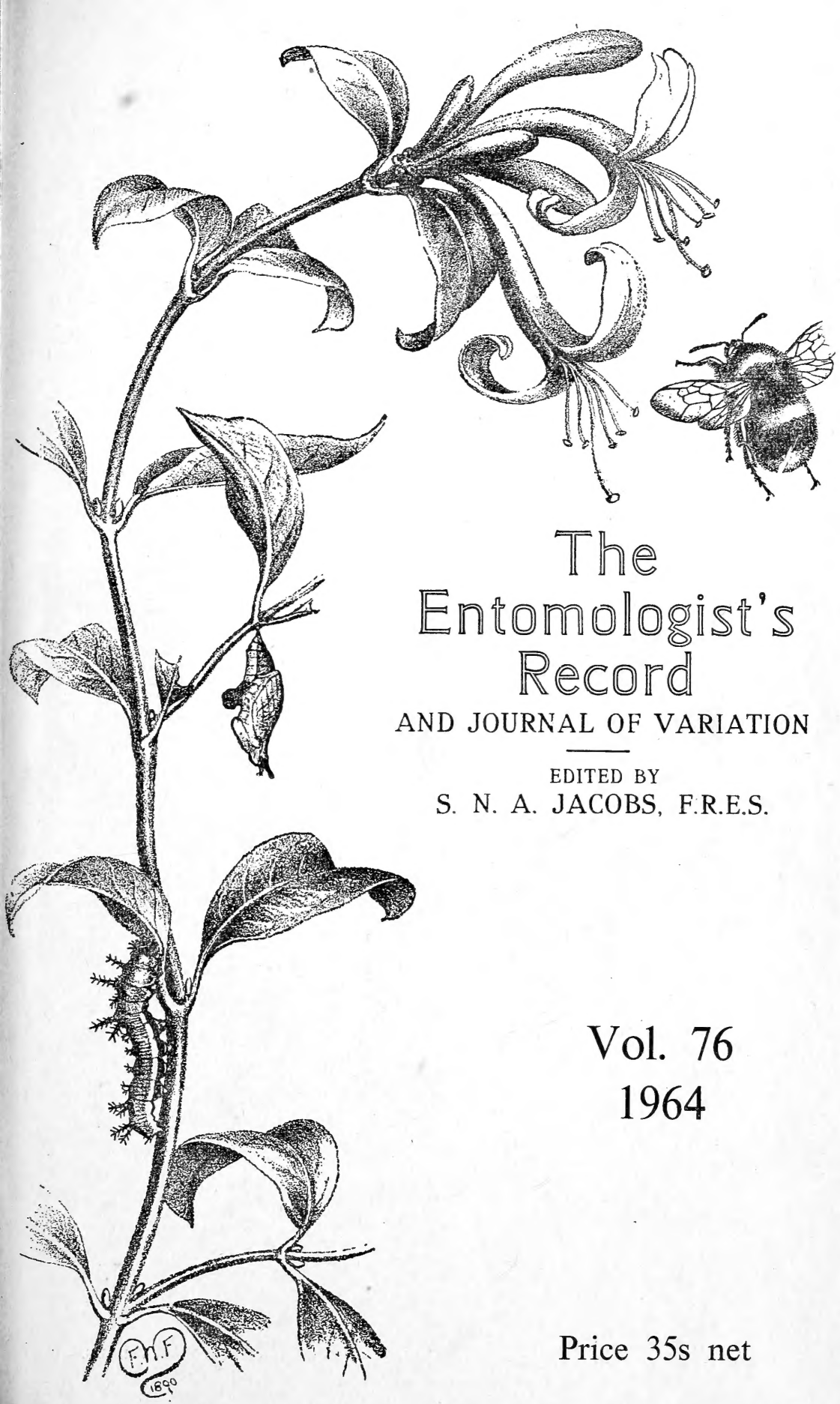
ENT
2658

HARVARD UNIVERSITY

Library of the
Museum of
Comparative Zoology



The Entomologist's Record

AND JOURNAL OF VARIATION

EDITED BY

S. N. A. JACOBS, F.R.E.S.

Vol. 76

1964

Price 35s net

Printed in Great Britain by T. Buncle & Co. Ltd., Arbroath, Angus.

GENERAL INDEX

OBITUARY NOTICES

AUTHORS

The Entomologist's Record and Journal of Variation

SPECIAL INDEX

VOL. 76, 1964

COLEOPTERA

HEMIPTERA

HYMENOPTERA

ORTHOPTERA

TRICHOPTERA

VOL. 76 No. 1 JANUARY 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

THE WORLD IN THE PAST

WHAT IT WAS LIKE AND WHAT IT CONTAINED

B. WEBSTER SMITH, F.G.S.

Here is given a popular account, in simple non-technical language, of the wonders recorded in Nature's Great Stone Book of the Earth. Every cliff, field, quarry or river has a tale to tell. We wander amongst the Coral Islands, Mountains and Volcano Craters. We read of the Birth of the Earth and the Dawn of life; the Succession of Ages, each characterised by its own peculiar form of life. Every student of Nature will be thrilled by this most interesting story of the world when it was young.

73 plates in full colour
193 half-tone photographs
21s. net.

THE STANDARD NATURAL HISTORY

FROM AMOEBA TO MAN

Edited by W. P. PYCRAFT, F.L.S.

The wondrous story of evolution unfolded in this great book will be of unceasing interest to the general reader. Here will be found a comprehensive and lucid account of the development of species from the Invertebrates to the Vertebrates, from the Protozoa to the Primates. At the same time, pains have been taken to ensure a sufficiency of scientific detail to make this work an invaluable source of reference to the student. The names of the contributors should inspire confidence, for they are men of world-wide reputation in their several subjects. The work is not dependent upon, but is assisted by, its illustrations.

Over 900 text illustrations
12 colour plates
35s. net.

From all Booksellers

FREDERICK WARNE & CO. LTD.
1-4 Bedford Court, Strand, London, W.C.2

The *Silvicola* Burgeff Group of the genus *Zygaena* Fabricius (Lep., Zygaenidae)

By W. Gerald Tremewan

Department of Entomology, British Museum (Natural History)
and Hugo Reiss, Stuttgart

The recent separation by Alberti (1958: 314) of *Zygaena romeo* Duponchel and *osterodensis* Reiss (=*scabiosae auctorum*) has made a study of the genitalia of the various subspecies necessary. In the following paper, the subspecies are now grouped under two species according to their genital characters and the remaining species of the group have also been studied. The terminology of the genitalia follows that of Alberti (*loc. cit.*).

In addition to difficulties in separating the species, a considerable amount of confusion has existed in the nomenclature. The name *osterodensis* Reiss is here considered to be the name of the species formerly known as *scabiosae* Scheven while the latter is placed as a subspecies of *purpuralis* Brünnich. This was first suggested by Reiss (1933: 252) who considered that the specimens figured by Schäffer (1766: pl. 16, figs. 4, 5), and named *scabiosae* by Scheven (1777: 97), were true *purpuralis*. The latter species is still found in the neighbourhood of Regensburg but the species *osterodensis* (=*scabiosae auctorum*) does not occur there and, even if it were found there in the time of Schäffer, it must have been so rare that it could not have predominated. Therefore, it is reasonable to assume that, if both species occurred at Regensburg, Schäffer took the commoner species (*purpuralis*) for his illustrations. On the basis of this argument, Reiss (*loc. cit.*) considered *romeo* Duponchel to be the species name. However, as stated above, *romeo* has recently been separated by Alberti (*loc. cit.*) as a species distinct from *scabiosae auct.* and, the next available name for the latter is *osterodensis* Reiss. This has already been suggested by Bernardi & Viette (1960: 245). The name *minos* Denis & Schiffermüller, which was considered by Dujardin (1952: 246) to be the species name of *osterodensis*, should, in our opinion, be used to represent the subspecies of *purpuralis* which occurs in the Vienna district of Austria. This opinion is also held by Bernardi & Viette (*loc. cit.*).

The examination of a *Zygaena* specimen, which was accepted as the type of *dalmatina* Boisduval, led to a further change in the name of the species (Tremewan, 1961b: 283). The name *romeo* was then returned to subspecific rank and *dalmatina* was taken as the species name. The study of the genitalia of this group has revealed that the species *romeo* probably does not occur in Dalmatia. It was originally thought that the subspecies *goriziana* Koch from Görz, Istria and *koricnensis* Reiss from Korična, Bosnia, were conspecific with *romeo*. An examination of the genitalia of the type of *koricnensis* and of genitalia drawings of two paratypes (♂, ♀) of *goriziana* showed these to be subspecies of *osterodensis* (=*scabiosae auct.*). The distribution (fig. 1) suggests that *romeo* does not occur in Dalmatia. After the publication of the *Zygaena* type catalogue (Tremewan, 1961b), Holik (1961: 51) published an article on the problem and maintained his earlier opinion (Holik, 1935: 60) that *dalmatina* is a subspecies of *punctum* Ochsenheimer, and that the specimen in the Bois-

duval collection was not the true type. In reply to Holik's paper, an article was published by Reiss & Tremewan (1962: 39) when an attempt was made to confirm the validity of the type.

In the original description of *dalmatina*, Boisduval (1834: 45) stated that the specimen was found in Dalmatia, in the nieghbourhood of Ragusa (Dubrovnik). Boisduval compared the specimen with examples of "*scabiosae*" (*romeo* Duponchel) from Italy and the Alps and stated that many of the Italian and Alpine specimens were referable to *dalmatina*. The specimen which was illustrated as the type (Tremewan, 1961b: 283, pl. 54, fig. 18) is conspecific with *romeo* Duponchel and is, in fact, probably one of the Italian or Alpine specimens mentioned by Boisduval. Holik, who has examined a photograph of the specimen, stated (*in lit.*) that it is an example of *romeo orion* Herrich-Schäffer. The additional evidence shows that it can no longer be regarded as the genuine type of *dalmatina*. Neither the species *romeo* nor *osterodensis* are known to occur at Ragusa while *punctum* is found abundantly in this locality (Holik, *in lit.*). It is therefore logical to follow Holik's opinion that the true *dalmatina* is the subspecies of *punctum* occurring in the Ragusa district of Dalmatia.

The distribution (fig. 1) of *romeo* and *osterodensis* overlaps in Istria, the west Alps through southern France to the East Pyrenees. It is possible that, in these localities, hybridization occurs as many specimens from these areas have what appear to be intermediate characters in the genitalia. Such intermediate characters have been noted in *romeo parvorion* Holik, *romeo freyeri* Lederer, *romeo orionides* Burgeff, *romeo lozerica* Holik, *romeo urania* Marten and *osterodensis eupyrenaea* Burgeff.

Acknowledgment is due to Dr. P. Viette, Muséum national d'Histoire naturelle, Paris, for the loan of material from the Le Charles collection. We also thank Mr. M. Koch, Dresden, for supplying drawings of the genitalia of male and female paratypes of *osterodensis goriziana* Koch in his collection. Also to Mr. G. Pardo Gonzalez for the loan of a paratype of *nevadensis picos* Agenjo, and to Lt.-Col. W. B. L. Manley for making the loan possible.

Z. gallica Oberthür

♂ genitalia. Horns of uncus short, broad and flat, variable. In the aedeagus, the lamina dorsalis is triangular in shape, shorter and broader than that in *nevadensis* Rambur, laterally edged with strong spines. Near the base a transverse row of strong and fairly well developed spines, rather variable in length but usually longer than those in *nevadensis*. Central part of lamina dorsalis spiculate, anterior to basal spines, scobinate. Lamina ventralis rather narrow but broader at the base, comprised of a field of short, strong spines, latter stronger and larger at the base and towards the centre. A portion of the vesica spiculate, cornuti hardly evident. Vesical pad or "Blase" present.

♀ genitalia. "Schildchen" very broad, triangular in shape. A slight development of the lamella postvaginalis, lamella antevaginalis ovoid, elongate. Ductus bursae weakly sclerotized on one side, anteriorly. Bursa copulatrix spherical, signum vestigial or absent.

First pair of tibial spurs present or absent.

Superficially, *gallica* may be distinguished from *giesekingiana* Reiss by the narrower forewings and rather denser scaling. The middle forewing streak is rarely broken in *gallica* and, when this does occur, is found only in aberrant specimens.

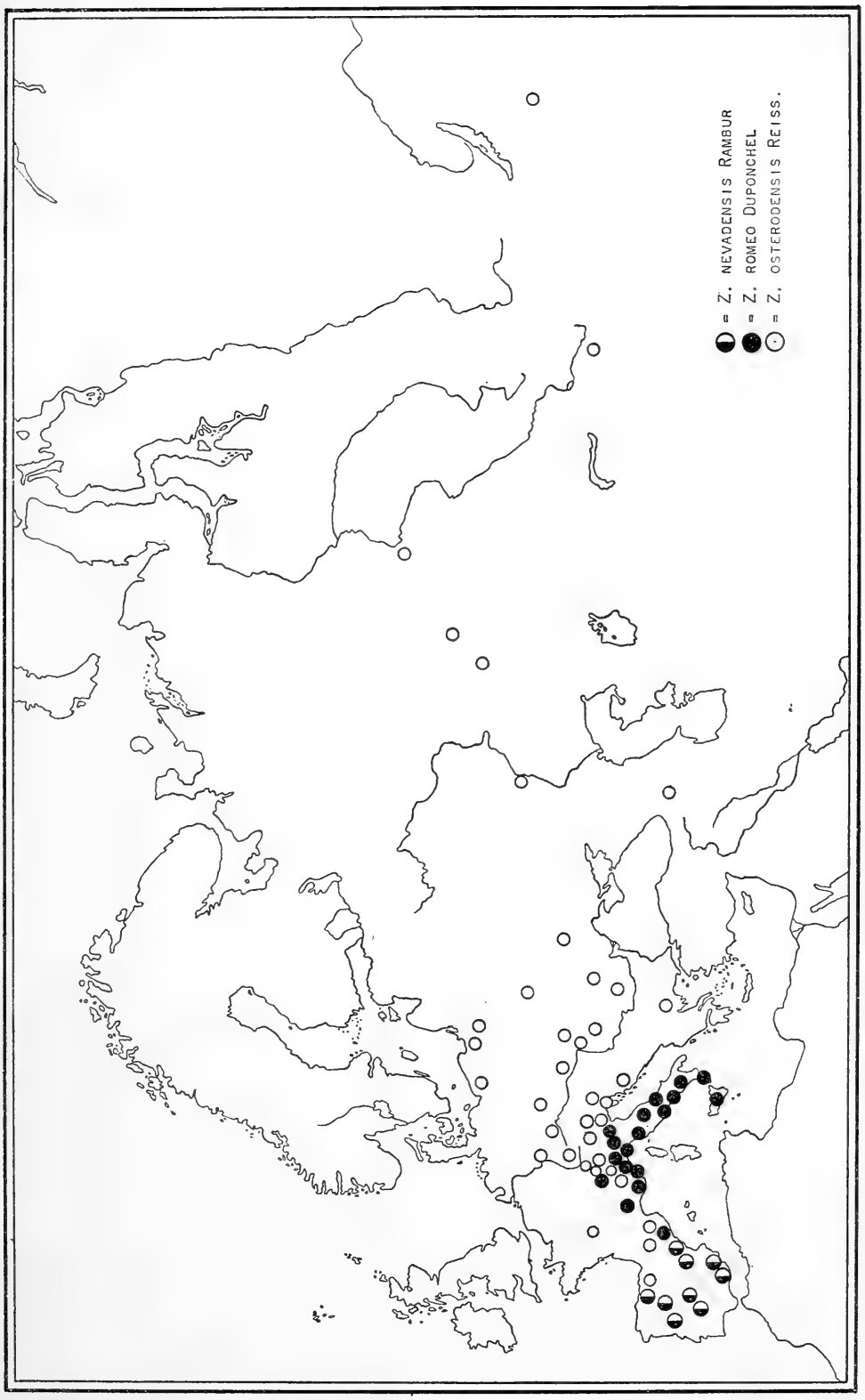


Fig. 1.—Distribution of *Zygaena nevradensis* Rambur, **Z. *romeo*** Duponchel, and Z. *osterodensis* Reiss.

Z. gallica gallica Oberthür

Z. gallica Oberthür, 1898, *Bull. Soc. ent. Fr.*, p. 21.

Type locality: Neighbourhood of Digne, Basses-Alpes, France, 1000 m.
Material examined: Lectotype ♂, 25 ♂♂, 3♀♀, Digne, Basses-Alpes.

