112 Alder ...  
 113 Silver Cloud ...  
 1. 115 *Crown Moth* ...  
 1. 116 *Coronet* ...  
 117 Scarce Knotgrass ...  
 118 Knotgrass ...  
 119 Sycamore ...  
 120 Dagger ... 33.  
 121 Dagger likeness ...  
 122 Miller of Mansfield ...  
 123 Chi ...  
 124 Large Ranunculus ...  
 125 Small Ranunculus ...
- The Pease-blossom 248 : 261 ...  
 The lesser spotted Pinion 247 : 258 ...  
 The white - spotted Pinion 247 : 260 ...  
 The burnished Brass 255 : 2 ...  
 The gold Spangle 255 : 4 ...  
 The Gold-spot 254 : 1 ...  
 The silver Y. 256 : 6 ...  
 The Essex Y. 257 : 8 ...  
 The Yorkshire Y. 257 : 7 ...  
 The gold Y. 256 : 5 ...  
 The gold Y. 256 : 5 ...  
 The gold Y. 256 : 5 ...  
 The Alder 180 : 55 ...  
 The silver Cloud 171 : 32 ...  
 The Coronet 178 : 52 ...  
 The dark Coronet 179 : 53 ...  
 The scarce Knot-grass 180 : 57 ...  
 The scarce Dagger 180 : 58 ...  
 The Knot-grass 178 : 50 ...  
 The Sycamore 176 : 47 ...  
 The dark Dagger 181 : 59 ...  
 The light dagger 181 : 60 ...  
 The grey Shoulder-knot 181 : 61 ...  
 The Miller 182 : 62 ...  
 The grey Chi 183 : 65 ...  
 The large Ranunculus 182 : 63 ...  
 The small Ranunculus 183 : 64 ...
21. Delphina 16 : 99 ...  
 Affina 16 : 100 ...  
 Diffina 16 : 101 ...  
 Chrysitina 16 : 102 ...  
 Bractea 16 : 103 ...  
 Festucina 16 : 104 ...  
 Gammina 16 : 106 ... 32. *Plusia gamma* Linn.  
 Circumflexina, F. 32. *Plusia gamma* Linn.  
 16 : 107 ...  
 Subpurpurina, B. 32. *Plusia gamma* Linn.  
 16 : 108 ...  
 Gamma aurina B. 32. *Plusia iota* Linn.  
 16 : 109 ...  
 Jotina 16 : 110 ...  
 Pulchrina, B. 16 : 111 ... 32. *Plusia iota* Linn.  
 Alnina 17 : 112 ...  
 Atro-albina, B. *Plusia pulchrina* Haw.  
 17 : 113 ... *Acronycta alni* Linn.  
 Coronina, B. 17 : 115 ... *Xylomyges conspiciaris* Linn.,  
 Coronulina, B. ? ab. *melaleuca* View.  
 17 : 116 ... *Cranophora ligustri* Fab.  
 Areatina, B. 17 : 117 ... *Cranophora ligustri* Fab., ab.  
 Rumicina 17 : 118 ... *coronula* Haw.  
 Acerina 17 : 119 ... *Acronycta auricoma* Fab.  
 Psina 17 : 120 ... *Acronycta rumicis* Linn.  
 Lambdina, F. 17 : 121 ... *Acronycta aceris* Linn.  
 Leporina 17 : 122 ... *Acronycta psi* Linn. or *Acronycta tridens* Schiff.  
 China 17 : 123 ... *Graoptolitha ornithopus* Rott.  
 Flavocinctina, D. *Acronycta leporina* Linn.  
 17 : 124 ... *Polia chi* Linn.  
 17 : 125 ... *Polia flavicincta* Fab.  
 34. Ranunculina B. *Hecatera chrysozona* Bork.  
 17 : 125 ...

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126 Grey Arches ...	The grey Arches 185 : 70 ...	34. Grandina, B. 17 : 126	<i>Aplecta nebulosa</i> Hufn.
127 Scarce Arches ...	The Tawny and Silver 188 : 77	<i>Nitensina</i> , B. 17 : 127	<i>Aplecta tincta</i> Brahm.
129 Pale shining Brown .	The pale-shining Brown 187 : 76	Celatina 17 : 129 ...	<i>Aplecta advena</i> Fab.
130 Double Dart ...	The double Dart 220 : 172 ...	Cinctina, B. 17 : 130	<i>Noctua augur</i> Fab.
131 Heart & Dart ...	The Heart and Dart 219 : 169	Exclamationina 17 : 131 ...	<i>Agrotis exclamationis</i> Linn.
132 Dark Gothic ...	The Gothic 195 : 99 ...	Typicina 17 : 132 ...	<i>Naenia tybica</i> Linn.
133 Scarce Gothic ...	The bordered Gothic 195 : 101	Typicooidina, B. 17 : 133 ...	<i>Neuria reticulata</i> Vill.
134 Dot ...	The Dot 191 : 88 ...	Perscarina 17 : 134 .	<i>Mamestra perscartae</i> Linn.
135 Old Gentlewoman ...	The Cabbage Moth 191 : 86 ...	Brassicina 18 : 135 .	<i>Barathra brassicae</i> Linn.
136 Horse radish ...	The Nutmeg 192 : 90 ...	Infraina 18 : 136 ...	<i>Mamestra trifolii</i> Rott.
137 Rustick Shoulder Knot	The rustic Shoulder-knot 194 : 95 ...	Basilineina 18 : 137 .	<i>Apamea basilinea</i> Fab.
138 Dark Arches ...	The dark Arches 186 : 73 ...	Polyodonina 18 : 138	<i>Xylophasia monoglypha</i> Hübn.
139 Dark Brocade ...	The dark Brocade 190 : 83 ...	Duplexina, B. 18 : 139	<i>Eumichtis adusta</i> Esp.
140 Brocade light ...	The beautiful Brocade 189 : 82	Divesina, B. 18 : 140	<i>Mamestra contigua</i> Vell.
141 Beautiful Brocade ...	The beautiful Brocade 189 : 82	Pulchellina, B. 18 : 141 ...	<i>Mamestra contigua</i> Vell.
142 Small Brocade ...	The light Brocade 189 : 81 ...	Locuplina, B. 18 : 142	<i>Mamestra gentislae</i> Bork.
143 Linearis M ...	The Archer's Dart 118 : 66 and 224 : 184 ...	Clavina, D. 18 : 143	<i>Agrotis vestigialis</i> Hufn.
144 Sheers ...	The wedge-barr'd Dart 222 : 179	Plebeina 18 : 144 ...	<i>Mamestra dentina</i> Esp.
145 Kitten Likeness ...	The Sheers 198 : 107 ...	Parina 18 : 145 ...	<i>Hecatera serena</i> Fab.
146 Pine ...	The broad-barred White 184 : 66	Pinastrina 18 : 146 .	<i>Dipterygia scabriuscula</i> Linn.
147 Bilobina M ...	The Bird's-wing 172 : 33 ...	Bilobina, B. 18 : 147	<i>Apamea ophiogramma</i> Esp.
148 Small old Gentle-woman ...	The Double-lobed 209 : 135 ...	Phœbina, B. 18 : 148	<i>Apamea secalis</i> Linn.
149 Rustic Mourner ...	The Rustic Mourner 212 : 142	Lugensina, B. 18 : 149	<i>Apamea secalis</i> Linn., ab. <i>leucostigma</i> Esp. (= <i>lugens</i> Haw.).

1. 150 *a Small Moth with a figure of 8 on the wing* ...
- 151 True Lovers Knot ...
- 152 Tragopogon ...
- 154 Tetragona M ...
- 155 C Nigrum ...
- 156 Clouded border Brindle
- 157 Clouded Brindle ...
- 159 Square Spot Rustic .
- 160 Triple Line ...
- 161 Poplar Lutestring ...
- 162 Poplar Lutestring likeness ...
- 166 Flame Shoulder ...
- 168 Flame Furbelow ...
- 169 Small Angleshade ...
- 170 Rustick Furbelow ...
- 171 Festoon ...
1. 174 Small with a light border ...
- 175 Pale mottled Willow
- 1 Ghost ...
- 2 Large Swift & Plain ...
- 3 Orange Swift ...
- 4 Golden Swift ...
- 5 Silver Swift ...
- 1 Oak Beauty ...
- 2 Pepper ...
- 3 Brindle Beauty ...
- 4 Pale brindle Beauty .
- 5 Small brindle Beauty
- The golden Ear 240 : 232 ...
- The Lover's knot 224 : 187 ...
- The Mouse 164 : 13 ...
- The double Square-spot 225 : 190
- The setaceous hebrew-character 226 : 191 ...
- The clouded-bordered Brindle 169 : 26 ...
- The clouded Brindle 170 : 27
- The square-spot Rustic 205 : 124
- The dotted Rustic 206 : 125 ...
- The equal Treble-lines 249 : 262
- The Poplar Lutestring 252 : 272
36. Geminoïdina, B. 19 : 162 ...
- The flame Shoulder 226 : 193
- The Flame 172 : 34 ...
- The small Angle-shade 210 : 138
- The flame Furbelow 209 : 136
- The Festoon 137 : 1 ...
- The minor Beauty 214 : 146 ...
- The pale mottled Willow 208 : 133 ...
- The Ghost 138 : 1 ...
- The orange Swift 140 : 2
- The gold Swift 144 : 8
- The silver Swift 142 : 6
- The Oak Beauty 272 : 1 ...
- The Peppered 272 : 2
- The brindled Beauty 273 : 3 ...
- The pale Brindle 274 : 6
- The small Brindle 274 : 7 ...
- Nictitina 18 : 150 ...
- Ericina 18 : 151 ...
- Tragopogina 18 : 152
- Sigmia 18 : 154 ...
- C. nigra 18 : 155 ..
- Epomina 18 : 156 ...
- Epomidina 18 : 157 .
- Tetragonina 18 : 159
- Trilinearina 19 : 160
- Gemina 19 : 161 ...
36. Geminoïdina, B. 19 : 162 ...
- Plectina 19 : 166 ...
- Putrina 19 : 168 ...
- Lucipartina 19 : 169 .
- Furcina 19 : 170 ...
- Funalina 19 : 171 ...
- Strigalina 19 : 174 ...
- Conspicillina 19 : 175 .
- Humulator 19 : 1 ...
- Lupulator 19 : 2 ...
- Cruxator 19 : 3 ...
- Hectator 19 : 4 ...
- Angulator 19 : 5 ...
- Prodromaria 20 : 1 .
- Betularia 20 : 2 ...
- Hirtaria 20 : 3 ...
- Pedaria 20 : 4 ...
- Hispidaria 20 : 5 ...
- Hydroecia nictitans* Bork.
- Agrotis strigula* Thunb.
- Amphipyra tragopogonis* Linn.
- Noctua ditrapezium* Bork.
- Noctua c-nigrum* Linn.
- Xylophasia rurea* Fab.
- Xylophasia hepatica* Linn.
- Noctua xanthographa* Fab.
- Grammesia trigrammica* Hufn.
- Palimpsestis* or Fab.
- Asphalia diluta* Fab.
- Noctua plecta* Linn.
- Axytia putris* Linn.
- Euplexia lucipara* Linn.
- Apamea secalis* Linn., ab. *furca* Haw.
- Cochlidion limacodes* Hufn.
- Miana strigilis* Clerck.
- Caradrina quadripunctata* Fab.
- Hepialus humuli* Linn., ♂.
- Hepialus humuli* Linn., ♀.
- Hepialus sylvinus* Linn.
- Hepialus hectus* Linn.
- Hepialus lupulinus* Linn.
- Biston strataria* Hufn.
- Biston betularia* Linn.
- Lycta hirtaria* Clerck.
- Phigalia pedaria* Fab.
- Apocheima hispidaria* Fab.

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6 Large pale oak beauty	The great Oak-beauty 275 : 8	Grandaria, B. 20 : 6	<i>Boarmia roboraria</i> Schiff.
7 Pale oak beauty	The pale Oak-beauty 275 : 9	Consontaria 20 : 7	<i>Boarmia punctinalis</i> Scop.
8 Mottled Beauty	The mottled Beauty 275 : 10	Repandaria 20 : 8	<i>Boarmia repandata</i> Linn.
9 Willow beauty	The willow Beauty 276 : 12	Consersaria F.? 20 : 9	<i>Boarmia rhomboidaria</i> Schiff.
10 Brussels Lace	The Brussels Lace 280 : 25	Lichenaria 20 : 10	<i>Boarmia lichenaria</i> Hufn.
11 Waved Umber	The large Waved - Umber 284 : 35	Suberaria, B. 21 : 11	<i>Hemerophila abruptaria</i> Thunb.
12 Comon Heath	The common Heath 280 : 26	Atomaria 21 : 12	<i>Ematurga atomaria</i> Linn.
14 L. Moth	The common V. Moth 283 : 33	Vauaria 21 : 14	<i>Itame wanaria</i> Linn.
15 Large Magpye	The Magpie 316 : 1	Grossularia 21 : 15	<i>Abraxas grossularata</i> Linn.
16 Scarse Magpye	The scarce Magpie 317 : 3	Ulmaria 21 : 16	<i>Abraxas sylvata</i> Scop.
18 Pine	The bordered White 278 : 21	Piniaria 21 : 18	<i>Bupalus piniaria</i> Linn.
19 Bedford black border	The bordered Grey 278 : 20	Ericetaria 21 : 19	<i>Selidosema plumaria</i> Schiff.
20 Dotted Border	The dotted Border 286 : 39	Stictaria, B. 21 : 20	<i>Erannis marginaria</i> Fab.
21 Mottled Umber	The mottled Umber 284 : 36	Defoliaria 21 : 21	<i>Erannis defoliaria</i> Clerck.
22 Mottled Umber like-ness	The scarce Umber 285 : 37	Prosapiaria 21 : 22	<i>Erannis aurantaria</i> Hübn.
23 Swallow-tail	The Swallow-tail 297 : 73	Sambucaria 21 : 23	<i>Ourapteryx sambucaria</i> Linn.
24 Large Emerald	The large Emerald 298 : 75	Papilionaria 21 : 24	<i>Hipparchus papilionaria</i> Linn.
25 Large Huswife	The light Emerald 299 : 77	Margaritaria 21 : 25	<i>Campaea margaritaria</i> Linn.
26 Scarse Emerald	The small Emerald 298 : 76	Lucidaria, D. 21 : 26	<i>Hemistola chrysoptaria</i> Esp.
27 Small Emerald	The grass Emerald 299 : 78	Prasinaria 21 : 27	<i>Pseudoterpna pruinata</i> Hufn.
28 Maid of Honour	The blotch'd Emerald 299 : 79	Ditaria 21 : 28	<i>Comibaena pustulata</i> Hufn.
29 Green Huswife	The common Emerald 300 : 80	Thymearia 21 : 29	<i>Hemithoa aestivaria</i> Hübn.
30 Scollop bar'd Oak	The scoloped Oak 291 : 54	Elinguaria 22 : 31	<i>Crocallis elinguaria</i> Linn.
32 Feather'd Thorn	The feathered Thorn 290 : 52	Pennaria 22 : 32	<i>Colotois pennaria</i> Linn.
33 Scorched Wing	The scorched Wing 295 : 67	Dolabaria 22 : 33	<i>Plagodis dolabaria</i> Linn.
34 Scollop'd Hazle	The scoloped Hazel 291 : 55	Bidentaria 22 : 34	<i>Gonodontis bidentata</i> Clerck.
35 Early Thorn	The early Thorn 292 : 58	Illunaria, H. 22 : 35	<i>Selenia bilunaria</i> Esp.

- 36 Beautiful Thorn ...  
 37 Scarce dark Thorn ...  
 38 Richmond Beauty ...  
 1. 39 August Thorn *very much indented and spotted* ...  
 1. 40 September Thorn *larger than 24* ...  
 1. 38A. 41 August Thorn *much mottled* ...  
 1. 42 August Thorn *slightly mottled* ...  
 1. 43 September Thorn *darkish* ...  
 44 September Thorn ...  
 46 Essex beauty ...  
 47 Coney-hatch Thorn ...  
 48 Bloody Vein ...  
 49 Small bloody Vein ...  
 50 Orange ...  
 51 Large Aurelians Plague ...  
 52 Aurelians Plague ...  
 54 Barr'd Umber ...  
 56 Dark Elm ...  
 57 Elm ...  
 58 Frosted Yellow ...  
 59 Scotch Carpet ...  
 60 Beech green Carpet ...  
 61 Marvel de jour Carpet ...  
 62 Winter Moth ...  
 63 Spring Usher ...  
 64 March Moth ...
- The lunar Thorn 292 : 57 ...  
 The purple Thorn 291 : 56 ...  
 The Lilac Beauty 293 : 60 ...  
 The Canary-shouldered Thorn 293 : 62 ...  
 The flounced Thorn 295 : 66 ...  
 The freckled August Thorn 294 : 63 ...  
 The plain August Thorn 294 : 64 ...  
 The plain August Thorn 294 : 64 ...  
 The September Thorn 293 : 61 ...  
 The bordered Beauty 295 : 68 ...  
 The little Thorn 296 : 69 ...  
 The large Blood-vein 296 : 71 ...  
 The small Blood-vein 297 : 72 ...  
 The Orange 283 : 34 ...  
 The Mallow Moth 302 : 86 ...  
 The small Mallow 302 : 88 ...  
 The barred Umber 301 : 85 ...  
 The dark-barr'd Twin-spot 308 : 101 ...  
 The red Twin-spot 308 : 102 ...  
 The striped Twin-spot 309 : 103 ...  
 The frosted Yellow 286 : 40 ...  
 The Twin-spot Carpet 306 : 99 ...  
 The Beech Green-carpet 304 : 91 ...  
 The green Carpet 304 : 92 ...  
 The Winter Moth 305 : 93 ...  
 The early Moth 305 : 94 ...  
 The March moth 306 : 97 ...
- Lunaria, H. 22 : 36  
 Illustraria, H. 22 : 37  
 Syringaria, H. 22 : 38  
 Alniaria, H. 22 : 39
- Selenia lunaria* Schiff  
*Selenia tetralunaria* Hufn.  
*Phalaena syringaria* Linn.  
*Deuteronomos alniaria* Linn.
- Deuteronomos fuscantaria* Steph.  
*Ennomos autumnaria* Wrmbg.  
*Ennomos quercinaria* Hufn.  
*Ennomos quercinaria* Hufn.  
*Ennomos erosaria* Schiff.  
*Epione repandaria* Hufn.  
*Cepphis adnenaria* Hübn.  
*Catolysanis amata* Linn.  
*Scophila imitaria* Hübn.  
*Angerona prunaria* Linn.  
*Larentia clavaria* Haw.
- Ortholitha chenopodiata* Linn.  
*Anagoga pulcherraria* Linn.  
*Cidaria ferrugata* Clerck.  
*Cidaria spadicearia* Schiff.  
*Isturgia limbaria* Fab.  
*Cidaria didymata* Linn.  
*Cidaria olivata* Schiff.  
*Cidaria pectinilaria* Knoch.  
*Opherophiera brumata* Linn.  
*Theria rubicaparia* Schiff.  
*Alsophila aescularia* Schiff.
- Carpinaria, H. 22 : 40  
 Tiliaria, H. 22 : 41  
 Quercinaria, H. 22 : 42  
 Angularia, H. 22 : 43  
 Erosaria, H. 22 : 44  
 Vespertaria 22 : 46  
 Advenaria, H. 22 : 47  
 Amataria 22 : 48  
 Imitaria 22 : 49  
 Prunaria 22 : 50  
 Clavaria 22 : 51  
 Chenopodiaria 22 : 52  
 Pulveraria 23 : 54  
 Unidentaria, B. 23 : 56  
 Ferrugaria 23 : 57  
 Limbaria 23 : 58  
 Didymaria 23 : 59  
 Albo-viridaria, B. 23 : 60  
 Pectinilaria 23 : 61  
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65 Large ... ..	The ingrailed Wave 288 : 44 ..	Majuscularia 23 : 65	<i>Perconia strigillaria</i> Hübn.
66 Large white wave ...	The larger grass Wave 288 : 45	Pusaria 23 : 66 ...	<i>Cabera pusaria</i> Linn.
67 Coñon wave ... ..	The common white Wave 290 : 51 ... ..	Striaria, H. 23 : 67 .	<i>Cabera exanthemaria</i> Scop.
68 Pale dusty wave ...	The common Wave 289 : 47 ...	Approximaria, H. 23 : 68 ... ..	<i>Cabera exanthemaria</i> Scop., ab. <i>approximaria</i> Haw.
69 Belle ... blush ... ..	The twin-striped Wave 289 : 49	Plumbaria 23 : 69 ...	<i>Ortholitha mucronata</i> Scop.
71 Maidens blush ... ..	The Belle 287 : 41 ... ..	Punctaria, Linn. 23 : 71 ... ..	<i>Cosymbia punctaria</i> Linn.
72 Triple line clay ... ..	The Maiden's Blush 312 : 112	Linearia, H. 23 : 72	<i>Cosymbia linearia</i> Hübn.
73 Mocha Stone ... ..	The clay Triple-line 314 : 114	Omicronaria, H. 24 : 73	<i>Cosymbia annulata</i> Schulze.
74 Mocha likeness ... ..	The Mocha 312 : 110 ... ..	Ocellaria, H. 24 : 74	<i>Cosymbia porata</i> Fab.
75 Clouded Mocha Likeness ... ..	The false Mocha 312 : 111 ...	Hubneraria, H. 24 : 75	<i>Cosymbia porata</i> Fab.
76 Birch Mocha ... ..	The Birch Mocha 311 : 108 ...	Pendularia, H. 24 : 76	<i>Cosymbia pendularia</i> Clerck.
1 Clifden Beauty ... ..	The beautiful Carpet 337 : 64	Albicillata 24 : 1 ...	<i>Cidaria albicillata</i> Linn.
2 Clifden Carpet ... ..	The chalk Carpet 336 : 63 ...	Procellata 24 : 2 ...	<i>Cidaria procellata</i> Fab.
3 Argent & Sable ... ..	The Argent and Sable 336 : 62	Hastata 25 : 3 ...	<i>Cidaria hastata</i> Linn.
4 Comon Carpet ? ... ..	The common Carpet 332 : 50	Subtristata, B. 25 : 5	<i>Cidaria alternata</i> Müll.
5 Dark Carpet ... ..	The sharp - angled Carpet 332 : 48 ... ..	Unangulata, B. 25 : 6	<i>Cidaria unangulata</i> Haw.
7 Royal Mantle ... ..	The royal Mantle 326 : 29 ...	Regalata, B. 25 : 7	<i>Cidaria cucullata</i> Hufn.
8 Garden Carpet ... ..	The garden Carpet 333 : 53 ...	Fluctuata 25 : 8 ...	<i>Cidaria fluctuata</i> Linn.
9 Grange Carpet ... ..	The short-barred Carpet 334 : 54	Costovata 25 : 9 ...	<i>Cidaria fluctuata</i> Linn., ab. <i>costovata</i> Haw.
10 Blue border'd Carpet	The blue - bordered Carpet 338 : 67 ... ..	Abbreviata 25 : 10 ..	<i>Cidaria bicolorata</i> Hufn.
11 Clifden beauty likeness ... ..	The scorched Carpet 337 : 65	Adustata, H. 25 : 11	<i>Ligidia adustata</i> Schiff.

12	Purple Bar ...	The purple bar 331 : 46	Ocellata 25 : 12	<i>Cidaria ocellata</i> Linn.
13	Jephah's Daughter	The clouded Silver 355 : 123	Nubiculata 25 : 13	<i>Baptia tenerata</i> Schiff.
14	Laced border	The Laced-border 355 : 122	Paludata 25 : 14	<i>Scopula ornata</i> Scop.
15	Clouded border	The clouded Border 337 : 66	Marginata 25 : 15	<i>Lomaspilis marginata</i> Linn.
16	Clouded border	The clouded Border 337 : 66	Navata 25 : 16	<i>Lomaspilis marginata</i> Linn.
17	Clouded border	The clouded Border 337 : 66	Pollutata 25 : 17	<i>Lomaspilis marginata</i> Linn.
18	Lime Speck ...	The Lime-speck 358 : 131	Trigonata 25 : 18	<i>Eupithecia centaureata</i> Thunb.
19	Lime Speck likeness	The bordered Lime - speck 358 : 130	Succenturiata 25 : 19	<i>Eupithecia succenturiata</i> Linn.
20	Tissue Likeness	41. The dark Umber 339 : 69	Rhamnata 25 : 20	<i>Philereme transversata</i> Hufn. or <i>Calocalpe cervinalis</i> Scop.
21	Tissue	The scarce Tissue 318 : 6	Dubitata 25 : 21	<i>Triphosa dubitata</i> Linn.
22	Treble Bar	The Tissue 318 : 7	Plagiata 25 : 22	<i>Anails plagiata</i> Linn.
23	November Moth	The slender Treble-bar 318 : 8	Omicrata 25 : 23	<i>Oporinia dilutata</i> Schiff.
24	Phenix	The November 319 : 9	Prunata 25 : 24	<i>Lygris prunata</i> Linn.
25	Water Carpet	The Phenix 322 : 19	Insititiata, B. 25 : 25	<i>Cidaria suffumata</i> Hübn.
26	Common hornsey beauty	The water Carpet 323 : 21	Centum notatata 25 : 26	<i>Cidaria truncata</i> Hufn., ab. <i>centum-notata</i> Schulz.
27	Yellow hornsey beauty	The common marbled Carpet 324 : 24	Comma notata 26 : 27	<i>Cidaria truncata</i> Hufn., ab. <i>rufescens</i> Ström.
28	beautiful hornsey beauty	The yellow marbled-Carpet 325 : 26	Punctum notata 26 : 28	<i>Cidaria citrata</i> Linn., ab. <i>punctum-notata</i> Haw.
29	Dark hornsey beauty	The marbled Carpet 324 : 23	Immanata, B. 26 : 29	<i>Cidaria citrata</i> Linn., ab. <i>immanata</i> Haw.
30	Scarce green Carpet.	The dark marbled Carpet 323 : 22	Biangulata, B. 26 : 30	<i>Cidaria picata</i> Hübn.
31	Bulstrode green Carpet	The cloaked Carpet 326 : 31	Rubro-vidata, B. 26 : 31	<i>Cidaria siterata</i> Hufn.
32	Beech green Carpet	The red-green Carpet 329 : 38	Albo-vididata, B. 26 : 32	<i>Cidaria olivata</i> Schiff.
33	Autumn green Carpet	The Bullstrode carpet	Miata 26 : 33	<i>Cidaria miata</i> Linn.
34	Hornsey Carpet	The Beech Green-carpet 304 : 91	Interruptata, B. 26 : 34	<i>Cidaria corylata</i> Thunb.
35	Essex Carpet	The green Carpet 304 : 92	Insulata, B. 26 : 35	<i>Cidaria silaceata</i> Schiff., ab. <i>insulata</i> Haw.
36	Rivulet	The broken - barr'd Carpet 327 : 32	Alchimillata 26 : 36	<i>Cidaria alchemillata</i> Linn.
37	Brimstone	The small Phenix 323 : 20	Cratægata 26 : 37	<i>Opisthographis luteolata</i> Linn.
		The insulated Carpet 330 : 43		
		The Rivulet 335 : 58		
		The Brimstone 298 : 74		

English names with 'Pro- dromus' numbers in MS. of William Jones.	English names in 'Lep. Brit.' with numbers of page and species.	Names in 'Prodrromus' with numbers of page and species.	More recent equivalents deter- mined by H. M. Edelisten.
38 Bar'd Straw ...	The barred Straw 341: 77 ...	Populata 26: 38 ...	<i>Lygris populata</i> Linn.
39 Dark Spinach ...	The dark Spinach 342: 78 ...	Comitata 26: 39 ...	<i>Pelurga comitata</i> Linn.
40 Spinach ...	The Spinach 341: 76 ...	Spinachata, B. 26: 40 ...	<i>Lygris mellinata</i> Fab.
41 Speckled Yellow ...	The speckled Yellow 343: 81 ...	Maculata 26: 41 ...	<i>Pseudopanthera macularia</i> Linn.
42 Yellow shell ...	The yellow Shell 343: 82 ...	Bilimeata 26: 42 ...	<i>Cidaria bilimeata</i> Linn.
43 Clouded Yellow ...	The barred Yellow 348: 35 ...	Sociata 26: 43 ...	<i>Cidaria fulvata</i> Forst.
44 Black & Yellow ...	The gold Four-spot 345: 87 ...	Equestrata 26: 44 ...	<i>Psodos quadrifaria</i> Sulz.
46 Juniper Moth ...	The grey Carpet 327: 33 ...	Juniperata 26: 46 ...	<i>Cidaria juniperata</i> Linn.
47 Sandy Carpet ...	The Chevron 342: 79 ...	Testaceata 26: 47 ...	<i>Lygris testata</i> Linn.
40. 50 <i>Mundana</i> ...	The Muslin 156: 1 ...	Mundanata 27: 50 ...	<i>Nudaria mundana</i> Linn.
51 Peacock ...	The Peacock Moth 346: 93 ...	Notata 27: 51 ...	<i>Semiothisa notata</i> Linn.
53 Scollop double line ...	The scollop'd Double-line 347: 96 ...	Demandata 27: 53 ...	<i>Sterrrha emarginata</i> Linn.
54 Scollop darker ...	The small Scollop 347: 97 ...	Dimidiata, B. 27: 54 ...	<i>Sterrrha emarginata</i> Linn.
55 Brown Scollop Shell ...	The brown Scollop 320: 14 ...	Fuscata, B. 27: 55 ...	<i>Philereme vetulata</i> Schiff.
56 Scollop shell ...	The Scollop-shell 320: 13 ...	Undulata 27: 56 ...	<i>Calocalpe undulata</i> Linn.
57 Scarce Heath Moth ...	The latticed Heath 348: 98 ...	Clathrata 27: 57 ...	<i>Chiasmia clathrata</i> Linn.
58 Ribbon Wave ...	The ribbon Wave 349: 101 ...	Aversata 27: 58 ...	<i>Sterrrha aversata</i> Linn.
59 Ribbon Wave Like- ness ...	The false ribbon Wave 349: 102 ...	Remutata 27: 59 ...	<i>Scopula flostactata</i> Haw.
61 Double spotted Pinion ...	The white Pinion-spotted 356: 124 ...	Bimaculata 27: 61 ...	<i>Bapta binaculata</i> Fab.
40. 62 <i>small pale dot in each wing</i> ...	The lesser cream-Wave 352: 112 ...	Immutata 27: 62 ...	<i>Scopula immutata</i> Linn.
63 Black vein'd ...	The black-veined 317: 5 ...	Dealbata 27: 63 ...	<i>Siona lineata</i> Scop.
64 Streak ...	The Streak 339: 71 ...	Spartata 27: 64 ...	<i>Chesias legatella</i> Schiff.
42. 65 Chimney Sweeper ...	The looping Chimney Sweeper 344: 85 ...	Chærophyllata 27: 65 ...	<i>Odezia atrata</i> Linn.
40. 66 <i>Small with Cloud at posterior Angle</i> ...	The small Dotted-wave 353: 118 ...	Scutulata 27: 66 ...	<i>Sterrrha dimidiata</i> Hufn.

- 40, 43. [68] *small with darkish border* ... ..  
 [71] Grass housewife ... ..  
 [72] Seraphim ... ..  
 [73] Pretty Widow ... ..  
 [1] Oak hook tip ... ..  
 [2] Pebble hooktip ... ..  
 [3] Scollop hooktip ... ..  
 [7] Snout ... ..  
 8 Fanfoot ... ..  
 9 Tabby ... ..  
 10 Small Tabby ... ..  
 26 Clay Fanfoot ... ..  
 28 Small Fanfoot likeness ... ..  
 29 Scarce Bell ... ..  
 30 Mother of Pearl ... ..  
 31 The small Magpye ... ..  
 32 Garden Pebble ... ..  
 38 Garden China Mark ... ..  
 39 Large China Mark ... ..  
 40 Beautiful China Mark ... ..  
 42 Small China Mark ... ..  
 40. [46] *at Swamstons* ... ..  
 48 Meal Moth ... ..  
 40. *Comb bent* ... ..  
 52 1 Dun Footman ... ..  
 3 Lyckness ... ..  
 4 ... ..  
 5 ... ..
- The small fan-footed Wave 24. Decorarata, H. 28 : 68  
 353 : 117 ... ..  
 The small grass Emerald  
 300 : 81 ... ..  
 The Seraphim 356 : 135 ... ..  
 The netted Pug 357 : 127 ... ..  
 The Oak Hooktip 153 : 2 ... ..  
 The pebble Hooktip 152 : 1 ... ..  
 The scoloped Hooktip 153 : 5 ... ..  
 The Snout 365 : 1 ... ..  
 The common Fanfoot 368 : 11 ... ..  
 The large Tabby 371 : 17 ... ..  
 45. ... ..  
 46. The Fanfoot 369 : 14 ... ..  
 The small Fanfoot 370 : 15 ... ..  
 The lesser Bell 370 : 16 ... ..  
 The Mother of Pearl 376 : 1 ... ..  
 The small Magpye 382 : 20 ... ..  
 The garden Pebble 377 : 3 ... ..  
 The garden China-mark 383 : 23 ... ..  
 The large China-mark 382 : 21 ... ..  
 The beautiful China - mark  
 383 : 22 ... ..  
 The small China-mark 384 : 25 ... ..  
 The olive Crescent 369 : 13 ... ..  
 The Meal Moth 374 : 22 ... ..  
 The small Snout 368 : 8 ... ..  
 The dun Footman 147 : 2 ... ..  
 The Lychnis 196 : 103 ... ..  
 The double Kidney 251 : 269 . 28. Vetulina, H. 3A : 4 .  
 The lesser Lutestring 251 : [270] 48. Dilutina, H. 3A : 5 .
- Sterria bisetata* Hufn.  
*Chlorissa viridata* Linn.  
*Lobophora halterata* Hufn.  
*Eupithecia venosata* Fab.  
*Drepana binaria* Hufn.  
*Drepana falcataria* Linn.  
*Drepana lacertinaria* Linn.  
*Hypena proboscidalis* Linn.  
*Pachypogon barbalis* Clerck.  
*Aglossa pinguinalis* Linn.  
*Aglossa pinguinalis* Linn.  
*Zanclognatha tarsipennalis* Tr.  
*Zanclognatha grisealis* Hübn.  
*Madoga salicalis* Schiff.  
*Spilodes verticalis* Linn.  
*Eurhypara urticata* Linn.  
*Pionea forficatis* Linn.  
*Ebulca sambucalis* Schiff.  
*Hydrocampa nymphaeata* Linn.  
*Hydrocampa stagnata* Don.  
*Cataclysta lemnata* Linn.  
*Zanclognatha emortualis* Schiff.  
*Pyralis farinalis* Linn.  
*Cledeobia angustalis* Schiff.  
*Lithostia griseola* Hübn.  
*Dianthoecia capsincola* Hübn.  
*Plastenis retusa* Linn.  
*Asphalia dilata* Fab.
- Hexapterata 28 : 72  
 Decussata, D. 28 : 73  
 Falcatalis 28 : 1 ... ..  
 Falcatarialis 28 : 2 . 2 .  
 Lacertinialis 28 : 3 ... ..  
 Proboscidalis 28 : 7 .  
 Barbalis 29 : 8 ... ..  
 Pinguinalis 29 : 9 ... ..  
 Pinguinalis, B. ... ..  
 29 : 10 ... ..  
 Tentaculalis, H. ... ..  
 29 : 26 ... ..  
 Grisealis, H. 30 : 28 ... ..  
 Salicalis, H. 30 : 29 ... ..  
 Verticalis 30 : 30 ... ..  
 Urticalis 30 : 31 ... ..  
 Forficalis 30 : 32 ... ..  
 Sambucalis, H. ... ..  
 30 : 38 ... ..  
 Potamogalis 30 : 39 .  
 Nymphaealis 30 : 40 .  
 Lemnalis 30 : 42 ... ..  
*Emortualis*, H. 30 : 46  
 Farinalis 31 : 48 ... ..  
 Angustalis, H. 31 : 52  
 Luteolina, H. 3A : 1  
 Capsincola, H. ... ..  
 3A : 3 ... ..  
 Vetulina, H. 3A : 4 .  
 Dilutina, H. 3A : 5 .

English names with 'Pro- dromus', numbers in MS. of William Jones.	English names in 'Lep. Brit.' with numbers of page and species.	Names in 'Prodrromus' with numbers of page and species.	More recent equivalents deter- mined by H. M. Edelsten.
49. 6 4 spots brown spot pinion	The brown-spot Pinion 232 : 210	Liturina, L. 3A : 6 ..	<i>Amathes litura</i> Linn.
50. 7 larger than pale moth with a 3 Spots Margin	The lesser dotted Rustic 206 : 126 ... ..	Depunctina, L. 3A : 7	<i>Caradrina taraxaci</i> Hübner.
Chestnut	The Nutmeg 192 : 90 ... ..	48. Chenopodina, V. 3A : 10	<i>Mamestra trifolii</i> Rott.
10	The mottled Umber 284 : 36 ...	Testacearia, V. 4A : 1	<i>Erannis defoliaria</i> Clerck., ab., or <i>E. aurantiaria</i> Hübn.
1 Dark mottled Umber	The scarce Umber 285 : 37 ...	Implicaria, V. 4A : 2	<i>Cidaria montanata</i> Schiff.
2 Silver ground	The silver Ground 303 : 90 ...	Punctularia, H. 4A : 6	<i>Boarmia punctulata</i> Schiff.
6 Grey Birch	The grey Birch 377 : 18 ...	Lynceata, V. 5A : 2	<i>Cidaria ocellata</i> Linn.
49. [2] Comon	The purple bar 331 : 46 ...	Propugnata, V. 5A : 3	<i>Cidaria designata</i> Hüfn.
dark Carpet	The flame Carpet 334 : 55 ...	Nassata, V. 5A : 4 ..	<i>Cidaria alchemillata</i> Linn.
[3] flame likeness	The small Rivulet 335 : 60 ...	Rusticata, V. 5A : 6	<i>Stierha rusticata</i> Schiff.
49. [4] small rivulet	The least Carpet 364 : 154 ...	Luteata, V. 5A : 7 ..	<i>Hydrelia flammeolaria</i> Hüfn.
49. [6] small with dk bar	The small yellow Wave 352 : 115	Bombycata, H. 5A : 9	<i>Ciesias rufata</i> Fab.
49. [7] small yellow Ware	The Broom Tip 322 : 18 ...	Virgata, V. 5A : 10	<i>Cidaria furcata</i> Thunb.
49. [9] broom tip	The July Highflyer 321 : 15 ...		
49. [10] high flyer			

PLATE XIX.



*T. Rider pinx.*  
WILLIAM JONES OF CHELSEA.



# A LIST OF THE LEPIDOPTERA OF DORSET.

## INTRODUCTION AND PART I.

BY

W. PARKINSON CURTIS, F.R.E.S.

### INTRODUCTION.

It is now many years since any comprehensive list of the Lepidoptera of Dorset has appeared.