♂ genitalia. As above. The differences in the genitalia of *gallica* and *giesekingiana* are slight and possibly do not justify their separation into two distinct species. The two lateral spines at the base of the lamina dorsalis are more strongly developed in *giesekingiana*.

♀ genitalia. Ductus bursae weakly sclerotized compared with that in *giesekingiana*, signum vestigial or absent in *gallica*, vestigial in *giesekingiana*.

The genitalia of *gallica* are figured by Le Charles (1935:15) and Alberti (1958: 314). The latter author has placed *gallica* as a subspecies of *nevadensis* Rambur but we see no justification for this. The genital differences, although small, remain constant. The lamina dorsalis of *gallica* is longer, while the lateral spines are longer and more strongly developed. In the females, the lamella antevaginalis in *gallica* is broader than that in *nevadensis* and the ductus bursae is broader and more heavily sclerotized. In *nevadensis* the signum is well developed but is vestigial or absent in *gallica*.

Reiss (1953: 141, pl. 9, figs. 10, 11) illustrates the nominate subspecies in colour.

Z. gallica frigidagallica Dujardin

Z. gallica frigidagallica Dujardin, 1956, *Bull. mens. Soc. linn. Lyon*, **25**: 254.

Type locality: Céuze, environs de Gap, Hautes-Alpes, France, 1500 m.
Material examined: 1♂, Céuze (coll. H. Reiss).

♂ genitalia. As in *gallica gallica*.

Z. gallica ssp.

A series of 60 ♂ and 4 ♀ from Mt. Ventoux, Perrache, Vaucluse, represents a new subspecies. The specimens differ from those of the nominate subspecies in having less rounded forewings. The red coloration is brighter and the hindwing border is narrower.

♂♀ genitalia. As in *gallica gallica*.

Z. giesekingiana Reiss

♂ genitalia. Horns of uncus short, broad and flat, variable. In the aedeagus, the lamina dorsalis is broad, triangular, laterally edged with strong spines, a larger and stronger spine on each side at the base, between these two large spines a transverse row of spines decreasing in length towards the middle. Central part of lamina dorsalis spiculate. Anterior to basal spines the lamina dorsalis is scobinate. Lamina ventralis broad at the base, narrowing anteriorly, comprised of a field of short, strong spines, latter thicker and shorter at base and towards the middle. Part of vesica spiculate, cornuti hardly evident, vesical pad or "Blase" present.

♀ genitalia. "Schildchen" very broad, triangular in shape. Lamella postvaginalis moderately developed, lamella antevaginalis curved but narrower than that in *gallica*. Ductus bursae moderately sclerotized on one side, bursa copulatrix spherical, signum vestigial.

First pair of tibial spurs present or absent.

Z. giesekingiana Reiss

Z. giesekingiana Reiss, 1930, in Seitz, Die Gross-schmetterlinge der Erde, Supplement, **2**: 9, pl. 1h.

Z. gallica f. *interrupta* Boursin, 1923, *Bull. Soc. ent. Fr.*, p. 68, fig. 1 (infraspecific).

Type locality: St. Barnabé (Vence to Coursegoules), Alpes-Maritimes, France, 1000 m.

Material examined: 11 ♂♂, 2 ♀♀, St. Barnabé; Grasse, Alpes-Maritimes.

♂♀ genitalia. As above, see also under *gallica gallica*.

The genitalia are figured by Le Charles (1953: 13) and Alberti (1958: 314). This species was originally described as a form of *gallica* by Boursin. It was later raised to specific rank by Reiss who renamed it *giesekingiana*. The name *interrupta* Boursin is infraspecific and, having no status in nomenclature, is not available. The name *giesekingiana* is therefore valid. Verity (1953: 51) incorrectly gave priority to the name *interrupta* Boursin. Le Charles (1953: 14) was of the same opinion and, in addition, considered *giesekingiana* and *gallica* to be conspecific. Alberti (*loc. cit.*) considered *giesekingiana* to be conspecific with *nevadensis* but we see no justification for this conclusion. The genital differences between *nevadensis* and *giesekingiana* remain constant. It is, however, difficult to decide whether *giesekingiana* and *gallica* are specifically distinct as the genital differences are small. It is interesting to note that they fall into two groups: (1) *gallica*, which has a wider distribution than *giesekingiana* and which at present can be separated into three geographical races or subspecies as follows: (a) *gallica gallica* from Digne, Basses-Alpes; (b) *gallica frigidagallica* from Céuze, Hautes-Alpes; (c) *gallica* ssp. from Mt. Ventoux, Vaucluse; (2) *giesekingiana* which is known from four localities, all closely situated in the Alpes-Maritimes, and which cannot be separated into various subspecies. The localities are St. Barnabé (type locality), Grasse, Coursegoules and Thorenc. The larvae of *giesekingiana* feed on *Lathyrus filiformis* Gay which is also the foodplant of *gallica* (Reiss, 1953: 135).

Reiss (1953: 141, pl. 9, figs. 1-8) illustrates *giesekingiana* in colour.

Z. nevadensis Rambur

♂ genitalia. Horns of uncus short, broad and flat, rather variable. In the aedeagus, the lamina dorsalis is rather long, triangular in shape, laterally edged with strong spines, a longer and more strongly developed spine on each side at the base. Between these two basal spines a transverse row of spines which vary in length and which become shorter towards the centre. Central part of lamina dorsalis spiculate, basal part anterior to large spines, scobinate. Lamina ventralis narrow, comprised of a field of short, strong spines which become smaller posteriorly. Part of the vesica spiculate, a single group of cornuti composed of a field of minute spines. Vesical pad or "Blase" present.

♀ genitalia. "Schildchen" broadly triangular but variable in shape. Lamella postvaginalis moderately developed, unsclerotized, lamella antevaginalis rather broad, elongate. Ductus bursae moderately sclerotized, especially on one side. Bursa copulatrix spherical, signum present, fairly strong, comprised of approximately 18-34 spines.

First pair of tibial spurs present or absent.

Z. nevadensis nevadensis Rambur

Z. nevadensis Rambur, 1866, Catalogue systématique des Lépidoptères de l'Andalousie, p. 166, pl. 1, fig. 10.

Z. nevadensis atlantica Le Charles, 1957, *Rev. franç. Lépid.*, **16**: 21, pl. 5, figs. 37, 38 (*nomen nudum*).

Type locality: central parts of the Sierra Nevada, south Spain.

Material examined: A series of both sexes from the Sierra Nevada and the Sierra de Alfacar, Granada.

♂ genitalia. Spines at base of the lamina dorsalis variable in length, usually short and reduced. A single group of minute cornuti, vesical pad or "Blase" present.

♀ genitalia. Lamella postvaginalis moderately developed, lamella antevaginalis broadly elongate, ductus bursae moderately sclerotized, signum present.

Le Charles (1957: 21) applied the name *atlantica* to two specimens of *nevadensis* which are purported to have been taken at Ifrane and Douala in Morocco. As no description accompanied the publication of the name *atlantica* Le Charles, it can only be treated as a *nomen nudum* and, for convenience, is placed here under the nominate subspecies of *nevadensis*. In the text, Le Charles stated that the specimens were referable to the species *romeo* Duponchel but in the legend to plate 5 refers them to *nevadensis*! The figures 37 and 38 on plate 5 undoubtedly represent two examples of *nevadensis*. It would be of interest to verify whether *nevadensis* does actually occur in Morocco.

Z. nevadensis dumalis Marten

Z. nevadensis dumalis Marten, 1957, *Ent. Z.*, **67**: 14.

Type locality: Sierra de los Filabres, upper half of Baza, south Spain, 1400 m.

We have been unable to examine material of this subspecies.

Z. nevadensis kricheldorffi Reiss

Z. nevadensis kricheldorffi Reiss, 1933, in Seitz, Die Gross-schmetterlinge der Erde, Supplement, 2: 252; 1931, *Int. ent. Z.*, **25**: 114, figs.

Type locality: Neighbourhood of Guarda, Portugal, 800 m.

The genitalia of this subspecies have not been examined.

Z. nevadensis guadalupei Koch

Z. nevadensis guadalupei Koch, 1948, *Eos, Madr.*, **24**: 326.

Type locality: Guadalupe, Prov. Caceres, Spain, 654 m.

We have been unable to examine material of this subspecies.

Z. nevadensis schmidti Reiss

Z. scabiosae schmidti Reiss, 1931, *Int. ent. Z.*, **25**: 112, figs.

Type locality: Neighbourhood of Arenas St. Pedro, Prov. Avila (Sierra de Gredos), Spain.

Material examined: 1♂, paratype, Arenas St. Pedro; 18 ♂♂, 9 ♀♀, San Ildefonso, Segovia and La Granja, Spain.

♂ genitalia. Lateral spines of lamina dorsalis rather shorter and thicker than those in ssp. *nevadensis*. Vesical pad or "Blase" present.

♀ genitalia. A slight development of the lamella postvaginalis, lamella antevaginalis elongate, ductus bursae moderately sclerotized, signum present.

Originally described as a subspecies of *scabiosae auct.* but later transferred by Reiss (1933: 252) to *nevadensis* which was then separated as a distinct species. The paratype examined is figured by Tremewan (1961b: 308, pl. 57, fig. 25).

Z. nevadensis muda Marten

Z. nevadensis muda Marten, 1957, *Ent. Z.*, **67**: 15.

Type locality: Upper half of the Tera valley, between Laguna de Yengua and Laguna de Villachica, east of Mt. Moncalvo, Prov. Zamorra, Spain, 1300 m.

We have been unable to examine material of this subspecies.

Z. nevadensis falleriana Reiss

Z. scabiosae falleriana Reiss, 1931, *Int. ent. Z.*, **25**: 111, figs.

Type locality: Albarracin, Sierra Noguera and Sierra Alta, Aragon, Spain, 1400-1700 m.

Material examined: 17 ♂♂, 11 ♀♀, Orihuela, Aragon, 1700 m.

♂ genitalia. Spines at the base of lamina dorsalis rather short but becoming longer laterally. A single group of cornuti, vesical pad or "Blase" present.

♀ genitalia. Lamella postvaginalis moderately developed, lamella antevaginalis elongate, ductus bursae moderately sclerotized, signum present.

This subspecies was originally described under *scabiosae auct.* but was subsequently transferred to *nevadensis* by Reiss (1933: 252).

Z. nevadensis picos Agenjo

A. scabiosae picos Agenjo, 1953, *Graellsia*, **11**: 1.

Type locality: Fuente Dé, Camaleño, Santander (Picos de Europa), Spain, 1001 m.

Material examined: 1 ♂, paratype, Fuenté Dé, Camaleño (G. Pardo coll.); 3 ♂♂, 10 ♀♀, Riano, Leon (W. B. L. Manley coll.).

This was originally described as a subspecies of *scabiosae* auct. but an examination of a paratype ♂ has shown it to be a subspecies of *nevadensis*. Agenjo, in the original description, also referred to specimens recorded by Reiss (1931: 113) and Koch (1948: 322) but these specimens are *osterodensis* (*scabiosae auct.*) and are referable to ssp. *cantabrica* Marten.

In addition to the paratype, a short series of *nevadensis* (3 ♂♂, 10 ♀♀) from Riano, Leon has been examined. These specimens were previously placed as ssp. *picos* which was then transferred to *nevadensis* (Tremewan, 1961a: 6; 1963: 8).

Z. nevadensis timida Marten

Z. nevadensis timida Marten, 1956, *Ent. Z.*, **66**: 287.

Z. agenjoi Le Charles, 1957, *Rev. franç. Lépid.*, **16**: 21, pl. 6, figs. 39, 40 (**syn. nov.**).

Type locality: Neighbourhood of Vallibona, mountains between Castellon and Tortosa, east Spain, 900 m.

Material examined: 1 ♂, Tortosa (*Z. agenjoi* Le Charles, lectotype ♂ [Paris Museum coll.]).

♂ genitalia. As in *nevadensis nevadensis.*

We have been unable to examine the type material of *timida* Marten which was described as a subspecies of *nevadensis.* An examination of the lectotype ♂ of *Z. agenjoi* Le Charles, which was described as a species, shows it to be conspecific with *nevadensis.* The lectotype of *agenjoi* originated from Tortosa (leg. Marten) and was probably captured in the same locality as the type specimens of ssp. *timida,* under which the name is now placed as a synonym.

The lectotype ♂ of *agenjoi* was selected by Le Charles (1960: 103).

Z. nevadensis ssp.

A short series of *nevadensis* (6 ♂♂) from Sta. Fe, Sre. Montseny, Catalonia, probably represent a new subspecies. The most noticeable character in these specimens is the wide hindwing border. One specimen is strongly aberrant and has the forewing spots confluent and suffused with red scaling.

♂ genitalia. Spines at the base of the lamina dorsalis short but well developed, vesical pad or "Blase" present.

Z. mana Kirby

♂ genitalia. Horns of the uncus short, flat, variable. In the aedeagus, the lamina dorsalis is elongate and triangular in shape, laterally edged with short, strong spines. Near the base, a transverse row of strong spines, variable in length, often decreasing in size towards the centre. Central portion of lamina dorsalis spiculate, anterior to basal spines, scobinate. Lamina ventralis narrow, comprised of a field of strong, short spines, latter decreasing in size posteriorly. Portion of vesica spiculate, cornuti hardly evident. "Blase" absent.

♀ genitalia. "Schildchen" very broad, variable, triangular in shape. Lamella postvaginalis developed, weakly sclerotized, bursa copulatrix spherical, signum absent.

In superficial characters *mana* may be separated from *osterodensis* (=*scabiosae auct.*) by its smaller size, broader forewings with rounded apex and generally broader hindwing border. Forewing streaks rather thicker than those in *osterodensis.* Antennae of *mana* shorter and rather more heavily clubbed than the antennae of *osterodensis.*

First pair of tibial spurs absent.

Z. mana mana Kirby

Z. mana Kirby, 1892, A synonymic Catalogue of Lepidoptera Heterocera (Moths), p. 64 (nomen novum for *erebus* Staudinger).

Z. erebus Staudinger, 1867, *Stettin. ent. Ztg.,* **28**: 101 (preoccupied).

Z. erebaea Burgeff, 1926, *Mitt. münch. ent. Ges.,* **16**: 15.

Type locality: Adshara region, Georgia, Transcaucasia.

Material examined: 5 ♂♂, 2 ♀♀, Achalzych, Adshara region.

♂♀ genitalia. As above.

A considerable amount of confusion has existed in the synonymy of this species which was originally described as *erebus* by Staudinger. The name *erebus* Staudinger, 1867, is a secondary homonym of *erebus* Meigen, 1830, which is a synonym of *anthyllidis* Boisduval, 1829. Kirby (1892: 64) proposed the name *mana* to replace *erebus* Staudinger. In 1926, Burgeff proposed the name *erebaea,* apparently not aware of the name *mana*

Kirby. The name *erebaea* Burgeff is therefore a synonym of *mana* Kirby. This synonymy was correctly published by Verity (1953: 50) and has been accepted by Holik & Sheljuzhko (1955: 112) and Alberti (1958: 315).

The species has been confused with *adsharica* Reiss with which, superficially, it is very similar. However, the two species may be readily separated on genital characters. *Z. adsharica*, which flies in the same region as *mana mana*, is not closely allied and belongs to the *brizae* Esper group of species (*Cirsiphaga* Holik). In superficial characters, *adsharica* may be separated from *mana* by the lower forewing streak which is broader and occupies the whole of the area between veins 1b, 1c, and the median vein. In *mana*, the lower forewing streak is narrow and constricted in the middle and does not extend in breadth to vein 1b. The first pair of tibial spurs are present in *adsharica* but are absent in *mana*.

Z. mana chaos Burgeff

Z. chaos Burgeff, 1926, *Mitt. munch. ent. Ges.*, **16**: 15.

Z. erebus ab. *interrupta* Burgeff, 1914, *Mitt. münch. ent. Ges.*, **5**: 45, pl. 5, fig. 18 (infrasubspecific).

Type locality: Bethania near Tiflis, Georgia, Transcaucasia.

Material examined: 1 ♂, paratype, Bethania, Tiflis.

♂ genitalia. As in *mana mana*.

Verity (1953: 51) placed the names *interrupta* Burgeff and *chaos* Burgeff as synonyms of *mana*. This is incorrect as *chaos* is a distinct subspecies. The name *interrupta* is infrasubspecific and, although published earlier than *chaos*, is not available. Burgeff originally described *chaos* as a distinct species but Holik & Sheljuzhko (1955: 116) have correctly placed it as a subspecies of *mana*. The paratype examined is figured by Tremewan (1961b: 308, pl. 57, fig. 25).

Z. mana tarkiensis Holik & Sheljuzhko

Z. mana tarkiensis Holik & Sheljuzhko, 1955, *Mitt. münch. ent. Ges.*, **44/45**: 115.

Type locality: Berg Tarki near Petrovsk (Machatsh-Kala), Dagestan, Ciscaucasus.

Material examined: 2 ♂♂, 1 ♀, Kurush, Dagestan.

♂♀ genitalia. As in *mana mana*.

Holik & Sheljuzhko (1955: 116) placed the population of *mana* from Kurush under ssp. *tarkiensis*.

Z. rjabovi Holik

♂ genitalia. Horns of uncus short, flat and variable in shape. Lamina dorsalis triangular in shape, laterally edged with strong spines, a transverse row of strong spines, variable in length, near the base, central area spiculate, anterior to basal spines, scobinate. Lamina ventralis narrow, comprised of a field of short, strong spines, larger and more strongly developed at the base. A portion of the vesica spiculate, cornuti comprised of a field of minute spines. "Blase" absent.

First pair of tibial spurs present.

Z. rjabovi Holik

Z. mana rjabovi Holik, 1939, *Ent. Rdsch.*, **56**: 115.

Type locality: Daratshitshag, Armenia, 2000 m.

Material examined: 2 ♂♂, Daratshitshag (coll. H. Reiss), prep. Nos. 24154A, 24154B, F. Dujardin.

♂ genitalia. As above.

Holik originally described *rjabovi* as a subspecies of *mana* Kirby. Koch (1939: 403; 1940: 199) placed *rjabovi* as a distinct species. Holik (1940/41: 213) referred to Koch's opinions but still maintained that *rjabovi* should be considered a subspecies of *mana*. Reiss (1953: 141, pl. 9, figs. 15-18) placed *rjabovi* as a separate species and illustrated four specimens in colour. Holik & Sheljuzhko (1955: 117) placed *rjabovi* as a distinct species following the opinions of Koch (*loc. cit.*). Alberti (1958: 316) placed *rjabovi* as a subspecies of *mana*.

Z. rjabovi is closely related to *mana* and is very similar in genitalia but may be separated by the longer and more elongate lamina dorsalis. The spines at the base are shorter although this may be a variable character. The uncus horns of *mana* are rather larger and broader than those of *rjabovi*.

Superficially, it may be distinguished from *mana* by the broken, middle streak in the forewings.

Z. teberdica Reiss

♂ genitalia. Horns of uncus short, flat. In the aedeagus, the lamina dorsalis is triangular in shape, laterally edged with short, strong spines. Near the base a transverse row of strong spines, moderate in length. Central area of lamina dorsalis spiculate, anterior to basal spines, scobinate. Lamina ventralis narrow, comprised of a field of strong, short spines, latter decreasing in size posteriorly. Cornuti of vesica hardly evident, "Blase" present, well developed.

First pair of tibial spurs absent.

Z. teberdica Reiss

Z. erebaea teberdica Reiss, 1939, *Ent. Z.*, **53**: 113.

Type locality: Teberda region, north Caucasus.

Material examined: Holotype ♂, Teberda region (coll. H. Reiss), prep. no. 29154, F. Dujardin.

♂ genitalia. As above.

Z. teberdica was originally described as a subspecies of *erebaea* Burgeff (=*mana* Kirby) by Reiss who subsequently raised it to specific status (Reiss, 1953: 141, pl. 9, fig. 14). The type is figured in colour by Reiss (*loc. cit.*). Holik & Sheljuzhko (1955: 114) placed *teberdica* as a subspecies of *mana* Kirby. Alberti (1958: 315) placed the name *teberdica* as a synonym of *mana*. However, in our opinion, *teberdica* should be considered as a distinct species and may be separated from *mana* by the shape of the lamina dorsalis which, in the latter species, is more elongate than that in the former. The lateral and basal spines are longer in *mana*. The absence of the "Blase" in *mana* may, if constant, be a further character for separating the two species.

Superficially, *teberdica* differs from *mana* in its smaller size, rather broader hindwing border and the middle streak of the forewing. In *teberdica*, the middle streak is constricted but in *mana* is usually of equal width throughout.

(To be continued.)

From Gavarnie to Digne, August 1963

By C. G. M. de Worms, M.A., Ph.D., F.R.E.S.

Much was written in the early part of this century about these two classic localities situated in the Hautes Pyrenées and Basses Alpes respectively, but, though they have been visited regularly by collectors, little seems to have appeared in our literature about them in recent years.

I have therefore thought it of interest to give an account of my sojourn in both these famous resorts at a rather later period of the season than most people have been to them for their rich lepidopterous fauna. Mr R. F. Bretherton and I were much encouraged by an article written by the late Brig.-Gen. B. H. Cooke (1925, *Entomologist*, **58**: 87) describing a whole summer in 1924, which he spent from May to August, based on Argelès. In it he gave a complete list of the butterflies he noted in the main part of the Central Pyrenees as well as those on its northern fringe together with their respective localities, though he did not describe their terrain and the countryside in detail. We, therefore, decided to join forces at Gavarnie early in August. I set out by the orthodox route on the 1st August by train to Paris and then took the very fast Pyrenées Express which landed me at Pierrefitte-Nestolas, just south of Lourdes, at 8.30 a.m. next morning. But a very wet welcome awaited me, in fact it was the heaviest rain of the summer in that region. A bus took me the 20 miles steadily ascending to Garvarnie at 4500 ft. where my haven was the well-known Hotel des Voyageurs run by the Viergez-Bellou family since well into the last century.

In spite of the deluge I managed to sally forth during this first afternoon to see if there were many changes in these surroundings since my two previous brief visits to them in 1949 and as far back as 1928. I found the village of Gavarnie had been greatly enlarged with many new hotels and shops, but what was more interesting was a metalled road which had been recently constructed up the Gave d'Ossoue towards the Pic du Vignemale where a rough path had only existed before. This made accessible one of the best collecting grounds, since it proved to be one of the few that had not been grazed flat by cattle and sheep. But it was not till the morning of the 3rd that I was able to sample it to advantage. Fortunately the sun broke through after 24 hours of continuous rain with much flooding. I made my way slowly for 2 miles up the winding road from the Hotel and was soon able to appreciate the wealth of butterflies still on the wing.

It was on the ungrazed slopes just after crossing the torrent that I came across the biggest concentration, for here *Parnassius apollo pyrenaica* H.-B. and *Papilio machaon* L. were sailing about in numbers, though many were past their best, while no less plentiful were *Aporia crataegi* L. and *Colias croceus* Fourc. *Gonepteryx rhamni* L. and *Aglais urticae* L. were both numerous, also *Argynnis aglaia* L. and *Lysandra coridon* Poda in the form *minutepunctata* Vty. with very pale underside. There were a few *Melitaea didyma* Esp. and *M. dictynna* Esp. still on the wing, the former with very dark females. The Satyrids were mainly represented by the very small and bright form of *Hipparchia alcyone* W.V. But of the two Erebias seen in this rich locality one flitting round tufts of long waving grass turned out to be *E. manto* Esp. in the spotless form *constans* Eiffel, while a smaller species in the more rocky parts proved to be *E. gorgone* Bdv., which is confined to the Pyrenees. Coppers in-

cluded *Lycaena virgaureae pyrenemontana* Vty. and *L. alciphron veronius* Frhst. I only saw one *Maculinea arion* Rott. and two of the local small form of *Polyommatus escheri* Hbn., while the inevitable *Melanargia galatea* L. was in abundance everywhere. That fine afternoon I spent in a walk towards the famous Cirque with its towering sheer rock faces over which several waterfalls descend from the huge glaciers of Mont Perdu and other large peaks. But most of the meadows had been cut in this region. There were still a few worn *Erebia meolans gavarnica* Obth. (=*stygne* Ochs.) and I saw another *M. arion* Rott. In the evening Mr. and Mrs. Bretherton and their younger son arrived by car, having spent nearly a week travelling across France. We made a late walk up the lower part of the Gave d'Ossoue, and among many of the butterflies already mentioned, we added the Skipper *Pyrgus accreta* Verity.

A glorious morning, still and sunny, greeted us on the 4th when we all set out at an early hour on foot for the Cirque in order to reach it before the hordes of tourists who invaded it daily by foot or on the backs of horses or mules. The three miles along the main river took us just over an hour and it was not till we began to ascend during the final mile that we started to see a number of insects on the wing. The first was a small *Erebia* of the complex *tyndarus* group which that eminent authority, Mr B. S. C. Warren has designated as *E. neleus murina* Reverdin. Another butterfly of especial interest was *Boloria pales* L. of the form *pyrenemiscens* Verity which from its anatomical characters some authors regard as a separate species. It was flitting about in numbers low over the herbage at the entrance to the Cirque and more plentifully on a higher slope which was covered with a fine growth of the tall blue Pyrenean Iris, a grand sight. A further attractive insect to welcome us early in the day were several *Pontia callidice* Esp., mainly females, careering over the steep slopes. There were still a few *Colias phicomene pyrenaica* H.-S. to join them. The screes high above the pinewood at the western end of the Cirque were alive with Erebias, particularly *E. epiphron* Knoch, as well as *E. neleus murina* Rev., but the most interesting insect in this region was *E. gorgone* Bdv. of which the males varied greatly in size and spotting, but we only took a single female on this occasion. This sex has a most striking chequered underside to the hindwings. This species seemed only to affect the rough grass on the edge of the screes. I noticed a larger *Erebia* settled on a small rock bordering the scree slope. It turned out to be a male *E. lefebvrei* Scop. with a ring of large spots all lanceolate. This species, too, which is a denizen like the previous one of the Pyrenees, was most fascinating and extremely variable not only in ground colour, but in markings. Russell Bretherton who ventured near the big cascade on the floor of the Cirque after crossing a large snowfield took several of this insect, including some fine females. Most were velvety black referable to f. *rowlandi* Warren, while others had large red patches both on the upper- and undersides of the forewings. The spotting, too, was most variable with specimens having only a few on all the wings compared with others with a complete ring of large spots. But this form of *E. lefebvrei* Scop. is much more heavily marked than its subspecies *astur* from the Eastern Pyrenees and Northern Spain.

James Bretherton who had ascended the heights above the cliff wall brought back among other captures a single *Erebia lappona* Esp. f. *sthennyo* Graslin. The Blues were mainly represented by a very bright form of *Plebeius idas alsophila* Verity, also by *P. argus pyrenaica* Tutt,

Cupido minimus Fuessl., *Cyaniris semiargus* Rott. and the Coppers *Lycaena dorilis* and *L. hippothoë* L. The Skippers noted included *Pyrgus serratulae* Ramb., *P. accreta* Verity, *Spialia sao* Hübn., and *Adopaea lineola* Ochs. The only Burnets seen were *Zygaena filipendulae* L. and a single *Z. hippocrepidis* Hbn. The nettles in the whole region seemed to have been devoured by legions of larvae of *Aglais urticae* L. of all sizes. We estimated we had seen at least 30 species of butterflies in the ideal conditions prevailing during the day.

The next day, the 5th, we motored down the valley to Gèdre, then up the adjoining Vallée d'Héas ascending some five miles to the end of the road, but it became somewhat overcast when we surveyed the local slopes. As we were returning by a steep path, we came across a bank of long grass alive with *Erebia manto* Esp. which rose in dozens as we walked through it, but many were already past their best. We retraced some of our route down the main valley and then walked up the side Vallée d'Estaubé where a large reservoir has recently been built with a very high barrage, which we crossed and then skirted the western side of the lake where there was plenty to keep us busy. *Lysandra coridon* Poda was in abundance as also was *L. bellargus* Rott. A number of *Issoria lathonia* L. were flitting along the narrow path which was also patronised by several *Spilothyrus lavaterae* Esp. of a very small form. *Hesperia comma* L. was well to the fore and we also took *Argynnis niobe* L., but probably the most interesting capture was an example of the small Burnet, *Zygaena contaminei* Bdv., a very local species confined to the Pyrenees and Northern Spain.

The next morning we further explored up the Gave d'Ossoue motoring up the very narrow and steep road to the upper pastures which had been very heavily grazed and it was only when we found an unimpaired slope did we see much on the wing, mainly *Melitaea didyma* Esp., *M. parthenie* Borkh. and some much fresher *E. manto* Esp. as well as the first *Turanana baton* Bgstr. A heavy thunderstorm cut short our collecting for the rest of that day and a dull morning broke on the 7th when we set out once more by car down the valley past Luz and then up to Cauterets which I had last visited in 1949. But it was still very wet and misty when we drove up the tortuous road to the Pont d'Espagne at some 1500 ft. above the town where a huge car park now exists and also a téléférique to take the hundreds of tourists up to the famous Lac de Gaube at just over 5000 ft. But we elected to ascend to this beauty spot by foot up the steep path through the pinewoods, taking nearly an hour, but fortunately when we did reach the lake, the clouds parted, though not enough to see the great Pic du Vignemale towering above it. However, for a short time butterflies began to appear, especially *Parnassius apollo* L., *Issoria lathonia* L., *Adopaea lineola* Ochs. and *Erebia neleus murina* Rev. We motored back to Gavarnie late that evening and next day at an early hour Russell Bretherton and I set out on foot towards the Cirque, then up a winding path to the west till we came out on an open plateau, very bare of herbage due to grazing. A most surprising capture in this barren area were two examples of *Thecla spini* W.V. with a large orange patch on the forewing similar to the Spanish form. *Pontia callidice* Esp. was also flying at this altitude, but we soon came on some rough hillsides where Erebias were in plenty, mainly *E. gorgone* Bdv. with a few *E. manto* Esp. We then ascended to the Port d'Espagne at some 7000 ft. where there is only a large stone to mark the Spanish frontier. At this point, on a

stretch of very steep scree, *E. lefebvrei* Scop. was flying in plenty, though as usual very difficult to net and with many somewhat worn. We returned in dull weather by a long and winding route over much grazed ground till we almost reached the Gave d'Ossoue near which by a torrent we came on a rough patch where numbers of butterflies were resting, mainly *Plebeius argus* L. with a good many *E. manto* Esp., while clumps of figwort were smothered with larvae of a *Cucullia* which may prove to be *C. scrophulariae* Cap., but a disappointment was the absence of *Polyommatus pyrenaica* Bdv. which had been reported from that region. It was probably already over.

The morning of 10th August we once more set out down the valley to Luz, then up the big motor road through Barèges, to the very steep ascent to the summit of the Col de Tourmalet at 7250 ft., well above the clouds, but only a few *Erebia epiphron* Knoch. and *E. meolans* Schweiz. were flying at this level. However in the afternoon we walked up the toll road leading to the Observatory on top of the Pic du Midi at 9000 ft. The south-facing slopes were bathed in sunshine with the screes abounding with *Erebia lefebvrei* Scop. which were flitting up near the edge of the road, but most of them kept tantalisingly out of reach of the net, though a few which ventured across the road were captured. They were accompanied by a good many of the black geometer *Gnophos septaria* Guen. Russell Bretherton who ascended to the Observatory came across a small colony of the very local Burnet *Zygaena anthyllidis* Bdv. which only occurs just beneath the summits of the highest Pyrenean peaks. But when we returned to the Col the clouds had descended making the drive down very slow and quite hazardous.

Unfortunately the Brethertons had to start back to England early on the 10th which proved to be the finest day of our stay. I once more set out on foot for the Cirque where butterflies were even more plentiful than on our previous visit a week earlier. *Boloria pales* L. was skimming everywhere over the slopes, while the scree harboured many more Erebias, particularly *E. gorgone* Bdv. including several females. When I surveyed the rough ground below the high waterfall *E. lefebvrei* Scop. was in numbers and mostly in much better condition than those seen in other parts, in fact there seemed a fresh emergence of this insect which I found quite easy to catch on a patch of ground covered with a brightly-coloured anemone to which they were attracted. Among them I was surprised to take a solitary female *E. evias* Godt. *E. neleus* Warren was also extremely plentiful. It was altogether an ideal day for collecting and seeing the full scale of insects on the wing. I spent my last day, the 11th, up the Gave d'Ossoue where most of the species I had previously observed were flying in increased numbers, especially *Hipparchia alcyone* W.V. An unexpected visitor to this area was *Limenitis rivularis*, not usually seen at these altitudes. This insect brought the total to just 60 species of butterflies noted in this Gavarnie region and its vicinity in the ten days of our visit.