I had always hoped that the late Mr. Eustace R. Banks, M.A., F.E.S., would have published such a list, as he had for many years been collecting data for this purpose, and he did as a matter of fact prepare a very emasculated list for the projected Victoria County History of Dorset, but as far as I can make out that list never was published. Through the generosity of Mrs. Banks, the material that Mr. E. R. Banks had amassed has been placed in my hands, and I have sifted it and collated it. Without this invaluable material my task would have been an exceedingly difficult one. This work has occupied much of my leisure since the early part of 1929, and as it is a task that can never in the nature of things be finished, I have decided to publish it as far as I have got with it, and to add to and amend it by something in the nature of quinquennial or decennial supplements. Many published records are, I know, omitted, but they can be picked up at any time; the bulk of the following records are unpublished. It is a real loss to science that two such workers as Banks and Richardson should have passed away without publishing in their own way a county list for Dorset. It is not any assumption of pretended modesty on my part, but a plain statement of incontrovertible fact, that I am infinitely less well equipped to deal with the subject than either of these men. The only group on which my knowledge is equal to or greater than the knowledge either of them possessed is the Noctuidae. From the Pyralidae downward my knowledge is so partial that I feel some timidity in dealing with these families.

This introduction is not intended to take the place of the stereotyped 'Preface.' Whether I shall ever write a preface I do not know, since that depends on the question whether, when my work has been published, I think sufficient facts have been collated as to distribution to justify any attempt to explain the distribution.

There is, however, in most recording work an unfortunate divorce between the sciences of entomology, botany and geology. I direct particular attention to this, because I feel convinced that ecology is the means by which we shall ultimately determine the causes of the apparently capricious distribution of insect life. Another thing that I wish to draw attention to is that so many collectors fail to record the commoner species. This in my view is a mistake. I believe that it was the late Dr. Staudinger who remarked that, looking at the list of Palaearctic Lepidoptera, one would imagine that the family Aegeriadae were a larger factor in the Lepidopterous landscape than the genus *Pieris*, which as everyone knows is the reverse of the fact. In my view a really full and accurately localized list of some of the commoner species would throw more light on distributional problems than a pretentious list of rare casuals and good captures, which so often forms the average local list. In accordance with that view, therefore, I have added localities for common insects where I had the material at hand, save where the consensus of opinion in favour of general and unlocalized abundance is such that a list would mean an exhaustive gazetteer of the county.

#### ASSISTANCE.

I propose to acknowledge this at the end of my work, as I shall then know all the contributors whom I have to thank.

#### ASSESSMENT OF RARITY.

This is a matter into which the personal equation enters to such a degree that it is bound to be a somewhat uncertain quantity. I have given C. W. Dale's estimates, Bankes', and my own. The last two frequently agree, but occasionally they differ widely. Dale used two expressions which I consider to be so imprecise as to be useless: 'Widely distributed,' 'Generally distributed.' Bankes used 'Well distributed.' The last is the best term, but all three are vague and give no quantitative idea of distribution. They have the additional objection of being an *ipse dixit* without evidence, and even as industrious a worker as Bankes had no knowledge of some parts of the county, and as far as Dale is concerned I am certain in some cases his assessments were vague guesses. 'Common everywhere' is another objectionable expression, since we have no records of any insect 'everywhere' in the county. To use it is to guess and not to record facts. 'Common at every worked locality' is the only proper way to express this. Dale's 'Rare' is applied in a very slipshod style: it may mean infrequent in individuals, or extremely local, or of casual occurrence.

## SYNONYMY.

I have followed the nomenclature of the second edition of Edward Meyrick's *Handbook of British Lepidoptera* (1927). Probably every worker disagrees with some part of it, but every worker has perforce to admit that it is the only work in existence that gives a complete survey of the Lepidoptera of the British Isles which is either up-to-date or reasonably reliable.

Where Edward Meyrick has split what was formerly regarded as one species into two, I have followed him if the material before me enabled me to do so. Where he has in other cases joined what were formerly regarded as two species into one, I have not followed him if the material at my disposal enabled me to keep the records separate, on the ground that if at a later date separation be again made, the records can be correctly referred without research which may then be nearly impossible. Such a proceeding may not be taken to be any expression of my personal views on the propriety or otherwise of a separation or of a joinder.

I have as far as possible avoided synonymical discussion except where such discussion tended to explain or justify my allocation of a record to any particular species.

## COLOUR STANDARDS.

The standards used are Ridgway *Color Standards and Nomenclature* (Washington, 1912) and Winsor and Newton *Specimen Tints* [no date].

## ARRANGEMENT OF LOCALITIES.

Dale divided his county, as J. C. Mansel-Pleydell had divided it in the 'Flora of Dorsetshire' (Ed. II, 1895), according to watersheds. I am unconvinced of the value of this method since it brings into one area such diverse habitats as the region round Blandford and the region round Kinson.

Bankes adopted a division by compass-points which is equally unsatisfactory.

I have listed the localities alphabetically. This has the merit of ease of reference and no other merit.

Faunistic division will be suggested if on the facts recorded I perceive anything which would justify such a division.

## LOCALITIES.

Many collectors decline to give close records for fear of commercial destruction of rare insects, or from less praiseworthy motives. Many collectors do not understand the real value of exact localization and are content with very general geographical

determinations. The kind of thing that I mean is the typomap as explained by Professor Balfour-Browne (1931, *Ent. Mon. Mag.*, 67: 183), which is a little better than no locality, but for exact work is nearly useless. The absurdity of treating Dorset as a single entity is particularly obvious if one takes a glance at a geological map. Other collectors ignore administrative divisions to an extent that renders it impossible to place their records. This has caused much confusion on the eastern boundary, many Hants records being referable to Dorset and *vice versa*. Of course administrative divisions are artificial, but so far no satisfactory divisions have been made based on natural features, and our knowledge at present hardly warrants any such attempts.

**BLOXWORTH**: Many of the Rev. O. Pickard-Cambridge's records for Bloxworth relate to Bere Wood and to Winterborne Thompson, and sometimes even to Morden Park and Morden Bog, the latter being in Bloxworth parish. One usually has to be content with Bloxworth, but I am able sometimes to specify the precise locality. There is no natural boundary between Bloxworth Woods and Bere Wood, but the latter contains geological features the former does not possess.

**BROWNSEA ISLAND**: Is practically *terra incognita*, but from what I could see of it is not likely to produce much.

**HAZELBURY PLUCKNETT**: This very rich locality, which is worked by A. R. Hayward, is on the borders of Somerset and Dorset. It is sometimes impossible to say which county one is in when working there, but having seen the locality I think I may safely say that there is no physical difference of note between the Somerset and Dorset portions.

**IFORD**: Near Bovington, should not be confused with Iford on the Stour.

**KNIGHTON**: East Knighton is in Winfrith parish. West Knighton Heath and Wood are near Warmwell. These are the Knightons of Dale's records.

**KNITON**: Is near Canford.

**MAPPERTON**: Near Beaminster, should not be confused with Mapperton near Almer.

**MERLEY WOOD**: Between Winfrith and Lulworth, should not be confused with Merley Wood near Wimborne.

**POOLE HEATH**: This locality, frequently referred to by J. C. Dale and C. W. Dale, is now Branksome Park, an almost completely civilized and built-on area.

**PRESTON**: Of F.H.H.'s records is Preston-cum-Sutton Poyntz, and not Tarrant Preston.

PURBECK : This locality is strictly bounded by Bindon Brook, but frequently I am able to fix exact localization in Purbeck, which is so far from being homogeneous that it runs from blown sand and recent alluvium as far down the Jurassic Beds as the Kimmeridge Clay. Probably no other place in the world displays such a wide range of rock in such a limited area.

STUDLAND : This locality covers sand-dunes, heather, London Clay and chalk down, and consequently records under it present a curious concomitance of species which does not really exist.

WIMBORNE : The late Paymaster-in-Chief Gervase F. Mathew, whose name is inseparably connected with *Leucania favicolor* Barr. and *Adkinia graphodactyla* Tutt, made many records under Wimborne. From my own knowledge I infer that he has included Broadstone and Ferndown under Wimborne. This is unfortunate, since these places, though very close to Wimborne, are faunistically distinct.

The records give the impression that east Dorset is richer than west, south than north, but it must be remembered that those collectors who have amassed considerable collections are unevenly distributed :

North-west	-	Dale.
West	-	Hayward.
South	-	Richardson.
South-east	-	Bond, Bankes, Blanchard, Cambridge, Curtis, Digby.
North-east	-	Fisher.

Bankes and Cambridge collected regularly at Portland.

It will be seen that the west is sparsely represented, the true north and centre not represented at all.

The continuous 'improvement' and 'development' of the county and the advance of 'civilization' are effacing insect life throughout the county, as they are destroying its beauty. Let us hope that man is really the fittest to survive and not merely the cruellest destructive agency, and that his works are more beautiful than the forest and heath he destroys to make room for them.

#### NAMES OF COLLECTORS.

A list of initials is given, but Dale = C. W. Dale, Bankes = E. R. Bankes, Richardson = N. M. Richardson, Cambridge = O. Pickard-Cambridge. *Ex cathedra* statements in the first person singular are attributable to me.

#### NAMES OF AUTHORS.

For the sake of uniformity I have followed Meyrick, though other abbreviations are known and used.

## AUTHORITIES.

The previous publications that I have any knowledge of are 'The Lepidoptera of Dorset,' by C. W. Dale (two editions, 1886 and 1891; I have referred to the 2nd edition); 'List of Macrolepidoptera of Sherborne,' C. F. Benthall and F. O. Pickard Cambridge, 'Sherborne School Field Society' (1879); 'The Lepidoptera of Portland,' C. W. Dale, 'I, The Dorset Natural History and Antiquarian Field Club Transactions,' p. 53 (1877); 'The History of Glanville's Wootton,' C. W. Dale (1878); 'The Lepidoptera of the Isle of Purbeck,' by E. R. Bankes and C. R. Digby, VI, D.F.C., pp. 128-177; First Supplement, by E. R. Bankes alone, X, D.F.C., pp. 197-213; Second Supplement, by N. M. Richardson, XXXVI, D.F.C., p. 44; 'A List of Portland Lepidoptera,' N. M. Richardson, XVII, D.F.C., pp. 146-191. I have sometimes added references, but it is not to be assumed that *all* the information I have given will necessarily be found in the publications referred to.

## LIST OF INITIALS.

- H.L.A. - H. Leslie Andrewes, M.S.B.E.  
 E.N.B. - Ebenezer Newell Blanchard.  
 E.R.B. - Eustace Ralph Bankes, M.A., F.E.S.  
 A.U.B. - A. U. Battley.  
 S.C.S.B. - Sidney C. Scarsdale Brown, L.D.S., R.C.S., M.S.B.E.  
 P.M.B. - Percy May Bright, F.R.E.S., M.S.B.E.  
 F.O.B. - Frederick O. Bond.  
 A.W.P.-C. - Arthur Wallace Pickard-Cambridge, M.A., D.LITT.,  
 F.R.E.S., M.S.B.E.  
 C.E.O.C. - Charles E. Owen Carter.  
 E.H.C. - Eustace Harker Curtis, F.A.I.  
 F.O.P.-C. - Frederick Octavius Pickard-Cambridge, B.A., F.Z.S.  
 O.P.-C. - The Rev. Octavius Pickard-Cambridge, M.A., F.R.S.  
 W.P.C. - Wilfrid Parkinson Curtis, F.R.E.S., M.S.B.E.  
 C.R.D. - The Rev. Charles R. Digby.  
 C.W.D. - Charles W. Dale.  
 E.R.D. - Edward R. Dale.  
 J.C.D. - James Charles Dale.  
 J.D. - James Douglas.  
 R.P.D. - R. P. Demuth, M.S.B.E.  
 A.B.F. - A. B. Farn.  
 F.H.F. - The Rev. Frank Hugh Fisher, M.A.  
 A.F.G. - A. F. Griffiths.  
 G.C.G. - The Rev. G. C. Greene.  
 A.R.H. - Arthur R. Hayward, F.R.E.S.  
 F.H.H. - F. H. Haines, L.R.C.P., M.R.C.S., D.P.H., M.S.B.E.  
 H.C.H. - H. C. Huggins, M.S.B.E.  
 P.H. - P. Helps.

- W.G.H. - William G. Hooker.  
 F.J.K. - Frederick J. Killington, B.Sc., A.L.S., F.R.E.S.,  
 M.S.B.E.  
 S.W.K. - S. W. Kemp.  
 C.L. - Sir Christopher Lighton.  
 W.D.L. - W. D. Lang, F.R.S., D.Sc., F.R.G.S.  
 G.F.M. - Paymaster-in-Chief Gervase F. Mathew, F.E.S.  
 B.G.N. - Basil G. Nevison.  
 E.B.N. - Edward B. Nevison.  
 C.E.P. - Colonel Chas. E. Partridge.  
 T.P. - Thomas Parmiter.  
 A.G.B.R. - Archibald G. Bloomfield Russell, M.V.O.  
 J.G.R. - J. G. Ross.  
 J.H.R. - Colonel John H. Randall.  
 N.M.R. - Nelson M. Richardson, B.A., F.E.S.  
 E.H.T. - The Rev. E. H. Todd.  
 P.H.Th. - P. Haig Thomas.  
 P.H.Tz. - Percy H. Tautz.  
 H.W.V. - H. W. Vivian.  
 F.W. - Frederick Whitehead.  
 J.H.W. - The Rev. J. H. Ward.  
 J.J.W. - Commander James J. Walker, M.A., R.N., F.L.S.,  
 F.R.E.S., M.S.B.E.

## PUBLICATIONS.

- D.F.C. = *Dorset Natural History and Antiquarian Field Club Transactions*.  
 L.P.; L.P.I; L.P.II = The Lepidoptera of the Isle of Purbeck, by E. R. Banks and Rev. C. R. Digby, VI, D.F.C., pp. 128-177. First Supplement thereto by E. R. Banks, X, D.F.C., pp. 197-213. Second Supplement thereto by N. M. Richardson, XXXVI, D.F.C., p. 44. The pagination used is that of the separata of these papers.  
 Ent. Mon. Mag. = *The Entomologist's Monthly Magazine*.  
 Ent. Rec. = *The Entomologist's Record and Journal of Variation*.

## WORKERS.

The principal workers in the county have been :—

Eustace Ralph Banks, who resided most of his life in Corfe Castle and submitted the Isle of Purbeck to an intensive investigation. His work amongst the Microlepidoptera has probably never been surpassed by any single worker. He had a considerable knowledge of the coast line as well, but not of the big central valley of Dorset. Mrs. Banks has presented his magnificent collection to the nation.

Octavius Pickard-Cambridge, of Bloxworth, although his reputation as an arachnologist transcends his reputation as an entomologist, was an entomologist of no mean capacity; he (with assistance from his sons) mainly worked the district around Bloxworth where he resided. The collection passed into the

possession of A. W. Pickard-Cambridge, who pursues the science of entomology, but does not work in Dorset.

Nelson M. Richardson, who resided at first in Portland and then at Monte Video, Chickerell, very thoroughly worked the Isle of Portland and the environs of Chickerell and part of Chesil Beach. He, like Bankes, had a deep and accurate knowledge of the Microlepidoptera. His collection has been presented by his widow to the Dorset County Museum.

J. C. Dale, whose work in the early part of the last century has made 'Glanvilles Wootton' a famous place, and whose collection, after much rearrangement by his son, has passed into the Hope Department, University Museum, Oxford.

The Rev. Frank H. Fisher, of Cranborne, was an enthusiastic and successful collector, but he made no pretensions to being a scientist. I was a very intimate friend of his up to the day of his untimely death; I knew his collection and localities. His diary is in my possession. The collection was dispersed at Stevens' Auction Rooms, but I was able to give Bankes the opportunity of examining it prior to dispatching it to London. My assessments of Fisher's captures are according to knowledge. He is the only collector who, to my knowledge, systematically worked the north-east corner of the county.

Ebenezer Newell Blanchard, of Poole, was a fine field worker and amassed a very complete collection of Macrolepidoptera, now in the Bournemouth Natural Science Society's Museum. Unfortunately, like so many of the older collectors, he kept no data tickets. Bankes and I went through his collection with him at a time when his memory was not reliable, and we had perforce to reject most of his records.

C. W. Dale, the son of J. C. Dale, who for many years continued to collect at Glanville's Wootton.

A. R. Hayward, of Misterton, who is the only collector who has done much work in the extreme west, and whose assistance in this work will be obvious. He has paid special attention to the Tortricina.

W. Parkinson Curtis, who worked east Dorset from 1890 to 1931, and who hopes to continue to do so.

The Rev. C. R. Digby, who was Rector of Studland for many years, whose diaries are in the library of Mr. H. J. Turner, and whose collection was dispersed at his death.

F. O. Bond, whose collection was dispersed at his death.

#### TREATMENT OF RECORDS.

It is the fashion at present to reject records, especially of the Early Fathers, where the record does not fit with the experience or preconceived notions of the writer and to presume

error either of identity or locality or origin, or of all three. The appearance of insects in any locality and their disappearance from it is so erratic, and the countryside undergoes such changes due in part to altered methods of agriculture, absence or presence of game preserves and such like causes, that acceptance or rejection of records should not be based upon the empirical ideas of the author. One cannot deduce from known facts that *Polia solidaginis* Hübn., which is a northern insect, has occurred in Dorset, but such is the fact. One cannot deduce from known facts that the Greenshank (*Totanus canescens*) has bred in Dorset, notwithstanding that it is alleged not to breed south of the Cheviots, but it has in fact done so and there was a sufficient reason for this unusual occurrence.

I have therefore inserted records, however apparently unusual, unless there was proved error or the observer was known to be unreliable. Pursuant to this view, I have never accepted Dale where I could get any other authority, since Dale was notoriously careless in identification and transcription of records and was exceedingly fond of adding embellishments of his own to recorded statements without distinguishing what was original and what his addition. I happen to know how many of the errors arose, and they arose in a way which would never have trapped a less careless person. I have also inserted erroneous records with their corrections; this practice I have found necessary because without it there is nothing to shew why a record is dropped, and a subsequent writer may resuscitate a record known to me to be erroneous. Dr. A. W. Pickard-Cambridge writes me: 'I do not think it is in the least safe to trust to Dale's reports about Bloxworth. I went over all my father's collection with him while his memory was good, and have a note of everything about which he was certain, and very often Dale is definitely wrong.' To this I might add that I knew O.P.-C. nearly all my life, and his memory was phenomenally accurate as to detail. Banks adopted two practices in the MS. list he compiled which were, I know, adopted by him solely to economize space and not because he approved of them. This MS. list for the 'Victoria County History of Dorset' was, as he told me, compressed at the dictation of the general editor to a point at which he doubted the value of it at all.

The practices were: 'Where no localities are given it means they are too numerous to mention and the insects may be considered as pretty generally distributed.' 'Where an insect has been taken in the same locality by more than one observer I have thought it sufficient to enter the name of the captor who first took it.'

Being under no compulsion of a non-entomological editor, I have been able to ignore both practices, the first for reasons already given, the second because confirmation is always desir-

able and it shews the continuance of an insect at its recorded station.

Intra-territorial parts of other counties are included in Dorset. Extra-territorial parts of Dorset are ignored. There are certainly many omissions and some blunders, but to make a perfect list is beyond human capacity, and my leisure is limited. I shall be only too glad to receive information of any errors of omission or commission and to publish the emendations as opportunity arises.

## PART I.

### PHYLUM CARADRININA.

#### FAMILY ARCTIADAE.

**Lithosia complana** Linn. ; Meyr., p. 33, No. 2 ; Dale, p. 8.

'Scarce' (Dale). 'Usually uncommon' (Bankes). Very local (W.P.C.).

Bere Regis (H.L.A.) ; Bloxworth, a few (O.P.-C.) ; Canford Cliffs, at light common (R.P.D.) ; Corfe Castle (E.R.B.) ; Cranborne, frequent (F.H.F.) ; Hamworthy (W.P.C.) ; Parkstone (W.P.C.) ; Luscombe Bottom, flying commonly at dusk (H.C.H.) ; Poole (E.N.B.) (G.C.G.), fairly common at ragwort blossom (W.P.C.) ; Sandbanks, Poole (W.P.C.) ; Studland (C.R.D., L.P. I.3) (P.H.Tz.) (W.P.C.) ; Verwood (F.H.F.).

It will be noted that almost the whole of these localities are around Poole Harbour.

**Lithosia lurideola** Zinck. ; Meyr., p. 34, No. 3 ; Dale, p. 8.

'Generally distributed' (Dale). 'Sometimes common' (Bankes). On the whole this species is common in Dorset, though I have never taken more than 6 in a night (W.P.C.).

Badbury Rings (W.P.C.) ; Bere Regis (H.L.A.) ; Bere Wood (W.P.C.) ; Bloxworth, common (A.W.P.-C.) ; Canford (W.P.C.) ; Cranborne, plentiful (F.H.F.) ; Dunnyeat's Hill (W.P.C.) ; Gussage St. Michael (J.H.W.) ; Hamworthy (W.P.C.) ; Poole, not uncommon at ragwort (W.P.C.) ; Portland, common (C.W.D., 1 D.F.C., 54) ; Purbeck, occasionally (T.P.), not uncommon (L.P. 7) ; Sandbanks (W.P.C.) ; Swanage, fairly common (A.G.B.R.) ; Winfrith (F.H.H.).

**Lithosia depressa** Esp. ; Meyr., p. 34, No. 4.

*Lithosia deplana* Dale, p. 8.

'Scarce' (Dale). This seems to accord with the experience of all reliable observers except in regard to Purbeck (W.P.C.).

Bloxworth, scarce (O.P.-C.); Corfe Castle, common at light (E.R.B.); Cranborne, at light fairly frequently (F.H.F.); Glanville's Wootton (Dale *l.c.*); Poole Heath (Dale *l.c.*), I have never seen the insect in the Poole area in any stage (W.P.C.); Studland, scarce (E.R.B.) (C.R.D.) (L.P. I.3); Swanage, not common (A.G.B.R.).

ab. **unicolor** Bankes.

Corfe Castle (E.R.B.).

**Lithosia griseola** Hübn.; Meyr., p. 34, No. 5; Dale, p. 8.

Meyrick *l.c.* sinks *flava* Haw. as a synonym and gives no indication that the name represents a distinct form, which being on present information limited to Britain, should in my opinion be treated as a geographical race and not as an aberration.

Meyrick states the range of colour to be light grey to whitish-ochreous. I have never seen a truly graded series. In my experience there are 3 distinct forms, (a) *griseola* Hübn., grey forewings, grey hindwings with a yellow tone; (b) *servula* Wlk., grey hindwings pronouncedly suffused with yellow, grey forewings with a yellowish tone (I have not seen true *servula* from Dorset but have 3 specimens approaching it); (c) *flava* Haw., plain yellow of a warm buff rather than ochreous. Ochre has a greenish tinge.

*Forma typica.*

Bere Regis (H.L.A.); Bere Wood (W.P.C.); Canford (W.P.C.); Cranborne (W.P.C.), common (F.H.F.); Corfe Castle, common (E.R.B.) (L.P. 7); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Holme (F.H.H.); Morden (W.P.C.); Parkstone (W.P.C.); Purbeck, abundant (T.P.); Sandbanks (W.P.C.); Studland (P.H.Tz.); Swanage, not common (A.G.B.R.); Winfrith (F.H.H.).

var. **flava** Haw.; *stramineola* Dbl., Dale, p. 8.

'Locally common' (Bankes). I find this form is nearly 50 per cent. of the total population in localities with which I am familiar (W.P.C.).

Abbotsbury (A.W.P.-C.); Badbury Rings (W.P.C.); Bere Regis (H.L.A.); Bere Wood (W.P.C.); Bloxworth, common (O.P.-C.); Corfe Castle (E.R.B.) (L.P. 7); Cranborne (F.H.F.); Hamworthy (W.P.C.); Holme, commoner than *forma typica* (F.H.H.); Kimmeridge Coppice, abundant (T.P.) (L.P. 7); Morden (W.P.C.); Poole (E.N.B.); common at ragwort (W.P.C.); Studland (P.H.T.) (A.G.B.R.); Swanage, not common (A.G.B.R.); Wimborne (W.P.C.); Winfrith (F.H.H.).

[*Lithosia caniola* Hübn. This species, though not so far recorded, should in my opinion occur in the western coast districts.]

**Lithosia sororcula** Hufn. ; Meyr., p. 35, No. 7.

*Lithosia aureola* Dale, p. 8.

'Scarce' (Dale).

Buzbury Camp, not uncommon (W.P.C.) (S.C.S.B.) ; Cranborne, not uncommon (F.H.F.) ; Glanville's Wootton, in 1901 (C.W.D.) ; Hazelbury Plucknett (A.R.H.) ; Kingston, Purbeck, two in 1933 (A.G.B.R.) ; Purbeck, Wadmore Quag, in the fir plantations (E.R.B.) ; Sherborne (*teste* E.R.B.) ; Studland, one (E.R.B.), scarce (L.P. 7).

**Oeonistis quadra** Linn. ; Meyr., p. 35.

*Gnophria quadra* Dale, p. 8.

'Rare' (Dale). 'Found locally and sparingly in the north and east' (Bankes). So far scarce that one may work for years without taking it (W.P.C.).

Badbury Rings, one young larva in 1929 (W.P.C.) ; Bloxworth, two only in 1879 and one in 1880 (O.P.-C.) ; Canford Cliffs, at light, ♂ and ♀ (rare) (R.P.D.) ; Corfe Castle (E.R.B.) ; Cranborne (Martin Wood), one larva which did not mature (W.P.C.) ; Glanville's Wootton (Dale *l.c.*) ; Gussage St. Michael, one bred from pupa found at foot of a beech tree (J.H.W.) ; Kimmeridge, one, 25 July, 1873 (T.P.) ; Purbeck, Wadmore Quag (E.R.B.), widely distributed but always scarce (L.P. 7) ; Sherborne, one in July, 1880, by C. F. Benthall (1880, *Entomologist*, 13: 310) ; Studland (E.R.B.) ; West Parley (Dale *l.c.*) ; Wimborne (*teste* E.R.B.).

**Gnophria rubricollis** Linn. ; Meyr., p. 36 ; Dale, p. 8.

'Generally distributed' (Dale). 'Locally common' (Bankes). An insect of most uncertain appearance (W.P.C.). 'Common in appropriate localities' (F.H.H.).

Bloxworth, common (O.P.-C.) ; Bere Wood, larvae not uncommon sometimes (W.P.C.) ; Canford Bottom, near Poole, infrequent (W.P.C.) ; Corfe Castle (E.R.B.) (P.H.) ; Cranborne, one (F.H.F.), larvae frequent (F.H.F.) (W.P.C.) ; Creech Grange (P.H.Th.) ; Gussage St. Michael (J.H.W.) ; Haymoor Bottom, near Poole (W.P.C.) ; Hazelbury Plucknett (A.R.H.) ; Hooke Park, where the insect was flying in hundreds in early June, 1917 (W.P.C.) ; Purbeck, Wadmore Quag and Woodhouse Plantations (E.R.B.) ; Studland (C.R.D.) (L.P. 7) ; Upper Bockhampton Woods (F.H.H.) ; Warmwell (F.H.H.) ; West Knighton Wood (F.H.H.) ; Yellowham Woods (F.H.H.).

**Cybosia mesomella** Linn. ; Meyr., p. 36; Dale, p. 8.

'In damp places widely distributed' (Dale). 'Not uncommon locally on the heaths' (Banks). I have rarely taken it away from the heath area, never away from a wet area; I might almost say no such area of any extent will fail to produce it, but that it will not be found on downland or on calcareous formations (W.P.C.).

Bere Regis, fairly common (H.L.A.); Bloxworth, occasionally (O.P.-C.); Canford (W.P.C.); Canford Bottom (W.P.C.); Corfe Castle (E.R.B.); East Howe (W.P.C.); Haymoor Bottom, near Poole (W.P.C.); Hazelbury Plucknett (A.R.H.); Hamworthy (W.P.C.); Lilliput (W.P.C.); Morden Park (A.W.P.-C.) (O.P.-C.); Morden, fairly common (H.L.A.) (W.P.C.) (F.H.H.) (A.G.B.R.); Parkstone, abundant (R.P.D.); Poole (W.P.C.); Studland Heath (E.R.B.) (W.P.C.) (L.P. 7) (A.G.B.R.); Turner's Puddle (W.P.C.); Verwood (W.P.C.).

**Setina irrorella** Linn. ; Meyr., p. 37; Dale, p. 8.

'Rare' (Dale).

Lulworth (O.P.-C.).

**Miltochrista senex** Hübn. ; Meyr., p. 37, No. 1.

*Nudaria senex* Dale, p. 8.

'In boggy places rare' (Dale). 'Common very locally' (Banks). I agree with Banks (W.P.C.).

Bloxworth, fairly common locally (O.P.-C.); Corfe Castle, in the swampy places between the Purbeck Hills and Poole Harbour (E.R.B.); Morden Decoy (W.P.C.); Savage's, Purbeck (E.R.B.); Studland (E.R.B.) (C.R.D.) (W.P.C.) (L.P. 7); Tadnoll Marsh, near Winfrith (F.H.H.); Wimborne (G.F.M.).  
ab. **fumosa** Banks.

Morden Decoy (W.P.C.); Studland (E.R.B.) (W.P.C.).

**Miltochrista miniata** Forst. ; Meyr., p. 38, No. 2.

*Calligenia miniata* Dale, p. 8.

'Generally distributed' (Dale). 'Sometimes locally abundant' (Banks). I have never seen it abundantly, but it is a frequent capture at seasonable times, and I suspect it is obtainable nearly everywhere. I have only seen one Dorset aberration, and that was a specimen with the centre of the forewings a warm buff, the post-median black zigzags obsolete and the marginal black markings much attenuated. It does not, however, agree with the French ab. *crocea* Bignault. A.G.B.R. has one very near (W.P.C.).

Badbury Rings (W.P.C.); Bere Regis, common (H.L.A.); Bere Wood (W.P.C.); Bloxworth, common (A.W.P.-C.); Cranborne, plentiful (F.H.F.); Canford (W.P.C.); Dunyeat's Hill

(W.P.C.) (S.C.S.B.); Gussage St. Michael (J.H.W.); Hazelbury Plucknett (A.R.H.); Hamworthy (W.P.C.); Kimmeridge Cop-pice (T.P.); Morden (H.L.A.); Parkstone (W.P.C.), commonly (R.P.D.); Poole Harbour, eastern shores (E.R.B.); Purbeck, amongst old sallow and thorn hedges (E.R.B.), widely distributed and not uncommon (L.P.7); Sandbanks (W.P.C.); Studland (W.P.C.); Swanage (W.P.C.), fairly commonly at light (A.G.B.R.).

**Nudaria mundana** Linn.; Meyr., p. 38; Dale, p. 8.

'Generally distributed' (Dale). I know of no sufficient evidence to justify this statement (W.P.C.). 'Common' (Banks). I have rarely seen this insect and never commonly. Banks lived in a stone and calcareous area. I lived in a siliceous area. I suspect this is the true explanation (W.P.C.).

Bere Regis (H.L.A.); Bere Wood (W.P.C.); Corfe Castle, common (E.R.B.); Cranborne, one (F.H.F.); Kimmeridge, common (T.P.); Morden Bog, common (O.P.-C.) (A.W.P.-C.); Portland, common (C.W.D.) (1 D.F.C., 54); Purbeck, generally distributed and rather common (E.R.B.) (L.P.7); Swanage, occasionally (W.P.C.), on the other hand, it was taken abundantly for several evenings along one dry ditch at Swanage by a Mr. Jackson whose initials I have forgotten (W.P.C.), fairly common (A.G.B.R.).

**Tyria jacobaeae** Linn.; Meyr., p. 39; Dale, p. 9.

'Widely distributed and locally common' (Dale). 'Rare in Purbeck' (T.P.). I cannot accept this estimate, since Banks says 'abundant everywhere amongst ragwort,' which accords with my experience (W.P.C.). 'In 1932 the larva was so abundant in west Dorset that large areas of ragwort were eaten down to within a few inches of the ground' (A.R.H.). There is almost no part of the county where it does not occur, though it does not seem to like wet places nor the sea cliffs. It does not seem to vary in Dorset (W.P.C.). 'Common wherever ragwort grows' (F.H.H.).

Abbott's Wootton (W.D.L.); Bere Wood (W.P.C.); Blox-worth, abundant (A.W.P.-C.); Bridport (W.P.C.); Canford (W.P.C.); Canford Bottom (W.P.C.); Charmouth (W.D.L.); Coll Wood (W.P.C.); Cranborne, swarms (F.H.F.); Gussage St. Michael (J.H.W.); Hazelbury Plucknett (A.R.H.); Hodd Hill (W.P.C.); Kimmeridge (T.P.); Morden (F.H.H.); Oaker's Wood, Moreton (W.P.C.); Portland, occasionally common (C.W.D., 1 D.F.C., 54); Poole (W.P.C.); Purbeck, common (E.R.B.) (W.P.C.) (L.P.7); Saint Gabriel's (W.D.L.); Sixpenny Handley (W.P.C.); Swyre Head (A.G.B.R.); Verwood, common (F.H.F.).

***Utetheisa pulchella*** Linn. ; Meyr., p. 39.  
*Deiopeia pulchella* Dale, p. 8.

The status of this insect is that of an occasional immigrant (W.P.C.).

Charmouth, one taken in October, 1876, sold at sale of G. P. Shearwood's collection at Stevens' Auction Rooms in November, 1891; Corfe Castle, one by W. Brinkley in 1874 or 1875 (E.R.B.) (L.P. 7); Fleet, one in May, 1892, by Jardine; Godlingstone, one in June, 1893, by G. P. Robinson (in collection of E.R.B. in British Museum); Poole, one in August or September, 1871, by Hiley (1872, *Entomologist*, 5: 444); Swanage, one by H. Stafford Gustard on 1st September, 1871 (1872, *Entomologist*, 5: 413); six, by Gerald P. Robinson, who told E.R.B. he took all six in one day near Anvil Point in September, 1871, and could have taken more (not being a collector, he gave them to G. P. Shearwood: when G. P. Shearwood's collection was sold, it was assumed that the Swanage label applied to the one specimen and not to the whole six); Upton, near Poole, one about 1885 by Miss D. Bengough (in coll. E.R.B. in B.M.); Wareham (North Bestwall), one by Howard Lacey previous to 1881 (1881, *Entomologist*, 14: 227) (in coll. A.W.P.-C.); West Lulworth, two by A. F. Buxton, 11th Sept., 1871 (1872, *Entomologist*, 5: 413); Weymouth, one in early June, 1892 (A. Forsyth, 1892, *Ent. Rec.*, 3: 161); Wyke Regis, one in May, 1892, by Jardine.

***Coscinia cribrum*** Linn. ; Meyr., p. 40, No. 1.

At one time locally common, now local and retrogressive (W.P.C.).

Bere Heath, rare (O.P.-C.); Bloxworth, rare (O.P.-C.). [Blandford has been recorded, but this is erroneous. O.P.-C. told me that it was due to the fact that F. O. Bond and he used to send specimens taken on Bloxworth Heath to correspondents. The post town of Bloxworth was then Blandford, some 10 miles away; the recipients of the packages jumped to the unwarranted conclusion that the postmark was reliable evidence of locality, and so the insects were recorded as from Blandford, a totally distinct locality in every way]. Branksome Park, Poole (E.N.B.), no longer reliable owing to improvements (W.P.C.); Canford Cliffs, at gas lamps occasionally (R.P.D.); Corfe Castle (E.R.B.); Goathorn Heath (E.R.B.); Morden Heath, fairly common (W.P.C.) (A.R.H.) (H.L.A.); Parkstone, at light (S.C.S.B.); Parkstone Golf Links (W.P.C.); Parley Heath (Dale *l.c.*); Poole Heath, sometimes common (E.H.T.); Poole Harbour, heathland around, locally common (R.P.D.); Studland Heath (W.P.C.), rare (L.P. 7) (A.G.B.R.); Verwood, Ashley Heath, at one time common, but disastrous fires in 1926 have, I fear, wiped the species out here (W.P.C.).

Meyrick gives *Erica* as a food-plant. Whilst the insect is strictly a heath insect, I have never seen the larva feeding on heather, but usually on *Aira caespitosa* and lichen, nor will it eat heather in captivity. The only form found in Dorset is the subspecies *bivittata* South (= *anglesa* Oberthür). The northern localities do not produce the very black and white specimens to be found in the southern localities. The Hampshire records 'near Ringwood' almost wholly relate to Dorsetshire, the errors being based on geographical ignorance or carelessness, or both (W.P.C.).

**Phragmatobia fuliginosa** Linn.; Meyr., p. 41; Dale, p. 9.

'Rare' (Dale). 'Local, but widely distributed in north and east Dorset' (Banks). Not common (W.P.C.). 'Locally common and usually double brooded' (F.H.H.).

Affpuddle, several in 1853 (O.P.-C.); Blandford (Dale *l.c.*); Bere Regis (H.L.A.); Bloxworth, one (O.P.-C.); Branksome, common (W.G.H.) [I know this assessment is wrong (W.P.C.)] (G. E. J. Crallan) (W.P.C.); Caundle's Holt (Dale *l.c.*); Cranborne, one (F.H.F.); Gussage St. Michael (J.H.W.); Hazelbury Plucknett (A.R.H.); Hodd Hill (A.G.B.R.); Kimmeridge (Dale *l.c.*); Morden (H.L.A.); Parkstone (W.P.C.) (S.C.S.B.), not common (R.P.D.); Poole (E.N.B.) (W.P.C.); Rempstone (E.R.B.) (L.P. 7); Ringstead (F.H.H.); Studland (C.R.D.), but scarce (P.H.Tz.); Swanage, fairly common at light (A.G.B.R.); Tadmoll, near Winfrith (F.H.H.); West Parley (Dale *l.c.*); Wimborne (E.R.B.).

ab. **fervida** Stgr.

Bere Regis (H.L.A., *teste* W.P.C.).

var. **borealis** Stgr.

Swanage (W.P.C.). The small specimens from the heath district are usually much closer to *borealis* Stgr. than they are to *forma typica* (W.P.C.).

**Diacrisia mendica** Clerck; Meyr., p. 41, No. 1.

*Spilosoma mendica* Dale, p. 9.

'Scarce but widely distributed' (Dale). Banks agrees, as I do, with the qualification that damp woodlands are preferred. Having regard to the extreme ease with which this species can be bred from the egg, its scarcity in the field seems to be explicable only on the basis that its habits are not well understood, or that it is subjected to diminution by special enemies. The marked sexual dimorphism has been explained as a mimetic resemblance in the ♀ sex to *Diacrisia menthastris* Esp. (*sc.* the White Ermine), so that the existence of special enemies seems to be the probable explanation. It is elementary that a Batesian

mimic is usually much less abundant than its model (W.P.C.). 'Fairly common in bushy and grassy places' (F.H.H.).

Affpuddle, sparingly (O.P.-C.); Bere Wood (W.P.C.); Bloxworth, sparingly (O.P.-C.); Bridport (W.P.C.); Charmouth, Sea Lane and in the wood on Stonebarrow (W.D.L.); Coombe Wood (F.H.H.); Cranborne, several (W.P.C.); Haymoor Bottom, near Poole, frequent (W.P.C.); Iford (F.H.H.); Kimmeridge, common (T.P.) (L.P. 7); Poole, one (W.P.C.); Swanage (S.C.S.B.), in fair numbers in 1933 at light (A.G.B.R.); Winfrith (F.H.H.).

**Diacrisia urticae** Esp.; Meyr., p. 42, No. 2.

*Spilosoma urticae* Dale, p. 9.

'Rare' (Dale). 'Widely distributed but scarce' (Bankses). 'Not uncommon in marshy places' (F.H.H.).

Bere Regis, not uncommonly (H.L.A.); [Bloxworth (Dale *l.c.*), A.W.P.-C. says no record of O.P.-C. nor himself, and this is probably Dale's muddle]; Cranborne, one in 1898 (F.H.F.); Glanville's Wootton (Dale *l.c.*); Kimmeridge, one in 1870 (T.P.) (L.P. 7), and since, but I do not know name of captor (W.P.C.); Middlemarsh (Dale *l.c.*); Parley, common (S.C.S.B.); Sherborne (Dale *l.c.*); Stoborough (J.J.W.); Tadnoll (F.H.H.); Wimborne (Dale *l.c.*).

H.L.A. obtained a number of specimens in his light trap at Bere Regis which have every appearance of being a wild hybrid between this species and *menthastri* Esp. (the White Ermine) (W.P.C.).

**Diacrisia menthastri** Esp.; Meyr., p. 42, No. 3.

*Spilosoma menthastri* Dale, p. 9.

The White Ermine. This species should be *lubricipeda* L., which name is usually applied to *lutea* Hufn. Practically everywhere throughout the county, town and countryside alike, where any collecting has been attempted (W.P.C.). 'Common' (F.H.H.).

Bere Regis (H.L.A.); Bere Wood, very abundant (W.P.C.); Bloxworth, abundant (O.P.-C.) (A.W.P.-C.); Buzbury, common (W.P.C.); Canford (W.P.C.); Charmouth (W.D.L.); Cranborne (W.P.C.); Gussage St. Michael (J.H.W.); Hazelbury Plucknett (A.R.H.); Parkstone (W.P.C.); Poole (W.P.C.); Portland (F.J.K.); Purbeck, abundant (T.P.) (E.R.B.) (L.P. 7); Radipole (A.W.P.-C.); Swanage, abundant (A.G.B.R.).

**Diacrisia lubricipeda** Linn.; Meyr., p. 42, No. 4.

*Spilosoma lubricipeda* Dale, p. 9.

The Buff Ermine. This is the species which should stand as *lutea* Hufn., not as *lubricipeda* L. Common apparently throughout the county, frequently being sufficiently numerous in gardens to be troublesome (W.P.C.). 'Uniformly common' (F.H.H.).

Bere Wood, very abundant (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Canford (W.P.C.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J.H.W.); Hazelbury Plucknett (A.R.H.); Kinson (W.P.C.); Organford (W.P.C.); Poole, common (W.P.C.); Portland (F.J.K.); Purbeck, abundant (T.P.) (E.R.B.) (L.P. 7); Swanage, common (A.G.B.R.).

**Diacrisia russula** Linn.; Meyr., p. 42, No. 5.

*Nemeophila russula* Dale, p. 9.

'Generally distributed' (Dale). 'Not uncommon' (Bankes). I should not call it a common insect. It comes fairly freely to light very late at night; the ♂ sex is more abundant on the heath area than off it (W.P.C.). 'Common' (F.H.H.).

Bloxworth Heath, occasionally (O.P.-C.) (W.P.C.); Bere Regis (H.L.A.); Blandford, one (W.P.C.); Canford (W.P.C.); Corfe Castle (L.P. 7); Dunyeats Hill (W.P.C.); Glanville's Wootton, scarce (Dale *l.c.*); Haymoor Bottom, near Poole (W.P.C.); Lewesdon Hill (W.P.C.); Morden Heath (W.P.C.); Morden Park (O.P.-C.); Moreton (F.H.H.); Norden Heath (E.R.B.); Parkstone Golf Links (W.P.C.), rarely (S.C.S.B.); Poole (W.P.C.); Studland Heath (E.R.B.) (L.P. 7); Swyre (W.P.C.); Verwood, fairly common (F.H.F.); West Knighton (F.H.H.); West Whiteway, common (T.P.) (L.P. 7); Winfrith (F.H.H.).

**Arctia plantaginis** Linn.; Meyr., p. 43, No. 1.

*Nemeophila plantaginis* Dale, p. 9.

'Rare' (Dale). This is incorrect; it is locally quite common, but is very local and seems to be limited to the Cretaceous deposits, or nearly so (W.P.C.).

Badbury Rings (W.P.C.), commonly (S.C.S.B.); Cranborne (F.H.F.) (W.P.C.); Folke, one by Miss Froome (Dale *l.c.*); Hodd Hill (Dale *l.c.*) (A.R.H.), where it was formerly abundant, but since the Ramparts were fenced and cattle and horses grazed in the camp is being rapidly stamped out (W.P.C.). Poole (Dale *l.c.*), I have never seen a Poole specimen, and the locus is unsuitable. I have lived in Poole and collected round it for over 40 years (W.P.C.). Powerstock, on the Gault (W.P.C.); Sherborne, one (J.D.).

ab. et var. **hospita** Schiff.

Cranborne, one (F.H.F.).

**Arctia villica** Linn.; Meyr., p. 43, No. 2; Dale, p. 9.

'Common' (Dale). He also says the same of *Arctia caja* L.; the word needs qualification; *villica* is at least 50 per cent. less abundant than *caja* (W.P.C.).

Bere Wood, occasionally (W.P.C.); Blandford (W.P.C.); Bloxworth, occasionally (O.P.-C.) (A.W.P.-C.); Buzbury (S.C.S.B.); Coombe Wood (F.H.H.); Charmouth, fairly frequently (W.D.L.); Chideock (W.D.L.); Corfe Castle (E.R.B.); Cranborne (F.H.F.); East Burton (F.H.H.); Ferndown (W.P.C.); Hazelbury Plucknett (A.R.H.); King's Barrow (E.R.B.); Morden (F.H.H.); Poole (W.P.C.); Portland, common (C.W.D.) (1 D.F.C., 54), common near the Verne Fort (F.J.K.); Purbeck, common (L.P. 7); Ringstead (F.H.H.); Sandbanks, formerly common (W.P.C.) (S.C.S.B.); Studland (E.R.B.); St. Gabriel's (W.D.L.); Swanage, fairly common (A.G.B.R.); Winfrith (F.H.H.).

**Arctia caja** Linn.; Meyr., p. 44, No. 3; Dale, p. 9.

'Common' (Dale). I agree, but it has a special liking for gardens and allotments where groundsel and purple dead nettle grow freely, as also for sea-cliffs (W.P.C.).

Abbott's Wootton (W.D.L.); Bloxworth, common (A.W.P.-C.); Corfe Castle (E.R.B.); Hazelbury Plucknett (A.R.H.); Iford (F.H.H.); Portland, common (C.W.D.) (1 D.F.C., 53) (F.J.K.); Purbeck, common (L.P. 7); Studland (E.R.B.); Swanage, not common (A.G.B.R.); Winfrith (F.H.H.).

**Callimorpha dominula** Linn.; Meyr., p. 44, No. 2; Dale, p. 8.

'Wet woods locally common' (Dale). Not according to the records confined to wet woods nor from the habits of the insect would one expect it to be (W.P.C.). 'Locally common' (Bankes).

Affpuddle (E.H.C.); Bere Regis (H.L.A.); Bloxworth, common in wettish places (O.P.-C.) (A.W.P.-C.); Break Hill Wood, Canford, not common (W.P.C.); Glanville's Wootton (Dale *l.c.*); Hyde, near Bere Regis, locally common (P.H.Th.); Morden Bog (O.P.-C.) (A.W.P.-C.); Moreton (F.H.H.); Tadnoll (F.H.H.); Winfrith (F.H.H.).

## FAMILY NOLIDAE.

**Roeselia confusalis** H. Schöff.; Meyr., p. 46, No. 2.

*Nola confusalis* Dale, p. 8.

'Widely distributed' (Dale). 'Well distributed but not common' (Bankes). In my experience occurs rarely as single specimens, and as to distribution a list of localities would be more convincing than the above estimates (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, scarce (O.P.-C.); Buzbury (W.P.C.); Corfe Castle (E.R.B.) (L.P. 7); Grange (E.R.B.) (W.P.C.); Hazelbury Plucknett (A.R.H.); Parkstone, about two a season (W.P.C.) (S.C.S.B.); Studland (C.R.D.) (L.P. 7);

West Whiteway, three on 23rd May, 1872 (T.P.); Winfrith (F.H.H.).

**Nola cucullatella** Linn.; Meyr., p. 46; Dale, p. 8.

'Widely distributed' (Dale). I think he is right and the insect verges on being common (W.P.C.).

Bloxworth (O.P.-C.) (A.W.P.-C.); Corfe Castle (L.P. 7); Cranborne, scarce (F.H.F.); Hazelbury Plucknett, larva fairly common (A.R.H.); Morden (F.H.H.); Parkstone, commonly (S.C.S.B.); Poole, not uncommon (W.P.C.); Studland Rectory, at light (C.R.D.) (L.P. 7); Swanage, one at light (A.G.B.R.) (E.B.N.); Weymouth, 1890 (A.W.P.-C.); Winfrith (F.H.H.).

**Uraba strigula** Schiff.; Meyr., p. 47, No. 1.

*Nola strigula* Dale, p. 8.

'Rare' (Dale). I think it must be, as I have worked both the recorded localities very frequently without seeing it (W.P.C.).

[Bloxworth (O.P.-C. *teste* Dale); A.W.P.-C. says no record by O.P.-C.; possibly a mistake of Dale's]; Cranborne, one (F.H.F.).

**Uraba albula** Hübn.; Meyr., p. 47, No. 2.

Weymouth, one at light in 1904 (N.M.R.) (1904, *Ent. Mon. Mag.*, 40: 211).

## FAMILY HYLOPHILIDAE.

**Earias chlorana** Linn.; Meyr., p. 48; Dale, p. 7.

'Rare' (Dale). 'Local and uncommon' (Bankes). I think it is local and wants working for (W.P.C.).

Bloxworth (O.P.-C.) (E.H.C.); Corfe Castle, one in 1907 (E.R.B.); Lytchett Minster (W.P.C.); Studland (C.R.D.) (W.P.C.) (A.G.B.R.) (L.P. 31).

**Hylophila bicolorana** Fuessl.; Meyr., p. 49.

*Halophila quercana* Dale, p. 7.

'Rare' (Dale). 'Local and uncommon' (Bankes).

Bere Wood, not common (W.P.C.) (O.P.-C.); Cranborne, scarce (F.H.F.); Glanville's Wootton (Dale *l.c.*); Grange, Purbeck, one in 1908 (P.H.Th.); Hazelbury Plucknett, not common (A.R.H.); Middlemarsh (Dale *l.c.*); Winfrith (F.H.H.).

**Halias prasinana** Linn.; Meyr., p. 49.

*Halophila prasinana* Dale, p. 7.

'Widely distributed' (Dale). I think he is right, and it is not uncommon. Probably every woodland of mixed hardwoods produces it (W.P.C.).

Bere Wood (W.P.C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Broadwindsor (W.P.C.); Cranborne (W.P.C.) (F.H.F.); East Howe (W.P.C.); Haymoor Bottom, near Poole (W.P.C.); Hazelbury Plucknett (A.R.H.); Winfrith (F.H.H.).

**Sarothripus revayana** Scop.; Meyr., p. 50.

*Sarothripus undulanus* Dale, p. 7.

'Widely distributed' (Dale). 'Locally common' (Bankes). My experience agrees with neither (W.P.C.).

Bloxworth, sparingly (O.P.-C.); Bere Wood, occasionally (W.P.C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Corfe Castle (E.R.B.) (P.H.) (L.P. 31); Cranborne, one (F.H.F.); Creech Grange (F.W.); Duneat's Hill (W.P.C.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Hazelbury Plucknett, fairly frequent (A.R.H.); Hamworthy, several (W.P.C.); Poole, one (W.P.C.); Studland (C.R.D.) (L.P. 31); Swanage, one at light (A.G.B.R.).

forma **degeneranus** Hübn.

Corfe Castle (E.R.B.); Glanville's Wootton (Dale *l.c.*).

[NOTE.—W. Fassnidge, who has some considerable experience of *degeneranus* Hübn. on the continent, expresses the opinion that the true swallow-feeding *degeneranus* Hübn. is not conspecific with *revayana* Scop. nor with the form of *revayana* which is called *degeneranus* by British entomologists. His view is that the matter needs very careful investigation.]

forma **ramosanus** Dup.

Corfe Castle (E.R.B.); Glanville's Wootton (Dale *l.c.*).

## FAMILY CARADRINIDAE.

### SUB-FAMILY I. CARADRINIDES.

**Acronycta leporina** Linn.; Meyr., p. 54, No. 1; Dale, p. 13.

'Widely distributed but scarce and local' (Bankes). Not common, but seems more prevalent on small birches in the heather-birch area than elsewhere (W.P.C.).

Branksome, two in 1903 (E.H.T.); Bloxworth, one 5th Aug., 1862 (O.P.-C.); Charmouth (W.D.L.); Chickerell, one in 1891 (C.W.D.); Corfe Castle, two bred in 1902 and others taken since (E.R.B.); Glanville's Wootton (Dale *l.c.*); Hamworthy, one larva in 1901 which emerged as an imago in 1903 (W.P.C.); Hazelbury Park, June, 1925 (A.R.H.); Morden, larvae fairly frequent on birch (H.L.A.); Owermoigne (F.H.H.); Parkstone, larvae sparingly on birch (S.C.S.B.) (W.P.C.); Poole, three larvae in Aug.-Sept., 1900, on *Populus balsamifera*, two of

which emerged 14th and 24th May, 1902; two further larvae in 1906 (W.P.C.); Stoborough, two in 1908 (P.H.Th.); Studland, one in July, 1891 or 1892 (L. W. Bristowe), one larva in Sept., 1930 (W.P.C.), two larvae at Littlesea (S.C.S.B.); Wimborne, one larva in 1907 (G.F.M.) (E.R.B.).

**Acronycta aceris** Linn.; Meyr., p. 55, No. 2; Dale, p. 13.

'Rare' (Dale). This is not so, the insect is of frequent occurrence without being common. The paucity of records is, I am satisfied, due to want of work, since the larva is of frequent occurrence on horse-chestnut in Bournemouth. It must be remembered, however, that sycamore is not a common woodland tree, but that it is, with horse-chestnut, another food-plant becoming a regular feature in towns, and the larva may be frequently obtained (W.P.C.). Bankes considered it an east Dorset insect.

Bloxworth, a few only (O.P.-C.); Corfe Castle, two (E.R.B.); Cranborne, not common (F.H.F.); Hamworthy (W.P.C.); Kimmeridge, two (T.P.) (L.P. 18); Parkstone (W.P.C.) (S.C.S.B.); Poole (E.N.B.), frequently (W.P.C.); Studland, one in 1909 (P.H.Th.); Swanage, two (J. Baiss); Wimborne, one in 1806 (J.C.D.), one in 1907 (G.F.M.); Winfrith (F.H.H.); Upper Bockhampton (F.H.H.).

**Acronycta alni** Linn.; Meyr., p. 55, No. 3.

*Jocheaera alni* Dale, p. 13.

'Scarce and local' (Bankes). My experience is that it is very rare (W.P.C.).

Badbury Rings, one at sugar, May, 1933 (S.C.S.B.); Bloxworth, rare (O.P.-C.); Blandford, larvae occasionally met with (Dale *l.c.*), Bankes comments 'very occasionally'; Glanville's Wootton (Dale *l.c.*); Gravel Hill, between Poole and Wimborne, one larva which was parasitized (W.P.C.); Hazelbury Park, one larva in Aug., 1915 (A.R.H.); Lyme Regis (Dale *l.c.*); Middlemarsh (Dale *l.c.*); Parkstone, one larva (S.C.S.B.); Wimborne (E.R.B.).

**Acronycta tridens** Schiff.; Meyr., p. 56, No. 5.

*Triaena tridens* Dale, p. 13.

The difficulty of differentiating this species from *A. psi* L. is very great. Most of the records are unreliable except those of larvae. The genitalia, which afford a satisfactory means of differentiation, have not been used as a test in these records. In the absence of time for examination of genitalia for my own records, where imagines were captured I have relied on the rosier tinge as belonging to *tridens* and not to *psi*, and the character given by Hampson (*Cat. Lep. Phal.*, 3: 97) that the dagger mark is carried right through the cilia in *tridens*, while it is disconnected from the dark mark in the cilia in *psi*.

'Rare' (Dale). 'Local and scarce' (Bankes). I agree (W.P.C.).

Bere Regis, one larva (H.L.A.); Bloxworth, occasional larvae (O.P.-C.); Canford Bottom, near Poole, bred from larva (more than one) (W.P.C.); Cranborne, one larva and imagines (W.P.C.), two (F.H.F.); [Corfe Castle. I am in some doubt about this locality. Dale *l.c.* recorded it. E.R.B. deleted the entry from his copy of Dale and from his Purbeck notebook. He, however, left an insertion in his own handwriting standing, yet he omitted the Purbeck locality from his MS. list for the Victoria County History, and in his own copy of L.P. 1 has written, 'I imagined that some specimens I had taken were *tridens*, but now identify them all as *psi*'—how, he does not state, and I suspect the correction is at least as likely to be erroneous as the original entry]; Glanville's Wootton (Dale *l.c.*); Hamworthy (W.P.C.); Hazelbury Park, one in 1922 (not bred nor the genitalia examined) (A.R.H.); Swanage, several (W.P.C.), two, one a melanic ♂ (A.G.B.R.); Winfrith (F.H.H.).

**Acronycta psi** Linn.; Meyr., p. 56, No. 6.

*Triaena psi* Dale, p. 13.

'Generally distributed' (Dale). 'I consider it fairly common' (Bankes). A high proportion of my records are bred specimens (W.P.C.).

Bloxworth, fairly common, a good many bred (O.P.-C.); Bere Wood (W.P.C.); Bridport (W.P.C.); Break Hill Wood, Canford (W.P.C.); Canford Bottom, near Poole (W.P.C.); Corfe Castle, not rare (E.R.B.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Hazelbury Park, not uncommon (A.R.H.); Parkstone, common (S.C.S.B.); Poole, not uncommon (W.P.C.); Purbeck, common (T.P.) (W.P.C.) (L.P. 18); Swanage, not common (A.G.B.R.); Winfrith (F.H.H.).

**Acronycta megacephala** Fabr.; Meyr., p. 57, No. 7.

*Apatela megacephala* Dale, p. 13.

'Rare' (Dale), which it most certainly is not (W.P.C.). 'Well distributed and locally common' (Bankes). I believe larvae may be obtained from practically every poplar of any age in the county (W.P.C.).

Bloxworth, one (O.P.-C.), a few (W.P.C.); Bere Wood, one (O.P.-C.); Corfe Castle (E.R.B.) (L.P. 18); Cranborne, common (W.P.C.) (F.H.F.); Glanville's Wootton (Dale *l.c.*); Kimmeridge (T.P.) (L.P. 18); Morden (F.H.H.); Poole (E.N.B.) (W.P.C.); Sherborne (Dale *l.c.*); Spettisbury (W.P.C.); Studland (E.R.B.) (L.P. 18); Swanage (W.P.C.) (S. W. Kempe); Winfrith (F.H.H.).

**Acronycta ligustri** Fabr. ; Meyr., p. 57, No. 8.

*Craniophora ligustri* Dale, p. 13.

'Rare' (Dale). 'Widely distributed but more or less uncommon' (Banks). Very local, but very locally not uncommon (W.P.C.).

Bere Regis, one (S.C.S.B.); Bere Wood, a few (W.P.C.), a good many in July, 1856 (O.P.-C.); Bloxworth, occasionally not uncommon (O.P.-C.); Corfe Castle (E.R.B.) (L.P. 18); Cranborne, fairly common (F.H.F.); Glanville's Wootton (Dale l.c.); Holwell (Dale l.c.); Poole, occasionally (E.N.B.), but not for many years (W.P.C.); Wimborne (E.R.B.).

ab. **sundevalli** Lampr. = *olivacea* Tutt.

Cranborne, one (W.P.C.); if memory is not too untrustworthy, F.H.F. also got several of this form at odd times (W.P.C.).

**Acronycta rumicis** Linn. ; Meyr., p. 57, No. 9; Dale, p. 13.

'Generally distributed' (Dale). This may be and possibly is so, although I have never yet taken it in the county (W.P.C.). 'Not common' (Banks).

Bere Wood, July, 1856, and occasionally since (O.P.-C.) (A.W.P.-C.); Bere Regis, in some numbers (H.L.A.); Char-mouth, larva in Sea Lane (W.D.L.); Hazelbury Park, fairly common (A.R.H.); Purbeck, not uncommon (E.R.B.) (L.P. 18); Swanage, one (A.G.B.R.); West Whiteway, not rare (T.P.).

[*Acronycta auricoma* Fabr. ; Meyr., p. 58, No. 10.

E.N.B. stated that he used to take it sparingly at Poole. E.R.B. rejects this for want of evidence, and I think rightly so.]

**Diptera orion** Esp. ; Meyr., p. 59.

Very rare; seems to be entirely confined to the north-east of the county (W.P.C.).

Cranborne, one June 10th, and one June 19th, 1905 (F.H.F.), one larva (W.P.C.).

[*Bryophila algae* Fabr. ; Meyr., p. 60, No. 1.

Recorded for Swanage in *Swanage and its History*, John Braye, 1890. Banks says the record is erroneous, and since he himself compiled the list, he should know. I have little doubt it was a slip for *muralis* Forst. (W.P.C.).]

**Bryophila muralis** Forst. ; Meyr., p. 60, No. 2.

*Bryophila glandifera* Dale, p. 13.

'Rare' (Dale). I should say locally sometimes fairly common, but the class of old stone wall suitable to the species is rather decreasing, although old cool brick walls suit it, and it

will also occasionally take to old hardwood posts (W.P.C.). 'Not uncommon on the coast, but I only have three inland records' (Bankes).

Bloxworth, two (O.P.-C.); Charmouth (W.D.L.); Chickereil (E.R.B.); Corfe Castle, one in 1907 (E.R.B.); Kimmeridge, one in 1870, and one in 1873 (T.P.); Poole (E.H.C.) (W.P.C.) (1897, *Entomologist*, **30**: 274), common (E.N.B.). I agree it was common on the walls of the old stone house at E.N.B.'s lime-kiln at Longfleet, Poole. These walls were made of Lyme Regis Lias and were much overgrown with lichen. Unfortunately modern improvements have destroyed this picturesque old building entirely (W.P.C.); Portland, commonly (F.J.K.); Sherborne (Dale *l.c.*); Swanage, one (E.R.B.)—he has recorded one on a wall, but this must have been a casual capture and not the result of systematic search, or he would have got many; E.H.C. and W.P.C. both obtained larvae commonly and bred the insect, as well as taking imagines (W.P.C.) (F.J.K.) (A.G.B.R.). Weymouth (E.R.B.); Winfrith, common (F.H.H.).

Tutt (1891, *Brit. Noct.*, **1**: 9; 1892, **4**: 83-88) gives a number of colour variations. The form regarded by Tutt as typical is not common in Dorset. I have one from Swanage and three from Poole.

*impar* Warren I have not seen from Dorset, though I have a single specimen from Poole approximating closely to it.

**par** Hübner is in my opinion the most frequent. I have it from Poole and Swanage in numbers.

**viridis** Tutt is rarer according to my experience, and I only have it from Poole.

**obscura** Tutt or what I take to be this form is quite usual at both Poole and Swanage. The rich olivaceous or ochraceous form called *avrolichenea* Oberthür (Culot, 1909, *Noct. et Geom.*, **1**: 24, fig. 10) has occurred to me in Devon, but not yet in Dorset.

**Bryophila perla** Fabr.; Meyr., p. 60, No. 3; Dale, p. 12.

'Generally distributed, scarce at Glanville's Wootton' (Dale). 'Generally common' (Bankes). I find it commonly in the east end of the county. It is distinctly a town insect. It would be interesting to have some further western records. I rather fancy that the type of stone used for walls in the west end of the county weathers too rapidly for a good growth of lichen. On the other hand, *perla* will flourish on any old brick wall and seems to stand the heat of the bricks better than *muralis* (W.P.C.).

Bloxworth, common (A.W.P.-C.); Charmouth, on house walls (W.D.L.); Cranborne, abundant (F.H.F.); Hazelbury Park (A.R.H.); Organford (W.P.C.); Poole, abundant (W.P.C.);

Purbeck, abundant (T.P.), not uncommon (E.R.B.) (L.P. 18); Portland (F.J.K.); Parkstone, common (W.P.C.) (S.C.S.B.); Rempstone Heath (F.H.H.); Swanage, common (W.P.C.) (A.G.B.R.); Winfrith (F.H.H.).

ab. **flavescens** Tutt.

Cranborne, one (F.H.F.); Poole, two (W.P.C.). Whilst one often meets specimens with some yellowish scaling, true *flavescens* is in my view rare in Dorset; I have seen specimens approaching *suffusa* Tutt but not really reaching it (W.P.C.).

**Stilbia anomala** Haw.; Meyr., p. 61; Dale, p. 16.

'Rare' (Dale). 'Occurs sparingly' (Bankes). I should say local but not very scarce. I fancy it could be obtained in fair numbers if one worked for it (W.P.C.).

Alderholt, fairly commonly (F.H.F.); Bloxworth, scarce (E.R.B.) (O.P.-C.); Lyme Regis, Raymond's Hill (R.P.D.); Morden Heath (W.P.C.) (H.L.A.); Poole, occasionally (E.N.B.), Branksome Park (W.G.H.) (G.C.G.); Stoborough Heath (Dale *l.c.*), the captures were made by C.W.D. *ipse*, and he recorded them as 'Wareham Heath,' which is not the correct place name for the locality where he took them (W.P.C.) (L.P. 26); Studland (F. Whitehead) (S.C.S.B.) (W.P.C.) (P.H.Tz.); Swanage (A.U.B.).

[*Acosmetia caliginosa* Hübn.; Meyr., p. 61; Dale, p. 15.

'Rare; Bloxworth by O.P.-C. in 1854' (Dale). O.P.-C., on the other hand, says he has never taken the insect in Bloxworth and has never heard of anyone who has. A.W.P.-C. says his father's series came from Brockenhurst. Neither E.R.B. nor I know of any authentic record. I much fear this initial and unforgiveable blunder on the part of Dale has been copied by many authors and is probably the basis of Meyrick's statement that the insect occurs in Dorset. I enquired on this head of Mr. Meyrick, who tells me that he has not taken the insect in Dorset himself and has no records from his correspondents, and thinks my surmise is correct (W.P.C.).]

**Amphipyra pyramidea** Linn.; Meyr., p. 62, No. 1; Dale, p. 22.

'Rare' (Dale). This is quite erroneous (W.P.C.).

Bloxworth and Bere Wood, sometimes common (O.P.-C.) (W.P.C.); Cranborne, common (F.H.F.); Creech Grange, Purbeck, common in 1909 (P.H.Tz.); Glanville's Wootton, 21st Sept., 1824, and 9th August, 1881 (Dale *l.c.*). It is difficult to believe that this insect is so unusual at this locality as to call for recorded dates (W.P.C.); Gussage St. Michael, abundant (J.H.W.); Hazelbury Park, common (A.R.H.); Haymoor Bot-

tom, near Poole, a few (W.P.C.); Hodd Hill (S.C.S.B.); Muston Down (A.G.B.R.); Parley (S.C.S.B.); Poole (E.N.B.); Sherborne (Dale *l.c.*); Sherford Bridge, near Wareham, frequent (H.L.A.) (W.P.C.); Studland, sparingly (P.H.Tz.); Swanage (A.G.B.R.); Tyneham, one (T.P.) (L.P. 25); Winfrith (F.H.H.).

**Amphipyra tragopogonis** Linn.; Meyr., p. 62, No. 2; Dale, p. 22.

'Common' (Dale). I am very doubtful if this is really correct. I should like to qualify the statement with "but not on the geological horizons younger than the Reading Beds," but I am not in possession of quite enough information to make this qualification without reserve. I know it to be excessively abundant on the Northern Downs and by no means common at Poole (W.P.C.).

Badbury Rings (W.P.C.); Bloxworth, common (O.P.-C.) (A.W.P.-C.); Charmouth (W.D.L.); Corfe Castle (E.R.B.); Cranborne, abundant (W.P.C.); Gussage St. Michael (J.H.W.); Hazelbury Park, common (A.R.H.); Poole, a few only (E.H.C.); Purbeck, common (E.R.B.) (L.P. 25); Studland (E.R.B.); Swanage (W.P.C.), fairly common (A.G.B.R.); Winfrith, abundant (F.H.H.).

**Ochria ochracea** Hübn.; Meyr., p. 63.

*Gortyna flavago* Dale, p. 22.

'Rare' (Dale). 'Distributed but rather uncommon' (Bankes). I should say everywhere where *Cnicus palustris* grows, and the larvae and pupae can be obtained in large numbers (W.P.C.).

Bloxworth, not uncommon (O.P.-C.); Break Hill Wood, Canford (W.P.C.); Charmouth, Hogchester (K. G. Blair); Corfe Castle (E.R.B.); Cranborne, one (F.H.F.); Dunyeat's Hill, plentiful (W.P.C.); Glanville's Wootton (Dale *l.c.*); Hazelbury Park, larva once in stem of *Arctium lappa* (A.R.H.); Hamworthy (W.P.C.); Organford (W.P.C.); Parkstone, one at light (W.P.C.); Poole, occasionally (W.P.C.); Studland (A.G.B.R.); Swanage, two at light (A.G.B.R.); Winfrith (F.H.H.).

The typical form is less prevalent than the deep orange **flavago** Esper. (W.P.C.).

**Luperina testacea** Hübn.; Meyr., p. 63, No. 1; Dale, p. 14.

'Generally distributed' (Dale). 'Locally common' (Bankes). I should say excessively abundant. I do not remember collecting in any locality at a suitable time without encountering the insect. Whilst the insect is sufficiently variable in Dorset to be quite interesting, I have not seen any specimens which could be reasonably confused with any of its congeners. The tone is usually brownish and sometimes a cold grey, but never the silvery grey of *baxteri* (W.P.C.).

Badbury Rings (W.P.C.); Bere Regis (H.L.A.); Bloxworth, common (O.P.-C.); Hamworthy (W.P.C.); Kimmeridge, common (T.P.); Morden (W.P.C.); Parkstone (W.P.C.), common (S.C.S.B.); Poole (W.P.C.); Portland (O.P.-C.); Purbeck, common at light (E.R.B.) (L.P. 20); Sandbanks (W.P.C.) (O.P.-C.); Swanage, common (A.G.B.R.); Winfrith (F.H.H.).

A.G.B.R. has taken at his home at Durlston a number of sooty specimens of *testacea* much like *lutulenta* in appearance.

**Luperina Dumerili** Dup. ; Meyr., p. 64, No. 3; Dale, p. 14.

Portland, one in 1858 and three in 1859 by William Farren; two in 1858 by Mr. Sealey. These passed into the collection of F. O. Bond and formed the basis of Dale's record. One passed into E.R.B.'s collection and is now at the British Museum (Nat. Hist.).

**Spodoptera exigua** Hübn. ; Meyr., p. 64.

*Laphygma exigua* Dale, p. 15.

'Rare' (Dale). The status of this insect as far as Dorset is concerned is, I am satisfied, that of a casual immigrant which occasionally as in 1906, manages to get a brood or two through and then disappears again. It is a member of a genus all of which are great wanderers (W.P.C.).

Branksome, one Sept., 1906 (E. P. Reynolds), two, Sept. 14th, 1906 (S. T. Thorne, 1906, *Entomologist*, 39: 235-236); Chesil Beach, two June 6th, 1879 (O.P.-C.); Kinson, one at ragwort blossom, July 29th, 1906 (W. G. Hooker); Poole and district, about 50 specimens by T. Hartley, W. G. Hooker, W. Jones, S. T. Thorne and W. J. Ogden; from ova obtained from these specimens many were bred (1907, *Entomologist*, 40: 65); Portland, by Mr. Harding; Sandbanks, a few in 1928 (R.P.D.); Studland, one on Sept. 11th, 1879 (C.W.D.).

**Rusina tenebrosa** Hübn. ; Meyr., p. 65; Dale, p. 16.

'Locally common at times' (Bankes). I should say common in the woodlands (W.P.C.).

Bere Wood, common (W.P.C.); Bloxworth, common (A.W. P.-C.); Buzbury, common (W.P.C.); Cranborne, very common (F.H.F.); Creech Grange (P.H.Th.); Corfe Castle (Dale *l.c.*); Glanville's Wootton (C.W.D.); Hamworthy (W.P.C.); Hazelbury Park, common (A.R.H.); Organford (W.P.C.); Poole, abundant (W.P.C.); Purbeck, common (E.R.B.) (L.P. 21); Studland, even on the sand dunes (W.P.C.); Swanage (W.P.C.).

**Coenobia rufa** Haw. ; Meyr., p. 65; Dale, p. 13.

Locally not uncommon (W.P.C.).

Bloxworth, common (O.P.-C.); Break Hill Wood, Canford

(W.P.C.); Corfe Castle, plentiful (E.R.B.); Dunyeat's Hill, between Poole and Wimborne (W.P.C.); Poole (W.P.C.); Studland, plentiful (E.R.B.) (W.P.C. *et aliis*) (L.P. 19); Wareham (E.R.B.); Wimborne, not uncommon (G.F.M.).

**Nonagria geminipuncta** Haw. ; Meyr., p. 66, No. 1.

Organford, near Wareham, plentiful (W.P.C.); Poole, freshwater lake in public park (W.P.C.); Studland, larva and pupa in 1887 (E.R.B.); Swanage coast in 1895 (E.B.N.) (E.R.B.); Wareham, plentiful (E.R.B.).

The above can hardly be regarded as giving a reliable view of the distribution. I venture to think that the insect will be obtained in every well-established reed-bed if worked for (W.P.C.).

**Nonagria sparganii** Esp. ; Meyr., p. 67, No. 5.

Studland, pupae not bred out (W.P.C.); imagines in Aug., 1934 (A.G.B.R.) (H.L.A.).

**Nonagria typhae** Thunb. ; Meyr., p. 67, No. 6.

In my opinion, to be obtained in any place where either *Typha latifolia* or *Typha angustifolia* have been established for any length of time (W.P.C.).

Corfe Castle, common (E.R.B.); Grange, Purbeck (P.H.Th.); Organford, near Wareham, plentiful (W.P.C.); Rempstone, commonly (A.G.B.R.); Studland, common (W.P.C.); Swanage coast (B.G.N.) (E.B.N.) (E.R.B.).

**Senta maritima** Tausch. ; Meyr., p. 67.

Studland, one at light on August 11th, 1909 (P.H.Tz.); another near Littlesea on Sept. 1st, 1933 (Harold King).

**Panemeria tenebrata** Scop. ; Meyr., p. 68.

*Heliodes arbuti* Dale, p. 21.

'Widely distributed' (Dale). Oddly enough I have only obtained it in the western part of the county, and that not commonly (W.P.C.).

Bridport (W.P.C.); Broadwinsor (W.P.C.); Corfe Castle (E.R.B.) (L.P. 25); Dottery (W.P.C.); Lewesdon Hill (W.P.C.) (A.R.H.); Morden (H.L.A.); Whitchurch Canonicorum (W.D.L.).

**Monodes venustula** Hübn. ; Meyr., p. 68.

One at light at Swanage, August 28th, 1933 (A.G.B.R.). I have seen this specimen and agree with the determination (W.P.C.).

**Caradrina pyralina** View. ; Meyr., p. 70, No. 1.*Cosmia pyralina* Dale, p. 19.

'Very rare' (Dale).

Glanville's Wootton, August 26th, 1846, and August 24th, 1855 (Dale *l.c.*); Poole, sparingly (E.N.B.); Branksome, one in August, 1906 (E. P. Reynolds).

**Caradrina diffinis** Linn. ; Meyr., p. 71, No. 2.*Cosmia diffinis* Dale, p. 19.

'Rare' (Dale).

[Bloxworth (Dale *l.c.*). Of doubtful authority; there is no record by O.P.-C.]; Charmouth (Dale *l.c.*); Cranborne, one (F.H.F.); Glanville's Wootton (Dale *l.c.*); Poole (E.N.B.); Winfrith (F.H.H.).

**Caradrina affinis** Linn. ; Meyr., p. 71, No. 3.*Cosmia affinis* Dale, p. 19.

'Rare' (Dale). 'Usually uncommon' (Bankes). I have found it commonly wherever I have beaten *Ulmus campestris* and *Ulmus montana* for larvae. It has a marked preference in the larval stages for the former as a food-plant (W.P.C.).

Badbury Rings (W.P.C.); Bloxworth (W.P.C.), a few bred (O.P.-C.); Branksome (E. P. Reynolds); Charmouth, one (W.D.L.); Corfe Castle (E.R.B.) (L.P. 23); Cranborne, plentiful (F.H.F.); Glanville's Wootton (Dale *l.c.*); Hamworthy (W.P.C.) (E.H.C.); Pamphill (W.P.C.); Parley, commonly (S.C.S.B.); Poole (E.N.B.) (W.P.C.); Sandbanks (W.P.C.); Sherborne (Dale *l.c.*); Studland (C.R.D.) (P.H.Tz) (L.P. 23); Swanage (W.P.C.).

**Caradrina trapezina** Linn. ; Meyr., p. 71, No. 4.*Cosmia trapezina* Dale, p. 19.

'Common' (Dale). 'Locally abundant' (Bankes). I do not think that it is anything like as abundant as it used to be. It is one of the few moths that is partial to visiting the blossom of sweet chestnut (W.P.C.).

Badbury Rings (W.P.C.); Bere Wood, very abundant (E.H.C.); Bloxworth, abundant in the 80's and 90's (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Canford Bottom (W.P.C.); Cranborne, common (F.H.F.); Dunyeat's Hill (W.P.C.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Hazelbury Park (A.R.H.); Parkstone (S.C.S.B.); Poole, abundant (E.H.C.); Purbeck, common (T.P.) (E.R.B.) (L.P. 23); Swanage, not very common, 1930-33 (A.G.B.R.); Winfrith, very common (F.H.H.).

**Caradrina subtusa** Fabr. ; Meyr., p. 71, No. 5.*Tethea subtusa* Dale, p. 19.

'Rare' (Dale).

Bloxworth (O.P.-C.), rare (A.W.P.-C.); Cranborne (F.H.F.); Corfe Castle, bred from larva on poplar (E.R.B.); Glanville's Wootton (Dale *l.c.*); Parley, flying commonly over ditches near the surface of the water (S.C.S.B.); Poole (E.N.B.); Swanage, one at light (A.G.B.R.).

**Caradrina retusa** Linn. ; Meyr., p. 72, No. 6.*Tethea retusa* Dale, p. 19.

'Rare' (Dale).

Bloxworth (O.P.-C. *teste* E.R.B.), A.W.P.-C. says the only specimen in O.P.-C.'s collection was one given to O.P.-C. by E.R.B.; Glanville's Wootton (Dale *l.c.*); Poole (E.N.B.). I have never seen it in the Poole area myself (W.P.C.).

**Caradrina umbra** Hufn. ; Meyr., p. 72, No. 9.*Heliothis marginata* Dale, p. 21.

Bloxworth, but scarce (O.P.-C.) (W.P.C.); Burning Cliff (Dale *l.c.*); Corfe Castle, a few larvae on rest harrow in 1906 (E.R.B.); Cranborne, infrequently (F.H.F.) (W.P.C.); Preston (Dale *l.c.*); Poole (E.N.B.), very doubtful (W.P.C.); Purbeck, not rare (E.R.B.) (L.P. 24); Swanage, Punfield Cove, larvae on rest harrow not rare (E.R.B.), common at Durlston in 1932 but scarce in 1933 (A.G.B.R.); West Whiteway, one (T.P.).