I set out from Gavarnie at an early hour by bus on the 12th for Lourdes where I caught a through express via Toulouse and Narbonne to Marseilles and thence, after a short wait, I travelled north again to St Auban and on to Digne which I reached about 10 p.m. after a journey of some 450 miles. My headquarters was the spacious Hotel Mistre in the main street of this very pleasant and comparatively large town situated on the

River Bléonne. Mr. Stoughton Harris, who had spent a profitable week's collecting there in June 1963, had told me of some of the best localities for lepidoptera, as also had Col. H. Bridges who was there in 1962. I was soon to appreciate the wealth of this region when I set out on foot the next morning in brilliant sunshine to some wooded slopes on the outskirts of the town just to the north. The feature of these famous surroundings in this late part of the season is the abundance of the large Satyrids which were my chief quest. In a flowery clearing I met them in force. The scabious heads were well patronised by both sexes of *Hipparchia actaea* Fab., the males a superb glossy black. They were accompanied by a few *H. cordula* Fab. which could be readily distinguished by their more rounded forewings, while huge females of *H. circe* Fab. were to be flushed almost at every step in the long grass. *H. arethusa* W.V. was just starting to appear as also was *H. statilinus* Hbn., though only the males. This favoured spot seemed to attract all the butterflies of the region. *Lysandra coridon* Poda was swarming together with a good proportion of *L. bellargus* Rott. The hedges were alive with *Maniola tithonus* L. and *Melanargia galatea* L. and among others of the 27 kinds of butterflies I saw that first morning were several *Gonepteryx cleopatra* L., many *Colias australis* Verity, *C. croceus* Fourc., and *Papilio podalirius* L., also *P. machaon* L., *Argynnis cydippe* L., *M. cinxia* L., *M. didyma* Esp. and a single female *Pieris manni* Meyer. As is often usual in such mountainous parts, a thunderstorm in the afternoon precluded further collecting for the day, but when I revisited this rich spot the following morning besides the species already mentioned I was able to add *Melitaea phoebe* Knoch, *Polyommatus escheri* Hbn., *Argynnis aglaia* L., *Hesperia comma* L. and a large speckled Skipper which turned out to be *Pyrgus foulquieri* Oberthür.

On 15th August I set out on foot up one of the valleys towards the south-east of Digne to cover the 3½ miles to the Thermal Hotel situated under a rocky cliff in a small gorge. The whole river is lined with thick scrub, mainly sallows, poplars and sea buckthorn, but it soon clouded over so that very little was seen on the wing en route. However, it cleared sufficiently near the hotel for me to see quite a number of species flying in a small meadow by the river. These included *Argynnis daphne* W.V., *A. dia* L., *A. paphia* L. and *Agrodiaetus damon* W.V., all somewhat past their best, as well as *Limenitis rivularis* near the hotel, while a very dark form of *Melanargia galatea* L. was in abundance. On the outskirts of Digne on the way home I came across some long grass smothered with Blues at rest, the most interesting of which was *Plebeius idas* with large females flushed with blue of the form *calliopis* which feeds exclusively on the *rhamnoides* and may well be a separate species. *Hipparchia dryas* Scop. was flying on this ground with several males still in good order. The next morning I once more paid my usual visits to the wooded slopes where *Hipparchia arethusa* W.V. and *H. statilinus* Fab. were much more numerous. In the afternoon I got a lift up the five miles of winding road to the foot of the long and steep escarpment of the Dourbes at 4500 ft. Here a grassy plateau was alive with butterflies, mainly *Lysandra coridon* Poda swarming together with numbers of *Colias australis* Verity. I walked the three miles downhill collecting all the way. Round some bushes I saw some large Satyrids flying which turned out to be *Hipparchia hermione* L. and a single *H. fidia* L. In another stretch

where the ground is very much eroded into bare channels, there were a few *Maniola lycaon* Rott. and *Coenonympha dorus* Esp. Lower down I took several *Leptidea* which turned out to be both *L. sinapis* L. and *L. duponcheli* Staud. which are not readily distinguishable in their summer broods except by their respective antennae, since *L. duponcheli* lacks the white fleck on the underside so prominent in *L. sinapis* L. August 17th proved a thoroughly wet day which made any collecting impossible, but on the 18th the sun was out again in all its strength. I paid another afternoon to the Dourbes by taxi, going somewhat higher than before. In a lavender field in full bloom butterflies were again in plenty, in particular *Papilio podalirius* L. and *P. machaon* L. While waiting for the taxi to pick me up at the lower level after walking down again, I happened to spot two full-fed larvae of *P. podalirius* L. on a small plum tree. But there was no sign of *Erebia neoridas* Bdv. reported from this region. My last morning at Digne on 19th August was very fine and warm and I put it once more to good use in the usual clearing on the outskirts when the big Satyrids were at their height in this spot. I saw no less than nine species all flying together. In addition to those already mentioned from this locality, I saw *Hipparchia dryas* Scop., *H. hermione* L., *H. fidia* L. and *H. briseis* L., also *Issoria lathonia* L. and *Thecla spini* W.V. Burnets, too, were common in this area. They have been identified by Mr. W. Tremewan of the British Museum (Natural History) as mainly *Zygaena fausta apocrypha* Le Charles and *Z. occitanica arida* Dujardin. *Callimorpha hera* L. was abundant on flowers, while *Eilema caniola* Hbn. was very numerous at rest on buildings. I had noted a total of 55 species of butterflies during my week at Digne.

I left that afternoon by train over the very picturesque mountain route via Veynes to Grenoble and on to Paris and London the next day, thus ending a very pleasant and profitable three weeks in these two delightful regions of France.

Three Oaks, Woking. 24.xi.63.

Notes on the Microlepidoptera

by H. C. Huggins, F.R.E.S.

Heterographis oblitella Zell. On September 18th, 1963, my son took his wife and myself to Tollesbury on the Blackwater estuary. When we had walked along the sea wall for over a mile we noticed a large number of Crambids in the grass. The great majority of these proved to be late, worn specimens of *Crambus tristellus* Fabr., but amongst these I saw a different smaller insect, which on capture proved to be a slightly worn male of the light form of *H. oblitella*. On our return I flushed another of what appeared to be the same species, but unfortunately it flew out over the mud to a clump of *Aster tripolium*, and as I was wearing light shoes, I could not follow it.

I have not as yet heard of any other captures this year and Mr. A. J. Dewick, whose trap is only half-a-dozen miles away from Tollesbury as the crow flies, has seen none.

It is curious how this moth always turns up within a few miles of the sea. So far as I can recollect, the only inland records are those of Captain Marsh in the Canterbury district, and that of Mr. Fairclough in mid-Surrey.

Crambus margaritellus Hübn. With reference to Mr. Kennard's note on this moth (antea: 260) I suspect it would be found to be more widely distributed in Devon if looked for. I spotted a single specimen in Tuke's collection, taken at light, and my wife and I then worked the two or three boggy meadows on his estate until we found it; it was quite common in a wet meadow, which meadow also contained Tuke's private colony of *Euphydryas aurinia* Rott., of which no one was allowed to take more than four.

Margaritellus was easily disturbed in the sunlight, and some of the females were very tiny and whitish. All my Honiton specimens are smaller and duller than those I have from Cannock Chase, which are decidedly redder, and two specimens, not of my own taking, labelled "Perth" are still larger and redder.

The reference to Devon in Beirne is due to me, not a mere repetition of Meyrick; as it says in the preface, I read the book in typescript and made additions, and Dr. Beirne also called on me and saw my collection before going to Canada.

Anthophila pariana Clerck Early in October I saw two specimens of this pretty and variable little moth on the window here, attracted by the light.

I had not seen it locally for some years, though as an apple feeder, it is more likely to appear in gardens and small orchards to-day than elsewhere. When I lived near Sittingbourne I used to find it in great numbers by scratching the thatch of a barn near the bottom of my garden. I was then living in a cottage surrounded by orchards, which explains the abundance of *pariana*, which used to retire to the thatch directly the nights turned cold.

I doubt whether it could be so easily obtained to-day, I could easily see fifty in half-an-hour then, as barns to-day are usually roofed with corrugated iron or asbestos. I am also afraid that modern intensive washing will have greatly reduced its numbers.

The larva, which feeds on apple leaves, is not very easy to find, but L. T. Ford, W. G Sheldon and myself all bred it in small numbers.

I wonder whether *Laspeyresia prunivorana* Rag., of which I took two specimens in 1922, just before leaving the house, is still there, or *Tortrix diversana* Hübn. which was abundant in an old orchard near? I expect that modern "improvements" have put paid to both.

CUCULLIA ABSINTHII L. MOVES NORTH.—Another example of the rapid way this species is extending its range comes from Yorkshire. A couple of years ago larvae were taken at Leeds and shown at the Y.N.U. meeting. This autumn I took a number of larvae from the foodplant near Broughbridge. The foodplant flourishes on the ground laid bare by the construction of new roads, in this case the recently opened Broughbridge bypass on the A1 road.

The chamomile daisy growing on the same ground has proved a good pasture for the closely related *Cucullia chamomillae* Schiff.

It will be interesting to see how long it will take *C. absinthii* to reach Tees-Side, where its foodplant is very abundant and towards which disused railway lines may well provide a route along which to spread.—C. I. RUTHERFORD, 24 Oakdale, Harrogate, Yorks. 8.xii.1963.

Dingle 1963

By H. C. Huggins, F.R.E.S.

As I have already mentioned (antea 219) I decided to join forces with Mr. E. S. A. Baynes at Dingle in 1963 to go further into the distribution of *Platyptilia calodactyla* Hübn. of which my wife had taken the first authenticated Irish specimen in 1962. I also wished to try for some more of the coastal species, whose erratic coloration as regards melanism has occupied my mind for some time, so I proposed a month's stay. Incidentally, I like the place for a holiday also, and my wife loved it.

When we arrived on June 26th, the general topic of conversation was a basking shark which had become entangled in a trawler's nets and was lying on the shore by the pier. It was said to have done over £100 worth of damage to the nets and was 27 feet long and stated to weigh two tons. Whether this was the case or not I cannot say, but it was, at any rate, like Mr. Jingle's mythical luggage, "Heavy, damned heavy". Several attempts were made to sell it for fish meal, for which purpose the large skates, often weighing over 150 pounds are sold, but it proved too unwieldy for the lorry that came to collect it. After five days, it began to "hum" a little, and to avoid causing a nuisance, the fishermen had to tow it out of the harbour to sea. I do not know whether its remains washed up anywhere else, it may possibly have arrived in a mutilated condition like the celebrated Oronsay monster to add to the sea serpent legend.

The winter had been very hard at Dingle as elsewhere, and the harbour had been frozen over for the first time in human memory. The fuchsias, excepting in very sheltered places, had been cut to within a few feet of the ground, but on the other hand *Silene maritima,* which of late years has been quite rare, and usually unapproachable, had very greatly increased in the whole Slea Head area.

The local birds had altered their status in several cases. Shortly after our arrival, my old friend Sylvester Nolan introduced us to Mr. Frank King, the well-known Irish ornithologist, who has recently opened a practice at Dingle. Mr. King accompanied me on the one day the weather was fit for a trip to Inishvickilaun, and I was able to check what I saw of the birds by his much greater knowledge.

The first thing I noticed was that the stonechat, usually common, had entirely disappeared; whilst Mr. Baynes was with us we covered most of the peninsula, and did not see one. It is to be hoped that it still survives in a few sheltered places and will re-colonise, as the Kerry stonechat is said to be of the Hebridean subspecies. The chough on the contrary, was more numerous than ever. On the last day of my stay, my son took me in a car for a last run round, and near Sybil Head we saw a flock of over forty. To make certain, we stalked them behind some rocks and got within fifteen yards, and he filmed the last four or five as they rose.

The puffins were also much commoner. In 1961 they were very common on Inishvickilaun; in 1962 there was not more than one tenth of their previous number, but in 1963 they were more numerous than ever. There appeared, so far as I could tell, to be more storm petrels there also. When I was rattling the rocks for *Euphyia bilineata* ssp. *isolata* Kane I heard far more protesting in their nesting holes than ever before. The noise is usually described as purring, but to my mind it is more like a cat with asthma, of which I knew a good example on Tresco.

One last thing I should mention before reaching the lepidoptera (get forrard Ego, get forrard!) and that is that certain northern birds remained behind. There was an immature glaucous gull in the harbour which Mr. King tells me is still there, and he pointed out a bridled guillemot on our Blasket trip. He also told me he had seen a dark fulmar, which is again, an arctic race.

As mentioned, the weather was only once safe to make the trip to Inishvickilaun, but on that day it was good. As usual, I took two nets, and got a friend to use one. We saw in all, eight *bilineata* ssp. *isolata*, unfortunately all males, and succeeded in obtaining five. Of these, Mr. King caught one, and when he surrendered the spare net as he was digging out a storm petrel's burrow to check its identity (incidentally, it contained a bird, an egg and a rabbit!) Mr. Bernard Goggin, a young local botanist, took it up and succeeded in getting another. This moth is disappointing; when first caught it has a fine jetty sheen, but after a year this disappears as I have seen in my 1962 specimens, and I fear they will soon be brown-black like Kane's Tearaght ones.

I also took a number of larvae of *Eupithecia venosata* Fabr. ssp. *plumbea* Huggins which I originally described from Inishvickilaun specimens. I am pleased to say that the three pupae from 1962 larvae all produced *plumbea*, which is evidently the only form on the island and a good subspecies. As I do not think that any have yet been shown, I might mention that *plumbea* is nearly black, much darker compared with ssp. *fumosae* Gregson than *fumosae* is compared with the type.

Mr. Baynes and I, in 1963, at last, succeeded in getting some *venosata* larvae from the coast of the mainland. These have been isolated, and it will be interesting to see whether they too produce *plumbea* or the smoky form taken by Donovan on the Cork coast. There appears to be no consistency about these coastal insects. *Hadena caesia* Bork. and *H. lepida* ssp. *capsophila* Dup. are identical from the west Cork and Kerry cliffs and the Blaskets, whereas mainland *bilineata* vary enormously from cliff to cliff and *isolata* seems to be confined to Inishvickilaun and Tearaght, where it possibly survives; on either rock it is the sole form.

My list of captures of any general interest is as follows:—

Notodonta ziczac L. Amongst the numerous specimens that came to light were two very thinly scaled dilute specimens, new to me.

Eilema complana L. A footman larva found just above sea level on the cliffs at Slea Head was carefully reared but proved to be only a typical specimen of this species.

Cryphia muralis Först. I worked this moth more than any other and got three more each of ab. *nigra* Huggins and the similar aberration in which the ground is greenish black. I also took a most interesting light buff insect, but unfortunately it knocked itself to pieces on the way home. I have now, in all, seen about 70 Dingle *muralis* (the result of about 30 days' searching) and can confidently say that the typical form is not found there.

Agrotis trux Hübn. and *Ammagrotis lucernea* L. Both these come some distance inland; I took them at light in the hotel garden.

Mamestra brassicae L. There were several specimens of a very small form, no larger than *Euxoa tritici* L. in the trap. As I was busy with setting, I left them, until one morning Mr. Alan Wheeler, who was looking at my catch, thought they were odd, so we took one each. After

that I only saw bad specimens; the one I kept I am sure is only *brassicae* although of a more buff tint than usual, but I have kept one of the poor ones to be dissected in due course.

Hadena caesia Borkh. I have now bred this from Slea Head, the Blaskets, and Adrigole, Co. Cork, and they are all alike, the so-called black form. I have also bred a couple of this form amongst a long series bred from the Burren.

Hadena conspersa Esp. For the first time I took several of this insect, mostly bad, but a perfect one was just like one from Kent.

Petilampa minima Haw. Several in a trap set at Milltown, just outside Dingle. Donovan has no records for the south of Ireland except Cappagh, Co. Waterford.

Plusia bractea Fab. I saw over thirty on this trip; the ground colour varied from orange brown to blackish brown as in *Diarsia brunnea* Fab. and the spangle varied greatly in size.

Zanclognatha tarsipennalis Treits. Amongst numerous specimens I saw several of a yellowish clay colour in tint like *Paracolax derivalis* Hübn. These were new to me.

Perizoma blandiata Schiff. I netted one at Dunquin, so it is well distributed in Kerry.

Eupithecia pulchellata Steph. All seen were ssp. *hebridium* Sheldon, evidently the only Kerry form.

Eupithecia fraxinata Crewe. One in the trap, the same small size as the ash ones I occasionally take in my garden.

Lomaspilis marginata L. I took another like the one last year, with the black replaced by a pale rust-red.