It will be observed that the Poole record is the only one from from a purely siliceous soil, which makes it very dubious indeed. There is no *Ononis* round Poole (W.P.C.).

**Caradrina micacea** Esp. ; Meyr., p. 73, No. 10.*Hydroecia micacea* Dale, p. 14.

'Rare' (Dale). 'Widely distributed but rather uncommon' (Banks). Of regular local occurrence (W.P.C.).

Bloxworth (Dale *l.c.*) [no record by O.P.-C. and no Bloxworth specimen in his collection]; Cranborne, fairly common (F.H.F.); Glanville's Wootton, last on August 8th, 1870 (Dale *l.c.*), but it can hardly be extinct there! (W.P.C.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Moreton (F.H.H.); Parkstone, at light Sept., 1930 (W.P.C.); Poole (E.N.B.), in fair numbers at ragwort on the shores of Poole Harbour (W.P.C.); Sandbanks (W.P.C.); Swanage, two (A.G.B.R.); Winfrith, common (F.H.H.); Wool, common (F.H.H.).

**Caradrina lutosa** Hübn. ; Meyr., p. 73, No. 12.*Nonagria lutosa* Dale, p. 14.

'Well but sparingly distributed' (Banks). A. H. Sperring of Portsmouth, however, has investigated the habits of the in-

sect and these may account for the sparseness of the records. He tells me it is obtainable just at dusk sitting amongst reeds, but disappears in about an hour and then cannot be found, and it rarely flies. I have only seen it flying very late indeed (11 p.m.), and then only very few, so it is apparently easy to overlook (W.P.C.).

Bloxworth (Dale *l.c.*) [no record by O.P.-C., no specimen in his collection with a data ticket]; Charmouth (Dale *l.c.*); Chickereil (E.R.B.); Glanville's Wootton, one specimen (Dale *l.c.*); Poole (E.N.B.), very occasionally (W.P.C.); Portland (Dale *l.c.*); Sherborne (Dale *l.c.*); [Studland (Dale *l.c.*), E.R.B. has deleted this from his copy of Dale, but the locality is suitable]; Swanage, a few (E.R.B.), one at light, several at sugar (A.G.B.R.).

**Caradrina fulva** Hübn.; Meyr., p. 74, No. 14.

*Tapinostola fulva* Dale, p. 13.

'Widely distributed but not recorded from Purbeck' (Dale). The latter statement has been rendered untenable by subsequent records; the former statement wants serious qualification, since the habits of this species render it peculiarly local. Banks regards the species as widely distributed but scarce (W.P.C.).

Bloxworth, scarce (O.P.-C.), not scarce in my experience (W.P.C.); Buckland Newton, Pop Mallard Wood (A.G.B.R.); Break Hill Wood, Canford (E.H.C.); Corfe Castle, scarce (E.R.B.); Glanville's Wootton, rare (J.C.D.) (C.W.D.); Hamworthy (W.P.C.); Kniton, near Canford, locally not uncommon (W.P.C.); Morden Bog, plentiful (A.W.P.-C.); Poole, occasionally (W.P.C.); Studland, scarce (P.H.Tz.) (W.P.C.) (A.G.B.R.); Swanage, one at light (A.G.B.R.); Wimborne (G.F.M.); Winfrith (F.H.H.).

The variation is considerable, and without dealing with Tutt's forms (1891, *Brit. Noct.*, 2: 44) at length, I have obtained at Studland **fluxa** Tr. and ab. **pallida** St., at Hamworthy ab. **concolor** Tutt (*nec* Gn.), whilst one of the Canford specimens is a dull sooty, greyish-ochreous entirely unlike any of Tutt's colour variations.

**Caradrina Bondi** Knaggs; Meyr., p. 75, No. 20.

*Tapinostola bondii* Dale, p. 14.

'Rare and local' (Dale).

Charmouth in 1884 (A. B. Farn). 'Near Charmouth, beyond a limekiln on the cliff on the east side of the little River Char' (Dale MS. per F. O. Morris, 1887, *The Naturalist*, 2: 88); Lyme Regis in July, 1863 (P. Wormald), abundantly in 1880 and 1881 and since (Herbert Goss. F.E.S.), in 1874 (W. H. Tugwell,

1874, *Entomologist*, 7: 205, 292); Portland, one on July 9th, 1888 (Mrs. N. M. Richardson); Stonebarrow, Black Ven, and the fields by the sea (W.D.L.).

*Acosmetia morrisii* Dale, the white variety of *arcuosa* Haw. referred to by Dale, is *teste* E.R.B. this species; *contra* J.J.W., 1909, *Ent. Mon. Mag.*, 45: 179.

**Caradrina arcuosa** Haw.; Meyr., p. 75, No. 21.

*Miana arcuosa* Dale, p. 15.

'Widely distributed' (Dale), 'and occasionally taken' (Bankses). If Dale means that it may turn up in any odd place occasionally, it does not do so; if he means the localities for it are scattered, I agree (W.P.C.).

As to Dale's white variety *morrisii*, *vide ante* under *bonidi* Knaggs, and confer Tutt, 1892, *Brit. Noct.*, 4: 99-100.

Badbury Rings (W.P.C.); Bloxworth, rather sparingly (O.P.-C.); Corfe Castle, occasionally but regularly (E.R.B.); Creech Grange (P.H.Th.); Cranborne, one (F.H.F.); Dunyeat's Hill, between Poole and Wimborne, three or four of an evening at light under favourable conditions (W.P.C.); Morden Park, common in 1887 (A.W.P.-C.); Parley (S.C.S.B.); Studland, one (A.G.B.R.).

**Caradrina quadripunctata** Fabr.; Meyr., p. 76, No. 23.

*Caradrina cubicularis* Dale, p. 15.

'Generally distributed' (Dale). 'Common' (Bankses). This is one of the 'common' insects that I have always experienced great difficulty in obtaining (W.P.C.).

Badbury Rings (W.P.C.); Bloxworth Heath, rare (A.W.P.-C.) (O.P.-C.); Break Hill Wood, Canford, a curious specimen with a complete dark margin to the four wings (W.P.C.); Charmouth (W.D.L.); Gussage St. Michael (J.H.W.); Hazelbury Park (A.R.H.); Hamworthy (W.P.C.); Parkstone, not common (S.C.S.B.); Poole (W.P.C.); Portland (O.P.-C.) (A.W.P.-C.); Purbeck, beaten commonly from haystacks (T.P.), common (E.R.B.) (L.P. 20); Sandbanks (W.P.C.); Swanage (W.P.C.), fairly commonly, but much infested with red acari (A.G.B.R.); Winfrith (F.H.H.).

**Caradrina morpheus** Hufn.; Meyr., p. 76, No. 24; Dale, p. 15.

'Generally distributed' (Dale). 'Common' (Bankses). I agree (W.P.C.).

Cranborne, fairly abundant (F.H.F.); Parkstone (W.P.C.) (S.C.S.B.); Poole, abundant (W.P.C.); Purbeck, abundant (E.R.B.) (L.P. 20); Swanage (W.P.C.); Studland (W.P.C.); West Whiteway, one (T.P.); Winfrith (F.H.H.).

**Caradrina alsines** Brahm. ; Meyr., p. 76, No. 25 ; Dale, p. 15.

'Rare' (Dale). 'Not uncommon locally' (Bankes). I know, however, that E.R.B. regarded this as one of the rarer *Caradrinas*, using the generic term in its old sense and not in the extended sense in which Meyrick uses it. Bankes took much care in checking the identity as he regarded *taraxaci* Hübn. as the commoner species, though my own series of *alsines* is much more extended than my series of *taraxaci*. Most of the following records are founded on insects checked by Bankes (W.P.C.).

Badbury Rings (W.P.C.) ; Bere Wood (W.P.C.) ; Break Hill Wood, Canford (W.P.C.) ; Bloxworth, not scarce (O.P.-C.) ; Corfe Castle (E.R.B.) ; Cranborne (F.H.F.) ; Creech, Purbeck (F.W.) ; Hamworthy (W.P.C.) ; Lilliput (W.P.C.) ; Poole (W.P.C.) ; Portland (Dale *l.c.*) ; Parkstone (S.C.S.B.) ; Swanage (E.R.B.) (W.P.C.) (A.G.B.R.) ; Wimborne (W.P.C.) ; Winfrith (F.H.H.).

A.G.B.R. has a very odd pale and almost unicolorous female.

**Caradrina taraxaci** Hübn. ; Meyr., p. 76, No. 26.

*Caradrina blanda* Dale, p. 15.

'Generally distributed' (Dale). 'Locally common, especially on the coast' (Bankes). I feel, however, that the confusion of this species with *alsines* Brahm. is so frequent that a good number of both from all available localities submitted to an intensive examination and dissection is really necessary to determine the true distribution (W.P.C.).

Bere Wood (W.P.C.) ; Bloxworth (O.P.-C.) ; Coombe Wood (F.H.H.) ; Cranborne, common (F.H.F.) ; Corfe Castle (E.R.B.) (L.P. 20) ; Hamworthy (W.P.C.) ; Gussage St. Michael (J.H.W.) ; Portland (O.P.-C.) ; Studland (E.R.B.) (L.P. 20) ; Swanage (W.P.C.), a few (A.G.B.R.) ; Winfrith (F.H.H.).

**Caradrina ambigua** Fabr. ; Meyr., p. 77, No. 27.

Locally common in some seasons but subject to great fluctuation in number (W.P.C.).

Bere Wood, one in 1908 (W.P.C.) ; Cranborne, abundantly (F.H.F.) ; Hamworthy, not uncommon (W.P.C.) (E.H.C.) ; Lilliput (W.P.C.) ; Parkstone (S.C.S.B.), fairly commonly at light (R.P.D.) ; Poole, not uncommon (W.P.C.) (E.H.C.) ; Studland, one in Sept., 1896 (F.W.), sometimes common (P.H.Tz.) ; Swanage, one in 1892 (P.M.B.), several in Sept., 1901 (A.U.B.), not uncommon in July, 1907 (W.P.C.) (E.H.C.) (A.G.B.R.).

**Caradrina trigrammica** Hufn. ; Meyr., p. 77, No. 28.

*Grammesia trilinea* Dale, p. 15.

'Generally distributed' (Dale). 'Common some years' (Bankes).

Bere Wood (W.P.C.) (O.P.-C.); Bloxworth (W.P.C.), scarce (O.P.-C.); Buzbury, abundant (W.P.C.) (S.C.S.B.); Cranborne, common (F.H.F.); Gravel Hill, between Poole and Wimborne (W.P.C.); Hamworthy (W.P.C.); Hazelbury Park, common some years (A.R.H.); Hodd Hill (S.C.S.B.); Parkstone (W.P.C.), commonly (S.C.S.B.); Poole, not uncommon (W.P.C.); Purbeck, abundant (E.R.B.) (W.P.C.) (L.P. 20); Swanage, not uncommon (A.G.B.R.); West Whiteway, common (T.P.); Winfrith (F.H.H.).

ab. **bilinea** Hübn.

Bloxworth, sometimes not uncommon (W.P.C.); Corfe Castle (E.R.B.) (L.P. 20); Hazelbury Park (A.R.H.); Studland (C.R.D.) (L.P. 20); Swanage, not uncommon (W.P.C.), two (A.G.B.R.).

**Caradrina matura** Hufn. ; Meyr., p. 77, No. 29.

*Cerigo cytherea* Dale, p. 14.

'Rare' (Dale). 'Locally common' (Bankes). I agree with Bankes (W.P.C.).

Badbury Rings, rather common at scabious flowers (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Corfe Castle (E.R.B.); Cranborne, abundant (F.H.F.); Hazelbury Park (A.R.H.); Hamworthy (W.P.C.); Hodd Hill, abundant (S.C.S.B.) (W.P.C.); Lilliput (W.P.C.) (S.C.S.B.); Lulworth (C.W.D.); Poole, common (W.P.C.); Portland (J.J.W.), common August, 1888 (A.W.P.-C.); Purbeck, not uncommon (E.R.B.) (L.P. 20); Sandbanks (W.P.C.); Studland (E.R.B.); Swanage (W.P.C.), abundant (A.G.B.R.); Weymouth (Rev. W. Claxton); Wimborne (W.P.C.); Winfrith (F.H.H.).

**Prodenia litura** Fabr. = *littoralis* Bdv.

On 4th February, 1914, Mr. B. H. Smith showed specimens bred from larvae found at Weymouth in imported bananas (1914, *Proc. Ent. Soc. Lond.*: i). The insect has a wide range in the tropics and is always a possible importation.

**Mania maura** Linn. ; Meyr., p. 78; Dale, p. 22.

'Generally distributed' (Dale). 'Locally common' (Bankes). According to my experience very local and with a marked preference for the neighbourhood of water (W.P.C.).

Bloxworth, scarce (A.W.P.-C.) (O.P.-C.); Branksome, in that part of the Bournemouth Pleasure Gardens within the Borough of Poole, rather common (W.P.C.); Cranborne, abundant (F.H.F.); Parkstone, regularly but scarce (W.P.C.), fairly frequent at sugar (S.C.S.B.); Poole, regularly but scarce (E.H.C.); Purbeck, common (E.R.B.) (L.P. 25); Wimborne St. Giles (J.H.W.); Winfrith, very common (F.H.H.).

**Hadena meticulosa** Linn. ; Meyr., p. 80, No. 1.*Phloxophora meticulosa* Dale, p. 20.

'Common' (Dale). 'Often abundant' (Bankes). It is, I consider, a common flower garden pest and has a great liking for *Gladiolus* of the *primulinus* group, *Anemone* of the *japonica* group, and *Aloysia*, the lemon-scented verbena. The larva is practically polyphagous, and any rare or difficult speciality is certain to be attacked. In 1931 and 1932, in my experience, rare (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, abundant (A.W.P.-C.) (O.P.-C.); Break Hill Wood, Canford (W.P.C.); Charmouth (W.D.L.); Cranborne, very abundant (F.H.F.); Gussage St. Michael, very abundant (J.H.W.); Hamworthy (E.H.C.); Hodd Hill (W.P.C.); Poole, very abundant (W.P.C.); Portland (F.J.K.); Purbeck, abundant (T.P.), common (E.R.B.) (L.P.23); Winfrith, abundant (F.H.H.).

**Hadena lucipara** Linn. ; Meyr., p. 81, No. 2.*Euplexia lucipara* Dale, p. 20.

'Widely distributed' (Dale). I have taken it in every woodland I have worked (W.P.C.).

Bere Wood, plentiful (W.P.C.) (A.W.P.-C.); Bloxworth, plentiful (O.P.-C.); Break Hill Wood, Canford (W.P.C.); Corfe Castle (E.R.B.); Cranborne district, generally common (F.H.F.) (W.P.C.); Hazelbury Park (A.R.H.); Hamworthy (W.P.C.); Organford (W.P.C.); Parkstone, common (S.C.S.B.); Poole, a few (E.H.C.) (W.P.C.); Purbeck, generally distributed (E.R.B.) (L.P.23); Studland, amongst ferns (E.R.B.); Swanage (W.P.C.), not common (A.G.B.R.); West Whiteway, common (T.P.); Winfrith, common (F.H.H.).

**Hadena scabriuscula** Linn. ; Meyr., p. 81, No. 4.*Dipterygia scabriuscula* Dale, p. 14.

'Rare' (Dale). 'Locally abundant' (Bankes). I should say local but frequent (W.P.C.).

Break Hill Wood, Canford (W.P.C.); Bere Wood (O.P.-C.), common in 1856, less so in my time (A.W.P.-C.); Cranborne, abundant (F.H.F.); Henbury (W.P.C.); Hamworthy (W.P.C.); Knighton Heath (O.P.-C.); Parley Heath (Dale *l.c.*); Parkstone, a few (S.C.S.B.) (W.P.C.); Poole (E.N.B.), abundant (E.H.C.); Studland (E.R.B.) (L.P.19); Swanage (W.P.C.); Wimborne (W.P.C.).

**Hadena gemina** Hübn. ; Meyr., p. 82, No. 6.*Apamea gemina* Dale, p. 15.

'Common' (Dale). Bankes agrees; so do I (W.P.C.).

The following five records I am unable to refer to any colour form for want of information (W.P.C.).

Bloxworth and Bere Wood, common (A.W.P.-C.); Hazelbury Park (A.R.H.); Studland (C.R.D.); Swanage (A.G.B.R.); West Whiteway, common (T.P.); Winfrith, common (F.H.H.).

(a) **gemina** Hübn. *typica*. This form as strictly defined does not seem to occur in Dorset, but I have two very near it and very near a specimen from Cumberland. Culot (1913, *Noct. et Geom.*, 1: pl. 30, fig. 1) figures a form as *gemina typica* which I think Tutt would class as *intermedia-grisea*, but taking the tone of the figure as typical the darkest Dorset specimens are warmer in tone and more variegated than that figure (W.P.C.).

Break Hill Wood, Canford (W.P.C.); Cranborne (F.H.F.).

(b) **rufescens** Tutt, 1891, *Brit. Noct.*, 1: 89. This is far the most abundant form of the species in Dorset. Occasional specimens of it have the wing as far as the postmedial line very strongly coloured, and the space between postmedial and sub-terminal lines stands out as very pale (W.P.C.).

(c) **remissa** Tr. This is a scarce form in my experience (W.P.C.).

Hazelbury Park (A.R.H.); Studland, one (E.R.B.); Swanage, one (W.P.C.), one (A.G.B.R.).

(d) **intermedia-grisea** Tutt *l.c.* This colour form which occurred to me commonly on the Cotswolds in a grey stone area, seems scarce in Dorset (W.P.C.).

Sandbanks, one (W.P.C.).

(e) **intermedia-rufa** Tutt *l.c.* A fairly common form (W.P.C.).

Break Hill Wood (W.P.C.); Cranborne (W.P.C.); Swanage (W.P.C.).

**Hadena polyodon** Linn.; Meyr., p. 82, No. 7.

*Xylophasia polyodon* Dale, p. 14.

'Common' (Dale). 'Often abundant' (Bankes). I have never been anywhere in the county at a suitable time without coming across this insect. It shows little variation in Dorset according to my experience. It is noticeable, however, that the hindwings shew a more marked variation than the forewings. Some are practically unicolorous except for a pale basal area and the discoidal barely discernible, and all gradations exist to a pale hind wing with a well-marked crescentic discoidal and a wide dark terminal band, some even exhibiting in addition a well-marked postmedial band followed by a pale band before the dark terminal band (W.P.C.).

Bloxworth, abundant (A.W.P.-C.); Bere Wood (W.P.C.), abundant (A.W.P.-C.); Canford (W.P.C.); Charmouth (W.D.L.); Cranborne, abundant (F.H.F.); East Howe (W.P.C.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Parkstone (W.P.C.); Poole, abundant (W.P.C.); Purbeck, abundant (T.P.), common (E.R.B.) (W.P.C.) (L.P. 19); Swanage

(A.G.B.R.); Weymouth, common (A.W.P.-C.); Winfrith, very common (F.H.H.).

Tutt (1891, *Brit Noct.*, 1: 73) gives a rather vague description of **obscura** Tutt, and states it occurs (*inter alia*) at Portland. I have three specimens from Swanage which would appear to be referable to this form, and A.G.B.R. has an exceedingly nice example also from Swanage. I take this form to be walnut brown, because the northern forms I possess are sepia, and I think are covered by Tutt's *brunnea*.

**Hadena lithoxylea** Fabr.; Meyr., p. 83, No. 9.

*Xylophasia lithoxylea* Dale, p. 14.

'Common' (Dale). 'Often abundant' (Banks). I agree. The variation exhibited is of the slightest (W.P.C.).

Bere Wood, common (O.P.-C.) (A.W.P.-C.); Charmouth (W.D.L.); Corfe Castle (E.R.B.) (L.P. 19); Cranborne, common (F.H.F.); Hazelbury Park, common (A.R.H.); Hamworthy (W.P.C.); Poole, abundant (W.P.C.); Studland (E.R.B.) (L.P. 19); Swanage (W.P.C.), not very common (A.G.B.R.); Winfrith (F.H.H.).

**Hadena sublustris** Esp.; Meyr., p. 83, No. 10.

*Xylophasia sublustris* Dale, p. 14.

'Rare' (Dale). Local, but locally not uncommon (Banks and W.P.C.).

Corfe Castle, common (E.R.B.) (L.P. 19); Cranborne, Handley and Bottlebush Downs, Martin Wood, common (W.P.C.) (F.H.F.); Portland (Dale *l.c.*); Swanage, Ballard Down, a few (W.P.C.), Durlston, fair numbers in 1932 and 1933 (A.G.B.R.).

**Hadena rurea** Fabr.; Meyr., p. 83, No. 11.

*Xylophasia rurea* Dale, p. 14.

'Generally distributed' (Dale). 'Not uncommon as a rule' (Banks). I fear that this insect and *hepatica* Hübn. are frequently confused; some specimens are undoubtedly difficult to allocate without examination of the genitalia. It has mainly occurred to me in single specimens (W.P.C.).

Bere Wood (W.P.C.); Bloxworth (O.P.-C.); Corfe Castle (E.R.B.) (L.P.I. 4); Cranborne, not common (F.H.F.); Hazelbury Park (A.R.H.); Hooke Park, one (W.P.C.); Hamworthy, one (W.P.C.); Higher Kingcombe, one (W.P.C.); Kingston Purbeck, four (A.G.B.R.); Poole (W.P.C.); Studland (E.R.B.); Swanage, one (W.P.C.), two (A.G.B.R.); Winfrith, common (F.H.H.).

Two of A.G.B.R.'s specimens from Kingston are the form **combusta** Esp.

**Hadena scolopacina** Esp.; Meyr., p. 84, No. 13.

*Xylophasia scolopacina* Dale, p. 14.

[Bloxworth (Dale *l.c.*). This record was founded on specimens which O.P.-C. says were not Dorset specimens at all]; Bridport, three by J. Clarke in July, 1897 (1897, *Ent. Rec.*, 9: 334).

**Hadena hepatica** Hübn.; Meyr., p. 84, No. 14.

*Xylophasia hepatica* Dale, p. 14.

'Generally distributed' (Dale). 'Rather common generally' (Banks).

Badbury Rings (W.P.C.); Bere Wood and Bloxworth (O.P.-C.) (A.W.P.-C.); Corfe Castle (E.R.B.) (L.P. 19); Cranborne, fairly common (F.H.F.) (W.P.C.); Gussage St. Michael (J.H.W.); Hazelbury Park (A.R.H.); Kimmeridge, one in 1871 (T.P.) (L.P. 19); Poole, one (W.P.C.); Punfield Cove and Ballard Down, fairly commonly (W.P.C.); Swanage (W.P.C.).

Both the form **characterica** Hübn. and **epomidion** Haw. (see Tutt (1891, *Brit. Noct.*, 1: 81) occur in all the localities I know, and appear to be approximately equally abundant.

**Hadena abjecta** Hübn.; Meyr., p. 85, No. 16.

*Mamestra abjecta* Dale, p. 15.

'Rare' (Dale). This seems to be so and it is very local (W.P.C.).

Chesil Beach, not uncommonly (E.R.B.); Hamworthy, one, August 2nd, 1901 (E.H.C.), one, July 12th, 1908, and three since (W.P.C.); Weymouth (Dale *l.c.*). This probably means Lodmoor (W.P.C.).

**Hadena sordida** Borkh.; Meyr., p. 85, No. 17.

*Mamestra anceps* Dale, p. 15.

'Rare' (Dale). 'Not uncommon generally' (Banks). In my view local but locally frequent (W.P.C.).

Bloxworth (O.P.-C.) (W.P.C.); Cranborne, tolerably common (F.H.F.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Hazelbury Park (A.R.H.); Portland (Dale *l.c.*); Sherborne (Dale *l.c.*); Studland (E.R.B.) (L.P. 20); Swanage (W.P.C.) (A.G.B.R.); West Whiteway, one (T.P.) (L.P. 20).

**Hadena basilinea** Fabr.; Meyr., p. 85, No. 18.

*Apamea basilinea* Dale, p. 15.

'Common' (Dale). I am disposed to agree that this is so except in the heath area. I am not satisfied that the distribution is at all regular, but it is difficult with an insect which is unattractive and yet easily procured to get proper records. Everyone says 'Only *basilinea*,' and there the matter ends (W.P.C.).

Cranborne (W.P.C.); Corfe Castle (E.R.B.); Preston, common (A.W.P.-C.); Purbeck, abundant (T.P.) (L.P. 20); Portland, in coll. W.P.C. (*captor incog.*); Studland (E.R.B.); Swanage (W.P.C.), fair numbers (A.G.B.R.); Weymouth, common (A.W.P.-C.); Winfrith (F.H.H.).

**Hadena ochroleuca** Esp. ; Meyr., p. 86, No. 19.

*Eremobia ochroleuca* Dale, p. 19.

'Rare' (Dale).

Blandford, E.R.B. has W.P.C. as his authority. This is, I am certain, a capture by J. H. Fowler verified by me and passed to E.R.B. for recording (W.P.C.). [Bloxworth (Dale *l.c.*). Of doubtful authority; there is no record by O.P.-C.] ; Parkstone (Dale *l.c.*); Poole (E.N.B.) (G.C.G.) (E.R.B. also has W.P.C., but see remark under Blandford); Portland, two in 1888 and two in 1889 (C.E.P.); Preston, two or three in the daytime on thistle heads, Aug. 10th, 1886 (J.J.W.); Weymouth, in 1871 (A. F. Buxton, 1871, *Entomologist*, 5: 459); Worth Maltravers, one in 1889 (E.R.B.); Winfrith, not uncommon on *Centaurea* on the chalk, especially between Winfrith and Coombe Wood (F.H.H.).

**Hadena ophiogramma** Esp. ; Meyr., p. 86, No. 21.

Poole (E.N.B.). E.R.B. rejected this record, but I think E.R.B. was over cautious. The ornamental silver striped grass *Phalaris arundinacea* to which this species is so partial was much cultivated in Blanchard's early days, though rather out of fashion in modern gardens (W.P.C.).

**Hadena leucostigma** Hübn. ; Meyr., p. 87, No. 23.

Morden (S.C.S.B.) (W.P.C.); Studland, one on Aug. 29th, 1909 (P.H.Tz.); Swanage, one, the large pale, reddish, pretty East Anglian form (A.G.B.R.).

**Hadena unanimitis** Treitsch. ; Meyr., p. 87, No. 24.

*Apamea unanimitis* Dale, p. 15.

'Rare' (Dale).

[Bloxworth (Dale *l.c.*), was investigated by E.R.B. and rejected by him]; Glanville's Wootton (Dale *l.c.*); Poole (E.N.B.) (E.H.C.); Sherborne (Dale *l.c.*).

**Hadena didyma** Esp. ; Meyr., p. 88, No. 25.

*Apamea oculea* Dale, p. 15.

'Common' (Dale). 'Often abundant' (Bankes). To which I would add and extremely variable (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, abundant (A.W.P.-C.) (O.P.-C.); Charmouth (W.D.L.); Chesil Beach, abundant

(W.P.C.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J.H.W.); Hazelbury Park (A.R.H.); Hamworthy (W.P.C.); Parkstone, abundant (W.P.C.); Poole, abundant (W.P.C.); Purbeck, common (T.P.), larva common feeding in stems of *Iris foetidissima* (E.R.B.) (L.P. 20); Sandbanks (W.P.C.); Swanage (W.P.C.), common (A.G.B.R.); Weymouth (A.W.P.-C.); Winfrith, abundant and variable (F.H.H.).

The nomino-typical form is on the whole most abundant. I have it from Hamworthy, Poole, Swanage, Bere Wood and Parkstone.

ab. **rava** Haw. forms only a small percentage. I have always taken this form when I have seen it, but even so my Dorset examples are under one dozen. I have it from Poole, Parkstone, Sandbanks, Hamworthy, Morden, Bere Wood and Swanage, but more specimens from Bere Wood than from any other station.

The black forms **lugens** Haw., **lugens-flava** Tutt, **albistigma** Tutt and **leucostigma** Esp. are nearly as frequent as **secalis** L. *typica*.

The richly coloured **didyma** Esp. on the other hand is rare; my own short series of 113 specimens, hardly two of which are alike, only contains four of this form, and I have seen nothing approaching the French *struviae* form.

The four species which here follow in Meyrick are usually placed under *Hydraecia* and are, as Meyrick states, best recognised by their genitalia. I have not examined the genitalia in detail in any of the records given below, so that the records can only be regarded as approximately reliable. It may be observed that there are no records of *crinanensis* Burrows nor *lucens* Freyer; both these species seem to have a southern limit at Lancashire, but it may well be that their recognition in southern England is merely a question of detailed investigation being wanted. As to the other two species, viz. **nictitans** Bork. and **paludis** Tutt, the former is an insect of the woods, the downland and inland country, the latter an insect of the dunes and the salterns and estuarine marshes. The former comes freely to light; the latter does not. The former is an insect with a sprightly, erratic, and rather puzzling flight; the latter has a more direct and much heavier flight and comes to ragwort very freely, whilst *nictitans* is not a common visitor to ragwort. The difference in the reniform referred to by Meyrick is, in my opinion, inconstant.

**Hadena paludis** Tutt; Meyr., p. 88, No. 28.

'Plentiful at Poole, scarce in Purbeck, rare in Portland' (Banks).

Hamworthy (W.P.C.); Morden Bog (W.P.C.); Poole, common in the salt marshes round the harbour (W.P.C.); Portland, one in 1892 (N.M.R.); Sandbanks (W.P.C.); Studland, not uncommon (W.P.C.).

**Hadena nictitans** Borkh. ; Meyr., p. 88, No. 29.

*Hydraecia nictitans* Dale, p. 14.

'Rare' (Dale). 'Locally but not generally common' (Bankes). Dale's assessment is erroneous, and I agree with Bankes except that I should have assessed it as rare in the littoral districts and common inland, specially so in damp woodlands (W.P.C.).

Badbury Rings, at scabious flowers (W.P.C.); Bloxworth, especially at onion blossom (O.P.-C.) (A.W.P.-C.); Bere Wood (W.P.C.); Break Hill Wood, Canford (W.P.C.); Corfe Castle (E.R.B.); Cranborne, rare (F.H.F.); Dunyeat's Hill, between Poole and Wimborne, common (W.P.C.); Glanville's Wootton (Dale *l.c.*); Morden, frequent at light (W.P.C.); Portland (Dale *l.c.*); Purbeck, generally distributed (L.P.19); Studland (Dale *l.c.*); Swanage, at light, not common (A.G.B.R.); West White-way (T.P.); Winfrith neighbourhood, common (F.H.H.).

Portland and Studland both require confirmation based on genitalia; my present conviction is that these two records relate to *paludis* Tutt. This is the more firmly my opinion since I find that Dale's record for Studland is based on an MS. note of Bankes, 'On ragwort flowers.' At Studland 'on ragwort' makes the odds very heavy in favour of *paludis* (W.P.C.).

**Hadena literosa** Haw. ; Meyr., p. 89, No. 32.

*Miana literosa* Dale, p. 15.

Not very common and the further one gets from the sea the scarcer it becomes (W.P.C.).

Badbury Rings (W.P.C.); Charmouth (J. C. Dale MS., p. 150); Chickereil (E.R.B.); Cranborne, four only (F.H.F.); Corfe Castle (E.R.B.) (L.P. 20); Hamworthy (W.P.C.) (E.H.C.); Lyme Regis (Dale *l.c.*); Parkstone (W.P.C.), a few (S.C.S.B.); Poole (E.N.B.) (W.P.C.); Portland (Dale *l.c.*); Studland (W.P.C.) (L.P. 20); Swanage (W.P.C.), Punfield Cove, larva in the stems of *Iris foetidissima* (E.R.B.), abundant (A.G.B.R.) (L.P. 20); Wimborne (W.P.C.); Winfrith, common (F.H.H.).

[*ab. subrosea* Warren which I have from the north and east of England does not seem to occur in Dorset (W.P.C.).]

**Hadena bicoloria** Vill. ; Meyr., p. 90, No. 33.

*Miana furuncula* Dale, p. 15.

'Generally distributed' (Dale). 'Common' (Bankes). I have obtained it everywhere in the county where I have collected at a suitable time (W.P.C.).

Corfe Castle (E.R.B.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Parkstone (S.C.S.B.); Poole, common (W.P.C.); Portland, common (A.W.P.-C.); Swanage (E.R.B.), pretty common (A.G.B.R.); Studland (W.P.C.); Winfrith, common (F.H.H.).

**Hadena strigilis** Clerck; Meyr., p. 90, No. 34.

*Miana strigilis* Dale, p. 15.

Badbury Rings (W.P.C.); Bere Wood (W.P.C.) (A.W.P.-C.); Bloxworth (A.W.P.-C.); Buzbury (W.P.C.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J.H.W.); Hazelbury Park (A.R.H.); Hamworthy (W.P.C.); Lulworth (F.H.H.); Parkstone, a few (S.C.S.B.); Poole, common (W.P.C.); Purbeck, common (E.R.B.) (L.P. 20); Swanage (W.P.C.), fairly common (A.G.B.R.); Weymouth (A.W.P.-C.); Wool (F.H.H.); Winfrith (F.H.H.).

The above scanty records are due to the general view that this species is too common to record.

The nomino-typical form seems common.

Besides many peculiar aberrations that have not so far as I know received a name, I have taken the following:—**aethiops** Haw., not common; **unicolor** Tutt, not common and only at Swanage; **intermedia** Hormuz, commonly; **praeduncula** Hübn., not commonly; **aerata** Esp., not commonly; **virgata** Tutt, commonly; **fasciata** Tutt, one only; **latruncula** Hübn., moderately common.

No genitalia have been examined; since *strigilis* and *latruncula* definitely differ in genitalia a new set of records based on a genital examination is needed (W.P.C.).

**Hadena fasciuncula** Haw.; Meyr., p. 90, No. 35.

*Miana fasciuncula* Dale, p. 15.

'Locally common' (Bankes). In open grassy places (W.P.C.). 'In damp places. Very variable in Dorset' (F.H.H.).

Bloxworth, usually common, abundant in 1891 (O.P.-C.) (A.W.P.-C.); Cranborne, common (F.H.F.); East Burton (F.H.H.); Glanville's Wootton (Dale *l.c.*); Iford (F.H.H.); Poole, common (W.P.C.); Portland (E.R.B.); Purbeck, common (E.R.B.) (L.P. 20); Spettisbury, common (S.C.S.B.) (W.P.C.); Swanage (W.P.C.), not so common as the other Mianas (A.G.B.R.).

I have some difficulty in following Tutt's description of the colour variations of this species (1891, *Brit. Noct.*, 1: 102), but upon the assumption that the 'hoary grey' of his ab. **pallida** is meant to convey the dull greenish-ochreous colour found in some specimens then this is the more prevalent form in Dorset

according to my experience forming practically seventy-five per cent. of my captures, which however are not numerous. A.G.B.R. has only taken the red form at Swanage (W.P.C.).

#### SUB-FAMILY 2. AGROTIDES.

This sub-family contains some of the most difficult of the whole of the *Noctuidae*. Our knowledge is still very incomplete as to many species, and the mode of differentiation and value of such differentiation are in many cases doubtful and the specific identity of the English forms with the European forms which are referred to under the same name mainly given by continental authors is not to my mind at all satisfactorily established. This is particularly so with *Euxoa obelisca* Schiff. I have never yet seen a British specimen which agreed with the true continental *obelisca* in vital characters. However, I have retained the records as recorded and given my own views; perhaps this will direct the attention of British collectors to the fact that there are still many Noctuae which are truly *species inquirendae*. Breeding from ova seems to be the only likely method of solving the problems, but in addition to this it should be remembered by British collectors that a knowledge of the continental forms and allied species is eminently desirable as a basis for sound taxonomic work. British entomology has, I fear, suffered much from the auction-room values placed upon British-caught specimens.

***Heliiothis armigera*** Hübn. ; Meyr., p. 91, No. 2 ; Dale, p. 21.

'Rare' (Dale). In this country the status of this insect is that of an occasional immigrant. The record under Poole throws some light on this (W.P.C.).

Glanville's Wootton, on July 22nd, 1871 (C.W.D.); Knowle Hill, Buckland Newton, on July 30th, 1826 (J.C.D.); Lytchett Maltravers, on Sept. 10th, 1894 (E.R.B.); Piddlehinton, on August 5th, 1826 (J.C.D.); Poole (E.N.B.), one Sept. 9th, 1899, bred from larva imported from Portugal with tomatoes (W.P.C.); Portland, in 1885 (J.J.W.).

***Heliiothis peltigera*** Schiff. ; Meyr., p. 92, No. 3 ; Dale, p. 21.

In my opinion this species is dependent on immigration and cannot maintain a continuous foothold in Dorset. It may receive its immigrants either direct from the continent or along the coast from south Devon, where the species does appear to be able to maintain itself (W.P.C.).

Bere Wood, one flying at rhododendron, and one at *Ajuga reptans* on June 4th, 1906 (W.P.C.); [Bloxworth. This is an error of Dale's making]; Branksome, eight taken on May 30th, 1906, and many others seen between 8.15 and 8.45 p.m. (W. G.

Hooker, 1906, *Entomologist*, 39: 162, 189), two on July 5th, 1906, one on Aug. 3rd, 1906 (W. G. Hooker), two in June, 1906, and one in Sept., 1906 (E. P. Reynolds); Cranborne, one Sept. 8th, 1906 (F.H.F.); Poole (E.N.B.); Portland (J.J.W.), one in 1888 (C.E.P.) (R.P.D.), the cliff facing West Bay (F.J.K.); Rempstone Heath, one June 18th, 1888 (C.R.D.); Swanage, Punfield Cove in 1884 (E.R.B.), coast, many bred from larvae in 1904 (E.B.N.) (E.R.B.), and again in 1906 (E.R.B.), two (A.G.B.R.) (L.P. 24); Wimborne, one at heather blossom August 10th, 1906 (G.F.M.); Winfrith, one on January 20th, 1918, at light in study (F.H.H.). Attention is drawn to the extraordinary date of capture of the last record, which seems best accounted for by an unusually early emergence. The specimen is not a bad one (W.P.C.).

***Heliothis dipsacea*** Linn.; Meyr., p. 92, No. 4; Dale, p. 21.

'Rare' (Dale).

This is not correct; it is an insect of frequent and regular occurrence in the heath area, but it does not in Dorset seem to affect the flowering meadows and waste places where leguminous plants grow as it does on the Continent, where a sainfoin or lucerne field may be full of the insects. Some of the Dorsetshire specimens cannot be distinguished superficially from the alleged species *Heliothis maritima* Graslin, see 1932, *Journal Ent. Soc. S. Engl.*, 1: 23 (W.P.C.).

Alderholt, fairly common (F.H.F.); Bloxworth, sometimes common, O.P.-C. took on Bloxworth Heath forty specimens in 1852, forty-two in 1853 and 144 in 1855; Canford Bottom, near Poole (W.P.C.); Charmouth (Dale *l.c.*); Grange, Purbeck, one in 1909 (P.H.Th.); Morden Heath (A.G.B.R.); Poole Heath (E.N.B.), not uncommon (E.H.T.) (W. G. Hooker); Parley Heath (Dale *l.c.*); Parkstone Golf Links, larvae (W.P.C.), imago (S.C.S.B.); Studland (E.N.B.) (P.H.Tz.); Verwood, fairly common (F.H.F.).