Ellopia fasciaria L. Three in the trap. I could find no pine in the town, and Mr. King tells me the nearest is on the former Ventry estate, two miles as the crow flies, and most of the way over the water.

Eudoria resinea Haw. Several in the trap, rather large, and black and white.

Scoparia basistrigalis Knaggs. One only, the first I have seen at Dingle.

Teichobia filicivora Meyrick in Devon

By S. Wakely

On the 11th September 1963 Mr. T. R. Eagles kindly gave me a Tineid moth which had just emerged and a tin containing some fern leaves on which the larvae had fed. Among the debris at the bottom of the tin were three cocoons, one of which showed the extruded pupa-case of the moth which he had given me. Two other moths emerged on the 16th September from the remaining cocoons, and the species was recognised as *Teichobia filicivora* Meyr.

Mr. Eagles said he found the larvae near Clovelly, North Devon, and that the name of the fern was *Polystichum setiferum* (Forsk.) Woynar (soft-shield fern), quite a local species of fern but common in Devon. As this was the first record of the occurrence of this moth in Devon I thought it should be recorded.

T. filicivora was first described in 1937 by Mr. E. Meyrick as a species new to science under the name *Mnesipatris filicivora* from specimens taken near Dublin by Dr. Bryan Beirne. They were found flying round a bed of the male fern (*Dryopteris filis-mas*) in mid-May and were reported as being quite common. To quote Meyrick: "The larvae feed in June and July on sporagia and fronds of *D. filis-mas*, living under a mass of excrement held together by silk, which makes them easily discovered".

On examining lepidoptera collections in the National Museum, Dublin, more specimens were found which had remained unidentified until Meyrick's determination. Some of the data labels on these went back to 1909 (*Entom.*, **70**: 194-6).

In 1940, Mr. S. C. S. Brown discovered the species to be well established in his garden at Bournemouth, Hants. This was the first record for Britain, and they were seen in numbers flying around clumps of male fern (*Entom. Record*, **52**: 105).

In a recent letter to me Mr. Brown mentioned the fact that it has also been taken in Dorset, where Mr. Parkinson Curtis found the moth flying over ferns at Poole.

In 1960 Mr. L. Price sent me a specimen for identification which he had taken at light in his garden at Stroud, Gloucestershire. He had another which had been taken in 1955 but which had not been previously identified—also taken in his garden.

In the same year Dr. E. Scott reported finding larvae common on the male fern in gardens at Ashford, Kent (*Ent. Rec.*, **73**: 95).

The Devon imagines emerged in September but this could be due to the fact that the tin in which the larvae had pupated had been kept indoors.

I might mention that a few years ago Mr. Brown sent me a parcel containing soil collected round the ferns growing in his garden at Bournemouth. This was placed in a large flower pot and a nice series of the moth emerged a few weeks later during May.

It will be gathered from the foregoing that *T. filicivora* is now known to occur in Hampshire, Dorset, Gloucestershire, Kent and Devon, as well as in Ireland. No doubt by examining the undersides of the leaves of the male fern in July it would be found to have an even wider distribution. The characteristic little round bunches of frass held together by silk are quite conspicuous and could not be missed.

The moth is quite small with a wing expanse of 10 to 11 mm., and is dark fuscous-purple in colour with small whitish tornal spot. It is unknown in any other part of the world.

26 Finsen Road, Camberwell, S.E.5.

Late Emergence of Apatele tridens Schiff.—In June of this year Mr. H. Symes kindly gave me a few pupae of the Dark Dagger. These pupae were part of a brood which was being cared for by Mr. Symes owing to the indisposition of the Rev. Carr. As a postscript to the observations made by Mr. Symes I should like to add that the last of the pupae he gave to me emerged as late as 18th October. The total emergence period, therefore, for this particular brood, extended over a period of 37 weeks.—M. J. Leech, The Cottage, Hallgates, Cropston, Leicestershire. 28.xi.1963.

Cucullia absinthii L., etc., in a London Garden

S. WAKELY

For some years now I have grown a few plants of *Artemisia absinthium* in my garden at Camberwell, and an occasional specimen of *Cucullia absinthii* L. has turned up in the moth trap. My earliest records of this species date back to 1953, when I found a larva of *absinthii* in the garden and bred the moth in July, 1954. At this time odd *absinthii* were being reported from time to time at various districts in London. A few years later, larvae were found feeding on *A. vulgaris* at West Norwood, a mile or two from Camberwell.

This year (1963) I had some extra large plants of *absinthium* flourishing in my small garden, and on 12th August I found half-a-dozen *absinthii* larvae feeding on the flowers. This was after dark when the larvae come up to feed. Almost every evening after that date I searched the plants and took all the larvae seen, as several friends had said they would like to rear this local species. It was surprising to find as many as 10 or 12 one night—all that were visible with the aid of a torch—and yet the next night there would be about the same number taken.

Towards the end of the month I was taking only 1 or 2 a night—sometimes none at all. Some of the earlier larvae had spun up by this time, but by the beginning of September smaller larvae began to appear with the larger ones. They all fed up rapidly and the last date on which a larva was found was 28th September, by which time there were very few flowers left, only the dry seedheads. My total bag up to then was 120—an amazingly large number for such a small garden in London.

Some of the larvae sent to friends lived only a few days and apparently did not take to *A. vulgaris* which was offered to them. I found myself that the larvae fed in a peculiar manner. They were kept in transparent plastic boxes—6½ in. by 4½ in. by 2 in. The foodplant was placed on Kleenex tissue paper, and as many as a dozen or more larvae were often in one box, which was thoroughly cleaned out each day and fresh tissue used. The larvae ignored the leaves, the flowers only being eaten, chiefly at night. Judging by the way the flowers were shredded to pieces nightly leaving a mass of powdered fragments, it appeared to me that only special portions of the flowers were eaten, probably the juicy base of the petals. Giving the larvae fresh food daily, they fed up at a terrific rate and even the smallest ones were full-fed in about a fortnight. They spun up in a cocoon made of silk mixed with a quantity of the powdered material from their feeding habit. If placed in another container with earth or peat they spun a similar cocoon mixed with the material available.

I think that fresh food given daily is the secret of being successful when trying to rear this species, and in my opinion freshly picked food given daily would help in rearing many other species reputed to be difficult. Of course, this is not always practicable, but it is a point to be kept in mind. I also find that tissue paper in the container is as important as having the right food. It probably takes the place of dry grass, etc., on which the larvae often rest in the wild when not feeding. Of course this tissue absorbs a certain amount of moisture and should be changed when required—often daily. Juicy foodplants require more frequent tissue-changing than dryer ones.

When searching the *absinthium* after dark, a number of other species of lepidoptera were seen, all actually feeding on this strong-smelling plant. Among those recognised were: *Melanchra persicariae* L. (which seemed to me to be particularly common on many plants this autumn), *Scotogramma trifolii* Hufn., *Caradrina clavipalpis* Scop., *Euplexia lucipara* L., *Plusia gamma* L., *Eurrhypara hortulata* L. and *Cacoecimorpha pronubana* Hb.

There is a small bush of Dutch honeysuckle in the garden and in the previous year, larvae of *Ypsolophus xylostellus* L. were common in spun leaves. This year (1963) the spinnings looked different and contained the larvae of *Epithectis mouffetella* Schiff., and I was pleased to breed a small series of the moth from these in mid-June.

Owing to the fact that I use my light trap only at week-ends and then only when the weather looks favourable, few species were taken at light. However, as usual, there were several surprise visitors. On 2nd August a finely marked light grey and nearly black tortrix appeared which puzzled me. Fortunately, the next night a typical *Zeiraphera diniana* Guen. turned up, and I realised that the previous one was a fine variety of the same species, not previously seen by me in the garden.

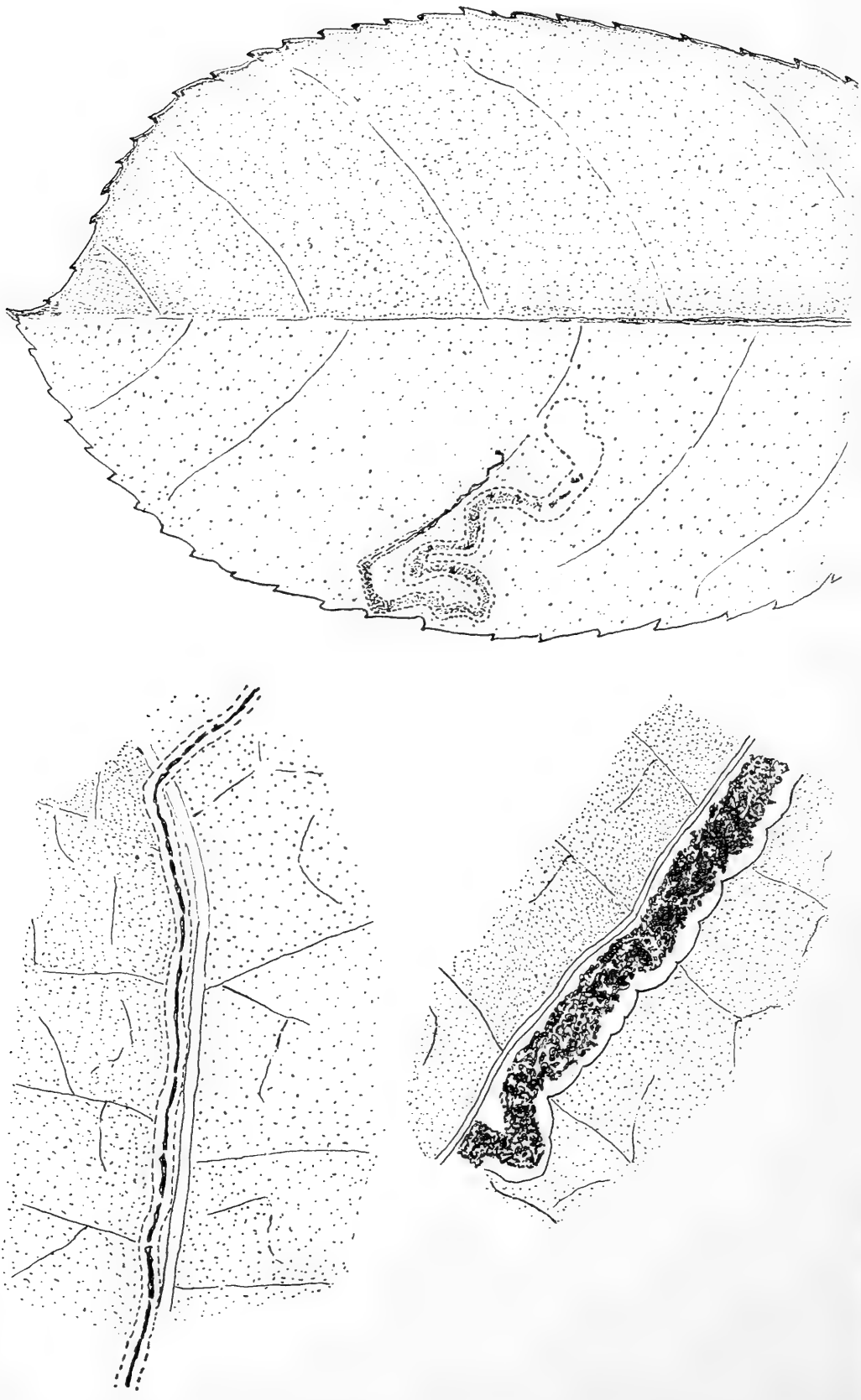
Other species of note, considering the district, were *Drepana binaria* Hufn., *Phalonia rubigana* Treits., *Blastobasis lignea* Wals. and *Borkhausenia unitella* Hübn.

26 Finsen Road, Camberwell, S.E.5.

Stigmella aëneella (Hein.)—A Species New to Britain

By S. C. S. Brown

In September 1953 I found at Parley, Dorset, an empty Nepticulid mine on *Sorbus*. As the mine was unfamiliar to me I sent it to Prof. Hering of Berlin. He identified it as *Stigmella aëneella* (Hein. 1862) a species new to Britain. In the autumn of 1961 and again in 1962 I found similar mines, containing green larvae, commonly on apple in my garden in Bournemouth. I sent some of these mines to Mr. Carolsfeld-Krausé of Denmark, who determined them as belonging to *aëneella*. It is probable that this species has long been an inhabitant of this country, for Wood in 1893 gave the foodplant of *oxycanthella* (Stt.) as apple, pear and hawthorn. Mr. Krausé informs me that on the continent *aëneella* is only found on *Malus* and is single-brooded, the larvae being found in September and October. *Oxycanthella* on the other hand is not found on *Malus* and is double-brooded. Recently I had the opportunity of examining the collection of Nepticulid mines made by Prof. Waters which is in the Hope Department, University Museum, Oxford. Under *oxycanthella* I found several mines on *Malus* from the Oxford district which would thus be referable to *aëneella*. The ova are laid singly on the underside of a leaf, frequently on the edge. In the commencement the mine follows the edge of the leaf or runs along a vein. At this stage the frass is black and threadlike and does not fill the gallery. The mine then abruptly widens and becomes serpentine. The frass is now dark brown, abundant, and nearly fills the gallery. Finally, a small blotch is formed. I am indebted to Prof. E. M. Hering and Mr. Carolsfeld-Krausé for their assistance in the determination.



Stigmella aëneella Hein. Mine. ×2 and enlarged.

REFERENCES

Wood, John H. 1893. *Notes on the earlier stages of the Nepticulae. Ent. Mo. Mag. XXIX* 199 and sub.

Hering, Prof. E. M. 1957. *Blattminen von Europa.*
Band II *662 31 3176*
Band III *Tafel 47 408C (Figure of mine)*

Early Emergence of Poecilocampa populi L.—It is, I think, worth recording that whilst working for *Tiliacea citrago* L. on 29th September near the village of King's Cliffe, Northamptonshire, a single male specimen of *P. populi* flew into m.v. light. Early November is, in the Midlands, the normal time of emergence of this insect.—M. J. Leech, The Cottage, Hallgates, Cropston, Leicestershire. 28.xi.1963.

More New Forest M.V. Records

By L. W. Siggs

When I reported (*Ent. Rec.*, **75**: 119-122) that during 1962 I took 30 species in my m.v. trap which I had not previously taken in Minstead, I was tempted to add that I could hardly expect to have any appreciable number of new records in future years. However, in 1963 I took 22 species not previously recorded. They were:—

C. curtula L.
A. prasina Fabr. (2)
O. populeti Fabr.
C. leucostigma Hübn.
M. alpium Osbeck.
C. asteris Schiff. (2)
S. costaestrigalis Steph.
C. pendularia Clerck. (2)
M. albicillata L.
P. flavofasciata Thunb.
E. picata Hübn.
H. reticulata Vill.
E. subnotata Hübn.
E. venosata Fabr.
E. assimilata Doubl.
E. succenturiata L.
D. ribeata Clerck
E. consonaria Hübn.
G. obscurata Schiff.
S. brunnearia Vill. (3)
I. wauaria L.
P. strigillaria Hübn.

The total number of species recorded in 1963 was 357 as compared with 320 in 1962. In view of the poor weather, and particularly the lack of warm nights, this is remarkable. Moreover, 20 of the 30 new species recorded in 1962 turned up again, some in increased numbers.

The total number of specimens taken fell considerably, as the following figures show:—

	1962			1963		
	No. of nights	Total catch	Average	No. of nights	Total catch	Average
Mar.	7	159	23	15	286	19
April	27	2779	103	26	3657	141
May	26	934	36	26	760	29
June	28	4177	149	28	5420	194
July	29	12342	457	25	6850	274
Aug.	28	8516	304	29	5188	179
Sept.	8	2475	309	22	3339	152
Oct.	10	1059	106	23	1184	51
Nov.	13	537	41	17	394	23
Total	176	32978	187	211	27078	128

Such a fall in specimens coupled with an increase in species seems odd, but I find that there was a considerable drop in the numbers of some "abundant" species, as the following examples of reduction in numbers from 1962 to 1963 will show:—

	1962	1963		1962	1963
A. exclamationis L.	7244	2274	*N. pronuba* L.	4168	981
L. varia Vill.	872	577	*P. meticulosa* L.	214	48
D. rubi View.	731	331	*L. pallens* L.	384	167
O. plecta L.	822	365	*A. monoglypha* Hufn.	1374	678
A. xanthographa Fabr.	357	215	*A. secalis* L.	1424	551

I have been pleased with the results of the past two "poor" seasons, and wonder what would happen if only we had a "good" one.

I was most interested in the list of New Forest lepidoptera given by Mr. C. M. R. Pitman (*Ent. Rec.*, **75**: 187-199), especially as the only other list I have seen is that by "Mr. Baker revised by F. Bond, Esq., F.Z.S." in the 5th edition of "The New Forest" by John R. Wise, 1895.

To avoid the repetition involved in listing all the species I have recorded, I will indicate those taken by Mr. Pitman which have not yet appeared in my trap.

Mr. Pitman's list contains the following day-flying moths which I would not expect in the trap:—*H. fuciformis, H. tityus, Z. trifolii, Z. lonicerae, Z. filipendulae, P. statices, A. myrtilli, P. tenebrata, E. mi, E. glyphica, R. hastata, P. macularia.*

I was surprised to see the following chalk insects recorded as I know of no chalk or limestone in the New Forest. Could Mr. Pitman have taken them *en route* from Salisbury? *A. sublustris, E. rubidata, M. procellata, M. virgata, E. rivata, E. galiata, H. vitalbata, H. tersata.*

The others which I have not recorded are:—*C. livornica, H. bifida, P. plumigera, T. or, T. crategi, E. lanestris, N. mundana, C. senex, P. plantaginis, A. avellana, H. asella, S. apiformis, A. flaviventris, A. vespiformis, A. culiciformis, A. sphegiformis, H. hecta, H. fusconebulosa, C. augur, A. agathina, A. ditrapezium, A. stigmatica, E. orbona, H. suasa, H. lepida, C. graminis, L. straminea, M. turca, D. oo, A. affinis, Z. retusa, Z. subtusa, X. exsoleta, E. adusta, I. croceago, T. citrago, C. sponsa, U. triplasia* L., *A. luctuosa, H. rostralis, H. barbalis, H. immaculata, C. annulata, S. imitaria, S. emutaria, S. seriata, X. quadrifasciata, P. affinata, L. suffumata, L. prunata, T. dubitata, R. cervinalis, L. halterata, O. fagata, M. murinata, H. flammeolaria, H. testaceata, E. nebulata, A. sparsata, E. haworthiata, E. goosensiata, E. satyrata, E. indigata, E. dodoneata, E. lariciata, L. adustata, A. prunaria, S. notata, A. pulveraria, E. quercinaria.*

On the other hand, I have taken the following which are not included in Mr. Pitman's list and are in addition to the 16 he mentions on page 199 of his article.

**N. cucullatella* L., *L. obsoleta* Hübn., **A. pygmina* Haw., *C. ambigua* Fabr., *A. epomidion* Haw., *A. unanimis* Hübn., **P. minima* Haw., *C. leucostigma* Hübn., **R. tenebrosa* Hübn., **C. promissa* Esp., *S. costraestrigalis* Steph., *S. sylvestraria* Hübn., *S. trigeminata* Haw., *P. albulata* Schiff., *E. picata* Hübn., *E. exiguata* Hübn., *H. tripunctaria* H.-S., *G. obscurata* Schiff. Those species marked with an asterisk, though not in Mr. Pitman's list, must, I think, have been seen by him in the Forest.

In connection with his remarks on some of the 16 which he had not recorded, I would point out that I live 11 miles from the nearest point on

the coast and, according to South *A. vestigialis*, *S. promutata*, *D. fascelina* and *C. chamomillae* are not confined to the coast. I know that *D. fascelina* has been taken in recent years in other parts of the Forest and I have taken a larva on heather near Fritham. It is interesting to see that *S. promutata*, *D. fascelina* and *C. chamomillae* were included in the 1895 list.

Sungate, Football Green, Minstead, Lyndhurst, Hants.

Obituary

NIGEL TYPHERLEIGH EASTON

On Friday, 6th December 1963, Nigel Typherleigh Easton of Castle Hill, Reading, passed away peacefully, and there can be few in the world of Entomology who were not in some way aquainted with him and cannot mourn his passing.

Born in Norwich on 2nd August 1902, he was educated at Oundle College, and went on to study at Faraday House in London, where he obtained his Diploma in electrical engineering.

His love of Natural History was equalled only by his deep appreciation of music, and on leaving Faraday House he combined this interest with his qualifications and entered the relatively new field of the recording industry. But his active mind and consuming energy was of the kind that never allowed him to remain still. Ever anxious to seek new fields of interest, always more absorbed with to-morrow than to-day, he cheerfully denied himself the rewards his undoubted talents could have brought him in a settled career.

By the end of the War he had worked for many of the recording companies, but the ten years prior to 1945, when he was with the B.B.C. at Daventry and later in North Wales, were to be the happiest as well as the most settled years of his life. After the War he turned to the teaching profession, taking as his subjects, English, Geography ,French, Latin, and Games. But after many changes of School he returned to Radio in 1955 and joined the firm of Herbert and Lascelles in Reading. His marriage in January of that year was not to prove a success, and five years later it was dissolved.

But as far back as 1947, after he had moved to the damper air of Reading, the first long shadow of his last illness had reached out to him, and almost imperceptably each succeeding winter began to take its toll of him. By 1960 he was forced to find a more sedentary occupation, but his age and declining health were by now against him, and he was forced to accept only temporary positions. In 1962 he took up his last employment, with the Inland Revenue at Whiteknights in Reading, a few yards from the home of his childhood, and began the final bitter struggle to keep working until the last day of his life.

Throughout his long illness his cheerful optimism and love of living never deserted him. While seriously ill in Peppards hospital, Henley, in June 1963, he was planning his summer holiday, and achieved the impossible by driving to Portland four weeks later to fulfil his plans.

His interest in Lepidoptera, first inspired by his Preparatory School Headmaster, was but the nucleus of a much wider interest that extended to nearly every corner of the field of Natural History. His magnificent private collection contains nearly every Macro known to occur in this country, as well as an interesting sample of insects brought home from his

holidays on the Continent.

Yet he was not just a collector. Indeed, for many years he took very little, and a page or two of notes after a day out would probably have meant more to him than a dead *iole*. Nothing missed his eye, and nothing was too insignificant to merit a record in his diaries. Breeding, and in particular the study of genetics, formed his main interest, and many years were spent studying the genetic variations in *P. dominula*, and his experiments on the hybrid *napi-brione* are well known.

His enthusiasm for his subject and his tireless attention to detail were infectious, and it is almost certainly a loss to Entomology that fate ordained he should leave no family.— A. R. DAVEY.

Notes and Observations

HADENA LEPIDA ESP. SUBSPECIES CAPSOPHILA DUP. (THE PODLOVER) ON THE EAST COAST.—I took a specimen of the above subspecies at mercury vapour light at Brancaster, Norfolk, on the 27th June 1959. According to "South" this moth is confined to the west of England and to Ireland.—PERCY CUE, Ashford, Kent.

THE 1963 SEASON.—After the exceptional cold and near ten weeks of snow cover of last winter, it was hoped that 1963 would be another memorable year like 1947, but this was not to be and until late October migrants were exceptionally scarce.

So far as our native lepidoptera were concerned, it was in general an excellent season here in Chiddingfold, many species appearing in the trap in record numbers. Thus well over 100 *Biston strataria* Hufn. (oak beauty) were recorded in the garden trap in one night. Throughout the season large numbers of the commoner insects came to the trap, and many of the less common ones were seen in more than ordinary profusion.

A few species were less common than usual, notably *Amathes c-nigrum* L. (setaceous Hebrew character), the second brood of which was far from common, and *Noctua xanthographa* Schf. (square-spot rustic), which was rather uncommon.

For the first time *Cucullia absinthii* L. (wormwood) was seen in this district, though not by me. Clearly its remarkable colonisation of new areas is still continuing. *Ptycholoma aeriferana* H.-S. was more abundant than ever before, but *Lozotaenioides formosana* Fröl. was unusually scarce.

It was lovely to watch *Apatura iris* L. (purple emperor) flying in and around the garden and *Limenitis camilla* L. (white admiral) also visited us.

Plusia gamma L. (silver-y) was never common, and the total of *Nomophila noctuella* Schiff. seen during the season was about a score. The first excitement in the way of migrants came after I had given up all hope of seeing any unusual ones. After returning home on the evening of 26th October from the South London Entomological and Natural History Society exhibition, 2 ♂ and 1 ♀ *Rhodometra sacraria* L. (vestal) were found in the trap; the female failed to lay.

The season ended in a real blaze of glory. On the night of 6/7th November two *Hippotion celerio* L. (silver-striped hawk), two *Nicterosea obstipata* Fab. (gem) and one *N. noctuella*, as well as nearly a dozen *P.*

gamma were in the trap. How glad I am that I did not pack up the trap in disgust early in October.—Robin M. Mere, Mill House, Chiddingfold, Surrey. 8.xii.1963.

Acherontia atropos L., Laphygma exigua Hübn., Rhodometra sacraria L. and Other Migrants in Surrey, 1963.—My light trap at Ottershaw yielded a single very worn *L. exigua* on the night of 23rd/24th July and a good female *A. atropos* on 17th/18th September; and at Bramley I had a female *R. sacraria,* from which fertile eggs were obtained on 25th/26th October. For the commoner migrant it was a very poor year. Of *Peridroma porphyrea* Schiff. and *Hapalia martialis* Guen. there were only singles, on 28th July and 10th September; of *Nomophila noctuella* Schiff. I had only three in late July and one on 23rd October; of *Agrotis ipsilon* Rott. there were 18, the first on 28th July and the last on 24th November, with four as companions to the *R. sacraria* on 25th October. *Plusia gamma* L. was recorded twice at the end of May, and fairly regularly from 10th June to 23rd November. But it was only abundant in late September, with 66 on 21st and 81 on 23rd, and the total for the year was much below average. The only migratory butterflies seen in Surrey were two or three *Vanessa atalanta* L. at Bramley in early October.—R. F. Bretherton, Folly Hill, Birtley Green, Bramley, Surrey. 8.xii.63.

Apatele leporina L. Overwintering Two Years.—On one of my visits to Bedford Purlieus, Northamptonshire, last year, two female *A. leporina* arrived at the sheet. Both were in good condition and knowing that one of my friends was short of this species I decided to keep one for ova. Approximately 80 eggs were laid during the next two nights and there was no difficulty in getting the newly hatched larvae to take to birch as their pabulum. When the larvae had developed to their second or third instar a number of them were duly passed on to the friend in need. He did well with them; they nearly all pupated and he was looking forward to a bred series during this year. On making enquiries about the emergence of the pupae in June I was most surprised to learn that he had not had a single specimen out in his breeding cages. This state of affairs continued throughout the summer. The pupae, except for one, were perfectly healthy and are now going over for a second winter. What happened to the remainder of the brood will never be known as they were liberated in another part of the country. I have reared this moth many times in the past from larvae beaten in the late summer but apart from the above account have never known it to go over for a second winter.—M. J. Leech, The Cottage, Hallgates, Cropston, Leicestershire. 28.xi.1963.

Current Literature

Catalogue des Lepidopteres de France et de Belgique, Vol. II, Fasc. VII, Microlepidoptera, Leon Lhomme. 20 francs.

At long last, after many troubles, commencing with the fall which killed Leon Lhomme, the untimely death of M. le Marchand, who took over the work from Lhomme, and the death at a ripe age of Louis le Charles, who took over from Le Marchand, and countless printing

troubles, we have the completion of this catalogue after so many years of waiting. This is thanks to the collaboration of M. J. Bourgogne and M. Pierre Viette of the Entomological department of the French Natural History Museum.

The style of the previous parts (which stopped in the middle of *Bucculatrix*) has been maintained, but certain slight alterations have been made in the systematic order, to bring it into line with recent work done. This makes the first stepping-stone since the Staudinger List of 1901 which had been the basis of European collections for so long.

We take this opportunity of thanking the two gentlemen concerned, and congratulate them on their work.—S. N. A. J.

Proceedings and Transactions of the South London Entomological and Natural History Society, 1962, 8vo., 27/6.

The scientific portion of the President's Address is entitled *Report on the insects collected by the E. W. Classey and A. E. Gardner Expedition to Madeira in December 1957*, which includes a very full account of the life history of *Sympetrum nigrifemur* (Selys) with many drawings and eight half-tone plates of the insect and its habitat. Interesting accounts of the many field meetings are followed by a paper by F. V. L. Jarvis entitled *The Genetic Relationship between Aricia agestis (Schiff.) and its ssp.* artaxerxes *(F.)*. This has two half-tone plates of series of imagines to illustrate it.

Part II of The *Hemiptera-Heteroptera* of Kent, by Dr. A. M. Massee, is followed by a paper entitled *Notes on Rare Spiders and Courtship as a Clue to Relationships*, by W. S. Bristowe, with six drawings by A. Smith. Part VII of G. M. Haggett's *Larvae of the British Lepidoptera not figured by Buckler* has two coloured plates figuring larvae of *Euplagia quadripunctata* Poda, *Leucania vitellina* Hübn., *L. albipuncta* Schiff., and *L. unipuncta* Haw. The Editor mentions some changes in the accepted nomenclature and species added to the British List. We regret that two misprints occur here (p. 199) for *alnifoliella* one should read *ulmifoliella* and for *rossensis* one should read *vossensis*. Book reviews complete the volume.—S. N. A. J.

Beautiful Butterflies: illustrations by F. Prochàzka, text by J. Moucha; translated by Alice Denesovà. Spring Books Ltd., 4to., 12/6.

Ten pages of introduction give a cursory picture of the place of Lepidoptera in the world, and of the butterflies in the Lepidoptera. There follow 57 plates, illustrating 80 species, each with descriptive text on the opposite page. These plates are a joy to behold; the artist is truly a master of colour and its use; his handling of the difficult sheen of *Morpho cypris* Westwood, for instance, has to be seen to be believed. The reproduction is excellent, and although this may only be regarded as an entomological picture book, the figures are all hand done, not photographs as is the practice nowadays, and give one something really beautiful to browse over, both in the subject and its handling.—S. N. A. J.

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by
Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 10-14 colours and described scientifically. There is no similar work in existence. English, German and French editions. Vol. 1-4: Fauna palaearctica. Vol. 5-16: Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

COUNTRY SIDE

Official Publication of British Naturalists' Association.

The Association's Permanent Phenological enquiry has an Entomological Section, specimen copy 2/-. Naturalist's Diary 1964 6/3 (post free).

Hawkshead, Tower Hill, Dorking, Surrey.

R. N. BAXTER

Supplier of EXOTIC INSECTS to Museums, the research worker, the amateur entomologist, etc.

LEPIDOPTERA and COLEOPTERA a speciality.

16 Bective Road, Forest Gate, London, E.7, England.

Mail Orders Only.

In your Replies please mention "The Entomologist's Record".

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

Information wanted, from anyone who has reared the Speckled Wood (*P. aegeria*) and can supply any of the following information.
(1) Number of broods per year.
(2) Proportion of autumn brood hibernating as larvae.
(3) Comments on the reason for (2).
Any information on the Scottish colonies would be welcome.—*A. J. Showler, 28 Lynsted Close, Bexleyheath, Kent.*

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W. Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years:

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact: Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

"MIKROPS"

2" x 2" COLOUR SLIDES OF BRITISH INSECTS

by S. Dalton A.R.P.S.

Catalogue K5/ER now in preparation

FLATTERS & GARNETT LTD.

309 Oxford Road, Manchester 13

Part of our extensive service to Biologists

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

J. J. HILL & SON

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 2 FEBRUARY 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

THE SPIDERS AND ALLIED ORDERS OF THE BRITISH ISLES

THEODORE H. SAVORY, M.A., F.Z.S.

There are 550 British species of these exceptional creatures and among them there are countless differences. To help naturalists to name the species, this book describes those which are most likely to be found and there is a full account of their structure, habits and life histories. The book explains methods of study, collection and preservation.

Descriptions include every family of British Spiders, every species of Harvestman and False Scorpion, and the more familiar of the British Mites and Sea-Spiders. There is an account of their structure, habits and life histories, and the book explains methods of study, collection and preservation.

63 figures in colour

130 illustrations from drawings and photographs and 88 diagrams in the text. 12s. 6d. net.

THE SPIDER'S WEB

THEODORE H. SAVORY, M.A., F.Z.S.

How does a spider know the way to spin a web! By instinct or by observation? Is the spinning a clever, individually planned process, or a semi-automatic one? Such points as these are discussed in full by the author, who has spent a great deal of time observing spiders and their habits.

The discussions are supported, in many cases, by comparative tables of statistics which were compiled as a result of the observations made.

8 colour plates

19 half-tones and 35 line illustrations.

12s. 6d. net.

From all Booksellers

FREDERICK WARNE & CO. LTD.