***Euxoa segetum*** Schiff.; Meyr., p. 94, No. 1.

*Agrotis segetum* Dale, p. 16.

'Common' (Dale). 'Often abundant' (Bankes). I have found it at every station where I have worked and it has a marked partiality for cultivated areas (W.P.C.).

Bloxworth, abundant (A.W.P.-C.); Bere Regis (H.L.A.); Chickerell (A.W.P.-C.); Charmouth (W.D.L.); Cranborne, very common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Parkstone (W.P.C.) (S.C.S.B.); Poole, abundant (W.P.C.); Purbeck, abundant (T.P.) (L.P. 21); Swanage (W.P.C.), common (A.G.B.R.); Winfrith, especially abundant in gardens (F.H.H.); Winterbourne Abbas (W.P.C.).

I have the following named forms in my collection taken in the county:—

ab. **pallida** Stgr., Swanage (1927, *Ent. Rec.*, 39:139); ab. **catenatus** Haw.; ab. **pectinatus** Haw.; ab. **spinulus** Haw.; ab. **nigricornis** Villiers; ab. **subatratus** Haw.; ab. **fuscosa** Esp.; ab. **monileus** Haw.

Also several unnamed forms including one closely resembling specimens from Cyprus in the British Museum and described in 1927, *Ent. Rec.*, 39: 139 (W.P.C.).

**Euxoa vestigialis** Rott.; Meyr., p. 94, No. 2.

*Agrotis valligera* Dale, p. 16.

'Rare' (Dale). I should say habitat restricted but locally common, although it is an insect which is being rapidly wiped out in the county by 'improvements' (W.P.C.).

Bloxworth Heath, one ♂, a pale form, on July 22nd, 1897 (O.P.-C.); Chesil Beach (Dale l.c.); Grange, Purbeck, one at light in 1909 (P.H.Th.); Morden Heath, occasionally (H.L.A.) (W.P.C.); Parkstone, at one and a half miles from the coast (S.C.S.B.); Poole (W.P.C.); Sandbanks, common (E.N.B.), rapidly diminishing (W.P.C.); Studland, one in 1883 (E.R.B.), one (C.R.D.), a few in 1907 (F. Pennington), common in August and early September (W.P.C.) (P.H.Tz.) (H.L.A.). I have worked Studland off and on since 1894 and this species has always been plentiful there (W.P.C.).

I have obtained in the county the following forms: one very near ab. **albidus** Petersen; one very near ab. **nigra** Tutt; ab. **signata** Bdv.; ab. **lineolata** Tutt; ab. **sagittiferus** Haw.; ab. **trigonalis** Esp.; and a beautiful form with a large and brilliant red-brown basal patch. This last being rare. A.G.B.R. has a ♂ most beautifully suffused rosy, with costa marked with crimson; this was taken by him at Studland (W.P.C.).

**Euxoa corticea** Hübn.; Meyr., p. 94, No. 3.

*Agrotis corticea* Dale, p. 16.

'Common' (Dale). 'More or less common generally' (Bankes). Neither estimate can be accepted; it is an insect with a special range within which it is frequently abundant, but in the siliceous areas in the county it is often entirely absent. The *forma typica* is rare; I only have one specimen of it taken at Bere Regis (W.P.C.).

Bere Regis, fairly common (H.L.A.); Bloxworth, 'but I do not remember it being at all common' (A.W.P.-C.); Cranborne, and adjacent downland common (W.P.C.) (F.H.F.); Gussage St. Michael (J.H.W.); Parkstone, several (S.C.S.B.); Portland, common (R.P.D.); Studland (E.R.B.) (L.P. 21); Swanage, fairly common (W.P.C.), not common on the Anvil Point side of the bay (A.G.B.R.); Winfrith, fairly common (F.H.H.).

I have obtained in the county the following forms:—ab. 1, Hampson (1903, *Cat. Lep. Phal.*, 4: 172); **clavigerus** Haw.; **irrorata-pallida** Tutt; **virgata-pallida** Tutt; **irrorata-fusca** Tutt; **sub-fusca** Haw.; **brunnea** Tutt; **obscura** Freyer, one only from Swanage (W.P.C.).

**Euxoa cinerea** Hübn.; Meyr., p. 95, No. 4.

*Agrotis cinerea* Dale, p. 16.

'Rare' (Dale). 'Has occurred sparingly in certain localities' (Banks). It is to be noted that only the geographical race **tephrina** Stgr. occurs in Dorset. I have never seen *forma typica* and I expect I have seen more Dorsetshire *cinerea* than any other person. Consequently the undernoted aberrations must be understood to be aberrations of *tephrina* Stgr. (W.P.C.).

Badbury Rings (S.C.S.B.); Cranborne, plentiful at times (F.H.F.) (W.P.C.); Creech Grange, one in 1909 (P.H.Th.). [Poole (E.N.B.). Banks admitted this record. I reject it; I am certain it is erroneous (W.P.C.).] Portland (C.E.P.); Studland, one at light (C.R.D.) (L.P. 21); Swanage, sparingly on Ballard Down (W.P.C.) (E.H.C.); and on the Durlston side of the bay (A.G.B.R.).

It is noteworthy that the above localities are all either Cretaceous or Portlandian Jurassic, an additional reason for rejecting Poole, which is Bagshot and Drift and entirely devoid of calcium.

My Dorset specimens fall into the following forms: **pallida** Tutt; **virgata** Tutt, much the most usual; **brunnea** Tutt, three only; **eximia** Oberthür, of which I have six, one being the extreme development of this form (W.P.C.).

**Euxoa puta** Hübn.; Meyr., p. 94, No. 5.

*Agrotis puta* Dale, p. 16.

'Rare' (Dale). 'Distributed and locally common' (Banks). I have found it commonly enough wherever I collected in the county, except in the actual woodland—it seems to prefer open country. It is normally double-brooded in Dorset. It is to be noted that the true *puta* Hübn. is a rare European form. The form occurring in Dorset is usually **radius** Haw., never *puta* s.s. (W.P.C.).

Badbury Rings (W.P.C.); Bere Regis (H.L.A.); Bloxworth, but not commonly (A.W.P.-C.); Charmouth (Dale MS., p. 146); Chickerell (E.R.B.); Corfe Castle, scarce (E.R.B.) (L.P. 21); Cranborne, very common (F.H.F.); Hamworthy (W.P.C.); Morden (H.L.A.); Parkstone, common (S.C.S.B.); Poole district (W.P.C.); Portland (O.P.-C.) (A.W.P.-C.); Punfield Cove (E.R.B.); Sandbanks (W.P.C.); Swanage (W.P.C.), common

(A.G.B.R.) (L.P. 21); Studland (W.P.C.); Wareham (E.R.B.); Weymouth (J.J.W.); Wimborne (W.P.C.); Winfrith (F.H.H.).

In addition to *radius* Haw. my Dorset specimens fall into the following color forms: **lignosa** Godt., the most frequent; **renitens** Hübn.; **obscura** Tutt; **nigra** Tutt. These forms appear indifferently in Gen. I and Gen. II (W.P.C.).

**Euxoa exclamatoris** Linn.; Meyr., p. 95, No. 6.

*Agrotis exclamatoris* Dale, p. 16.

'Common' (Dale). 'Often abundant' (Bankes), which accords with my experience (W.P.C.).

Badbury Rings (W.P.C.); Bloxworth, abundant (A.W.P.-C.); Bere Wood (W.P.C.); Buzbury (S.C.S.B.); Chesil Beach (W.P.C.); Charmouth (W.D.L.); Cranborne, very common (F.H.F.); East Lulworth, abundant (F.H.H.); Gussage St. Michael, abundant (J.H.W.); Hamworthy (W.P.C.); Organford (W.P.C.); Poole, common (W.P.C.); Parkstone (S.C.S.B.); Purbeck, abundant (T.P.) (E.R.B.) (W.P.C.) (L.P. 21); Punfield Cove (W.P.C.); Winfrith, abundant (F.H.H.); Swanage, abundant (A.G.B.R.).

I have seen several of the radiate forms from Cranborne taken by F.H.F. and I have one from Punfield Cove; also Fisher took at Cranborne one extremely pale one (W.P.C.).

**Euxoa trux** Hübn.; Meyr., p. 96, No. 7.

*Agrotis lunigera* Dale, p. 16.

It is to be observed that Dorset only produces the race **lunigera** Stph. The variation within the race is considerable, but it never loses its character; one never sees anything approaching true *trux* or such forms as *terranea* (W.P.C.).

'Rare' (Dale). 'Locally common on the coast' (Bankes). I have often seen it in great abundance (W.P.C.).

Portland, abundantly by several collectors (E.R.B.) (N.M.R.) (R.P.D.), in 1888 *et seq.* (A.W.P.-C.); Studland, sparingly by C.R.D. and others (*teste* E.R.B.) (L.P. 21); Swanage, Ballard Down, abundantly (W.P.C.) and by other collectors (*teste* E.R.B.), Anvil Point side scarce (A.G.B.R.) (L.P. 21).

My Dorset specimens exhibit the following variations: the orbicular quite annular; orbicular with a central dot; orbicular without a central dot, with a general grey ground powdered yellowish which seems to be the nomino-typical form of Stephens; ab. **pallida** Tutt; ab. **virgata** Tutt; ab. **obscura** Tutt; and ab. **rufescens** Tutt; this last seems very rare in Dorset. I must have examined many thousands of specimens at one time or another, and have only taken one *rufescens* in Dorset; as *Euxoa* has always interested me very much I have kept a sharp look out for forms (W.P.C.).

**Euxoa obelisca** Hübn. ; Meyr., p. 96, No. 8.

With regard to this species I am at present uncertain what the insect is that passes under this name in Britain. Most of the specimens recorded below were identified by Bankes. Bankes identified *obelisca* at a time when my knowledge of the species was less extended than it now is. I think that either the insect called *obelisca* by British collectors is a form of *tritici* L. or else of *spinifera* Gn., though it may possibly be entitled to specific rank. Hampson (1903, *Cat. Lep. Phal.*, 4) rejects the species for Britain, as does Warren (in Seitz, 1909, *Macrolep. of World*, 3), whilst the late Dr. A. Corti (in Seitz, 1931, *Macrolep. of World*, Suppl., 3) thinks that possibly what passes in Britain as *obelisca* may in fact be *obelisca* Schiff, but this expert refrains from a positive committal.

The antennae are stated by Meyrick, *l.c.*, to be 'acutely dentate.' Hampson says they are 'bipectinate with long branches with terminal cilia except the last third.' All I have examined from Britain seem to be serrate-fasciculate like *tritici*, whilst the few continental specimens I have had an opportunity of examining closely agree with Hampson's description. W. H. T. Tams and I submitted all Bankes' series to a careful examination, and the antennae do not agree with continental *obelisca* but with *tritici*. It is also to be observed that the majority of insects standing under this label in British collections are ♀♀ about which there is usually some doubt unless taken in company with ♂♂. *E. obelisca* Schiff as understood on the Continent has ample wings. As captured in Britain it has narrow wings with costa and dorsum nearly parallel for the distal two-thirds. Finally the specimens attributed to *obelisca* Schiff by continental authorities have the underside light and clear, the discoidal lunules well marked and subterminal line pronounced. The British specimens like *tritici* have a dusky disc to the forewings, the discoidals hardly perceptible and the subterminal difficult to make out. Accordingly the records below must be regarded as subject to grave doubt.

I had at first decided to reject them altogether, but on consideration thought that this might lead to misunderstanding and that it was therefore better to insert them with the foregoing caution as to the status of *obelisca* as a British species.

Hamworthy (W.P.C.) (E.H.C.); Parkstone (W.P.C.); Poole (E.N.B.) (W.P.C.) (E.H.C.); Studland, sparingly (P.H.Tz.); Swanage, one (A.G.B.R.), one on Aug. 16th, 1933 (Harold King).

**Euxoa cursoria** Hüfn. ; Meyr., p. 96, No. 9.

*Agrotis cursoria* Dale, p. 16.

'Rare' (Dale).

Chesil Beach (Mr. Bentley and Prof. Henslow); Portland Undercliff, below Pennsylvania Castle (A.W.P.-C.) (O.P.-C.);

Studland (C.R.D.) (Bankes has an MS. note in his copy of L.P., 'identity very doubtful,' see L.P. I.5); Weymouth (probably the ridge towards Preston), J. R. Ridley, two in July, 1886, at arbutus blossom by A.W.P.-C., who adds after having read my note below: 'I think these are true *cursoria*.' At one time I considered that I got *cursoria* at Studland, and I now know I did not, but I got a form of *tritici*. I regard *cursoria* as now understood as being a northerly rather than a southerly insect. I should have rejected the above records but for the fact that in October, 1932, I acquired six specimens bred from Weymouth larvae by J. H. Ridley which superficially seem correctly assigned to this species. I have not yet had any opportunity of dissecting them to make quite certain. Everyone who is well acquainted with this species and *Euxoa tritici* knows they run very close, and both produce forms that are almost if not quite indistinguishable without the closest investigation from *Lycophotia ripae* Hübn.

***Euxoa nigricans*** Linn.; Meyr., p. 97, No. 10.

*Agrotis nigricans* Dale, p. 16.

'Generally distributed' (Dale). I am not disposed to agree, and I regard it as an insect of frequent occurrence on and near the coast, but like *tritici* Linn. getting progressively scarcer as one goes inland. Note the fact that F.H.F. in all his years of collecting at Cranborne, and he was most assiduous with the sugar-pot as well as running two light-traps, only got three at Cranborne whilst I have taken ten times that number in a single evening in a field of ragwort blossom on the shores of Poole Harbour (W.P.C.).

Cranborne, three only (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Poole, fairly common (W.P.C.); Parkstone (S.C.S.B.); Studland (E.R.B.) (L.P. 21); Winfrith (F.H.H.).

My Dorset specimens range under the following forms: ab. **pallida** Tutt, not common; ab. **rufa** Tutt, one only; ab. **obeliscata** Haw., not common; ab. **quadrata** Tutt; ab. **dubia** Haw.; ab. **ursina** Godt; ab. **fumata** Warr; ab. **fuliginea** Godt. This last is not developed to the degree of blackness that the continental specimens are. It will be observed that many of the named forms which are frequent enough in East Anglia do not appear in the above list (W.P.C.).

***Euxoa tritici*** Linn.; Meyr., p. 97, No. 11.

*Agrotis tritici* Dale, p. 16.

'Generally distributed' (Dale). 'Widely distributed and common on coast sand hills' (Bankes). I should add 'and on heaths, but getting markedly scarcer as one recedes from the coast until on the downland it is distinctly rare.'

I have kept *aquilina* Hübn. under a separate heading and I believe the records under this heading have reference only to this form, the status of which is unsettled. As is well known the Early Fathers regarded it as a species, and made many unsuccessful attempts to differentiate it from *tritici*. No such attempt was really successful, partly because it was not realised that *aquilina* Hübn. does not equal *aquilina* Godt. I am in agreement with Tutt that these names apply to different forms. Although I should regard *aquilina* Godt. as the form of *aquilina* Hübn. with the concolorous costa.

Pierce has pointed out that the genitalia as far as he has had the material before him afford no sure guide. On the other hand the late Dr. A. Corti, who has probably given more attention to this group than anyone else, considers *aquilina* Hübn. is a good species, and as far as I am able to follow him he limits the name to the large form which runs on almost parallel lines with the small brown forms of *tritici* of the *detorta* Ev. facies. As Fassnidge has pointed out to me, this large brown *aquilina* Hübn. is not coextensive in range with *tritici* L., and it is this form I have put under *aquilina* Hübn., and I regard *albilinea* Haw., the type of which is in the British Museum and open to examination, as a form of *aquilina* Hübn. and not of *tritici* Linn., considering it to be a pale costa form of *aquilina* Hübn. In truth the series of this species available for examination in a private collection is as a rule inadequate and the museums appear to be as badly placed. The British Museum has about three rows where it ought to have about ten drawers full at the least. Unfortunately the strong difference of opinion as to the value of naming forms, and even of the study of them, is so pronounced that it is sometimes allowed scope in cutting down museum series to such attenuated dimensions that the student who does think there is something to be gained in this way finds himself hampered by lack of material for comparison. This protean species and its allies have so far defied the seeker after precise order, and the taxonomic value of many of the so-called species on the Continent is open to grave doubt as it appears to be possible to match many of them in a series of what British collectors would unhesitatingly refer to *tritici* L.

Bloxworth Heath, regularly but hardly common (A.W.P.-C.) ; Corfe Castle (E.R.B.) (L.P. 21) ; Hamworthy (W.P.C.) (E.H.C.) ; Kimmeridge (E.R.B.) (L.P. 21) ; Morden Bog, scarce (W.P.C.) ; Poole (W.P.C.) (E.H.C.) ; Parkstone (S.C.S.B.) ; Sandbanks (W.P.C.) ; Studland (W.P.C.) (A.G.B.R.) (L.P. 21) ; Swanage (A.G.B.R.).

Amongst my Dorset specimens are examples which seem to fall under the following names: **obsoleta** Tutt, one only; **puncta-obsoleta** Tutt, one only; **caerulea** Tutt, one of the commoner forms; **costa-caerulea** Tutt, two only; **minor-caerulea** Tutt,

two only; **eruta** Hübn., one of the commoner forms; ab. **vitta** Tutt *nec* Hübn., four specimens—in my opinion the form of *tritici* referred by Tutt to *vitta* Hübn. is not conspecific with *vitta*, as it is taken in the Alps of Europe; ab. **pallida** Tutt, three specimens; ab. **sagittifera** Steph., two; **fusca** Tutt, which sometimes runs rather close to *nigricans* ab. *marshallana* Westw., is one of the commoner forms; **siliginis** Tutt *nec* Guenée is also rather common, whilst I have one specimen of *tritici* which agrees exactly with **siliginis** Guenée so labelled by Guenée himself ex Oberthür collection now in the British Museum; and also one specimen which agrees with **siliginis** as determined by Sir G. F. Hampson and as figured by Culot, 1911, *Noct. et Geom. d'Europe*, 1: pl. 13, fig. 3; **costa-fusca** Tutt, a rare form; **sordida** Tutt *nec* Haw. Haworth's *sordida* is a form of *nigricans* L.; **tritici typica**, not very common; **detorta** Ev.; **valligera** Haw., **cuneigera** Steph., **venosa** Steph., or a form very near it; **nigrofusca** Esp.; **gypaetina** Tutt *nec* Guenée (Guenée's *gypaetina* is a *Porosagrotis*), a rather common form; **nigra** Tutt; **ocellina** Steph. *nec* Schiff. (Stephens regarded his form of *tritici* as conspecific with *Lycophotia ocellina* Schiff., a Pyrenean and Alpine Mountain species); **costa-nigra** Tutt; a form agreeing with Boisduval, 1832-1841, *Icones*, pl. 77, fig. 2; a form agreeing almost exactly with *Euxoa varia* Alpheraky, an Asiatic form which Hamp., *op. cit.*, p. 293, sinks to *tritici* L.; as with **nigricans** I have never obtained in Dorset the ruddy forms that occur in East Anglia (W.P.C.).

### **Euxoa aquilina** Hübn.

See remarks under *tritici* L.

Bloxworth (O.P.-C. *sed quaere*; this appears in Bankes' notes, but A.W.P.-C. says there is no specimen in the O.P.-C. collection certainly referable here); Cranborne, one (F.H.F.); note that neither Fisher nor I obtained *tritici* L. at Cranborne); Hamworthy (W.P.C.) (E.H.C.); Parley Heath (J.C.D.); Poole (W.P.C.) (E.H.C.); Studland (P.H.Tz.).

I have 6 specimens which agree well with the type of **albilinea** Haw. in the British Museum; one **aquilina** Godt. *nec* Hübn.; three **tritici** Godt. (= **fictilis** Hübn. *teste* Tutt, *contra* Hampson); all of which I think are referable here (W.P.C.).

### **Agrotis ypsilon** Rott.; Meyr., p. 98, No. 1.

*Agrotis suffusa* Dale, p. 16.

'Generally distributed' (Dale). 'Generally common' (Bankes). I agree with both (W.P.C.).

Break Hill Wood, Canford (W.P.C.); Bere Wood (W.P.C.); Bloxworth, abundant (A.W.P.-C.); Cranborne, very common (F.H.F.); Corfe Castle, plentiful at sugar (E.R.B.); Gussage

St. Michael (J.H.W.); Hamworthy (W.P.C.); Hodd Hill (S.C.S.B.); Kimmeridge, common (T.P.); Poole, common (W.P.C.); Purbeck, common (E.R.B.) (L.P. 21); Studland (E.R.B.); Swanage, common (A.G.B.R.); Weymouth, abundant (A.W.P.-C.); Winfrith (F.H.H.).

I have one specimen taken at Poole in which the entire colour is bleached, giving it a similar appearance to that of *Euxoa segetum* Schiff. ab. *pallida* Stgr. (W.P.C.).

**Agrotis ripae** Hübn.; Meyr., p. 98, No. 2; Dale, p. 16.

Tutt, Brit. Noct., Vol. II, p. 67 *et seq.*

'Rare' (Dale). I cannot agree that an insect of which I have more than once taken 60 in three hours is anything but common, but it is excessively local (W.P.C.).

Chesil Beach (E.R.B.) (N.M.R.) (A.W.P.-C.); Portland (Dale *l.c.*, which probably means Chesil Beach. W.P.C.); Studland (E.R.B.), abundant (W.P.C.) (L.P. 21).

All those specimens I have from Studland—and I do not possess any from Portland or Chesil Beach—are pallid in the extreme; the markings are usually brown and very rarely rufous. Not more than 10 per cent. exhibit rufous markings and not more than one per cent. is distinctly reddish, forming a marked contrast to the Christchurch Head, Hants, specimens, where rufous colouring is prevalent, and a still more marked contrast to the Devonshire specimens, where strong rufous ab. **desillii** Pier. is the rule. As a result the extreme form of ab. **weissenbornii** Fuessl. (Culot, 1910, *Noct. et Geom.*, 1: pl. 11, fig. ii) forms over 10 per cent. of the specimens captured and a considerable part of the population runs very close to ab. **desertorum** Bdv., the type of which is figured by Culot *l.c.*, fig. 12. It may be remarked that Hamp. (1905, *Cat. Lep. Phal.*, 4: 528), has described ab. *weissenbornii* and ab. *desillii* in terms which, if they convey anything at all, convey the reverse of what should be conveyed, since the salient characters given are not justified by the original diagnoses and seem to have been borrowed from the opposite form; in addition the orthography of the names has been amended in such a way as to obscure their derivation.

ab. **obotritica** Schmidt (not *obotrictica* as Tutt has it) is recorded by Tutt from Portland, but is correctly stated by Tutt to be a transitional form to *weissenbornii* Fuessl. Whilst I have no true *desillii* Pier., at least three of my Studland specimens seem to be the subform **albicosta** Tutt. If Hübner's *Schmetterlinge*, fig. 702, is the nomino-typical form, I have no Dorsetshire examples anything like as dark; the vast majority fall under the form **nebulosa** Steph. (1829, *Illus. Haust.*, pl. 22, fig. 1), the type of which came from Barnstaple, where the

specimens are usually not so red as the south Devon specimens nor as white as the Dorsetshire ones.

**Agrotis praecox** Linn. ; Meyr., p. 98, No. 3; Dale, p. 16.

'Rare' (Dale). 'Apparently not uncommon in some years' (Bankes). I should call it scarce and local; whilst I practically never fail to secure at least one specimen in an evening's work when the species is out, I have never exceeded four (W.P.C.).

Portland (Dale *l.c.*); Punfield Cove (E.R.B.); Sandbanks (W.G.H.) (P.M.B.) (W.P.C.); Studland (C.R.D.) (W.G.H.) (W.P.C.) (H.L.A. *et alii*) (L.P. 21); Swanage (C.R.D.) (E.B.N.) (L.P. 21).

The Dorsetshire specimens compare favourably for size and brilliance with those from other localities (W.P.C.).

**Agrotis saucia** Hübn. ; Meyr., p. 99, No. 4; Dale, p. 16; Tutt, Vol. II, p. 5.

'Distributed and occasionally abundant' (Bankes). In my localities I have found it quite commonly (W.P.C.).

Bere Wood (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Corfe Castle, abundant in some years (E.R.B.); Cranborne, common (F.H.F.); Glanville's Wootton (C.W.D.); Hamworthy (W.P.C.); Kimmeridge, common (T.P.); Poole (W.P.C.); Portland (Dale *l.c.*), sometimes abundant (R.P.D.); Purbeck, sometimes abundant (E.R.B.) (L.P. 21); Studland (E.R.B.); Swanage, common (A.G.B.R.); Weymouth, common in 1886 (A.W.P.-C.).

Taking Tutt's colour forms, *margaritosa* Haw. grey clouded with ashy and the stigmata indistinct. I have never yet seen a specimen which complies with this diagnosis, although the form figured by Culot (1911, *Noct. et Geom.*, 1: pl. 14, fig. 14) as *margaritosa* occurs in Dorset. It is to be observed, however, that Culot's figure does not agree with Haworth's diagnosis, nor does Staud. (1901, *Cat. Pal. Lep.*, 1: 152, No. 1402 (a)) agree with Haworth's. Evidently Culot was misled by Staudinger '*plus minus*, etc., *lutea griseo mixtis*.' Forma **nigracosta** Tutt, I have two examples from Hamworthy—it appears to be very rare in Dorset—one also in A.G.B.R.'s collection; **ochrea-costa** Tutt, on the other hand, is fairly common and is the form figured by Culot, pl. 14, *supra*. The nomino-typical form I have not obtained in Dorset. The form **rufa** Tutt, which I take to include all the red and reddish-vinous forms which are at most slightly greyish on the dorsum, is a prevalent form, as also is a dark vinous form which seems to form a transition from **rufa** Tutt to **majuscula** Haw., the black form, of which I have only obtained one, which is characteristically a ♀. It is noteworthy that the ♀♀ of this species, *puta* Hübn. and *segetum* Schiff. all tend to be much darker than the ♂♂. Forma *majuscula* Haw., judging

by what my correspondents send me, seems fairly abundant on the Portuguese coast, which however is materially warmer than Dorset. Forma **brunnea** Tutt is rare; I have only taken one specimen. Taken as a whole the Dorset specimens seem paler and clearer in colour than the continental ones and with the margin of the hindwings of a warmer tone, more vandyke brown and less sepia, agreeing in that respect with the American examples in my collection (W.P.C.).

**Agrotis strigula** Thunb. ; Meyr., p. 99, No. 5.

*Agrotis porphyrea* Dale, p. 16.

'Common on the heaths' (Dale). I agree, and have sometimes swept the larvae in hundreds (W.P.C.).

Bloxworth, abundant (W.P.C.) (O.P.-C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Canford Bottom (W.P.C.); East Howe (W.P.C.); Glanville's Wootton, one (Dale *l.c.*); Hamworthy (W.P.C.); Morden (F.H.H.), Morden Park (A.W.P.-C.) (O.P.-C.), Morden Bog (W.P.C.); Poole, abundant (W.P.C.); Parkstone, very common (S.C.S.B.) (W.P.C.); Portland, one at the lighthouse (J.J.W.); Purbeck, common on the heaths (E.R.B.) (L.P. 21); Studland (W.P.C.); Sandbanks (W.P.C.); Swanage, occasionally at light (A.G.B.R.); Turner's Puddle (W.P.C.); Verwood (F.H.F.); West Whiteway, common (T.P.); Winfrith (F.H.H.).

This species does not seem to indulge in Dorset in its northern habit of flying in the afternoon sun. I cannot see that there is much variation in the Dorsetshire specimens. All those I have seen do not reach any of the distinctions given by Tutt, 1892, *Brit. Noct.*, 2: 89, though it is possible to trace an incipient tendency toward the named forms. I have, however, one specimen from Studland which closely resembles the type of **marmorea** Graslin figured by Culot, 1909, *Noct. et Geom.*, 1: pl. 3, fig. 5.

**Agrotis lucernea** Linn. ; Meyr., p. 100, No. 8; Dale, p. 16.

Portland (N.M.R.), not common (R.P.D.), common in some seasons (A.W.P.-C.); [Poole (E.N.B.). E.R.B. has accepted this; I prefer to reject it till confirmed. Poole is too geologically recent (W.P.C.)]; Swanage, by Sir Christopher Lighton, *circa* 1845 (L.P. 21), where the name is given as 'Frederick.'

**Graphiphora plecta** Linn. ; Meyr., p. 102, No. 2.

*Noctua plecta* Dale, p. 17.

'Generally distributed' (Dale). 'Sometimes common' (Bankes). I think Bankes is right, but for want of records am doubtful if Dale is (W.P.C.).

Bere Wood and Bloxworth, fairly common (O.P.-C.) (A.W.P.-C.); Buzbury Camp (W.P.C.); Corfe Castle (E.R.B.), who records a fresh specimen at fallow bloom on April 16th, 1881 (L.P. 21); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Hodd Hill, common (W.P.C.); Morden (W.P.C.); Parkstone (S.C.S.B.) (E.H.C.); Poole, not uncommon (E.H.C.) (W.P.C.); Purbeck, common (T.P.), it is commoner in Purbeck than in any other of the Dorset localities under my initials (W.P.C.) (L.P. 21); Swanage (W.P.C.); Winfrith, common (F.H.H.).

Culot (1910, *Noct. et Geom.*, 1: 55) says ab. *anderssoni* Lampa 'd'un violet presque noir.' Although I have seen dark Dorset specimens of a violet tinge, nothing approaching 'presque noir' has come within my purview. My specimens all run from light mahogany red or madder brown to Mars violet, and nothing darker, nor have I seen any without the orbicular developed. I think therefore the Dorset specimens may all be said to belong to the nomino-typical form (W.P.C.).

**Graphiphora agathina** Dup.; Meyr., p. 102, No. 3.

*Agrotis agathina* Dale, p. 16.

I should assess this insect as not uncommon locally (W.P.C.).

Alderholt, frequent (F.H.F.); Bere Wood, one in 1851, not Bloxworth as recorded by Dale (O.P.-C.); Branksome, commonly at light (Sidney T. Thorne, 1906, *Entomologist*, 39: 235-6); Lyme Regis, Raymond's Hill (R.P.D.); Parley Heath (Dale *l.c.*); Parkstone (S.C.S.B.); Poole, on the heaths common in the larval stage but difficult to rear (W.P.C.); Sandbanks (W.P.C.); Studland (W.P.C.) (R.P.D.); Stoborough Heath, recorded as Wareham (Dale *l.c.*) (L.P. 21).

**Graphiphora augur** Fabr.; Meyr., p. 103, No. 4; Dale, p. 17.

Apparently rare (W.P.C.).

Glanville's Wootton, June 30th, 1851 (J.C.D.); Winfrith (F.H.H.).

**Graphiphora simulans** Hufn.; Meyr., p. 103, No. 5.

*Agrotis pyrophila* Dale, p. 16.

'Rare' (Dale). I am happy to say I have received records of recent captures, so this insect is still obtainable (W.P.C.).

Charmouth (Dale *l.c.*); Lewell (Dale *l.c.*); Portland, very local and uncommon (R.P.D.), rare 1888-1895 (A.W.P.-C.); Studland, one taken and another missed 1883 (E.R.B.) (L.P. 21).

Tutt (1892, *Brit. Noct.*, 2: 80) refers the Portland specimens to the form **pyrophila** Hübn. on account of their yellow ground, and mentions two extremely yellow specimens taken by Lieut. C. W. Brown in Portland in 1890 (W.P.C.).

**Graphiphora obscura** Brahm; Meyr., p. 103, No. 6.

Cranborne, one specimen labelled Cranborne but without date of capture, in coll. F.H.F.; identity checked by E.R.B. An isolated capture of which no satisfactory explanation can be suggested.

Bankes in his early days referred a Studland capture to this species, but later corrected it to *simulans* Hufn. Up to the time of writing I have not traced a printed record, but in case this error received currency, here is the correction based on Bankes' own notes.

Newman states (1869, *British Moths*: 336) 'In Dorsetshire by Mr. Dale.' This must be erroneous, since C. W. Dale does not record it, and if his father had taken it he was almost certain to have recorded it; moreover Bankes nowhere mentions this recorded capture by J. C. Dale. I suspect that the specimen was really *simulans* Hufn., and that may account for Bankes' early error, as he had access to the Dale collection and would rely on the labelling in his early days till he discovered his errors (W.P.C.).

**Graphiphora castanea** Esp.; Meyr., p. 104, No. 7.

*Noctua neglecta* Dale, p. 17.

The **neglecta** Hübn. form is the only one I have seen from Dorset, and the average run of the specimens is much smaller than those I have from the south of France (W.P.C.).

Bloxworth and Bere Wood, occasionally (O.P.-C.) (A.W.P.-C.); Canford Bottom, a few at sugar (W.P.C.); Cranborne, two (F.H.F.), evidently wanderers; Cranborne is not at all a likely place for the species (W.P.C.); Glanville's Wootton, one specimen (Dale *l.c.*); Lyme Regis, Raymond's Hill, common (R.P.D.); Morden Bog, fairly common (W.P.C.); Parley Heath (Dale *l.c.*); Poole Heath (Dale *l.c.*); Parkstone Golf Links, larvae common (W.P.C.); Sherborne (Dale *l.c.*); Studland (A.G.B.R.); Swanage, one near the lighthouse (A.G.B.R.); Verwood (W.P.C.); West Whiteway, one in 1874 (T.P.) (L.P. 22); Winfrith (F.H.H.).

**Graphiphora putris** Linn.; Meyr., p. 104, No. 8.

*Axylia putris* Dale, p. 14.

'Widely distributed' (Dale). 'Not uncommon' (Bankes). I do not call it very common (W.P.C.).

Charmouth (W.D.L.); Cranborne, fairly common (F.H.F.); Gussage St. Michael (J.H.W.); Poole (W.P.C.); Parkstone (S.C.S.B.); Portland (O.P.-C.) (A.W.P.-C.); Purbeck, common (E.R.B.) (L.P. 19); Swanage, in fair numbers at sugar (W.P.C.), fairly common (A.G.B.R.); West Whiteway, one in 1874 (T.P.); Winfrith, common (F.H.H.).

There is some variation in the depth of ground of the wings and some in the tone of the brown in my series, but not sufficiently marked to justify any name being conferred. Tutt (1891, *Brit. Noct.*, 1: 68) refers to a specimen with a dark shade reaching from the base of the reniform to the inner margin. This condition pertains in 30 per cent. of my Dorset specimens, and in my opinion is nothing more than the lower part of the ill-developed postmedial line. One of my specimens shews this most distinctly.

The small neural dots are the remains of the subterminal line, and the sagittate marks so highly developed in *Euxoa*, since these occupy a position which approximates to that of the post-medial in many species, no doubt led to Tutt failing to recognise that his shade was in fact the dorsal portion of the post-medial (W.P.C.).

**Graphiphora c-nigrum** Linn.; Meyr., p. 105, No. 11.

*Noctua c-nigrum* Dale, p. 17.

'Rare' (Dale). 'Common' (Bankes). Of the insects grouped by Meyrick under this generic name, only *xanthographa*, *pronuba* and *comes* exceed it in abundance. Perhaps it is a little less abundant on the heathland than off it, but geological horizon and state of cultivation do not seem material and it is constantly double brooded (W.P.C.).

Bere Wood (W.P.C.), common (A.W.P.-C.); Bloxworth (O.P.-C.); Corfe Castle (E.R.B.); Canford Heath (W.P.C.); Cranborne, common (F.H.F.); Glanville's Wootton (Dale l.c.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Hodd Hill (W.P.C.); Parkstone (S.C.S.B.); Poole, common (W.P.C.); Portland (E.R.B.); Purbeck, not uncommon (E.R.B.) (L.P. 22); Studland (E.R.B.); Swanage (W.P.C.), common (A.G.B.R.); Winfrith (F.H.H.).

This species varies very materially in Dorset, but I am entirely unable to agree any form I have with any of the named forms in Tutt, 1892, *Brit. Noct.*, 2: 110. Moreover no variation that I possess is in the present state of my specimens sufficiently marked to deserve a name, and the gradation from one extreme to the other is practically complete. I see no parallelism in the variation of this species with any other, nor any variation which is entirely confined to any particular generation. Without therefore erecting types or attempting detailed description, I will merely remark that the forewings range in tone from a blue-violet black and deep raisin black to a rather warm vinaceous-brown, or sorghum brown, occasionally with a rosy flush to them which seems usually evanescent. The large pale costal mark which absorbs the orbicular ranges from pale olive-buff to avellaneous (W.P.C.).

**Graphiphora ditrapezium** Borkh. ; Meyr., p. 105, No. 12.

*Noctua ditrapezium* Dale, p. 17.

'Rare' (Dale). To which I would add 'excessively local' (W.P.C.).

Bere Regis, one specimen (H.L.A.); Bere Wood (F.O.B., O.P.-C., A.W.P.-C., F.O.P.-C., W.P.C.). Bankes notes 'rather commonly by W.P.C in July, 1908, but it is usually uncommon there.' I think the real explanation is this. O.P.-C. told me that I sugared a much larger area of the wood than he and his sons did and also sugared parts of the wood they did not work much at night. If this be so, and O.P.-C. knew how much of the wood I covered, the Cambridges may have been on the fringe of the locality and I in the centre. I hold the view that this insect is restricted to the London Clay, Reading and Woolwich Beds, and these again are not much developed in the wood. I never get the insect in those parts of the wood which are more recent than those strata. After reading the foregoing A.W.P.-C. gave me details of where he got the species, and it is a confirmation of my surmise. The insect is less abundant on the Bloxworth edge of the wood than it is in the centre and north central area (W.P.C.); Studland, one close to Littlesea (A.G.B.R.).

**Graphiphora triangulum** Hufn. ; Meyr., p. 106, No. 13.

*Noctua triangulum* Dale, p. 17.

'Rare' (Dale). 'Sometimes common' (Bankes). I should say the seasonal variation never rises to abundant and never falls to infrequent (W.P.C.).

Bere Wood (W.P.C.), fairly common (O.P.-C.) (A.W.P.-C.); Bloxworth (Dale l.c.); Charmouth (W.D.L.); Chickerell (E.R.B.); Cranborne, fairly common (F.H.F.); Corfe Castle (E.R.B.); Glanville's Wootton (C.W.D.); Hamworthy (E.H.C.); Poole (E.N.B.), common (W.P.C.); Portland (E.R.B.); Swanage (W.P.C.) (A.G.B.R.).

South's statement, 1907, *Moths of British Isles*, Series 1: 223, as to Somerset, Dorset and westward is entirely erroneous; both S.C.S.B. and W.P.C. have taken it as far west as Devon. The variation exhibited in Dorset is negligible (W.P.C.).

**Graphiphora pronuba** Linn. ; Meyr., p. 106, No. 14.

*Triphaena pronuba* Dale, p. 16.

I should say common to abundant both on cultivated and uncultivated areas (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, abundant (O.P.-C.) (A.W.P.-C.); Badbury Rings (S.C.S.B.); Break Hill Wood, Canford (W.P.C.); Bridport (W.P.C.); Canford Bottom (W.P.C.); Charmouth (W.D.L.); Chesil Beach (W.P.C.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J.H.W.); Ham-

worthy (E.H.C.); Hodd Hill (W.P.C.); Parkstone, a nuisance (S.C.S.B.) (W.P.C.); Purbeck, abundant (T.P.), common (E.R.B.) (L.P. 21); Poole, very common (E.H.C.); Studland, where I have on occasions seen the whole heath area alive with countless dozens flying (W.P.C.); Swanage, and in 1934 in incredible numbers (A.G.B.R.); Weymouth (W.P.C.); Winfrith, abundant (F.H.H.); Upper Bockhampton (F.H.H.).

I have but a short series of this insect notwithstanding its variability; due no doubt to the feeling that one could always get it I am not therefore confident that its variation in the county is fully represented. Taking the table Tutt, 1892, *Brit. Noct.*, 2: 100, I have not got nor have I ever seen a specimen of the nomino-typical form; ab. **ochrea** Tutt is not very common; by **rufa** Tutt I understand those specimens which are yellow ochre or ochraceous-tawny more or less strongly vermiculated with a deeper warm ochraceous-tawny or buckthorn brown; this form has a suggestion of a pale costa sometimes and is common; **brunnea** Tutt is one of the less common forms; **innuba** Tr. (as restricted by Tutt) is a common form; I have nothing agreeing with Tutt's other diagnoses. By far the commonest form in Dorset is a wood brown form with lively and clear markings in various shades of brown with all stigmata (except claviform) and lines well developed which does not seem to agree with any of Tutt's names. I also get a dark brown form with tegulae concolorous with wings, but with the stigmata plainly marked in a paler colour and some specimens with the lines developed but softer and clouded as if painted in water colour and then wetted. These last are rather beautiful and one of them is curious in being asymmetrical, as it has a large dorsal discal area of fawn enveloping the lower half of the reniform and extending from the orbicular to the post-medial line, whilst the other wing has the area almost unicolorous dark brown (W.P.C.).

**Graphiphora comes** Hübn.; Meyr., p. 106, No. 15.

*Triphaena orbona* Dale, p. 16.

'Common' (Dale). I should say more especially so near the coast. Occasionally troublesome on rock gardens, where it eats the various cultivated cistus (*Helianthemum*) voraciously (W.P.C.).

Bloxworth, common (A.W.P.-C.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Parkstone (W.P.C.) (S.C.S.B.); Poole, common (E.H.C.) (W.P.C.); Purbeck, abundant (T.P.), common (E.R.B.) (L.P. 21); Swanage, fairly common (A.G.B.R.); Winfrith, very common (F.H.H.).

Tutt has not made it any easier to follow his colour variations by his persistence in identifying *orbona* Hufn. as equalling

*comes* Hübn. ; *comes* Hübn. = *comes* Hufn., whilst *orbona* Hufn. = *subsequa* S.V. according to most authors and according to the accepted synonymy of to-day.

The following forms have occurred to me : **connuba** Hübn., the form without discoidal lunule in the hindwing, one specimen bred ; ab. **attenuata** Warr., not common ; **adsequa** Tr., I have a number of specimens near but nothing that could be said to be 'without any distinct markings' ; **pallida** Tutt (1889, *Entomologist*, **22**, pl. 6, figs. 1 and 2) is not common, I only have two ; **grisea** Tutt, *Brit. Noct.*, **2** : 96, is fairly frequent ; **ochrea** Tutt *l.c.* is frequent ; **virgata** Tutt *l.c.* 99 is rare ; none of the dark-reddish or red-brown forms has so far come before me amongst Dorset-caught specimens (W.P.C.).

**Graphiphora orbona** Hufn. ; Meyr., p. 107, No. 16.

*Triphaena subsequa* Dale, p. 16.

'Rare' (Dale). I should say local, sometimes abundant. The distribution of this insect is curious ; no solution offers itself at the moment. It will be noted that whilst not by any means uncommon in the heath and pine area of the south-east, it is well represented in the Cretaceous district of Purbeck and abundant in the Cretaceous area of the north-east of the county (W.P.C.).

Branksome Park, in considerable numbers (E.N.B.) ; Bloxworth, in the strawberry beds frequently (O.P.-C.) (A.W.P.-C.), not common at sugar (A.W.P.-C) ; Cranborne, both in the large woods and on the downs ; 15 to 20 a night is quite usual ; 180 in a single evening is the highest F.H.F. and W.P.C. ever reached (W.P.C.) ; Corfe Castle, one (E.R.B.) ; Kimmeridge, one (T.P.) (1872, *Entomologist*, **5** : 179) (L.P. 21) ; Parkstone (W.P.C.) ; Poole (W.P.C.) ; Portland (Dale *l.c.*) ; Studland, one (C.R.D.), one (E.B.N.), sparingly (P.H.Tz.) (L.P. 21) ; Swanage, one in 1900 (B. A. Bristowe), not uncommon in 1907 (W.P.C.) (E.H.C.), one (A.G.B.R.).

Tutt *l.c.*, p. 93, says he has not seen anything worth calling a variety. It is evident that Tutt's experience of the insect was limited. Save that I have never yet seen *orbona* without discoidal lunules in the hindwing, I can match all the varieties given under *comes* in *orbona*, and in addition I have specimens the forewings of which are dark vinaceous brown (W.P.C.).

**Graphiphora brunnea** Fabr. ; Meyr., p. 107, No. 17.

*Noctua brunnea* Dale, p. 17 ; Tutt, *Brit. Noct.*, Vol. II, p. 112.

'Rare' (Dale). This is incorrect. I think it is not putting it too high to say that the insect is by no means local saving that it does not favour heathland or actually cultivated land and is common where it occurs (W.P.C.).

Bere Wood, abundant (W.P.C.) (A.W.P.-C.); Bloxworth, abundant (O.P.-C.); Corfe Castle (E.R.B.); Cranborne and district, abundant (W.P.C.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Kimmeridge, a few (T.P.) (L.P. 21); Poole (E.N.B.); Sherborne (Dale *l.c.*); Swanage, common (W.P.C.); Winfrith (F.H.H.).

The nomino-typical form is rare: var. **lucifera** Esp. forms the vast majority of specimens. I have at most three referable to **nigricans** Homeyer, and only about half a dozen **rufa** Tutt, as my series is picked out of many hundreds seen at sugar the only conclusion is that these forms are in fact rare (W.P.C.).

**Graphiphora xanthographa** Fabr.; Meyr., p. 107, No. 18.

*Noctua xanthographa* Dale, p. 17; Tutt, Brit. Noct., Vol. II, p. 124.

'Common everywhere' (Dale). I have found it common in every locality I have worked, but with a preference to open land rather than heavily wooded country (W.P.C.).

Bere Wood, abundant (A.W.P.-C.) (O.P.-C.); Bloxworth, abundant (A.W.P.-C.) (O.P.-C.); Break Hill Wood, Canford (W.P.C.); Cranborne, abundant (F.H.F.); Corfe Castle, common (E.R.B.); Gussage St. Michael, abundant (J.H.W.); Hamworthy (E.H.C.); Lulworth (P.M.B.); Morden (W.P.C.); Poole, abundant (W.P.C.); Parkstone (S.C.S.B.) (W.P.C.); Purbeck, abundant (T.P.) (L.P. 22); Sandbanks (W.P.C.); Swanage, abundant (A.G.B.R.); Studland, at light (E.R.B.); Winfrith, very common (F.H.H.).

The named colour forms are difficult to assess: **cohoesa** Herr.-Schäff. is not common; the nomino-typical form is; **rufescens** Tutt is scarce; **rufa** Tutt is not; **obscura** Tutt I have never taken at all in Dorset though I have dark specimens which appear to me to be transitional between **rufa** Tutt and **obscura** Tutt, nor have I obtained var. **nigra** Tutt; but A.G.B.R. has two **obscura** and one pronounced **nigra** from Swanage, and a very minute ♂ not exceeding 26 mm. (W.P.C.).

**Graphiphora umbrosa** Hübn.; Meyr., p. 108, No. 19.

*Noctua umbrosa* Dale, p. 17.

'Rare' (Dale). I think this is putting it a little high, but I have obtained but few in Dorset in forty years (W.P.C.).

Bere Wood, rare (O.P.-C.) (A.W.P.-C.); [Bloxworth, Dale *l.c.* is erroneous]; Creech Grange, three in 1909 (P.H.Th.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Hodd Hill, frequent (W.P.C.) (S.C.S.B.); Parley (S.C.S.B.); Portland (Dale *l.c.*); Spettisbury, commonly (S.C.S.B.); Studland, sparingly (P.H.Tz.), two only (W.P.C.); Swanage, sparingly (A.G.B.R.).

**Graphiphora rubi** View. ; Meyr., p. 108, No. 20.

*Noctua rubi* Dale, p. 17; Tutt, Brit. Noct., Vol. II, p. 123.

'Common' (Dale). I have frequently found it so but much more information is required than I have at my disposal to give any idea of its distribution or relative local abundance (W.P.C.).

Badbury Rings (W.P.C.); Bere Wood, rather rare (A.W.P.-C.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (E.H.C.); Hodd Hill, very common (W.P.C.); Poole, common (E.H.C.); Parkstone (S.C.S.B.) (E. Hudson); Purbeck, common at ivy and light (E.R.B.) (L.P. 22); Sandbanks (W.P.C.); Swanage (W.P.C.) (A.G.B.R.); Studland (W.P.C.); West Whiteway, abundant (T.P.); Winfrith, common (F.H.H.); West Bay (E. Hudson.).

Both the nomino-typical form and var. **quadratum** Hübn. occur, the latter being slightly the less frequent. The average size is below rather than above the minimum expanse given in the text-books (W.P.C.).

**Graphiphora Dahli** Hübn. ; Meyr., p. 108, No. 21.

*Noctua dahlia* Dale, p. 17.

'Rare' (Dale). I would add also very local (W.P.C.).

Bere Wood, rare (O.P.-C.); Cranborne, not common (F.H.F.) (W.P.C.); Cranborne Chase, one (A.G.B.R.).

**Graphiphora festiva** Hübn. ; Meyr., p. 108, No. 22.

*Noctua festiva* Dale, p. 17; Tutt, Brit. Noct., Vol. II, p. 118.

'Generally distributed' (Dale). 'Often abundant' (Bankes). I think these form a just estimate, and it is certainly extremely abundant in the large wooded area in the north-east of the county (W.P.C.).

Bere Wood (W.P.C.), common (O.P.-C.) (A.W.P.-C.); Bloxworth, common (O.P.-C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Charmouth (W.D.L.); Cranborne, abundant (F.H.F.) (W.P.C.); Hamworthy (W.P.C.); Morden (W.P.C.); Poole, not uncommon (W.P.C.); Purbeck, common (E.R.B.) (L.P. 22); Studland (A.G.B.R.); Swanage (W.P.C.) (A.G.B.R.); West Whiteway, abundant (T.P.); Winfrith, common (F.H.H.).

Considering the range of variation of which this species is capable, in my view the variation in Dorset is rather small. Apart from a curious teratological specimen with a termen nearly as long as the dorsum and a quadrate apex caused by a sudden 45° bend in the costa at the post-medial line I have never seen anything very striking. I have obtained **rufovirgata** Tutt, **mendica** Fabr., **ochrea-virgata** Tutt, **ignicola** Herr.-Schäff. and **primulae** Esp., also a specimen with a glaucous tone to the ground but with ruddy markings (W.P.C.).

**Graphiphora stigmatica** Hübn. ; Meyr., p. 109, No. 23.

*Noctua rhomboidea* Dale, p. 17.

Bere Wood, rare (O.P.-C.) (W.P.C.) (A.W.P.-C.); Break Hill Wood, Canford, one only (W.P.C.); Cranborne, common (F.H.F.); Winfrith (F.H.H.).

**Graphiphora glareosa** Esp. ; Meyr., p. 109, No. 24.

*Noctua glareosa* Dale, p. 17.

'Rare' (Dale). I think this is putting it rather too high. I should say local and scarce (W.P.C.).

Bloxworth, sometimes fairly common (O.P.-C.) (A.W.P.-C.); Buckland Newton, Pop Mallard Wood, one, a very red one (A.G.B.R.); Hamworthy, several (W.P.C.); Kimmeridge, one in 1873 (T.P.) (L.P. 21); Lyme Regis, Raymond's Hill (R.P.D.); Poole (E.N.B.), scarce (W.P.C.); Studland, three in 1909 and others since (since I took the three one evening close together in a small area I think it is probably not uncommon there) (W.P.C.), three (A.G.B.R.); Swanage, in 1845 by Sir Christopher Lighton (L.P. 21).

**Graphiphora typica** Linn. ; Meyr., p. 110, No. 26.

*Naenia typica* Dale, p. 22.

This is an insect which seems to be rare in Dorset. My experience is that it turns up in coal-houses, garden tool-sheds and such like places, but rarely when one is collecting and then only in single specimens. It seems less frequent in Dorset than in Devon, where I have not found it commonly either. It certainly is infinitely scarcer in my experience in south-western England than it is in East Anglia (W.P.C.).

Bere Wood, one (W.P.C.), rare (O.P.-C.); Bloxworth, one (A.W.P.-C.); Cranborne, not common (F.H.F.); Charmouth (Dale *l.c.*); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Poole, scarce (W.P.C.) (E.N.B.); Sandbanks, one (W.P.C.); Sherborne (Dale *l.c.*); Swanage, one in 1907 (W.P.C.); Winfrith, common (F.H.H.).

**Triphaena fimbria** Linn. ; Meyr., p. 111, No. 1 ; Dale, p. 17.

'Rare' (Dale). I should say strictly local and scarce. I am however by no means satisfied that it could not be obtained in some abundance in the larval stage by beating at night. The opportunities I have had of testing this idea in Bere Wood produced several larvae in a short time, some of which emerged (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, rare (O.P.-C.); Chickerell (E.R.B.); Corfe Castle, one in 1899 (P. Helps), one in 1901 (E.R.B.); Cranborne, common (F.H.F.); Glanville's Wootton

(Dale *l.c.*); Parkstone, larvae, imagines bred (S.C.S.B.); Poole (E.N.B.), several (E.H.C.); Sherborne (Dale *l.c.*); Studland, bred (C.R.D.) (A.G.B.R.); Swanage, several (A.G.B.R.).

So few Dorsetshire specimens have come under my notice that it would be absurd to discuss the variation in the county (W.P.C.).

**Triphaena ianthina** Esp.; Meyr., p. 111, No. 2; Dale, p. 17.

'Common' (Dale). I hardly agree and should prefer the expression "not infrequent." A possible explanation of this difference of opinion may be found in the fact that this species is very abundant in Devon. Dale is about half-way from my area to Devon, and it may increase in abundance as one goes west. The variation is negligible (W.P.C.).

Bloxworth, common especially in the rectory garden and shrubbery (A.W.P.-C.); Corfe Castle (E.R.B.); Cranborne, at light (W.P.C.), common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy, at blossom of ragwort (W.P.C.); Kimmeridge, not rare (T.P.); Parkstone (S.C.S.B.) (W.P.C.); Poole, not infrequent (W.P.C.); Punfield Cove (E.R.B.); Purbeck, generally distributed and not scarce (E.R.B.) (L.P. 21); Sandbanks (W.P.C.); Swanage, fairly common (A.G.B.R.); West Bay (W.P.C.); Winfrith, common (F.H.H.).

**Triphaena interjecta** Hübn.; Meyr., p. 111, No. 3; Dale, p. 17.

'Generally distributed' (Dale). I should question this, since it has not occurred to me at times and places where it might have been expected, nor have I found it at all common (W.P.C.).

Bere Wood (W.P.C.); Bloxworth Heath, not common (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Corfe Castle (E.R.B.); Cranborne, a few (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy, not common (W.P.C.); Kimmeridge, one (T.P.); Morden (S.C.S.B.); Poole, not common (W.P.C.); Parkstone (E.H.C.); Purbeck, generally distributed, not common (E.R.B.) (L.P. 21); Studland (W.P.C.); Studland Heath (E.R.B.); Sandbanks (W.P.C.); Swanage, one (A.G.B.R.), one (J. Biass); Winfrith, common (F.H.H.).

The variation is negligible (W.P.C.).

**Triphaena baja** Fabr.; Meyr., p. 112, No. 4.

*Noctua baja* Dale, p. 17.

'Rare' (Dale). I should say it nearly but not quite merits this description (W.P.C.).

Bere Wood (W.P.C.), rare (O.P.-C.) (A.W.P.-C.); [Bloxworth, Dale *l.c.*, doubtful; A.W.P.-C. thinks Bere Wood intended]; Corfe Castle, occasionally (E.R.B.); Cranborne, abundant (F.H.F.); Cranborne Chase (A.G.B.R.); Dunyeat's

Hill (S.C.S.B.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Poole (E.N.B.), a few (E.H.C.); Portland (Dale *l.c.*); Studland, fairly common in 1933 (W.P.C.); Winfrith (F.H.H.).

**Triphaena rubricosa** Fabr.; Meyr., p. 112, No. 7.

*Pachnobia rubricosa* Dale, p. 17; Tutt, Brit. Noct., Vol. II, p. 130.

'Rare' (Dale). This is not so; the insect can, if one adopts suitable tactics, be obtained in fair numbers (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, fairly common (W.P.C.), rare (O.P.-C.) (A.W.P.-C.), the latter in view of my experience thinks tactics were at fault (W.P.C.); Chickereil (E.R.B.); Corfe Castle (E.R.B.); Cranborne, common (F.H.F.); Dunyeat's Hill, between Poole and Wimborne (W.P.C.); Glanville's Wootton (C.W.D.); Gravel Hill, between Poole and Wimborne (W.P.C.); Hyde, near Wareham (W.P.C.); Kimmeridge, fairly common (T.P.); Poole, not common (W.P.C.) (E.H.C.); Portland (E.R.B.); Purbeck, generally distributed (E.R.B.) (L.P. 22); Studland (E.R.B.); Swanage, with fair frequency at light and sallow (A.G.B.R.).

The usual form is **rufa** Haw.; the nomino-typical form is not uncommon, whilst I have obtained only one **mucida** Esp. (W.P.C.).

**Triphaena prasina** Fabr.; Meyr., p. 113, No. 10.

*Aplecta herbida* Dale, p. 20.

Alderholt, in considerable numbers and pretty regularly (F.H.F.); Bere Wood, occasionally common (O.P.-C.), infrequently (W.P.C.); Charmouth (Dale *l.c.*); Corfe Castle, one at light in 1884 and another in 1886 (E.R.B.) (L.P. 24); Cranborne (F.H.F.). E.R.B. has 'occasionally rather common (F.H.F.)'. This is a misunderstanding. F.H.F. used to take it at Cranborne, but the rather common only applied to his Alderholt locality (W.P.C.). Glanville's Wootton, on July 16th, 1863 (C.W.D.); Swanage, one on June 10th, 1892 (C.R.D.).

### SUBFAMILY 3. POLIADES.

**Brachionycha sphinx** Hufn.; Meyr., p. 115, No. 1.

*Petasia cassinea* Dale, p. 12.

'Rare' (Dale). 'England, rather common' (Meyrick). My experience in Dorset coincides with Dale rather than Meyrick. Some of the records as larvae I have had to reject, as I am convinced they related to *Amphipyra pyramidea*, which larva is, I find, often confused with this species (W.P.C.).

Bere Wood, occasional larvae (W.P.C.); Bloxworth (O.P.-C.); Charmouth, bred (W.D.L.); Glanville's Wootton (Dale *l.c.*); Middlemarsh (Dale *l.c.*); Parley Woods, larvae (S.C.S.B.); Poole (E.N.B.); Studland, larvae and imagines (E.R.B.) (L.P. 17).

**Aporophyla australis** Boisd. ; Meyr., p. 116, No. 1 ; Dale, p. 14.

Badbury Rings, three (W.P.C.); Chesil Beach, Portland (O.P.-C.) (J.J.W.), Sept. 23rd-24th, 1886, fairly common (E.R.B.) (R.P.D.); N.W. Dorset (A.R.H.); Poole (E.N.B.); Swanage (A. B. Farn) (S. W. Kemp, 1899, *Entomologist*, **32**: 260) (A.U.B.), not uncommonly at light and occasionally at sugar (A.G.B.R.) (E.R.B.).

**Aporophyla lutulenta** Borkh. ; Meyr., p. 116, No. 2.

Broomhill Bridge, between Winfrith and Moreton (F.H.H.); Cranborne, common (F.H.F.); Hamworthy, a few (W.P.C.) (E.H.C.); but I have no reason to believe that the species might not be obtained regularly if worked for (W.P.C.).

**Aporophyla nigra** Haw. ; Meyr., p. 117, No. 3.

*Epunda nigra* Dale, p. 19.

'Rare' (Dale). I should say locally common, having taken it freely at sugar and ivy and very freely at the blossom of *Arbutus*, which seems especially attractive to the autumnal Noctuae (W.P.C.).

Break Hill Wood, Canford (W.P.C.); Charmouth, a few in 1894 (A.U.B.); Cranborne, a few (F.H.F.); Corfe Castle (E.R.B.) (L.P. 23); Hamworthy, one in 1885 (C. A. Marriott, 1885, *Entomologist*, **18**: 299), commonly (W.P.C.) (E.H.C.); Parkstone (W.P.C.) (S.C.S.B.); Poole, very common (W.P.C.) (E.H.C.); Poole Heath (E.H.T.) (E.N.B.); Portland, one on Oct. 11th, 1900 (J. J. Hyde, 1901, *Entomologist*, **34**: 100-1); Swanage (A.G.B.R.); Wimborne, a few (W.P.C.).

**Aporophyla lunosa** Haw., ; Meyr., p. 117, No. 4.

*Anchocelis lunosa* Dale, p. 18.

'Rare' (Dale). 'Widely distributed and locally common' (E.R.B.). With this I agree (W.P.C.).

Chickerell (E.R.B.) (A.W.P.-C.); Corfe Castle (E.R.B.) (L.P. 22); Cranborne, common (F.H.F.); Glanville's Wootton (Dale *l.c.*); Hamworthy, common (W.P.C.); Knighton Heath (Dale *l.c.*); Parkstone (Eva Hudson); Poole (E.N.B.), fairly common (W.P.C.); Portland (E.R.B.); Swanage, commonly at light (A.G.B.R.); Weymouth (A.W.P.-C.); Winfrith, common at ivy blossom (F.H.H.).

**Heliophobus hispidus** Gey. ; Meyrick, p. 117 ; Dale, p. 19.

'Rare' (Dale). This is not so ; it is very local and sometimes locally common (W.P.C.).

Poole (E.N.B.) in my opinion undoubtedly refers to Sandbanks (W.P.C.) ; Portland (O.P.-C.) (A.W.P.-C.), very common (R.P.D.). This locality is the *locus classicus* ; Sandbanks (W.P.C.), near Bournemouth (H. B. D. Kettlewell) refers to Sandbanks and not to Bournemouth, common (R.P.D.) ; Studland, plentiful (W.P.C.) ; Swanage, about 1845, Sir Christopher Lighton and since by many collectors both sides of the bay on the high ground, more commonly on the northern side, fairly common in 1933 (A.R.H.) (L.P. 20).

R.P.D. maintains that the Studland and Sandbanks specimens are lighter than the Portland ones. I do not know the latter well but can say that the specimens I know support the statement.

As to the true identity of this species being *oditis* Hübn. and not *hispidus* Gey., see Turner (1933, *The British Noctuae and their Varieties* (J. W. Tutt). *Suppl. Notes, Ent. Rec.*, 45: Suppl., 294) and Turati (1919, *Il. Nat. Sicil.*, Nos. 7-12), though the matter does not even now seem to be quite satisfactorily settled.

**Conistra rubiginea** Fabr. ; Meyr., p. 118, No. 1.

*Dasycampa rubiginea* Dale, p. 18.

'Very rare' (Dale). I should say of regular occurrence but always exceedingly scarce (W.P.C.).

Bere Regis, one at sallow (H.L.A.) ; Corfe Castle, occasionally at ivy (E.R.B.) (L.P. 23) ; Dunyeat's Hill, one ♀ at sallow and one ♂. They paired and I got a hundred ova ; sixty larvae attained last instar and were then destroyed by ants (W.P.C.) ; Hamworthy, two in 1899 (E.H.C.), one in 1899 (W.P.C.) ; Kimmeridge, one at sallow (T.P.) (L.P. 23) ; Hethfelton, near Wool, two or three at ivy blossom by Fred Whitehead (*teste* F.H.H.) ; Parkstone, two in 1898, two in 1899, five in 1900 (C.E.O.C., 1900, *Entomologist*, 33: 249) ; Poole, taken sparingly (E.N.B.), two (W.P.C.).

**Conistra ligula** Esp. ; Meyr., p. 118, No. 3.

*Cerastis spadicea* Dale, p. 18.

I note a tendency to confuse this species with *vaccinii* Linn. Although colour is not a safe guide, *vaccinii* is usually lighter, redder and with the transverse lines more distinct. The shape is always a safe guide. I have never seen *vaccinii* with a quadrate apex, but always with a regularly excurved termen rendering the apex of the forewing obtuse. I do not think the confusion has caused any error in recorded localities, as I have never yet taken *ligula* Esp. in a locality where *vaccinii* was absent, or vice versa (W.P.C.).

LABEL LIST.

F. LIRIOPEIDAE

(PTYCHOPTERIDAE)

S. F. LIRIOPEINAE

**G. LIRIOPE Meig.**

(PTYCHOPTERA Meig.)

S. G. LIRIOPE S.S.

*contaminata* Linn.

*albimana* Fabr.

*scutellaris* Meig.

*minuta* Tonn.

S. G. PARAPTYCHOPTERA Tonn.

*paludosa* Meig.

*lacustris* Meig.

*longicauda* Tonn.



'Common at ivy blossom' (Dale). I should say probably common throughout the county (W.P.C.).

Bere Wood, much scarcer than *vaccinii* (A.W.P.-C.); Charlton Marshall (W.P.C.); Corfe Castle (E.R.B.); Cranborne, but not so common as *vaccinii* (F.H.H.); Hamworthy (W.P.C.); Poole (W.P.C.); Purbeck, common (T.P.) (L.P. 22); Studland (E.R.B.); Swanage, common (W.P.C.) (A.G.B.R.); Winfrith (F.H.H.); Wimborne, common (E.H.C.).

**Conistra vaccinii** Linn. ; Meyr., p. 119, No. 4.

*Cerastis vaccinii* Dale, p. 18.

'Common at ivy blossom' (Dale). I should think common throughout the county (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, abundant (O.P.-C.) (A.W.P.-C.); Charlton Marshall (W.P.C.); Corfe Castle (E.R.B.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J. H. W.); Hamworthy (W. P. C.) (E. H. C.); Parkstone (S.C.S.B.); Poole, common (W.P.C.) (E.H.C.); Purbeck, abundant (T.P.) (L.P. 22); Studland (E.R.B.); Swanage, one only (A.G.B.R.); Winfrith (F.H.H.); Wimborne, common (E.H.C.) (W.P.C.).

**Orthosia xerampelina** Hübn. ; Meyr., p. 120, No. 1.

*Cirroedia xerampelina* Dale, p. 18.

Very rare. Ash is only locally a common tree in Dorset; moreover I am told that this species has a preference for ash growing in wet places (W.P.C.).

Bere Regis, one (H.L.A.); Bloxworth, one Sept. 18th, 1888 (A.W.P.-C.); Glanville's Wootton, one Sept. 26th, 1816 (J.C.D.).

**Orthosia croceago** Fabr. ; Meyr., p. 120, No. 2.

*Hoporina croceago* Dale, p. 18.

'Rare' (Dale).

Bere Regis, one (W.P.C.); [Bloxworth (Dale l.c.), no record by O.P.-C. or A.W.P.-C.]; Cranborne (F.H.F.). Fisher had a bred series, but whether bred from one parent ♀ or from wild larvae, or whether he got the insect regularly, I do not know (W.P.C.); Glanville's Wootton, one Oct. 17th, 1842 (J.C.D.); Hamworthy, one March 23rd, 1897 (W.P.C.); Poole (E.N.B.).

**Orthosia citrago** Linn. ; Meyr., p. 121, No. 3.

*Xanthia citrago* Dale, p. 18.

'Rare' (Dale). I should say extremely local, but in one or two spots not rare. It must however be borne in mind that lime is not a common tree in woodlands in Dorset (W.P.C.).

Cranborne, Burwood, not uncommon (F.H.F.) (W.P.C.); Glanville's Wootton (Dale l.c.); Gussage St. Michael (J. H. W.); Rempstone, one only (E.R.B.).

**Orthosia aurago** Fabr. ; Meyr., p. 121, No. 4.

Cranborne Chase (H.L.A.); Cranborne, fairly common (F.H.F.); Sherborne, one at ivy blossom, Oct. 24th, 1902 (J.D.).

**Orthosia flavago** Fabr. ; Meyr., p. 121, No. 5.

*Xanthia silago* Dale, p. 18.

Local but rather common locally, especially at blossoms of *Molinia* (W.P.C.).

Bere Wood and Bloxworth, fairly common (A.W.P.-C.); Corfe Castle, plentiful (E.R.B.) (L.P. 23); Cranborne (W.P.C.), fairly common (F.H.F.); Gussage St. Michael (J.H.W.); Glanville's Wootton (Dale l.c.); Hamworthy (W.P.C.); north-west Dorset, common (A.R.H.); Parkstone (S.C.S.B.); Poole, abundant (E.H.C.); Studland (W.P.C.); Tadnoll Marsh, near Wimfrith (F.H.H.); Wimborne (E.R.B.).

The forms **flavago** Fabr. and **togata** Esp. are almost equally abundant and together form 95 per cent. of the specimens taken. The remaining 5 per cent. are of the form **ochreago** Bdv. The only other variation of note that I have come across is a single specimen of the *flavago* form, which has the whole of the fringes dark naphthalene purple (W.P.C.).

**Orthosia fulvago** Linn. ; Meyr., p. 121, No. 6.

*Xanthia cerago* Dale, p. 18.

'Generally common' (Bankes). My experience is that this species has similar habits and preferences to the preceding (W.P.C.).

Bere Wood and Bloxworth (O.P.-C.) (A.W.P.-C.); Break Hill Wood (W.P.C.); Corfe Castle, plentiful (E.R.B.) (L.P. 23); Cranborne (W.P.C.); common (F.H.F.); Glanville's Wootton (Dale l.c.); Hamworthy (W.P.C.); Parkstone (S.C.S.B.); Poole, abundant (E.H.C.); Swanage (A.G.B.R.); Wimborne (E.R.B.).

*Variation.* Of the orange-yellow forms:—**virgata** Tutt is not uncommon, but **aurantia** Tutt exceeds it in prevalence: of **imperfecta** Tutt I only have two from Hamworthy, and of **obsoleta** Tutt one single specimen; this form seems to be very rare in Dorset.

Of the lemon-yellow forms:—**suffusa** Tutt and **fulvago** Linn. are equally common, **cerago** Hübn. much less so, whilst **flaves-cens** Esp. is really rare; I have two of the last-named from Hamworthy, and Bankes has noted one only at Corfe Castle. The rarity of this form in Dorset is in strong contrast to its comparative frequency at high elevations in the French Alps (W.P.C.).

**Orthosia gilvago** Esp. ; Meyr., p. 122, No. 7.

Cranborne, one on Sept. 18th, 1907 (F.H.F.).

A.R.H. and W.P.C. have both made considerable effort amongst wych elm respectively in west and east Dorset, but quite without success.

**Orthosia circellaris** Hufn. ; Meyr., p. 122, No. 9.

*Xanthia ferruginea* Dale, p. 18.

'Generally distributed' (Dale). 'Common' (Bankes). I agree (W.P.C.).

Bere Wood, common (W.P.C.) (A.W.P.-C.); Bloxworth, common (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Corfe Castle, very abundant (E.R.B.) (L.P. 23); Cranborne, swarms (F.H.F.); Hamworthy, common (W.P.C.); Kimmeridge (E.R.B.) (L.P. 23); Poole, abundant (W.P.C.); Studland (E.R.B.); Swanage, fairly common (A.G.B.R.); Winfrith (F.H.H.).

The nomino-typical form is not quite as common as *ab. ferruginea* Esp. The form *fuscconervosa* Peterson is rare; I have one from Cranborne and one from Hamworthy, and from the latter locality an unnamed form with pale nervures and the markings obsolete (W.P.C.).

**Orthosia helvola** Linn. ; Meyr., p. 123, No. 10.

*Anchocelis rufina* Dale, p. 18.

'Rare' (Dale). It is extremely local, but it is not by any means rare in its special localities (W.P.C.).

Bere Wood and Bloxworth, sometimes abundant (O.P.-C.) (W.P.C.), extremely abundant in 1892 (A.W.P.-C.); Break Hill Wood, scarce (W.P.C.); Corfe Castle (E.R.B.) (L.P. 22); Cranborne district, common (W.P.C.) (F.H.F.); Glanville's Wootton (Dale *l.c.*).

*ab. ochrea* Esp. is a common form; *forma punica* Borkh. rather scarce; *ab. unicolor* Tutt is rare (I have two only, both from Bere Wood); *helvola* Linn. is nearly as abundant as *ochrea*; *rufina* Linn. is rare (I only have one from Bere Wood). In addition I have two dull ochreous specimens with indistinct fasciae of a form which so far seems to have escaped a name; one of these is from Cranborne and the other from Break Hill Wood (W.P.C.).

**Orthosia litura** Linn. ; Meyr., p. 123, No. 11.

Bere Wood, not rare (W.P.C.); Bloxworth, sometimes common (A.W.P.-C.); Cranborne, not uncommon (W.P.C.); Glanville's Wootton, rare (J.C.D.), subsequently taken commonly (C.W.D.) [that is assuming his handwriting has not misled me! (W.P.C.)]; Poole (E.N.B.), not common (W.P.C.); Sherborne (J.D.).

The usual form is **rufa** Tutt; **ornatrix** Hübn. is the next commonest and **rufa-pallida** Tutt is very rare; my only specimen is from Bere Wood (W.P.C.).

**Orthosia pistacina** Fabr.; Meyr., p. 123, No. 12.

*Anchocelis pistacina* Dale, p. 18.

'Generally distributed' (Dale). 'Abundant' (Bankes). I should have called it common (W.P.C.).

Bere Wood (W.P.C.); Blandford, common (W.P.C.); Bloxworth, common (O.P.-C.) (A.W.P.-C.); Charlton Marshall (W.P.C.); Corfe Castle, very abundant at sugar (E.R.B.); Cranborne and district round, common and variable (F.H.F.) (W.P.C.); Folly Copse, Hamworthy (W.P.C.); Hamworthy (W.P.C.); Herston (W.P.C.); Poole, common (W.P.C.); Purbeck, very abundant (E.R.B.) (L.P. 22); Studland (E.R.B.); Swanage, common (W.P.C.) (A.G.B.R.); Winfrith, very common at ivy blossom (F.H.H.); Wimborne, common (W.P.C.).

The range of variation exhibited is very wide, but I have not yet worked my series out so am unable to assess the comparative abundance of the forms. A.G.B.R. says that in the Durlston district at Swanage there is a tendency for the species to produce a certain percentage of very dark forms (W.P.C.).

**Orthosia macilenta** Hübn.; Meyr., p. 123, No. 13; Dale, p. 18.

'Generally distributed' (Dale). According to my experience also fairly common (W.P.C.).

Bere Wood (W.P.C.), common (O.P.-C.) (A.W.P.-C.); Bloxworth, common (A.W.P.-C.) (O.P.-C.); Break Hill Wood (W.P.C.); Corfe Castle (E.R.B.); Cranborne, swarms (F.H.F.); Folly Copse, Hamworthy (W.P.C.); Gussage St. Michael (J.H.W.); Lytchett Minster (W.P.C.); Poole, common (E.H.C.) (W.P.C.); Purbeck (E.R.B.) (L.P. 22); Studland (E.R.B.); Swanage, fairly common, one ab. *obsoleta* (A.G.B.R.); Winfrith, common (E.H.C.).

The nomino-typical form is the commonest, but **straminea** Tutt and **obsoleta** Tutt are both fairly frequent; **straminea-obsoleta** Tutt is not common. I have besides an unnamed form from Hamworthy, one only, very dark in the ground, the prae-subterminal line very red and the median fascia very strongly developed, the hindwings being dark grey, giving it an appearance somewhat resembling *lota* Cl. ab. *subdita* Warren.

A.G.B.R. also has a specimen very close to this form of *lota* (W.P.C.).

**Orthosia lota** Clerck; Meyr., p. 124, No. 14; Dale, p. 18.

'Common at ivy blossom' (Dale). I should add 'and at sugar and the flowering heads of *Molinia*' (W.P.C.).

Bloxworth, common (A.W.P.-C.); Break Hill Wood (W.P.C.); Corfe Castle, very abundant (E.R.B.); Charlton Marshall (W.P.C.); Cranborne, not common (F.H.F.); Folly Copse, Hamworthy (W.P.C.); Hamworthy (W.P.C.); Kimmeridge, common (T.P.); Lytchett Minster (W.P.C.); Poole, common (E.H.C.); Purbeck, abundant (E.R.B.) (L.P. 22); Swanage, very occasionally (A.G.B.R.); Spettisbury (S.C.S.B.); Wimborne, common (E.H.C.); Winfrith (F.H.H.).

The nomino-typical form is far and away the commonest, though *rufa* Tutt is not rare; on the other hand, I only have two *subdita* Warren, one from Poole and one from Hamworthy (W.P.C.).

**Orthosia fissipuncta** Haw.; Meyr., p. 124, No. 15.

*Orthosia upsilon* Dale, p. 18.

'Rare' (Dale). It is common in those suitable places that I have been able to investigate (W.P.C.).

[Bloxworth (Dale *l.c.*), no record by O.P.-C. or A.W.P.-C.]; Ensbury near Longham, larvae common on a single willow tree (W.G.H.); Glanville's Wootton (Dale *l.c.*); Poole (E.N.B.); Spettisbury, larvae very common (S.C.S.B.), both on willow and poplar growing on the banks of the river Stour, insects bred (W.P.C.); Swanage (A.G.B.R.); Winfrith (F.H.H.).

**Orthosia satellitia** Linn.; Meyr., p. 124, No. 17.

*Scopelosoma satellitia* Dale, p. 18.

'Generally distributed' (Dale). 'Common' (Bankes). I agree. It is very fond of *Arbutus* blossom (W.P.C.).

Bere Wood, abundant (W.P.C.); Bloxworth, common (O.P.-C.) (A.W.P.-C.); Break Hill Wood (W.P.C.); Canford Bottom (W.P.C.); Corfe Castle (E.R.B.); Cranborne, common (F.H.F.); Creekmoor (W.P.C.); Hamworthy (W.P.C.); Poole, not uncommon (E.H.C.) (W.P.C.); Purbeck, common (T.P.) (L.P. 22); Studland (E.R.B.); Swanage, pretty common (A.G.B.R.); Winfrith (F.H.H.).

**Dasypolia templi** Thunb.; Meyr., p. 125; Dale, p. 19.

'Rare' (Dale). I incline to the view that owing to its habits it is overlooked, and is more common than is believed to be the case (W.P.C.).