1-4 Bedford Court, Strand, London, W.C.2

Looking for Micro-Psychids

By B. J. Lempke

The two volumes of South's "Moths of the British Isles" are without any doubt the best to be got at such a price. It is, however, strange that the original author did not include the Psychidae in his work in contrast with the opinion of his contemporaries on the Continent who all included them in the "Macrolepidoptera", following the well-known Catalogue of Staudinger-Rebel. This is the more strange, because South did include some families which stand much lower in the system, viz. the Cossidae and the Hepialidae.

The regrettable result of this is, that the great majority of the present English lepidopterists is not interested in Psychids. After the death of Tutt (who published an excellent monograph of the British species in vol. 2 of his British Moths in 1900), Chapman and Burrows, there is practically complete silence in the English entomological magazines on this group. There is only one exception: the article of L. T. Ford in the Proc. Trans. South London ent. nat. Hist. Soc. 1945-1946, p. 103-110, plate XI (1946). It is a very good summary of the knowledge of the British species at that moment.

For the present I should like to draw the attention of my English colleagues on two genera, which have had my special preference the last few years, viz. *Bankesia* and *Solenobia*, two genera of small but beautiful and very interesting moths. I hope that the results obtained by a few enthusiastic collectors in the Netherlands will stimulate them also to pay more attention to these insects in the British Isles.

As regards *Bankesia staintoni* Walsingham, the only species of the genus that occurs in both our countries (apart from the mysterious *B. douglasi*), the history of it in Holland is the following. The first specimen was caught in 1926, in a woody locality in the centre of the province of Gelderland. In August 1930 the late Lycklama à Nijeholt, a surgeon at Nijmegen (also in Gelderland) found a great number of caterpillars on the trunks of beeches some kilometres from that town. He fed them for some weeks on grass which they ate very eagerly and then they spun up their cases for hibernation. He overwintered them in the open and in the spring of 1931 Lycklama bred a nice series of moths which have long been the only representatives of the species in Dutch collections. In 1960 a caterpillar was found in the north of Dutch Limburg from which the moth was bred. That was our whole knowledge of *staintoni* till 1963.

In February of that year I discussed the question with my friend Mr. B. van Aartsen and asked him to look out for *staintoni* when he happened to come with his car near the locality of Lycklama. Already a few weeks later he showed me some cases which he had found on the underside of thick roots of old beeches standing along a sunken road. Beeches often have roots which project a little above the ground near the foot of the trunk. With the aid of an electric torch he discovered the cases in their dark hiding places. After comparison with cases in the collection of the Amsterdam Zoological Museum (where Lycklama's material is preserved) it was clear that they belonged to *staintoni*.

Thinking that they were old cases, I glued them on a small piece of cardboard and put them away in the drawer. A few weeks later I looked by chance in it and saw to my surprise a living female sitting on one of

the cases, the first I had ever seen in my life. Of course I informed Mr. van Aartsen. As he now knew where he had to look for the species, not on the trunks of trees, but in dark hidden places, he tried to find it not only in the neighbourhool of Nijmegen, but in every locality where he thought he might have success. Happily he is a collector with imagination. For few would have had the idea to look in the crevices of old palings or behind loose pieces of bark of fir trees. He even found them spun up on the roots of grass growing on the ridge of a sunken sandy path crossing a wood. Only in localities where the species abounds we found a few cases on the outside of the bark of a tree. In one locality Mr. van Aartsen saw a good number of males flying in the sunshine, near the foot of a beech. Very probably there were one or more virgin females in the vicinity. But notwithstanding his careful searching no trace of them or of the cases from which the males had resulted could be found. It is no doubt this hidden life which is the principal reason why so little is known about the species.

Tutt writes (l.c.: 207) that the case is made of whitish silk and is thickly covered with coarse sand. This gives the impression that the cases have a pale colour. But all cases found behind bark or in crevices were dark. Only those of the path in the wood had a sandy colour. Tutt's statement that the cases are rather soft in texture is quite correct.

Now that I knew the cases well, I saw that a few I had collected in 1962 and which I thought belonged to a *Solenobia* species also were *staintoni*. But the greatest surprise was an old case in the Museum collected in Gelderland about 1850. There was not the slightest doubt about its identity: *staintoni*. All these cases were dark, covered with grains of sand and sometimes with small pieces of moss.

Mr. van Aartsen also succeeded in breeding the species from the egg. He must still publish his account, so I only mention that the caterpillar is full fed in the autumn. It then crawls round searching for a suitable place to spin up the case. Now is the best time to look for them and to collect them! See the experience of Lycklama who found them in numbers in the second half of August, whereas Mr. van Aartsen saw dozens of them in September and the beginning of October 1963. The caterpillar pupates in the autumn and the chrysalis overwinters.

To sum up the Dutch results: before 1963 we only knew three localities for the species now we know 29! They are scattered over a considerable part of the country, but always in woody districts. As to the known distribution in England, Tutt mentioned only one locality: Southhampton Water in Hants. When Ford published his article 45 years later, it was still the only locality and I think it has remained so up till now. I need not give further comment.

And now *Solenobia*! The cases of this genus are much easier to find. As soon as the temperature has risen enough in the spring the caterpillars crawl up the trunks of trees and fasten their cases on the bark at a height varying from low down to about two metres above the ground. They look like blackish grains of corn and can best be collected by loosing them with the point of a pocket-knife and holding with the other hand a tube below them. Collect as many as possible, for only a small part, as a rule, produces moths. As the caterpillars do not live on the trees, they have no preference for any kind. But their cases are most easily found on beeches because of the smooth bark. We also found them, however, on fir

trees and I saw them in numbers in the deep crevices of the bark of oak trees, but here it was hardly possible to collect them.

April is the best month for this work. In early seasons they may appear already at the end of March and in late ones some cases are still to be found at the beginning of May, at least in the Netherlands. No nicer work on a fine spring day than searching the tree trunks in a quiet locality for *Solenobia* cases, especially when a new spot is discovered where one or more species occur!

The genus has long been very unpopular because of the great difficulties in determining the different species. It is hardly possible to arrive at a definite result only by consulting the descriptions in the handbooks. The last few years, however, great progress has been made in our knowledge through the work of some Austrian and Swiss experts. In Austria it is especially Herr L. Sieder of Klagenfurt, who makes a profound study of the numerous species occurring in the mountains of Central Europe and who could describe already many new ones. In Switzerland, Prof. Seiler made a special study of the parthenogenetic forms of some species, whereas Dr W. Sauter made the Swiss *Solenobia* species the subject of his thesis (published September 1956 in Revue Suisse de Zoologie 63: 451-550, plate I-V). I had the good fortune to come into contact both with Herr Sieder and with Dr. Sauter, and this has greatly stimulated the study of the Dutch species.

In England two species are known, viz. *Solenobia lichenella* L. and *S. inconspicuella* Stainton. But Sauter showed already that there occur at least three species in the British Isles. Ford writes that sometimes a parthenogenetic form occurs of *S. inconspicuella,* the cases of which can then be found in large numbers. But there exists no such form of *inconspicuella*! This parthenogenetic form is nothing but the true *Solenobia lichenella* L., the cases of which are as small as those of *inconspicuella.* The question is, that the British Isles are inhabited by two parthenogenetic species just like the Netherlands, which can be easily separated by their cases. If you consult the beautiful plate which accompanies Ford's article (drawn by Mr. Jacobs) you see in fig. 14 a case with sharp ridges, and which is much larger than the *insconspicuella* case and even larger than the *staintoni* case of fig. 15. This case of fig. 14 is an excellent figure of the case of the second parthenogenetic species, viz. *Solenobia triquetrella* Hübner! Sauter also wrote, that he received material of this species from Ford, who writes, that it is locally found in the southern counties of England. In the Netherlands it is known from Friesland to Limburg and from Gelderland in the east to the dune area along the North Sea, without a distinct preference for a special biotope. It is the *Solenobia* of which we know the largest number of localities in Holland. Most of them are situated in woody districts, but the species also occurred in the immediate vicinity of Amsterdam (till 1963, then the locality was destroyed) along the railway from the capital to Haarlem The caterpillars no doubt lived on the plants growing on the verges of the railway, for moss or lichens failed completely there. In the spring they crawled upwards on the concrete palings which bordered the line. In these palings were holes through which iron-wire was drawn to separate the line from the public road. The caterpillars spun up their cases in these holes. It is, however, not a universal rule for this species to pupate in such a hidden place. I have also found the cases fully exposed on the trunks of

beeches. They are very often covered with small grains of sand, but can easily be recognised from those of *staintoni* because of their much stronger tissue. The colour varies from rather pale to blackish in the south of Dutch Limburg where nearly everything is covered by a thin layer of dirt owing to the vicinity of our coal mines.

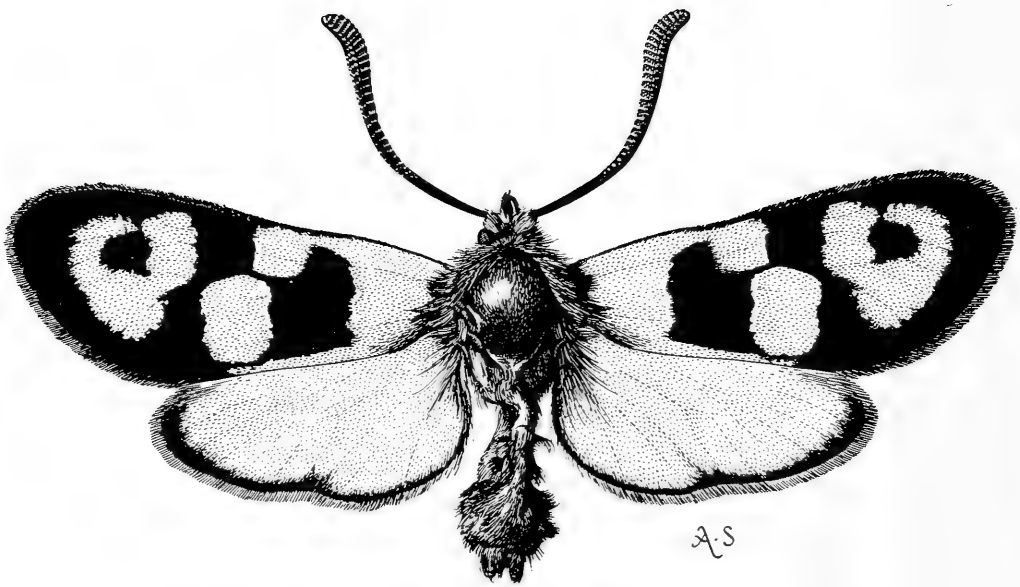
As for the other Dutch species, *Solenobia inconspicuella* is at present only known from a few localities in the centre of the country. The parthenogenetic form of *S. lichenella* also occurs with us, but its distribution is not yet fully known. It seems at any rate to be more wide-spread than *insconspicuella*. But apart from the three species mentioned already, there occur at least two other forms in the Netherlands. The first is *Solenobia fumosella* Heinemann, which is considered by Sauter to be the bisexual form of *lichenella*. The cases are indistinguishable from each other and it is only the habit of the female which tells if she is a *lichenella* or a *fumosella*. In the first case she starts at once to lay eggs, in the second she sits outstretched on the distal end of the case and awaits the male. It is, however, not possible to furnish absolute proof that *lichenella* and *fumosella* really are one and the same species, for it is impossible to cross a male *fumosella* with a parthenogenetic *lichenella* female. The male is a little larger than that of *inconspicuella*, and as a rule it has a distinct dark discal spot on the fore wings and the white spotting is different. It can also easily be distinguished by the shape of the scales of the fore wings. It is of course not impossible that *fumosella* also occurs in England.

The second species is *Solenobia pineti* Zeller. As a rule this is not difficult to recognise. The cases are as large as those of *S. triquetrella*, but only seldom covered with a few grains of sand and the ridges are less sharp. The male is in accordance with the proportion of the case as a rule much larger than that of *fumosella* and of *inconspicuella* and beautifully adorned with sharp little whitish specks on the fore wings. Sometimes, however, real dwarfs occur, but then they can be recognised by the shape of the scales and by a very small spur on the tibia of the fore legs (so small, that it cannot be seen with a magnifying glass!). This *Solenobia* is our most common species of the genus in dry sandy districts. Contrary to the name it is not restricted to pine trees. I have collected dozens of cases from beeches and also found them on oaks, whereas we found on pine trees not only *pineti*, but also *inconspicuella* and *fumosella*. English collectors should keep a sharp look-out for this species when they visit a corresponding biotope in spring.

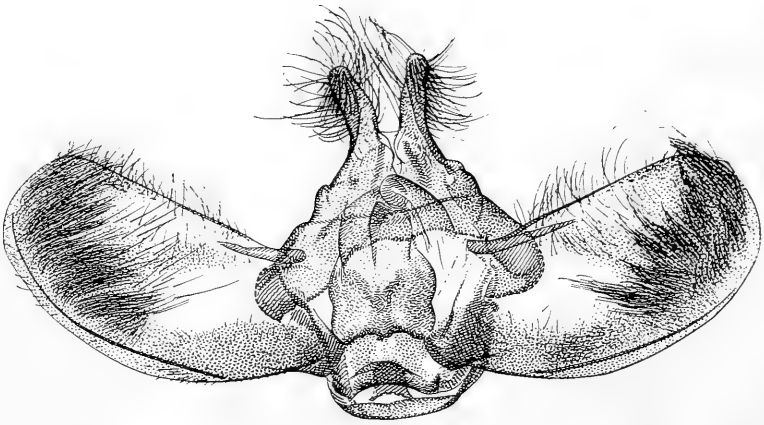
In this article I have given a complete survey of the present knowledge of the two genera in the Netherlands. I hope, that it may induce some English collectors to devote special attention to these interesting moths notwithstanding the fact that South neglects them.

Amsterdam—Z.2, Oude Ijselstraat 12 III.

ACHERONTIA ATROPOS L. IN NORTHAMPTONSHIRE.—A female specimen of the death's head moth was found alive, freshly emerged, at Kettering on 8th October 1963.—P. J. GENT, 3 Irthlingborough Road, Wellingborough, Northants.



1



2

3

Zygaena algira Boisduval. Fig. 1, lectotype ♂: fig. 2, genitalia; fig. 3, aedeagus.

The Identity of *Zygaena algira* Boisduval, 1834 (Lepidoptera: Zygaenidae)

By W. G. Tremewan

(Department of Entomology, British Museum (Natural History))

Duponchel (1835: 86) described as new a North African *Zygaena* species under the name of *algira* Duponchel and illustrated a specimen on pl. 7, fig. 6. As the figure does not agree with the description, Oberthür (1916: 226), who accepted figures in preference to descriptions, proposed the name *bachagha* for the species which Duponchel had described as *algira*. The name *bachagha* Oberthür can only be treated as a synonym of *algira* Duponchel (Tremewan, 1961: 257). This synonymy was originally cited by Rothschild (1917: 338) and was later accepted by Reiss (1930: 25). As Duponchel's figure does not agree with his description it is possible that an aberrant specimen was illustrated. According to Dr. P. Viette (*in lit.*) the type of *algira* Duponchel is not in Duponchel's collection and it is assumed that the specimen is either lost or destroyed.

According to the Catalogue of the Library of the British Museum (Natural History) (1922: 380), Duponchel's supplementary volume 2 was published in six parts. Pages 1-96, which contain the description of *algira*, and plates 1-6 were published in 1835. Pages 97-198 and plates 7-12 were published in 1836. The illustration on Plate 7, fig. 6, was therefore published in 1836.

Herrich-Schäffer (1846: 45) illustrated the species on pl. 15, fig. 106, and in the text actually referred to Boisduval as the author of *algira* while Duponchel's description and figure are not cited. Since then it has not been recognised that *algira* Duponchel was previously described under the same name by Boisduval (1834: 75). In his description, which is rather brief, Boisduval compares the species with *hilaris* Ochsenheimer, as follows:

"*Remarque.* M. le docteur Marloy, chirurgien de la marine, a rapporté d'Alger une Zygène (*Z. Algira mihi*) qui a quelques rapports avec cette espèce et avec *Fausta*. Dans les cinq individus que j'ai vus, les taches n'avaient pas de bordure, et étaient liées à-peu-près comme dans *Fausta*. Le collier, le corselet et l'abdomen étaient entièrement noirs, avec les pattes brunes.

Je ne connais pas la *Faustina* de Portugal; mais d'après la description qu'en donne Ochsenheimer, elle diffère trop de celle-ci pour supposer qu'elle en soit une variété.".