Charmouth, in 1894 (A.U.B., 1895, *Ent. Rec.*, 6: 58), one at light, April, 1919 (W.D.L.); Chickerell (N.M.R.); Parkstone, by Mr. Kettlewell (*teste* R.P.D., Fassnidge, 1930, *Additions and Corrections to List of Lep. of Hampshire and Isle of Wight, Trans. Ent. Soc. S. Engl.*, 6: 129); Portland, several in 1886, some on the Portland High Light and one at rest on a wall

in Castleton (J.J.W.); Swanage coast, larvae found sparingly in stems and roots of *Heracleum sphondylium* in July, 1895, and 11 moths bred Sept. 13th to Oct. 16th (E.B.N. and E.R.B.), one at light (A.G.B.R.); Weymouth, one in Sept., 1861 (F. Carré), one in 1890 (A.W.P.-C.).

**Miselia oxyacanthae** Linn.; Meyr., p. 126, No. 1; Dale, p. 20.

'Common' (Dale). Whilst I have never collected in a suitable locality at a suitable time of the year without obtaining the insect, I am equally assured that it is absent from some areas. I am quite convinced that on the heath area it is localized and absent from considerable tracts (W.P.C.).

Bere Wood (O.P.-C.) (A.W.P.-C.); Blandford, common (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Charlton Marshall (W.P.C.); Corfe Castle (E.R.B.); Cranborne, common (F.H.F.); Hamworthy (W.P.C.); Moreton (F.H.H.); Poole, abundant (W.P.C.); Purbeck, common (T.P.) (L.P. 23); Studland (E.R.B.); Swanage, fairly commonly in 1933 (A.G.B.R.); Winfrith, very common (F.H.H.).

Variation in Dorset mainly consists in the greater or lesser development of the iridescent green scaling; in the colour of the pale subterminal area, which varies from cream colour to being strongly suffused Mars orange. The most striking specimen I have is one with the subterminal area cream and the remainder of the wing very heavily clouded with fuscous, almost obliterating the markings. Although Fassnidge (1929, *List. of Lep. of Hants and Isle of Wight*, *Trans. Ent. Soc. S. Engl.*, 5: 7) states that *ab. capucina* Mill. has occurred he gives no localities nor details, so it is impossible to express any opinion as to why it is found in Hants and not in Dorset (W.P.C.).

**Cucullia absinthii** Linn.; Meyr., p. 127, No. 1; Dale, p. 21.

'Rare' (Dale).

Lulworth (Dale *l.c.*); Portland: In August and September, 1886, I found the larvae of this species in large numbers in the Portland Quarries on wormwood (*Artemisia absinthium*) and bred the moths at Gibraltar in the following spring (J.J.W.).

**Cucullia chamomillae** Schiff.; Meyr., p. 128, No. 3; Dale, p. 21.

'Rare' (Dale).

Corfe Castle, six larvae found in 1900 produced one moth in 1901 (E.R.B.); Parley Heath (Dale *l.c.*); Poole, taken very sparingly (E.N.B.); Studland, six or seven larvae found in 1896 and three moths bred in 1897 (E.R.B.); Swanage, a larva found in 1900 produced a moth in 1901 (E.R.B.), one (A.G.B.R.).

**Cucullia umbratica** Linn. ; Meyr., p. 128, No. 4; Dale, p. 21.

'Widely distributed' (Dale). 'Locally common' (Bankes). 'Common, especially at honeysuckle' (F.H.H.). I have only been successful in taking the species occasionally at flowers, especially *Oenothera*, and on railway embankment fences or, rarely, at light (W.P.C.).

Bloxworth (O.P.-C.), fairly common (A.W.P.-C.); Corfe Castle (E.R.B.); Cranborne, one only (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Poole, occasionally at flowers late at night, also at light (W.P.C.) (E.N.B.); Portland (E.R.B.); Punfield Cove (W.P.C.); Studland (C.R.D.); Swanage (F.H.H.), not very common (A.G.B.R.) (F.O.P.-C.); Winfrith (F.H.H.); Wootton, near Charmouth (W.D.L.).

Russell has a ♀ that is to my eye very like *lactucae*. W. H. T. Tams examined it specially at A.G.B.R.'s request and states that though curiously marked it is certainly *umbratica* (W.P.C.).

**Cucullia asteris** Schiff. ; Meyr., p. 128, No. 6; Dale, p. 21.

'Rare' (Dale). 'Sometimes locally common' (Bankes).

Bloxworth (E.R.B.); larvae at times abundant (O.P.-C.); Chickerell, on *Aster tripolium* (N.M.R.); Cranborne, several on China aster (F.H.F.); Glanville's Wootton, one larva in a greenhouse (Dale *l.c.*); Poole, four larvae on China aster at Sterte House (W.P.C.); Wareham (E.R.B.).

**Cucullia verbasci** Linn. ; Meyr., p. 129, No. 7; Dale, p. 21.

'Widely distributed' (Dale). 'Often common' (Bankes). To which I would add 'where it occurs.' The distribution is not coincident with that of the recorded food-plants, and in my experience it is absent from geological formations above the London Clay (see, however, Parkstone) (W.P.C.).

'Common wherever *Verbascum* and *Scrophularia* occur' (F.H.H.). But this again is not correct, for I have spent many hours hunting for larvae of *scrophulariae* in the valley of the Organ without getting any *Cucullia* larvae of any species (W.P.C.).

Badbury Rings (S.C.S.B.) (W.P.C.); Bere Wood (W.P.C.); Bloxworth, many bred (O.P.-C.) (W.P.C.); Charmouth, larvae all on *Scrophularia aquatica* (W.D.L.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Lulworth (W.P.C.); Parkstone (S.C.S.B.); Purbeck, common (T.P.) (L.P. 24); Spettisbury (S.C.S.B.); West Whiteway, common (T.P.); Winfrith (F.H.H.); Wool (F.H.H.).

**Cucullia lychnitis** Ramb. ; Meyr., p. 129, No. 8.

Cranborne, scarce; six specimens bred from larvae in July, 1909 (F.H.F.; identity *teste* E.R.B., who examined the specimens. The record may therefore be relied on).

**Polia exoleta** Linn. ; Meyr., p. 130, No. 1.*Calocampa exoleta* Dale, p. 20.

'Widely distributed' (Dale). There is not sufficient evidence to enable any such opinion to be validly expressed. In my experience the insect is rare (W.P.C.).

Bere Wood, one (E.H.C.), scarce (O.P.-C.); Bloxworth, scarce (O.P.-C.); Corfe Castle (E.R.B.); Cranborne, one (F.H.F.), one (W.P.C.); Hamworthy, three specimens (W.P.C.) (E.H.C.); Haymoor Bottom, Poole, one (E.H.C.); Kimmeridge, common (T.P.). Having regard to A.G.B.R.'s experience with *vetusta* noted below, and the small number of *exoleta* records, I incline to think T.P.'s identification was erroneous (W.P.C.); Oaker's Wood, near Moreton (O.P.-C.); Punfield Cove (E.R.B.); Purbeck, widely distributed, occurring occasionally (E.R.B.) (L.P. 24); Sherford, near Wareham, a few (H.L.A.); Swanage, one (A.G.B.R.).

**Polia vetusta** Hübn. ; Meyr., p. 131, No. 2.*Calocampa vetusta* Dale, p. 20.

'Widely distributed' (Dale). My remark under *exoleta* applies with even greater force to this species (W.P.C.).

Bere Wood, occasionally (O.P.-C.); Bloxworth, occasionally (O.P.-C.); Corfe Castle, occasionally at sugar (E.R.B.); Kimmeridge, two or three in 1874 (T.P.); Purbeck, widely distributed, occurring occasionally (E.R.B.) (L.P. 24); Sherford, near Wareham, a few (H.L.A.); Swanage, Stillwell (E.R.B.), commonly in 1932 but as a rule fairly frequent (A.G.B.R.).

Two of A.G.B.R.'s specimens have large cinereous cloudings to the centre of the wing almost like the ground of *ornithopus* (W.P.C.).

**Polia solidaginis** Hübn. ; Meyr., p. 131, No. 3.

Winfrith Newburgh, eight specimens (Chas. Capper, seen by E.R.B. and W.P.C.).

**Polia semibrunnea** Haw. ; Meyr., p. 131, No. 4.*Xylina semibrunnea* Dale, p. 21.

'Rare' (Dale).

Bere Wood, two only (O.P.-C.); Corfe Castle, one (F.W.); Glanville's Wootton (Dale *l.c.*); Kimmeridge, two or three (T.P.) (L.P. 24); Poole (E.N.B.); Sherford near Wareham, in 1928 in some numbers (H.L.A.); Swanage, four only, not common (A.G.B.R.).

**Polia socia** Rott. ; Meyr., p. 131, No. 5.*Xylina petrificata* Dale, p. 21.

'Widely distributed' (Dale). I call it scarce. If by hard

work I got 20 in an autumn I should consider I had done well (W.P.C.).

Bere Wood, scarce (W.P.C.) (A.W.P.-C.); Bloxworth, sparingly (O.P.-C.) (A.W.P.-C.); Corfe Castle, plentiful in some years (E.R.B.) (L.P. 24); Cranborne, frequent (F.H.F.); Duncy's Hill (W.P.C.); Hamworthy, a few (W.P.C.); Kimmeridge, not rare (T.P.) (L.P. 24); Poole (E.N.B.), not common (W.P.C.) (E.H.C.); Sherford Bridge near Wareham, a few (H.L.A.); Swanage, one only in 1933 (A.G.B.R.).

**Polia ornithopus** Rott.; Meyr., p. 132, No. 8.

*Xylina rhizolitha* Dale, p. 20.

'Generally distributed' (Dale). 'More or less common' (Bankes). It is the only *Xylina* of which one may be reasonably certain of a decent series in a season (W.P.C.).

Affpuddle (F.H.H.); Bere Wood, fairly common both as larva and imago (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Canford Bottom (W.P.C.); Charmouth (W.D.L.); Corfe Castle, common at sugar (E.R.B.); Cranborne (W.P.C.), common (F.H.H.); Hamworthy, common (W.P.C.); Kimmeridge, common (T.P.); Parkstone (W.P.C.); Poole, not common (W.P.C.); Purbeck, common (E.R.B.) (L.P. 24); Tadnoll (F.H.H.).

**Polia areola** Esp.; Meyr., p. 132, No. 9.

*Xylocampa lithorhiza* Dale, p. 20.

'Generally distributed' (Dale). I have found it commonly, especially on the margins of heaths on trees and posts (W.P.C.).

Bloxworth, common (O.P.-C.) (A.W.P.-C.); Break Hill Wood (W.P.C.); Canford Bottom, common (W.P.C.); Charmouth, Black Ven, on timber hut at rest, also flying over wallflowers in garden at 8.30 p.m. (W.D.L.); Corfe Castle, fairly common (E.R.B.); Cranborne, two (F.H.F.); Hamworthy, common (W.P.C.); Lyme Regis, several (W.D.L.); Vale of Marshwood (W.D.L.); Misterton Hill (W.P.C.); Nine Barrow Down, Purbeck (W.P.C.); Parkstone (W.P.C.) (S.C.S.B.); Poole, common (W.P.C.); Purbeck, common (E.R.B.) (L.P. 24); Studland (C.R.D.), common (E.R.B.); Swanage, not very common (A.G.B.R.); Tadnoll Marsh, especially abundant (F.H.H.); Wareham (W.P.C.); West Whiteway, common (T.P.); Wimborne (F.H.H.); Winfrith (F.H.H.); Wood Street (F.H.H.).

**Polia aprilina** Linn.; Meyr., p. 133, No. 10.

*Agriopsis aprilina* Dale, p. 20.

'Widely distributed' (Dale). 'Sometimes common' (Bankes). I have found it in considerable numbers in most of the woodlands I have worked (W.P.C.).

Bere Wood (W.P.C.) (O.P.-C.) (A.W.P.-C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Break Hill Wood (W.P.C.); Corfe Castle (E.R.B.); Cranborne, common (F.H.F.); Moreton (F.H.H.); Purbeck, met with occasionally (T.P.) (L.P. 23); Poole, not uncommon (W.P.C.); Swanage, one (A.G.B.R.).

[*Polia chi* Linn.; Meyr., p. 133, No. 11; Dale, p. 19.

Dale entered this insect on the strength of specimens in O.P.-C.'s collection which O.P.-C. told E.R.B. were never taken in the county at all. So far as I know the insect has never at any time occurred in Dorset, which view A.W.P.-C. confirms.]

***Polia flavicincta* Fabr.; Meyr., p. 133, No. 12; Dale, p. 19.**

'Rare' (Dale). This does not seem to be accurate; it would appear occasionally to be locally abundant (W.P.C.).

Dorchester, one bred (E.R.B.); Glanville's Wootton (Dale, *l.c.*); Holwell (Dale *l.c.*); Lyme Regis (Professor Raphael Meldola); Portland (J.J.W.) (N.M.R.), not common (R.P.D.); Sherborne, abundant in 1903 (E.R.B.).

***Polia viminalis* Fabr.; Meyr., p. 134, No. 14.**

*Cleoceris viminalis* Dale, p. 19.

Badbury Rings, one (S.C.S.B.); Bere Wood (W.P.C.); Bloxworth, sometimes plentiful (O.P.-C.), taken sparingly (W.P.C.); Cranborne, frequent (F.H.F.); Elsington Wood (Dale *l.c.*); Glanville's Wootton, rare (Dale *l.c.*); Grange, Purbeck, two (P.H.Th.); Hamworthy, one (W.P.C.); Poole (E.N.B.), one (E.H.C.); Sherborne (Dale *l.c.*); Studland, sparingly (C.R.D.) (P.H.Tz.) (A.G.B.R.) (L.P. 23); Swanage (A.G.B.R.).

***Polia lichenea* Hübn.; Meyr., p. 134, No. 15.**

*Epunda lichenea* Dale, p. 19.

'Rare' (Dale). I think local and usually uncommon is better (W.P.C.).

[Cranborne. Judging by a note by E.R.B. this locality seems to have been recorded or reported, but the note is not clear as to which. In E.R.B.'s notes on F.H.H.'s collection which I placed at his disposal for his examination prior to its disposal at Stevens' Auction Rooms, he has specially underlined 'No Cranborne *lichenea* in his series.' As at present advised, I am not prepared to accept Cranborne as a locality (W.P.C.).] Portland (O.P.-C.) (A.W.P.-C.) (N.M.R.), abundant (R.P.D.); Swanage (Geo. Russell Wright), four (E.H.C.), larvae (E.R.B.), Sept., 1893 (A. B. Farn), commonly in a light trap and occasionally at sugar and ivy (A.G.B.R.).

A.G.B.R. shewed me a series of 48 which exhibited a fairly wide range of variation; one male had the whole of the wing distad the reniform as pale as the hindwings (W.P.C.).

**Polia protea** Borkh.; Meyr., p. 134, No. 16.

*Hadena protea* Dale, p. 30.

Bere Wood, common (W.P.C.); Break Hill Wood (W.P.C.); Bloxworth, common (O.P.-C.) (W.P.C.) (A.W.P.-C.); Bridport (Dale *l.c.*); Buckland Newton, Pop Mallard Wood (A.G.B.R.); Canford Bottom (W.P.C.); Corfe Castle, occasionally (E.R.B.); Cranborne (W.P.C.), common (F.H.F.); East Lulworth, common (F.H.H.); Glanville's Wootton (Dale *l.c.*); Hamworthy (W.P.C.); Middlemarsh (Dale *l.c.*); N.W. Dorset, common (A.R.H.); Parkstone (S.C.S.B.); Poole (W.P.C.); Rempstone (A.G.B.R.); Sherborne (Dale *l.c.*); Sherford, near Wareham (W.P.C.); Winfrith, common (F.H.H.).

ab. **variegata** Tutt.

Corfe Castle, Sept. 28th, 1892 (E.R.B.).

**Polia adusta** Esp.; Meyr., p. 135, No. 17.

*Hadena adusta* Dale, p. 20.

'Rare' (Dale). 'Britain to the Shetlands, rather common' (Meyrick). I find it difficult to assess this insect. Its occurrence in Dorset is established by records of in the main isolated captures which are difficult to connect with one another (W.P.C.).

Bloxworth (Dale *l.c.*); Cranborne, one in 1903 (F.H.F.); Langton Long (Mr. Noble); Portland (Major Partridge, *teste* Dale); Poole, one in 1895, and repeated efforts at the same locality failed to produce another (W.P.C.).

[Swanage *teste* W.P.C. in Bankes' MS. is wrong. I took a curious *Hadena gemina* Hübn. ♀, and at first placed it as an aberrant *adusta*; being dissatisfied on close examination, I submitted it to Bankes, and after rather lengthy consideration we placed it as an aberrant ♀ *H. gemina* Hübn.]

#### SUBFAMILY 4. MELANCHRIDES.

**Meliana flammea** Curt.; Meyr., p. 136.

Morden Bog, one specimen, July, 1929 (H.L.A.).

**Leucania impudens** Hübn.; Meyr., p. 137, No. 2; Dale, p. 13.

'Rare' (Dale). This is erroneous (W.P.C.).

[Bloxworth: Dale entered the species under Bloxworth on the strength of specimens in O.P.-C.'s collection which O.P.-C. told E.R.B. were not Dorset specimens at all. A.W.P.-C. says all O.P.-C.'s specimens came from Brockenhurst and Cambridgeshire. I have not the smallest doubt that the insect can be obtained at Bloxworth, as I find it is to be met with in fair numbers in most of the marshy heathland.]

Corfe Castle (E.R.B.); Creech Grange (P.H.Tz.); [Cranborne: I have a number of specimens labelled Cranborne, F.H.F.,

but I do not feel satisfied about the data; they are of Fisher's setting and if taken by him would probably have come from the Alderholt district]; East Howe, common (W.P.C.); Morden Bog, sufficiently common to be a nuisance (W.P.C.) (H.L.A.); Studland (C.R.D.) (L.P. 18); Swanage, Ballard Down (W.P.C.), Durlston (A.G.B.R.); Wadmore Quag (E.R.B.).

**Leucania straminea** Treitsch. ; Meyr., p. 137, No. 3.

Bloxworth (O.P.C.); Morden, at light in fair numbers (W.P.C.) (H.L.A. and others); Studland, one at sugar, Aug. 6th, 1908 (P.H.Tz.) (A.G.B.R.).

**Leucania impura** Hübn. ; Meyr., p. 137, No. 4; Dale, p. 13.

'Generally distributed' (Dale). 'More or less common generally' (Banks). I should say quite as common as *pallens* Linn. but seems to be single-brooded, while *pallens* normally is double-brooded (W.P.C.).

Badbury Rings (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Charmouth (W.D.L.); Cranborne, six in 1895 but none after that date (F.H.F.); Chesil Beach (S.C.S.B.); East Howe (W.P.C.); Hamworthy (W.P.C.); Morden (W.P.C.) (A.G.B.R.); Osmington, very common (F.H.H.); Purbeck, abundant (T.P.), common (E.R.B.) (L.P. 19); Studland (W.P.C.); Swanage (W.P.C.) (A.G.B.R.); Winfrith, very common (F.H.H.).

**Leucania pallens** Linn. ; Meyr., p. 138, No. 5; Dale, p. 13.

Meyrick sinks *favicolor* Barr., as synonymous, since *favicolor* has not yet been recorded for Dorset, although it has occurred in Hants; there is no need to enter into the subject of possible distinction, but see 1930, *Trans. Ent. Soc. S. Engl.*, 6: 115.

Meyrick gives 6-7 as the months for the imago; in Dorset it is normally fully double-brooded, 6-7 and 9 and 10. The second generation is often undersized, but exhibits the same range of colour variation as Gen. I. The Gen. II is extremely partial to feeding at the flower-heads of *Molinia caerulea* (W.P.C.).

'Common' (Dale). 'Abundant' (Banks).

Bere Wood and Bloxworth, common (O.P.-C.) (A.W.P.-C.); Cranborne, common (F.H.F.) (W.P.C.); Chesil Beach (S.C.S.B.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Kimmeridge, rare (T.P.); Morden (W.P.C.); Poole, abundant (W.P.C.); Purbeck, common (E.R.B.) (L.P. 19); Redcliffe, near Preston (F.H.H.); Swanage (W.P.C.), fairly common (A.G.B.R.); Winfrith, very common (F.H.H.).

The average specimens are warm buff, and cinnamon buff, the former predominating; **ectypa** Hübn. is much scarcer than the foregoing and judging from my own experience a decided

rarity in the second brood, whilst I have only procured one specimen of ab. **ferruginea** Haw. and that is a first-brood specimen from Swanage (W.P.C.).

**Aletia turca** Linn.; Meyr., p. 139, No. 1.

*Leucania turca* Dale, p. 13.

[Bloxworth entered by Dale on the strength of specimens in O.P.-C.'s collection which O.P.-C. says were not taken in Dorset. Nor is there any confirmation of a capture in O.P.-C.'s notes. A.W.P.-C.]

Poole (E.N.B.); there is no modern confirmation of this record (W.P.C.). Swanage, four on Ballard Down on July 11th, 1903 (W. Edwards). The insect is evidently very local. I sugared Ballard Down nearly every night throughout July and August, 1904, and July, 1907, keeping a special look-out for *turca* and failed to get it (W.P.C.).

**Aletia lithargyrea** Esp.; Meyr., p. 139, No. 2.

*Leucania lithargyria* Dale, p. 13.

'Generally distributed' (Dale). 'Common generally' (Bankes). The Dorset specimens which have passed through my hands are all the ruddy type and quite unlike the pale washed-out coloured specimens of southern Europe, save for one Swanage specimen (W.P.C.).

Badbury Rings (W.P.C.); Bere Wood (W.P.C.) (O.P.-C.); Cranborne, common (F.H.F.); Chesil Beach (S.C.S.B.); Hamworthy (W.P.C.); Poole, common (W.P.C.); Punfield Cove (E.R.B.); Purbeck, abundant (T.P.) (L.P. 19); Sandbanks (W.P.C.); Studland (E.R.B.); Swanage (W.P.C.) (A.G.B.R.); West Lulworth, specially abundant on the coast (F.H.H.); Winfrith (F.H.H.).

**Aletia albipuncta** Fabr.; Meyr., p. 139, No. 3.

Cranborne, one in 1900 (F.H.F.); Poole, rarely (E.N.B.); Studland, four in 1908 (P.H.Tz.); Swanage, one at ragwort blossom in Sept., 1901 (A.U.B.), six in 1933 (A.G.B.R.).

This is a species which I think works its way into Dorset from Devon but fails to keep a foothold (W.P.C.).

**Aletia littoralis** Curt.; Meyr., p. 140, No. 5.

*Leucania littoralis* Dale, p. 13.

'Rare' (Dale). 'Locally plentiful' (Bankes). I agree with Bankes. This is a species which is rapidly being stamped out by the erection of bungalows and bathing huts and by their inhabitants, with the aid of fires started on the dunes (W.P.C.).

Portland, in 1849 (O.P.-C.), *olim* (E.R.B.); Sandbanks, formerly common, now much restricted (W.P.C.); Studland, abundant (E.R.B.) (W.P.C. *et aliis*) (L.P. 19).

**Aletia conigera** Fabr.; Meyr., p. 140, No. 7.

*Leucania conigera* Dale, p. 13.

'Generally distributed' (Dale). 'More or less common generally' (Banks).

Badbury Rings (W.P.C.); Bere Wood (W.P.C.); Cranborne, common (F.H.F.); Hamworthy (W.P.C.); Lilliput (W.P.C.); Punfield Cove (E.R.B.); Purbeck, common (T.P.), not uncommon (E.R.B.) (L.P. 19); Poole, not common (W.P.C.); Portland (O.P.-C.) (A.W.P.-C.); Studland (E.R.B.); Swanage (W.P.C.), common (A. G. B. R.); Tadnoll Marsh (F. H. H.); Winfrith (F.H.H.).

**Aletia vitellina** Hübn.; Meyr., p. 141, No. 8.

'Rare and local. Of the twenty specimens of which I have records seven were taken in 1900 and thirteen in 1908' (Banks).

Cranborne, two in Sept., 1900, and one in 1901 (F.H.F.); Hamworthy, two in Sept., 1900 (W.P.C.); Portland, June, 1931 (R.P.D.); Studland, one taken on the wing, July 12th, 1908 (Rippon), eleven at sugar and one at ragwort, Aug. 13th to 30th, 1908 (P.H.Tz.); Swanage, two in 1900 (Arthur Rose), seventeen in 1932, two in 1933 (A.G.B.R.), two in 1933 (H. C. Hayward) and others by Standen Smith on Ballard Down.

**Aletia unipuncta** Haw.; Meyr., p. 141, No. 9.

Corfe Castle, one at sugar in the shrubbery, Oct. 12th, 1891 (E.R.B., 1892, *Ent. Mon. Mag.*, 28: 48); Swanage, one at light, Oct. 3rd, 1931; one, Oct. 15th, 1932, at ivy (A.G.B.R.). These specimens are both in bred condition (W.P.C.).

**Aletia putrescens** Hübn.; Meyr., p. 141, No. 10.

*Leucania putrescens* Dale, p. 13.

Meyrick *l.c.* gives Dorset, whether on the strength of the undermentioned record I do not know, but the insect ought to occur regularly. On the other hand, insects do not do what one expects of them (W.P.C.).

Lulworth, one at Durdle Door, Aug. 11th, 1877 (C.W.D.).

**Aletia comma** Linn.; Meyr., p. 142, No. 11.

*Leucania comma* Dale, p. 13.

'Not common' (Banks). I used to find it commonly round Poole in my younger days, but cannot say much about recent years (W.P.C.).

Ballard Down (W.P.C.); Bere Wood, June, 1890 (O.P.-C.); Buzbury Camp (W.P.C.); Chesil Beach (W.P.C.); Corfe Castle (E.R.B.); Cranborne, not common (F.H.F.); Poole, common (W.P.C.); Portland (O.P.-C.) (A.W.P.-C.); Punfield Cove (E.R.B.); Purbeck, generally distributed (E.R.B.) (L.P. 19); Studland (E.R.B.); Swanage, one on Oct. 14th, 1933, seems to be a second brood (A.G.B.R.); West Whiteway, two (T.P.); Winfrith, common (F.H.H.).

**Monima incerta** Hufn. ; Meyr., p. 143, No. 1.

*Taeniocampa instabilis* Dale, p. 18.

'Generally distributed' (Dale). 'Not common' (Bankes). I agree with the latter but am by no means sure I agree with the former. Fisher's remark *infra* may show that the insect is not as scarce as one would suppose from the few one picks up at sallow blossom (W.P.C.).

Bloxworth, 1887 and 1918, one specimen each time (A.W.P.-C.); Corfe Castle (E.R.B.); Cranborne, scarce, usually only obtained by pupa digging (F.H.F.) (W.P.C.); Duneat's Hill and Gravel Hill, between Poole and Wimborne. I have taken more at these two places than in the whole of the rest of my collecting places put together (W.P.C.); Gussage St. Michael (J.H.W.); Haymoor Bottom, near Poole (E.H.C.); Lilliput (W.P.C.); Parkstone, a few (Eva Hudson); Poole, scarce (E.H.C.) (W.P.C.); Purbeck, not common (T.P.) (L.P. 22); Studland (E.R.B.); Swanage, one at sallow (A.G.B.R.); Winfrith (F.H.H.).

**Monima gracilis** Fabr. ; Meyr., p. 143, No. 3.

*Taeniocampa gracilis* Dale, p. 18.

'Occurs sparingly' (Bankes). I have only taken it sparingly by myself but I think it would prove to be rather more abundant if worked for in the larval stage (W.P.C.).

Badbury Rings, one in 1934 (W.P.C.); Bloxworth, two specimens, April, 1887 (A.W.P.-C.); Chickerell (E.R.B.); Corfe Castle (E.R.B.) (L.P. 22); Duneat's Hill, between Poole and Wimborne (W.P.C.); Glanville's Wootton (Dale *l.c.*); Hamworthy (W.P.C.); Kimmeridge, common (T.P.), contrast this with E.R.B.'s estimate of a quarter of a century later (L.P. 22); Parley Heath (Dale *l.c.*); Poole, scarce (W.P.C.); Swanage, one (A.G.B.R.).

*forma rufescens* Cockerell. Ensbury, near Longham, one (W.G.H.); Bloxworth, several. I am confident that it occurs frequently in the large heath bogs (W.P.C.).

**Monima stabilis** View. ; Meyr., p. 143, No. 4.

*Taeniocampa stabilis* Dale, p. 18.

'Common' (Dale). I think it is the most abundant and ubiquitous species of the genus (W.P.C.).

Bere Wood, abundant (W.P.C.); Bloxworth (O.P.-C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Blandford (W.P.C.); Cranborne, common throughout the district (F.H.F.) (W.P.C.); Corfe Castle (E.R.B.); Canford Bottom (W.P.C.); Dunyeat's Hill (W.P.C.); Gravel Hill (W.P.C.); Parkstone (Eva Hudson); Poole, very common (W.P.C.); Purbeck, abundant (T.P.) (L.P. 22); Sandbanks (W.P.C.); Studland (E.R.B.); Swanage, fairly common (A.G.B.R.); Winfrith (F.H.H.).

**Monima populeti** Treitsch. ; Meyr., p. 144, No. 5.

*Taeniocampa populeti* Dale, p. 18.

'Rare' (Dale). I agree; its sporadic occurrence as single specimens is difficult to account for, and it does not seem to be truly endemic (W.P.C.).

[Bloxworth (Dale *l.c.*); A.W.P.-C. says: No record by O.P.-C.]; Corfe Castle, one at sallow, May 9th, 1887 (E.R.B.); Glanville's Wootton (Dale *l.c.*).

**Monima miniosa** Fabr. ; Meyr., p. 144, No. 6.

*Taeniocampa miniosa* Dale, p. 18.

'Rare' (Dale). I do not think this is true at all; its seasonal abundance varies within wide limits, but I have seen the larvae so abundant that one got three or four with every stroke of the beating stick. On the other hand, it does seem to be very scarce in Purbeck (W.P.C.).

Bere Wood (O.P.-C.), frequently common (W.P.C.); Bloxworth (O.P.-C.) (W.P.C.); Corfe Castle, one at sallow, April 24th, 1886 (E.R.B.); Cranborne, common (F.H.F.); Glanville's Wootton (Dale *l.c.*); Gravel Hill (W.P.C.); Haymoor Bottom, common (E.H.C.); Hamworthy (W.P.C.); Kimmeridge, one (T.P.) (L.P. 22); Middlemarsh (Dale *l.c.*); Poole, not scarce (W.P.C.).

**Monima pulverulenta** Esp. ; Meyr., p. 144, No. 7.

*Taeniocampa cruda* Dale, p. 18.

'Widely distributed' (Dale). 'Sometimes common' (Banks). I should say usually common, less so than *stabilis*, more so than *gothica* (W.P.C.).

Bloxworth, abundant (O.P.-C.) (W.P.C.); Break Hill Wood (W.P.C.); Charmouth (W.D.L.); Corfe Castle (E.R.B.); Cranborne, common (F.H.F.); Dunyeat's Hill (W.P.C.); Haymoor Bottom (E.H.C.); Poole (E.N.B.), abundant (W.P.C.); Purbeck, common (T.P.) (L.P. 22); Studland (E.R.B.).

**Monima munda** Esp. ; Meyr., p. 145, No. 8.

*Taeniocampa munda* Dale, p. 18.

'Widely distributed' (Dale). 'Not uncommon very locally' (Bankes). I regard this as one of the scarcer species, but it is not rare; it has occurred to me in practically every locality I have worked sallow blossom (W.P.C.).

Bere Wood (W.P.C.); Bloxworth (O.P.-C.); Cranborne, common (F.H.F.); Dunyeat's Hill (W.P.C.); Gravel Hill (W.P.C.); Hamworthy (W.P.C.); Kimmeridge, moderately common (T.P.) (L.P. 22); Poole, not very common (W.P.C.).

**Monima gothica** Linn. ; Meyr., p. 145, No. 9.

*Taeniocampa gothica* Dale, p. 18.

'Generally distributed' (Dale). 'Common' (Bankes).

Bere Wood, common (W.P.C.); Break Hill Wood (W.P.C.); Bloxworth (W.P.C.) (A.W.P.-C.); Corfe Castle, abundant (E.R.B.); Cranborne, common (W.P.C.); Creekmoor (W.P.C.); Dunyeat's Hill (W.P.C.); Gravel Hill (W.P.C.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Parkstone (Eva Hudson); Poole, abundant (W.P.C.); Purbeck, abundant (T.P.) (L.P. 22); Studland (E. R. B.); Swanage, fairly common (A.G.B.R.).

The variation in the county that has come under my notice is too slight to warrant comment (W.P.C.).

**Cerapteryx graminis** Linn. ; Meyr., p. 145.

*Charaeas graminis* Dale, p. 14.

'Scarce' (Dale). 'Scarce and local' (Bankes). I think that speaking generally they are right, but in 1929 it was quite abundant. It is, however, an insect known to be subject to the most violent fluctuations in abundance (W.P.C.).

Badbury Rings, in 1929 common (W.P.C.); Bloxworth, rare (O.P.-C.); Cranborne, one in 1906 (F.H.F.); Creech Grange, two in 1903, one in 1909 (P.H.Tz.); Hodd Hill (Dale *l.c.*); Hamworthy, one (W.P.C.); Knowle Hill (Dale *l.c.*); Lulworth (Dale *l.c.*); Poole, one in 1908 (W.P.C.); Portland (E.R.B.); Studland (P.H.Tz.); Tadmoll (F.H.H.); Weymouth, one only (O.P.-C.); West Whiteway, two (T.P.) (L.P. 20).

**Epineuronia popularis** Fabr. ; Meyr., p. 146.

*Heliophobus popularis* Dale, p. 14.

'Common' (Dale). I should add 'and in favourable seasons extraordinarily abundant.' In 1929 it came to the lamps of my car on Badbury Down in such hordes that the next morning the front of the car was seen to be smothered in scales and hair (W.P.C.).

Abbeycroft Down (W.P.C.); Badbury Rings (W.P.C.); Bere Wood (W.P.C.); Bloxworth, often abundant (O.P.-C.) (A.W.P.-C.); Cranborne, not common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (E.H.C.); Lytchett Minster, abundant (E. H. C.); Lilliput (E. H. C.); Morden (W.P.C.); Poole, abundant (W.P.C.); Parkstone (Eva Hudson); Portland, rare (E.R.B.); Purbeck, common (E.R.B.) (L.P. 20); Sandbanks (E.H.C.); Swanage, fairly common (A.G.B.R.); Winfrith, common (F.H.H.).

**Panolis piniperda** Panz. ; Meyr., p. 146; Dale, p. 17.

'Common amongst Scots pines' (Bankes). With this I agree, and I think its distribution is coterminous with that of *Pinus sylvestris*, as I have obtained the larva from this tree only (W.P.C.).

Break Hill Wood (W.P.C.); Bloxworth (O.P.-C.); Brownsea Island (W.P.C.); Canford Bottom (W.P.C.); Cock Wood, Canford (W.P.C.); Duneat's Hill (W.P.C.); Glanville's Wootton (Dale *l.c.*); Gravel Hill (W.P.C.); Hyde (W.P.C.); Knighton Heath (Dale *l.c.*); Morden Park (O.P.-C.); Newtown (W.P.C.); Parley Heath (Dale *l.c.*); Poole Heath (Dale *l.c.*); Poole, common (W.P.C.); Purbeck, common in the fir plantations (E.R.B.) (L.P. 22); Studland (Dale *l.c.*); Swanage, Durlston, two, one of which is the **griseo-variegata** form (A.G.B.R.).

**Harmodia nana** Rott. ; Meyr., p. 147, No. 1.

*Dianthoecia conspersa* Dale, p. 19.

'Rare' (Dale). I incline to the view that this insect could be obtained frequently on the coast, but it is notorious that the Dorset coast is exceedingly dangerous to work (W.P.C.).

Cranborne, occasionally (F.H.F.); Glanville's Wootton, one, May 25th, 1815 (Dale *l.c.*); Gussage St. Michael, one in 1877 (J.H.W.); Portland (Dale *l.c.*); Powerstock (Dale *l.c.*); Sherborne (Dale *l.c.*).

[*Harmodia albimacula* Borkh. ; Meyr., p. 147, No. 2, ought to occur on the western littoral and I have little doubt could be found if worked for.]

[*Harmodia caesia* Borkh. ; Meyr., p. 148, No. 5.

F.H.H. at one time thought he had obtained this species at Winfrith but after correspondence with me decided that the record should be withdrawn, as the specimen or specimens had been lost sight of. As the species is a regular inhabitant of the Portlandian Jurassic on the Continent, it seems reasonable to suppose it might occur.]

**Harmodia carpophaga** Borkh. ; Meyr., p. 149, No. 7.

*Dianthoecia carpophaga* Dale, p. 19.

Bloxworth, a few bred in 1886 (O.P.-C.); Cranborne, common (F.H.F.); Chesil Beach (W.P.C.); Gussage St. Michael (J.H.W.); Parkstone, a few bred (S.C.S.B.) (det. W.P.C.); Swanage, a fair number (A.G.B.R.); West Whiteway, one (T.P.) (L.P. 23).

**Harmodia capsincola** Hübn. ; Meyr., p. 149, No. 8.

*Dianthoecia capsincola* Dale, p. 19.

'Rare' (Dale). E.R.B. has struck this out in his copy of Dale. I should say not uncommon but with a marked preference for limestone soils. Certainly the most abundant in Dorset of the *Dianthoecias* (W.P.C.).

Bloxworth, common (O.P.-C.) (F.O.P.-C.) (W.P.C.); Break Hill Wood, Canford (W.P.C.); Charmouth (W.D.L.); Chesil Beach (W.P.C.); Corfe Castle (E.R.B.); Cranborne (F.H.F.) (W.P.C.); Glanville's Wootton, one in June, 1850 (Dale *l.c.*); Poole (E.N.B.) (W.P.C.); Swanage, common (E.N.B.), this is so on the Ballard Down side but not on the Anvil Point side (A.G.B.R.); Studland, common (C.R.D.) (P.T.Tz.) (L.P. 23); Winfrith (F.H.H.).

**Harmodia cucubali** Fuessl. ; Meyr., p. 149, No. 9.

*Dianthoecia cucubali* Dale, p. 19.

'Rare' (Dale). This is too strong a word, but the insect is uncommon (W.P.C.).

Bere Wood, one in 1851 (O.P.-C.); this is the foundation of Dale's Bloxworth record (W.P.C.); Corfe Castle, one (E.R.B.), one (P. Helps); Cranborne, a few every season (F.H.F.); Dunyeat's Hill, one (W.P.C.); Poole, one (W.P.C.) (E.N.B.); Sherborne (O. Benthall); Swanage, fairly commonly (A.G.B.R.); West Lulworth, 1892 (Col. J. F. Randall).

**Melanchra cespitis** Fabr. ; Meyr., p. 151, No. 1.

*Luperina cespitis* Dale, p. 15.

'Rare' (Dale). 'Very local' (Bankes). I rather think that this insect is overlooked because of its odd habits. I have observed it in September flying in considerable numbers about 5 o'clock p.m., Greenwich M.T., over downland in a leisurely style and yet with a sufficiently erratic flight to make it difficult to catch (W.P.C.).

Bloxworth Heath, one, Sept., 1894 (O.P.-C.); Cranborne, Handley Down, common (F.H.F.) (W.P.C.); Corfe Castle, a larva in 1906 (E.R.B.); Portland, at light (W. Farren) (J.J.W.);

Poole (E.N.B.); Rempstone, two (Harold King); Studland, one in 1909 (P.H.Tz.); Swanage, in 1844 (Sir Christopher Lighton), fairly common in 1931, scarce since (A.G.B.R.) (L.P. 20); Wareham, one Sept. 17th, 1894 (F.O.P.-C.); Wimborne, one in 1907 (G.F.M.).

**Melanchra reticulata** Vill. ; Meyr., p. 152, No. 2.

*Neuria saponariae* Dale, p. 14.

'Rare' (Dale). 'Rarely plentiful' (Bankes). I should say locally not uncommon (W.P.C.).

Bere Wood (W.P.C.); Bloxworth (O.P.-C.); Blandford (Dale l.c.); Chickereil (E.R.B.); Cranborne, not uncommon in the wood and on the Downs at sugar (W.P.C.), at light (F.H.F.); Glanville's Wootton (Dale l.c.); Portland (Dale l.c.); Ringstead (F.H.H.); Swanage, one in 1905 (W.P.C.); Weymouth (O.P.-C.).

**Melanchra serena** Fabr. ; Meyr., p. 152, No. 3.

*Hecatera serena* Dale, p. 19.

'Rare' (Dale). I am inclined to agree with him (W.P.C.).

[Bloxworth (Dale l.c.), 'No record by O.P.-C.' (A.W.P.-C.)]; Charmouth, one (W.D.L.); Corfe Castle, but apparently infrequently (E.R.B.); Cranborne, not common (F.H.F.); Hamworthy (W.P.C.); Poole (E.N.B.), very occasionally (W.P.C.) (E.H.C.); Portland, common (F.J.K.); Stoborough, one in 1909 (P.H.Th.); Swanage, fairly common (A.G.B.R.).

**Melanchra chrysozona** Borkh. ; Meyr., p. 152, No. 4.

*Hecatera dysodea* Dale, p. 19.

'Rare' (Dale).

Poole, many years ago by Mr. Seager (Dale l.c.). E.N.B. said he had taken it, but this could not be later than the early 1880's. There is no recent record for the county (W.P.C.).

**Melanchra trifolii** Rott. ; Meyr., p. 152, No. 5.

*Hadena chenopodii* Dale, p. 30.

'Rare' (Dale). 'Locally common' (E.R.B.). I think E.R.B. is right, and although at one time I used to regard it as a very common species, of late years I have not come across it in any degree of abundance (W.P.C.).

Corfe Castle (E.R.B.) (L.P. 24); Cranborne, scarce (F.H.F.); Hamworthy (W.P.C.); Lilliput (W.P.C.); Parkstone (Eva Hudson); Poole (E.N.B.), formerly common (W.P.C.); Portland Dale l.c.); Studland, very common (P.H.Tz.); Swanage, not common (A.G.B.R.); Winfrith (F.H.H.).

[*Melanchra recte Scotogramma*] *albifusa* Wlk.

*Hadena albifusa* Grote; Dale, p. 20.

One specimen by Major Partridge on August 15th, 1888, at light on Portland not far from the anchorage (1889, *Ent. Mon. Mag.*, 25: 180). Specimen determined by W. F. Kirby.

E. R. B. says: 'Mr. C. G. Barrett, who identified Major Partridge's specimen as *albifusa* and would not formerly allow that it might be a variety of *H. chenopodii*, now treats it as certainly a form of *chenopodii* in his great work the Lepidoptera of Brit. Isles.'

Walker first described *albifusa* and not Grote, but it is characteristic that Dale should quote a later author and not the type description. Hampson (1905, *Cat. Lep. Phal.*, 5: 28, No. 1158) sinks *albifusa* as a colour variation of *trifolii* Rott. I do not know the species well enough to criticise the propriety of this; but if Hampson is right, the disputed point vanishes.

*Melanchra dentina* Esp.; Meyr., p. 153, No. 6.

*Hadena dentina* Dale, p. 20.

Bloxworth, common (O.P.-C.) (A.W.P.-C.); Charmouth (K. G. Blair); Corfe Castle (E. R. B.); Cranborne, plentiful throughout the district (W.P.C.) (F.H.F.); Glanville's Wootton (Dale *l.c.*); Hamworthy (W.P.C.); Portland (F. J. K.) (O.P.-C.); Punfield Cove (E. R. B.); Purbeck, abundant (E. R. B.) (L.P. 24); Ringstead (F. H. H.); Sherborne (Dale *l.c.*); Studland (Dale *l.c.*); Swanage (W.P.C.), not common (A. G. B. R.); Winfrith (F. H. H.).

Dorset specimens as a rule are rather pale with a warm brown tone, and not in the least like the form *latenai* Pier. (W.P.C.).

*Melanchra contigua* Vill.; Meyr., p. 154, No. 10.

*Hadena contigua* Dale, p. 20.

'Rare' (Dale). I agree (W.P.C.).

Bloxworth, rare (O.P.-C.); Branksome, occasionally (E. H. T. and others); Cranborne, a few (F. H. F.); Parkstone, common (R. P. D.); Poole (E. N. B.); Studland, one (C. R. D.) (L.P. 24).

A. E. Burras tells me it is very fond of sitting on small fir trees on heathland (W.P.C.).

*Melanchra genistae* Borkh.; Meyr., p. 154, No. 11.

*Hadena genistae* Dale, p. 20.

'Rare' (Dale). I agree, as far as I know, Frank H. Fisher is the only person who has taken this species at all frequently in the county (W.P.C.).

Bloxworth, one in 1887 (A.W.P.-C.), a few since (O.P.-C.); Buzbury Camp, four on June 1st, 1934 (W.P.C.); Cranborne,

usually scarce, occasionally not uncommon (F.H.F.); Glanville's Wootton, one on June 3rd, 1878 (C.W.D.); Grange Purbeck, one (P.H.Th.); Morden, one (A.G.B.R.); Parley Heath, one on June 14th, 1854 (O.P.-C.); Poole, occasionally (E.N.B.), two or three in 1903 (S. Galpin); [Studland, the record by C.R.D. for July 3rd, 1891, was erroneous, the true identity being an aberration of *Hadena gemina* Hübn. teste E.R.B.]; Swanage, one on June 16th, 1907 (W.P.C.); at light and sugar, infrequent (A.G.B.R.).

**Melanchra thalassina** Rott. ; Meyr., p. 155, No. 12.

*Hadena thalassina* Dale, p. 20.

'Rare' (Dale). It seems only to occur in single specimens here and there. I personally have not taken four in Dorset in 40 years (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, scarce (E.R.B.) (A.W.P.-C.); Corfe Castle (E.R.B.); Cranborne, not common (F.H.F.); Glanville's Wootton (Dale *l.c.*); Portland (Dale *l.c.*); Purbeck, generally distributed (E.R.B.) (L.P. 24); Studland (C.R.D.); Swanage (W.P.C.); West Whiteway, one (T.P.); Wood Street, between Wool and East Lulworth (F.H.H.); Woodbury Hill (W.P.C.); Upper Bockhampton (F.H.H.).

**Melanchra dissimilis** Knoch. ; Meyr., p. 155, No. 13.

*Hadena suasa* Dale, p. 20.

'Rare' (Dale). This is putting it too high. It seems to be rather local, particularly affecting the salterns round Poole Harbour (W.P.C.).

[Bloxworth (Dale *l.c.*) There is no record by O.P.-C. teste A.W.P.-C. I think the locality is unsuitable (W.P.C.)]; Hamworthy (W.P.C.); Poole (E.N.B.), not very common (W.P.C.); Studland, frequent (F.H.F.); Swanage, a fair number mostly very dark, in 1933 but not previously (A.G.B.R.); Winfrith neighbourhood (F.H.H.); Wych, Purbeck (E.R.B.).

**Melanchra oleracea** Linn. ; Meyr., p. 155, No. 14.

*Hadena oleracea* Dale, p. 20.

'Generally distributed' (Dale). 'Common in some districts' (Bankes). In those parts of the county I know, sufficiently abundant to be a nuisance; it is especially destructive to the flower spikes of *Gladiolus* and to the fronds of *Osmunda regalis* (W.P.C.).

Bloxworth (A.W.P.-C.) (O.P.-C.); Charmouth (W.D.L.); Chesil Beach (W.P.C.); Cranborne and district, very common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Kimmeridge, common (T.P.); Organford (W.P.C.); Poole dis-

trict, very common (W.P.C.); Portland (A.W.P.-C.) (O.P.-C.); Purbeck, common (E.R.B.) (L.P. 24); Studland (W.P.C.); Swanage, not common (A.G.B.R.); Upper Bockhampton (F.H.H.); Winfrith, abundant (F.H.H.).

**Melanchra pisi** Linn. ; Meyr., p. 156, No. 15.

*Hadena pisi* Dale, p. 20.

'Widely distributed' (Dale). 'Rather uncommon' (Bankes). I agree with E.R.B. but am not so satisfied about the statement Dale makes. It is odd that the insect is common on the Hants side of the Dorset border and yet in Dorset itself not common (W.P.C.).

Bere Wood, rare (O.P.-C.); Bloxworth Heath, rare (O.P.-C.); Cranborne, not common (F.H.F.) (W.P.C.); Morden (W.P.C.); Studland (E.R.B.) (L.P. 24); Winfrith, common (F.H.H.); Swanage, one (A.G.B.R.).

**Melanchra tinctoria** Brahm. ; Meyr., p. 156, No. 17.

*Aplecta tinctoria* Dale, p. 20.

'Rare' (Dale).

Bloxworth, very sparingly (O.P.-C.).

**Melanchra advena** Fabr. ; Meyr., p. 156, No. 18.

*Aplecta advena* Dale, p. 20.

'Rare' (Dale).

Bere Wood, one at sugar on July 23rd, 1856 (F. Bond). This is the foundation of Dale's 'Bloxworth' record; Glanville's Wootton, but not since 1881 (Dale *l.c.*).

**Melanchra nebulosa** Hufn. ; Meyr., p. 157, No. 19.

*Aplecta nebulosa* Dale, p. 20.

'Generally distributed' (Dale). 'Sometimes common' (Bankes).

Bere Wood, common, especially the larvae feeding on sallow at night (W.P.C.), and imagines at sugar (A.W.P.-C.); Canford Bottom (W.P.C.); Charmouth, Lyme Road (K. G. Blair); Cranborne, common (F.H.F.); Corfe Castle (E.R.B.) (L.P. 24); Dunyeat's Hill (W.P.C.); Hamworthy (W.P.C.); Poole, not common (E.H.C.) (W.P.C.); Studland, one (A.G.B.R.); Swanage (W.P.C.) (A.G.B.R.); Winfrith neighbourhood, common (F.H.H.).

Our Dorset specimens are usually very light in tone with a nearly ivory white ground, conspicuously so if placed against Cotswold specimens (W.P.C.).

**Melanchra brassicae** Linn. ; Meyr., p. 157, No. 20.

*Mamestra brassicae* Dale, p. 15.

'Common' (Dale). 'Often abundant' (Banks). It is frequently an agricultural pest, especially in market gardens and fields amongst crops of cabbages, swedes and the like (W.P.C.).

Bere Wood and Bloxworth, abundant (O.P.-C.) (A.W.P.-C.); Charmouth (W.D.L.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Poole, abundant (W.P.C.); Purbeck, abundant (T.P.), common (E.R.B.); Swanage, not uncommon (A.G.B.R.); Winfrith, common (F.H.H.).

**Melanchra persicariae** Linn. ; Meyr., p. 157, No. 21.

*Mamestra persicariae* Dale, p. 15.

'Rare' (Dale). This is, I think, strictly accurate as regards open country not under cultivation. The insect is, however, much in evidence in flower gardens at blossoms of *Nepeta mussinii*, and the larva is often destructive of China aster and *Gladiolus*. Banks regarded it as uncommon everywhere in the county but the Poole district (W.P.C.).

[Bloxworth (Dale *l.c.*) There is no record by O.P.-C. *teste* A.W.P.-C.]; Cranborne, fairly common (W.P.C.); Glanville's Wootton (Dale *l.c.*); Parkstone, sometimes a garden pest (W.P.C.); Poole, abundant (W.P.C.); Sherborne (Dale *l.c.*); Winfrith, common (F.H.H.).

It is to be observed that I have no record from the Isle of Purbeck. This limited distribution recorded of Dorset is very interesting in view of Wm. Fassnidge's statement that it is 'common everywhere' in the neighbouring County of Hants (Fassnidge, 1923, *List Macro. Lep. Hants and I. Wight, Ent. Rec.*, 25: Suppl., 15).

**Melanchra albicolon** Hübn. ; Meyr., p. 158, No. 22.

*Mamestra albicolon* Dale, p. 15.

'Rare' (Dale).

Chesil Beach, common (E.R.B.) (J.J.W.); Poole (E.N.B.) (record needs recent confirmation); Swanage (E. D. Nevison) (L.P.I. 4).

**Melanchra myrtilli** Linn. ; Meyr., p. 158, No. 24.

*Anarta myrtilli* Dale, p. 21.

I should consider this insect fairly common in the heath area, but its numbers are rapidly diminishing under the onslaughts of the builder, the golfer and the fire raiser (W.P.C.). 'Very common on heaths' (F.H.H.).

Arne (F.H.H.); Bloxworth (W.P.C.), usually common on the heath (O.P.-C.) (A.W.P.-C.); Canford and Haymoor Bottoms

(W.P.C.); Corfe Castle (Dale *l.c.*); Knighton Heath (F.H.H.); Kniton (W.P.C.); Morden (F.H.H.) (W.P.C.); Parley Heath, not scarce (Dale *l.c.*); Poole Heath (W.P.C.); Parkstone Golf Links (W.P.C.); Puddletown Heath (F.H.H.); Purbeck Heaths (E.R.B.) (F.H.H.) (L.P. 25); Studland (W.P.C.); Tadnoll (F.H.H.); Upper Bockhampton (F.H.H.); Verwood, fairly common (F.H.H.); Winfrith Heath (F.H.H.).

## FAMILY PLUSIADAE.

### SUBFAMILY I. HYPENIDES.

#### **Aethia emortualis** Schiff. ; Meyr., p. 162, No. 1.

E.R.B. has in his copy of Dale, '*Zanclognatha emortualis* Schiff. is recorded from Dorsetshire in J. H. Leech's British Pyralides, p. 3 (1886), but I have little doubt that this is a *lapsus calami* for "Devonshire," and refers to J. F. Stephen's record Ill. Haust. iv. 18 (1834), which runs, "and I possess one captured in Devonshire."'

#### **Aethia tarsipennalis** Treitsch. ; Meyr., p. 162, No. 2.

*Hypena tarsipennalis* Dale, p. 35.

'Common' (Dale). I do not think this is correct (W.P.C.).

Bloxworth, occasionally (O.P.-C.) (A.W.P.-C.); Gussage St. Michael (J.H.W.); North-west Dorset, one (A.R.H.); Parkstone, one (W.P.C.); Poole, a few (W.P.C.); Purbeck, common (E.R.B.); Swanage, one (A.G.B.R.); Winfrith, common (F.H.H.).

#### **Aethia nemoralis** Fabr. ; Meyr., p. 162, No. 3.

*Herminia grisealis* Dale, p. 35.

'Generally distributed' (Dale). I think it is rather common (W.P.C.).

Bere Wood, a few (W.P.C.); Bloxworth (O.P.-C.), fairly common (A.W.P.-C.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Kingston, Purbeck (A.G.B.R.); Organford (W.P.C.); Poole, a few (W.P.C.); Parkstone (W.P.C.); Purbeck, common (T.P.) (E.R.B.) (L.P. 27); Trigon, near Wareham (F.H.H.).

#### **Herminia cribralis** Hübn. ; Meyr., p. 163, No. 1.

Morden Bog, scarce (W.P.C.).

#### **Herminia barbalis** Clerck. ; Meyr., p. 163, No. 2; Dale, p. 35.

'Rare' (Dale). This seems to be correct (W.P.C.).

Bloxworth, one in 1892 (O.P.-C.); Cranborne, several (F.H.F.); Studland, one (C.R.D.) (L.P. 27).

Contrast this with Hants: 'Generally distributed in woods, common' (Fassnidge, 1923, *List Macro. Lep. Hants and I. Wight, Ent. Rec.*, 25: Suppl., 24); and so far as my experience goes of Hants, Fassnidge is right.

**Schrankia turfosalis** Wocke.; Meyr., p. 164; Dale, p. 35.

'Rare' (Dale). This is wrong; it is locally common in its special habitats, viz., heath bogs (W.P.C.).

Bloxworth, common in the bogs (O.P.-C.) (W.P.C.) (A.W.P.-C.); Corfe Castle, common in the bogs (E.R.B.); Morden Decoy, common (W.P.C.) (A.G.B.R. *et aliis*); Studland, Littlesea (E.R.B.) (C.R.D.) (W.P.C. *et aliis*) (L.P. 26); Wadmore Quag, Purbeck, common (E.R.B.).

**Hypenodes costistrigalis** Steph.; Meyr., p. 165, No. 1; Dale, p. 34.

'Rare' (Dale). I should say frequent in suitable places (W.P.C.).

Bere Wood, frequent (W.P.C.) (O.P.-C.) (A.W.P.-C.); Bloxworth, not rare (O.P.-C.); Cranborne (F.H.F.); Cosmore Quag (Dale *l.c.*); Glanville's Wootton, June 23rd, 1929 (J.C.D.); Portland (F.H.H.); Studland (E.R.B.) (W.P.C. *et aliis*) (L.P. 26).

**Hypenodes albistrigalis** Haw.; Meyr., p. 165, No. 2; Dale, p. 35.

'Rare' (Dale). Rare is too strong; it seems, however, to be uncommon (W.P.C.).

West Parley, July 29th, 1824 (J.C.D.); Studland, a few (W.P.C.); Swanage, one (A.G.B.R.).

**Hypena rostralis** Linn.; Meyr., p. 166, No. 1; Dale, p. 34.

'Rare' (Dale). This statement is entirely erroneous. It is not uncommon and has a great partiality for hibernating in dwelling-houses (W.P.C.).

Bere Wood (W.P.C.); Bloxworth, not rare (O.P.-C.) (A.W.P.-C.); Corfe Castle (E.R.B., L.P. 26); Cranborne, common (F.H.F.) (W.P.C.); Glanville's Wootton (C.W.D.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Parkstone (W.P.C.); Poole, not rare (W.P.C.); Studland (C.R.D.) (L.P. 26); Winfrith (F.H.H.); Wimborne (W.P.C.).

**Hypena proboscidalis** Linn.; Meyr., p. 166, No. 2; Dale, p. 34.

'Common' (Dale). I agree (W.P.C.).

Bloxworth and district, common (O.P.-C.) (A.W.P.-C.); Char-mouth (W.D.L.); Cranborne, common (W.P.C.); Gussage St. Michael (J.H.W.); Poole, common (W.P.C.); Purbeck, abundant (T.P.) (E.R.B.) (L.P. 26); Swanage, fairly common and double brooded (A.G.B.R.); Winfrith, common (F.H.H.).

**Hypena obsitalis** Hübn. ; Meyr., p. 167, No. 3; Dale, p. 34.

Bloxworth, on an outhouse door at the Rectory, Sept., 1884 (O.P.C.).

F.H.H. states that he saw one in a withy bed near Winfrith, but it escaped capture. With all respect, a record of a *Hypena* cannot be considered satisfactory without the *corpus vile*, and even then one is often in the gravest difficulty, as anyone with extra-British experience will readily, even if regretfully, admit.

**Aventia flexula** Schiff. ; Meyr., p. 168; Dale, p. 34.

'Rare' (Dale). This is putting it a little too high; it is always on the cards, but I regard it as a good capture. Judging by Mr. Alan Druitt's experience at Christchurch it is best suited by estuarine conditions (W.P.C.).

Badbury Rings (W.P.C.); Bere Regis (H.L.A.); Bloxworth, scarce (O.P.-C.) (A.W.P.-C.); Corfe Castle, occasionally (E.R.B.) (L.P. 27); Cranborne, several (F.H.F.); Creech Grange, Purbeck, one in 1909 (P.H.Th.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Sherborne (Dale *l.c.*); Studland, not uncommon (E.R.B.) (L.P. 27); Swanage, three (A.G.B.R.); Wadmore Quag, Purbeck (E.R.B.).

## SUBFAMILY 2. CATOCALIDES.

**Ophiusa pastinum** Treitsch. ; Meyr., p. 168, No. 1.

*Toxocampa pastinum* Dale, p. 22.

'Rare' (Dale). I should say very local, but sometimes locally common (W.P.C.).

Bloxworth, occasionally fairly common (O.P.-C.); Cranborne, Handley and Bottlebush Downs, common (F.H.F.) (W.P.C.); Fleet, near Weymouth, July, 1887 (E.R.B.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Stourton Caundle (Dale *l.c.*); Swanage, in 1880 (A. F. Griffith) (L.P. 24).

**Scoliopteryx libatrix** Linn. ; Meyr., p. 169.

*Gonoptera libatrix* Dale, p. 22.

'Common' (Dale). He is probably right; the insect seems to be uniformly dispersed over the county, and frequent but never abundant. It is, however, an insect whose habits and beauty cause it to be more frequently noticed than many commoner species (W.P.C.).

Bere Wood, common after hibernation in 1934 (W.P.C.); Bloxworth, common (A.W.P.-C.); Corfe Castle, common (E.R.B.); Cranborne, common (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Lytchett Minster (W.P.C.); Organford (W.P.C.); Parkstone (W.P.C.); Poole (W.P.C.);

Purbeck, common (T.P.) (L.P. 25); Studland (E.R.B.); Swanage (W.P.C.), not very common (A.G.B.R.); Winfrith, very common (F.H.H.).

**Catocala fraxini** Linn.; Meyr., p. 171, No. 1; Dale, p. 22.

A casual immigrant. How it gets to the country is a puzzle, since it is usually in beautiful order when captured.

Boveridge, near Cranborne, by Storey about 1740 (in coll. J.C.D.); Poole, one in 1866, a very fine specimen (E.N.B.), one at rest on an ash tree near the Pound at Longfleet about 1892, unfortunately the insect got destroyed (W.P.C.).

**Catocala nupta** Linn.; Meyr., p. 172, No. 2; Dale, p. 23.

'Rare' (Dale). This is putting it too high; it is scarce as a rule, but is, I think, strictly resident (W.P.C.).

Bloxworth, rare (O.P.-C.); Blandford (Dale *l.c.*); Buckland Newton, one in Pop Mallard Wood (A.G.B.R.); Corfe Castle, two specimens (E.R.B.) (L.P. 26) (up to 1885); Cranborne, common (F.H.F.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael, abundant (J.H.W.); Holwell (Dale *l.c.*); Hodd Hill, one (S.C.S.B.); Kimmeridge, one (T.P.) (L.P. 26); Muston Down, one (A.G.B.R.); Poole (E.N.B.), occasionally, willow and poplar are much scarcer than they used to be at Poole, as *Trypanus cossus* L. destroyed a great number of the roadside trees (W.P.C.); Sherborne (Dale *l.c.*); Spettisbury (S.C.S.B.); Swanage, two (A.G.B.R.), another seen (J. A. P. Russell); Sturminster (Dale *l.c.*); Winfrith (F.H.H.).

**Catocala sponsa** Linn.; Meyr., p. 172, No. 3; Dale, p. 23.

Swanage, one on July 20th and one on July 21st, 1934, both at sugar (A.G.B.R.); Studland, one on July 21st, 1934, at sugar (A.G.B.R.); Weymouth, on a window-pane of a study in July, 1886 (A.W.P.-C.).

I released about a dozen ♀♀ (taken in the New Forest) at the foot of Dunyeat's Hill many years ago, but no opportunity has arisen of investigating whether the insect established a foothold (W.P.C.).

**Catocala promissa** Esp.; Meyr., p. 172, No. 4; Dale, p. 23.

Cranborne, occasionally (F.H.F.); Middlemarsh, wings found, July 13th, 1886 (J.C.D.); Poole, one some years prior to 1898 (E.N.B.).

**Catocala electa** Borkh.; Meyr., p. 172, No. 5.

Corfe Castle, one in a trap for wasps in the walled peach garden of the rectory (E.R.B.).

**Euclidia mi** Clerck. ; Meyr., p. 174, No. 1 ; Dale, p. 23.

'Widely distributed' (Dale). 'Common' (F.H.H.). 'Not uncommon locally' (Bankes). I should agree with Bankes ; it is decidedly local (W.P.C.).

Allington, near Bridport (W.P.C.) ; Ballard Down (E.R.B.) ; Bere Wood, common (W.P.C.) ; Bloxworth, common (O.P.-C.) ; Broadwinsor (W.P.C.) (A.R.H.) ; Bridport (W.P.C.) ; Charmouth (W.D.L.) ; Corfe Castle (E.R.B.) ; Cranborne, plentiful (F.H.H.) ; Holme (F.H.H.) ; Hodd Hill, common (W.P.C.) ; Poole, one only (W.P.C.) ; Portland (F.J.K.) ; Punfield Cove (E.R.B.) (W.P.C.) ; Purbeck, fairly common (T.P.) (L.P. 26) ; Studland, common (W.P.C.) ; Swanage, common (W.P.C.), taken but not looked for specially (A.G.B.R.) ; Warmwell Heath (F.H.H.) ; Winfrith (F.H.H.) ; Woodbury Hill (E.H.C.).

**Euclidia glyphica** Linn. ; Meyr., p. 174, No. 2 ; Dale, p. 23.

Beaminster (W.P.C.) ; Bloxworth (Dale *l.c.* A.W.P.-C. says possibly right) ; Bridport (W.P.C.) ; Broadwinsor (W.P.C.) (A.R.H.) ; Cranborne, plentiful (F.H.F.) ; Drake North, Powerstock (W.P.C.) ; Glanville's Wootton (Dale *l.c.*) ; Middlemarsh (Dale *l.c.*) ; Powerstock (W.P.C.) ; Sherborne (Dale *l.c.*) ; West Whiteway, common (T.P.) (L.P. 26) ; Winfrith (F.H.H.).

**Erastria fasciana** Linn. ; Meyr., p. 174 ; Dale, p. 23.

'Rare' (Dale). I rather incline to agree ; it is scarce and local, but I fancy is to be got in most of the older woodlands with deciduous trees (W.P.C.).

[Bloxworth (Dale *l.c.*). O.P.-C. and A.W.P.-C. have no record, nor have I ever seen the insect there] ; Corfe Castle (E.R.B.) ; the notebooks only show occasional captures ; Hamworthy (W.P.C.) ; Haymoor Bottom, near Poole (E.H.C.) (W.P.C.) ; Poole (E.N.B.), one (W.P.C.) ; Rempstone (A.G.B.R.).

**Eustrotia luctuosa** Esp. ; Meyr., p. 175, No. 2.

*Acontia luctuosa* Dale, p. 23.

'Rare' (Dale). This is too strong a word but the insect is far from common (W.P.C.).

Badbury Rings, one (W.P.C.) ; [Bloxworth (Dale *l.c.*). O.P.-C. and A.W.P.-C. confirm that this record is wrong] ; Corfe Castle, one in 1897 (E.R.B.) ; Cranborne (Dale *l.c.*, but not by F.H.F., *verb. sap.*!) ; Hodd Hill (A.R.H.) ; Lulworth (G. C. Green), one (O.P.-C.) ; Poole (E.N.B.)—[I disbelieve this record, see below (W.P.C.)] ; Portland (Dale *l.c.*) ; Studland, Ballard Down, one (W.P.C.) ; Swanage, in 1899 (S. W. Kemp, 1899, *Entomologist*, 32: 260), and not uncommonly in one field in 1906 (E.R.B.), one at light (A.G.B.R.).

A glance at the authentic localities shows that they are like the continental localities I know, predominantly calcareous, an additional reason for rejecting a purely siliceous locality like Poole (W.P.C.).

**Eustrotia uncula** Clerck. ; Meyr., p. 176, No. 4.

*Hydrelia uncana* Dale, p. 23.

'Scarce' (Dale). Few suitable localities exist, and it is not common in these nor present in all of them (W.P.C.).

Lyme Regis (Dale *l.c.*); Morden Decoy, not common (W.P.C.); Studland, in the bogs (W.P.C.) (A.G.B.R.) (E.R.B.) (L.P. 25); Wadmore Quag, Purbeck (E.R.B.).

**Eustrotia viridaria** Clerck; Meyr., p. 176, No. 5.

*Phytometra aenea* Dale, p. 23.

'Generally distributed' (Dale). 'Common on heaths and down' (Bankes). I think its distribution will on examination be found to be coterminous with that of *Polygala vulgaris*, where that plant is growing in uncultivated ground (W.P.C.).

Bloxworth Heath, common (O.P.-C.) (A.W.P.-C.); Canford Bottom, near Poole (W.P.C.); Charmouth (W.D.L.); Corfe Castle (E.R.B.); Hodd Hill (W.P.C.); Morden (F.H.H.) (A.G.B.R.) (W.P.C.); Moreton (F.H.H.); Norden (E.R.B.); Poole, abundant (W.P.C.); Purbeck Heaths and Downs (E.R.B.) (L.P. 26); Punfield (E.R.B.); Swanage (A.G.B.R.); Tadnoll (F.H.H.); Verwood, plentiful (F.H.F.); Winfrith (F.H.H.); West Knighton (F.H.H.); West Whiteway, abundant (T.P.).

**Eublemma ostrina** Hübn. ; Meyr., p. 178, No. 1.

*Micra ostrina* Dale, p. 23.

From the little I know of this insect on the continent I think the paucity of Dorset records may be in part attributed to unsuitable methods of collecting (W.P.C.).

Swanage, Punfield Cove, one on Aug. 21st, 1880 (C.R.D.) (L.P. 25); Swanage, Winspit, one in 1930 (F.W.); Wych, Poole Harbour, one on June 8th, 1892 (E.R.B.).

The diversity of the three localities is very marked: Winspit a rocky seadown with a steep cliff facing seaward, all Lower Purbeck and Portland; Punfield, Cretaceous, Upper Chalk Greensand and Gault, and rather wet; Wych, a low-lying rather swampy post-Eocene alluvial tongue of land on the edge of the Harbour. There is hardly one feature in common (W.P.C.).

[*Eublemma parva* Hübn. ; Meyr., p. 178, No. 2.

The specimen taken by E.R.B. at 6 p.m. on June 8th, 1892, close to the edge of the water at Wych, Poole Harbour, and

recorded, 1892, *Ent. Mon. Mag.*, **28**: 308-9, is the basis of the record under *E. ostrina*, *antea*. Lord Rothschild examined the specimen in May, 1919, and rejected it as *parva* and referred it to *ostrina* Hübn. = *carthami* Hübn., *teste* J. Hartley Durrant.]

**Rivula sericealis** Scop. ; Meyr., p. 179; Dale, p. 35.

'Generally distributed' (Dale). 'Usually uncommon' (Bankes).

Badbury Rings, in the hedges and ditches, frequent (W.P.C.); Bloxworth, common (O.P.-C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Corfe Castle (E.R.B.) (L.P. 26); Cranborne, not common (F.H.F.); Gussage St. Michael (J.H.W.); N.W. Dorset, common (A.R.H.); Poole, a few (W.P.C.); Spettisbury (W.P.C.); Studland, in damp ditches (E.R.B.) (L.P. 26); Swanage (A.G.B.R.) (W.P.C.); Wood Street, near Wool (F.H.H.); Wootton, near Charmouth (W.D.L.).

### SUBFAMILY 3. PLUSIADES.

**Plusia moneta** Fabr. ; Meyr., p. 181, No. 1.

This once rare insect is firmly established in the gardens of at any rate eastern Dorset owing to the popularity of the *Delphinium*. It is sufficiently abundant sometimes to be a minor pest, as the young larva has a great liking for the tips of the shoots whence the flower-buds should spring, and consequently it frequently renders a shoot blind. In my experience it prefers the cultivated hybrids to *Aconitum napellus* and does not like *Aconitum lycoctonum* nor *A. pyrenaicum*.

Cranborne, two at light in 1902 (F.H.F.), many larvae in the vicarage garden (F.H.F.) (W.P.C.); Poole, Parkstone and district, quite common in the larval stage, and occasionally to be taken feeding at flowers at dusk in the usual *Plusia* fashion (W.P.C.); Tarrant Rushton, one at light, July 3rd, 1893 (Rev. J. Penny, *teste* N.M.R.); Weymouth, several bred from larvae in 1933 (A.R.H.).

**Plusia chrysitis** Linn. ; Meyr., p. 181, No. 2; Dale, p. 22.

'Widely distributed' (Dale). I think its range is coincident with that of its food-plant, *Urtica dioica*, but the insect without being scarce rarely rises to abundant (W.P.C.).

Badbury Rings (W.P.C.); Bloxworth, not uncommon (O.P.-C.) (A.W.P.-C.); Break Hill Wood, Canford (W.P.C.); Charmouth (W.D.L.); Cranborne, abundant (F.H.F.); Gussage St. Michael (J.H.W.); Hamworthy (W.P.C.); Poole, on one occasion commonly, otherwise rather scarce (W.P.C.); Punfield

Cove (E.R.B.); Purbeck, fairly common (T.P.), generally distributed (E.R.B.) (L.P. 25); Studland, at light (E.R.B.); Spettisbury (S. C. S. B.); Swanage, not very common (A. G. B. R.) (W.P.C.); Weymouth, one (A.W.P.-C.); Winfrith, very common (F.H.H.).

**Plusia chryson** Esp. ; Meyr., p. 181, No. 3.

*Plusia orichalcea* Dale, p. 22.

Caundle Holt (Dale *l.c.*); Charmouth, by B. Morris (Dale *l.c.*); Glanville's Wootton, July 13th, 1872 (C.W.D.); Hyde, near Bere Regis, one in July, 1889 (J. Dunne Cooke, *teste* F.O.P.-C., in coll. A.W.P.-C.); Puddleton, one at light, Aug. 1st, 1907 (A. Morgan).

**Plusia festucae** Linn. ; Meyr., p. 182, No. 7; Dale, p. 22.

'Rare' (Dale). I agree (W.P.C.).

Bovington, water meadows and osier beds (F.H.H.); Charmouth (Dale *l.c.*); East Orchard (Dale *l.c.*); Iford (F.H.H.); Sherborne (Dale *l.c.*); Swanage, two at *Buddleia variabilis* in a town garden (J. Baiss); Warmwell, one (F.O.P.-C.); Weymouth, one in 1861 (F. Carre).

**Plusia iota** Linn. ; Meyr., p. 183, No. 8; Dale, p. 22.

'Generally distributed' (Dale). This is not so; it is practically non-existent on the sandy soil of the Bagshot area; records are much needed to elucidate its distribution (W.P.C.).

Cranborne, several (F.H.F.); Drake North, scarce (W.P.C.); Gussage St. Michael (J.H.W.); Kimmeridge (E.R.B.) (L.P. 25); [Poole; E.N.B. alleged it was common round Poole, between 1893 and 1932 I have never taken a single specimen and I have often looked for it]; Purbeck, fairly common (T.P.); Studland (E.R.B.) (L.P. 25); Swanage, at light, not commonly (A.G.B.R.); Winfrith, common (F.H.H.).

**Plusia pulchrina** Haw. ; Meyr., p. 183, No. 9.

*Plusia v. aureum* Dale, p. 22.

'Rare' (Dale). This is much too strong a word; it seems to be scarcer than *iota* Linn. but not sufficiently rare to be doubtfully resident. Like *iota* it seems to need some attention before its distribution can be gauged (W.P.C.).

Bridport, occasionally (W. W. Male); Drake North (W.P.C.); Glanville's Wootton (Dale *l.c.*); Poorton (W.P.C.); Sherborne (Dale *l.c.*); Studland (E.R.B.) (L.P. 25).

**Plusia gamma** Linn. ; Meyr., p. 183, No. 10.

A list of localities would serve no purpose; it is generally agreed that when the insect is abundant it finds its way into every possible class of habitat.

The general view which I accept is that it is an abundant resident in the county apart from immigration.

An influx of the species from abroad sometimes renders it so enormously abundant as to make the species a perfect pest to the collector and a serious factor in the flower garden, as the larva is polyphagous (W.P.C.).

W.D.L. noted it as extraordinarily abundant in May and June, 1931, at Charmouth.

**Plusia ni** Hübn. ; Meyr., p. 184, No. 12 ; Dale, p. 22.

Portland, one in the garden of Portland Castle by Major Partridge in Sept., 1888 (1888, *Ent. Mon. Mag.*, **25**: 160), two bred, Sept. 6th and Sept. 10th, 1894, by Mrs. Richardson from larvae found in July, 1894. The food-plant is not recorded in 1894, *Entomologist*, **27**: 349, but Mrs. Richardson told me the larvae were on *Populus nigra* (W.P.C.). Swanage, one on the undercliff flying after sunset, Aug. 10th, 1885 (E.B.N.); identified by Messrs. Waterhouse and A. G. Butler (1888, *Ent. Mon. Mag.*, **25**: 184).

**Abrostola tripartita** Hufn. ; Meyr., p. 185, No. 1.

*Habrostola urticae* Dale, p. 21.

'Rare' (Dale). This is erroneous (W.P.C.).

Bloxworth, common, 1895 (O.P.-C.) (A.W.P.-C.); Corfe Castle (Dale *l.c.*); Cranborne, common (F.H.F.); Glanville's Wootton (Dale *l.c.*); Gussage St. Michael (J.H.W.); Kimmeridge, two (T.P.); Portland (Dale *l.c.*); Punfield Cove (E.R.B.); Purbeck, widely distributed, not common (E.R.B.) (L.P. 25); Sherborne (Dale *l.c.*); Studland (E.R.B.); Swanage, one only (A.G.B.R.); Winfrith, common (F.H.H.).

**Abrostola triplasia** Linn. ; Meyr., p. 185, No. 2.

*Habrostola triplasia* Dale, p. 22.

'Rare' (Dale). I am fairly confident that the insect could always be obtained in suitable localities (W.P.C.).

Bloxworth (Dale *l.c.* A.W.P.-C. says this may be right); Buzbury Camp (W.P.C.); Corfe Castle (E.R.B.); Cranborne, abundant (F.H.F.); Glanville's Wootton (C.W.D.); Kimmeridge, one (T.P.); Poole (E.N.B.); Punfield Cove (E.R.B.); Purbeck, widely distributed, not common (E.R.B.) (L.P. 25); Sherborne (Dale *l.c.*); Studland, sparingly (C.R.D.) (P.H.Tz.); Swanage, fairly common (A.G.B.R.); Winfrith (F.H.H.).

**Diloba caeruleocephala** Linn. ; Meyr., p. 186; Dale, p. 22.

'Widely distributed' (Dale). 'Widely distributed and locally common' (Banks). Neither coincides with my experience. I have been peculiarly unsuccessful in obtaining the insect (W.P.C.).

Cranborne, common (F.H.F.); Hazelbury Plucknett Park (W.P.C.); Poole (W.P.C.); Winfrith (F.H.H.).

#### SUBFAMILY 4. MOMIDES.

**Colocasia coryli** Linn. ; Meyr., p. 187; Dale, p. 9.

'Rare' (Dale). 'Local and not particularly common' (Banks) (W.P.C.).

Badbury Rings, fairly frequent (W.P.C.); Bere Wood, fairly frequently at light (W.P.C.); [Bloxworth, Dale *l.c.* No record by O.P.-C.]; Buzbury Camp (W.P.C.); Cranborne, two (F.H.F.); Glanville's Wootton (Dale *l.c.*); Merley Wood (Dale spells it Marley); Plumbley Wood (Dale *l.c.*); Wimborne (Dale *l.c.*).

*(To be continued.)*

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