This description is valid and undoubtedly refers to the same species that was described by Duponchel. According to the library catalogue of the British Museum (Natural History) (1903: 188), Boisduval's Icones were issued as two volumes in one. These two volumes appeared in 42 parts, each part having 2 plates with letterpress. Nos. 21-30, which contain the work on the *Zygaenidae*, were published in 1834.

The synonymy may be expressed as follows:

algira Boisduval, 1834,
=*algira* Duponchel, 1835,
=*bachagha* Oberthür, 1916.

The Boisduval collection of *Zygaena* is now preserved in the British Museum (Natural History). It contains one male of *algira*, which I

designate as lectotype, with the following data: "Algira. Dup. Alger."; "EX. MUSAEO Dris. BOISDUVAL"; "coll. Ch. Oberthür."; "Rothschild Bequest B.M. 1939-1.". Boisduval's label refers *algira* to Duponchel but in spite of this I consider the specimen to be the type of *algira* Boisduval. It is probable that Duponchel's specimens were obtained from the same collector. As Boisduval's description is so brief, compared with that of Duponchel, it suggests that it was intended that the species was to have been described by, and attributed to, the latter author. However, as stated above, Boisduval's description is valid and *algira* Boisduval has priority over *algira* Duponchel.

The lectotype ♂ specimen, which is illustrated (Pl. I, fig. 1), is slightly aberrant compared with normal specimens of *algira* which generally have the forewing spots confluent. In the type, spots 1, 2 and 2a are confluent, the latter spot extending along the dorsum as far as the posterior edge of spot 4. Spot 1 extends along the costa and is confluent with spot 3. Spot 4 separate, spot 5 connected posteriorly to spot 6. The genitalia (Zygaenidae Slide No. 801) are illustrated, Pl. I, figs. 2, 3.

I am indebted to Mr. Arthur Smith for making the original drawings for the illustrations in this paper.

REFERENCES

Boisduval, J. A., 1834, Icones historique des Lépidoptères nouveaux ou peu connus, **2**: 1-192, pls. 48-84.

British Museum (Natural History), 1903, Catalogue of the Books, Manuscripts, Maps and Drawings in the British Museum (Natural History), **1**: 1-500.

———, 1922, *ibidem*, Supplement, **6**: 1-511.

Duponchel, P. A. J., 1835, in Godart & Duponchel, Histoire naturelle des Lépidoptères ou Papillons de France, Supplement, **2**: 86.

Herrich-Schäffer, G. A. W., [1846], Systematische Bearbeitung der Schmetterlinge von Europa, **2**: 45, pl. 15, fig. 106.

Oberthür, Ch., 1916, Études de Lépidoptérologie comparée, **12**: 226.

Reiss, H., 1930, in Seitz, Die Gross-schmetterlinge der Erde, Supplement, **2**: 1-50, pls. 1-4.

Rothschild, W., 1917, *Novit. Zool.*, **24**: 338.

Tremewan, W. G., 1961, *Bull. Brit. Mus.* (*nat. Hist.*) *Ent.*, **10** (7): 239-313, pls. 50-64.

Inverness-shire in 1963

By Commander G. W. Harper, R.N.(Retd.), F.R.E.S.

I feel that I must start this article by expressing heartfelt agreement with the opening paragraph of Mr. H. Syme's "Some Memories of 1963" (*Ent. Rec.*, **75**: 255). I can not remember such a disappointing season with so few real compensations, though, of course, so long as a few hardy insects struggle forth so there will always be some pleasant memories to recall. In my experience this year, in addition to appallingly bad weather for collecting both night and day, the season was marked by an unusual dearth of interesting insects, both species and varieties, while actual numbers seen remained fairly high, in spite of our quite unreasonable hopes of a fine warm summer, as in 1947, being frustrated.

The coldest winter for a hundred years started in Badenoch on 15th November 1962, and the first thaw occurred on 1st March 1963, which coincided with the appearance of the first hardy larva of *Phragmatobia fuliginosa* L. warming up at full gallop on my garden path! The principal trouble with our winter in Newtonmore was that we did not have enough

snow, so that the continuous frost went so deep that the village had no water for weeks!

March remained mild, wet, and rather windy, the first emergence of the year being that of *Phigalia pedaria* Fab., a male drying its wings on a garden fence on the 6th. This was followed by the first *Achlyia flavicornis* L. and immigrant Plovers and Thrushes in the middle of the month; by the end of it this species was present in unusually large numbers, while the early *Orthosias* were beginning to appear about two to three weeks late.

April became even stormier and wetter than March, but the usual species struggled out bravely and surprisingly not quite so late, as I found two *Brachyonica nubeculosa* Esp. drying their wings on Birch trees in the afternoon of the 2nd, while both sexes of *Poecilopsis lapponaria* Bdv. were on a local fence as early as the 9th, the female even having laid many of her eggs already! The sallows were at last beginning to swell, but were not well out until the last week of the month, which as so often in this area became fine and warm. A most remarkable feature this year was the complete absence of the common day-flying species at this season, not a single *Aglais urticae* L., *Saturnia pavonia* L., and *Endromis versicolora* L. being seen on the wing, and more surprisingly still also not a single *Archiearis parthenias* L. was noted. It rather looks as if a deduction here may be at least plausible; that those day-flying species which hibernate as adults or exposed pupae near the surface of the ground or tree suffered more from the prolonged severity of the winter than those that endured these conditions as ova or larvae. Certainly *Argynnis aglaia* L. and *Aricia aegestis* Schf. *artaxerxes* Fab. were the only Butterflies later to be even commoner than in most years.

Weather at the beginning of May reverted to snowstorms and very cold westerly winds. The first *Odontosia carmelita* Esp. came to my m.v. trap on the 8th, while *Anarta cordigera* Thun., a pair in cop. on a fence in the morning of the 12th, was several days later than usual. The cold blustery weather with snow on all the hills continued until the 23rd, but on the 17th the only really remarkable insect of the year occurred, a fine fresh *Acasis viretata* Hb., in my m.v. trap. This is a new species for my Badenoch list, no. 370, and is I believe the furthest North record for this interesting species, to date, though I understand that another specimen was taken about the same time as far North as Sutherland; if so, this is a truly remarkable expansion of range. It is likely that the food-plant so far North is Rowan, *Pyrus aucuparia.* Butterflies were late again this year in appearing, the first I saw being several fresh *Thecla rubi* L. flying actively in a brief sunny evening of the 20th over *Arcostaphylos uva-ursi* on my local moorland. Warm sunny weather at last on the 23rd brought out a good number of *Anthocaris cardamines* L. and *Argynnis euphrosyne* L. but *Pieris napi* L. usually so common with us was quite rare in the spring brood and almost non-existent in the summer one. The month ended with a continuation of warm sunny days and cold nights; a very pleasant short visit by my son and myself to Skye from 27th-29th May was productive of a good number of larvae of *Zygaena purpuralis* Br. and *Z. filipendulae* L. but very few *Z. lonicerae* Sch. ssp. *jocelynae* Tremewan, which was disappointing. Back in Badenoch the end of the month saw the foliage of the birches and aspens almost fully out, and a rapid advance in vegetation generally to a greater degree than the same date last year, but m.v. trap catches were equally small, only single figures!

In June the one warm sunny spell of the year, accompanied by a few thunderstorms but surprisingly small and uninteresting m.v. trap catches, continued until the third week. At this time we spent a few days with my son at Worcester, and I was able to revisit some old boyhood haunts in the Cotswolds, very pleasant but not very productive entomologically. The woods near Cranham produced a few nice *Discoloxia blomeri* Curt. and *Abraxas sylvata* Scop.; butterflies, however, were very scarce, and I saw no sign of *Maculinea arion* L., not surprisingly in view of the short time available and the poor weather. Several colonies of very variable *Z. trifolii* Esp. were in force but rather worn. Near Worcester, a memorable pleasure was the sight of numbers of *Leptidea sinapis* L. in a quite small wood, together with *Minoa murinata* Scop., neither of which I had seen for many years. Also in this wood I found larvae of *Orthosia gracilis* Schf. spun-up in the terminal shoots of low sallows, an unusual pabulum in the wild in my experience, which is usually Fleabane, Meadow-Sweet, or Bog Myrtle. Some months earlier my son had explored Wyre Forest and found one or more empty old cocoons of *Harpyia bicuspis* Bork. We therefore planned a night operation to try for this elusive insect on the 21st June. We were lucky with the weather, a fine warm night for once, and this turned out to be the only really good collecting night of the year. Over 90 species of Macros came to my portable m.v. light and sheet, and a very few only to sugar. So exciting and pleasant a night was it that in retrospect the only species not to turn up was *H. bicuspis*! Among the more interesting species were melanic examples of *Stauropus fagi* L. and *Semiothisa liturata* Cl., many *Tethea fluctuosa* Hb. and a few *T. duplaris* L., many fresh *Anaplectoides prasina* Sch. and *Polia tincta* Hb., *Bomolacha crassalis* Fab., *Boarmia roboraria* Schf., *Ectropis extersaria* Hb., *Angerona prunaria* L., *Apeira syringaria* L., *Mesoleuca albicillata* L., and *Euphyia rubidata* Schf. We were very interested to note a number of Small-leaved Limes growing near our operating ground, but *Drepana harpagula* Esp. did not put in an appearance! In steadily worsening weather conditions my wife and I moved on to Tan-y-Bwlch in North Wales on the 24th for a week, where collecting was hardly possible by night or day due to incessant heavy rain. I think my total daylight catch consisted of one beautiful fresh *Sterrha eburnata* Wocke female sheltering from the rain on a rock, and a few worn *Eupithecia plumbeolata* Haw. flushed from Cow-wheat in the only locality I know for this species. My attempts to rear it from ova later failed ignominously on hatching! Only one night was fairly prolific; a few nice *Amathes ashworthii* Dbld. and *Apatele menyanthidis* View. coming to m.v. light, but only common Noctuids to some sugared posts. My m.v. trap under these conditions did well, I suppose, by producing large numbers of common species, *Stauropus fagi* L. being almost the commonest. These handsome great insects always raise nostalgic memories of the thrill of finding my first *S. fagi*, a female, at rest on a Beech tree in Sussex in pre-m.v. days which provided me with a nice bred series.

On the 3rd July we returned home to Inverness-shire and cool cloudy weather with ground frost on the morning of the 10th! In spite of these conditions the usual summer moths were present in normal numbers judging by m.v. trap catches; one very noticeable feature of this summer was the extraordinary lushness of all the vegetation, and the wild Dog-roses were in glorious abundance, as were low-growing plants such as Bird's Foot Trefoil and Rock-rose, colonies of which have expanded

considerably. *Aricia aegestis* Schf. ssp. *artaxerxes* Fab. was consequently about in large numbers in its colonies, and by the 20th *Argynnis aglaia* L. was a lovely sight, fully out in very large numbers and very fresh at this late date. The last few days of the month were warm and sunny, and on the last day a male *Amathes alpicola* Zett. came to my m.v. trap. yet again in the odd-numbered year; it really is remarkable that this species never seems to leave its high ground haunts to visit my m.v. trap except in these alternate years of believed relative scarcity.

In August the weather soon reverted, on the 5th, to its usual wet, windy and cold state, and the month as a whole was only remarkable for absentee species of usual abundance; *Triphaena pronuba* L. only appeared for the first time on the 1st, and continued relatively scarce all autumn; *Amathes xanthographa* Schf. was really rare, only two specimens being seen. However, as the month progressed trap catches were over-compensated for the lack of these by the ever increasing abundance of *Dysstroma citrata* L. which reached a really stupendous peak in early September with over a hundred in the m.v. trap and quite as many in the Birch bushes nearby! I have never seen this common species so abundant, or so lacking in striking varieties.

September was marked by continued dull weather, with a few sunny days but a complete absence of frost; the first snowfall on the high tops occurred on the 25th. A notable absence of immigrant Lepidoptera continued, only a very few singleton *Plusia gamma* L. and one *Agrotis ipsilon* Hufn. were seen here. A pressing Naval occasion in the form of a re-union dinner in London towards the end of the month resulted in a most delightful week-end in Surrey with Mr. G. A. Cole as my host. The weather was fairly kind to us though chilly and windy, and he most kindly drove me over to the Dungeness area in Kent, where, with his expert aid I had the greatest thrill of the year in taking no less than three species new to me. Searching the patches of Yellow Toadflax revealed the splendid sight of plenty of larvae of *Calophasia lunula* Hufn. mostly of good size. By great good luck the only patch of this food-plant that I know of in Inverness-shire grows alongside the railway at Newtonmore station, probably seeded from a train years ago, so I was able successfully to bring them all to the pupal stage in October. Later the same day at Dungeness beating the dead seed heads of Yarrow in one spot produced several larvae of *Eupithecia millefoliata* Rössler. As dusk approached, Mr. Cole stopped by a fine series of ditches crossing water meadows along which grew plenty of clumps of Marsh Mallow plants. A cold Northerly wind was blowing, however, and dusking only produced a belated *Nonagria sparganii* Esp. and no *Hydraecia hucherardi* Fab.; but the ever helpful portable m.v. light came to the rescue and a few tolerably good specimens, males, appeared later. We had, of course, to set out on the long drive back to Surrey fairly early, and a last search of the plants failed also to reveal any newly emerged females.

October in Inverness-shire was wet and very windy, but mild and still with no frosts. The usual autumn species were well represented, with *Dasypolia templi* Thun. and *Agrochola macilenta* Hb. even commoner than usual. The third week of the month was remarkable for unusually large flocks of southward migrating birds, truly thousands of Redwings and Fieldfares, accompanied by small flocks of Long-tailed Tits filled my Birch spinney, and, curiously, a large number of swallows, presumably young birds from Scandinavia were also present for a day or two. But

there was not a single *Vanessa atalanta* L.! South again to London for the annual festivities and exhibition of the South London Ent. and Nat. Hist. Society at the end of the month, I experienced the one great immigrant thrill of the year by seeing alive, in Mr. J. L. Messenger's m.v. trap a fine specimen of the lovely and rare *Hippotion celerio* L. I believe that there was quite a widespread wave of this splendid immigrant at this time.

In November the first ten days were mild and wet, so I continued my m.v. trap in the garden; this proved fortunate, for among the usual late autumn species were a good number of *Xylena vetusta* Hb. and my last capture of the year was a superb melanic example which Mr. A. L. Goodson kindly informs me he thinks is probably ab. *dufayi* D'Aldin. The season virtually came to an end in the second week with the appearance of the first *Operophtera fagata* Scharf., and frosty cold weather completed the month. So ended a year only remarkable for a lack of immigrants and of sunshine. Hope springs eternal in the entomological breast!

Neadaich, Newtonmore, Inverness-shire. 15.i.1964.

Western Ireland, 1963

By Rear-Admiral A. D. Torlesse

General Lipscombe's account of his pursuit of *Polyommatus icarus* Rott. in Western Ireland this summer was of particular interest to me because it so happened that during the second half of July my wife and I followed his trail to Co. Mayo and the Burren. Like Mr. Wheeler, whose article in the December number appeared while I was engaged on this paper, we planned our first trip to the West of Ireland more with a view to seeing the country and spying out the land entomologically than the pursuit of particular species. However, I did hope that *Calamia virens* L. would put in an appearance in the Burren before our departure on 1st August, and that we might find the Co. Mayo form of *P. icarus* there or elsewhere, and we planned our itinerary accordingly; the first week in Donegal visiting Portnoo in the south and Port-na-blagh in the north, then five days at Newport, Co. Mayo, and lastly a week at that well-known haunt of the lepidopterist, Ballynalackan Castle in the Burren of Clare. In the event, neither hope was realised; we were too early for *C. virens*, and although we found the second brood of *P. icarus* flying everywhere we were much too late for the single-brooded form. However, our trip was interesting entomologically, the scenery was delightful, the bathing excellent everywhere, and the hotels and guesthouses we had chosen when we booked in February could not have made us more welcome and comfortable.

I took with me an m.v. trap for use where a mains supply could be arranged, but to save space on this trip in our small Herald estate car I discarded my portable battery-driven m.v. equipment in favour of an ultra-violet outfit made to a specification kindly provided by Mr. Kennard, who described this lamp in last year's "Record" (Vol. 74, No. 2). Considerable use was made of both outfits. I was able to run the trap at three out of our four hotels, although only in the Burren did I find a really

rewarding site for it. The portable lamp I took out on every suitable night —not very many in all, as a number of nights were windy and wet or cold —as well as on some very unpromising ones. I did not find the 18 watt m/v equipment as effective as an 80 watt m/v lamp, but I had some quite

ANNOUNCING THE PUBLICATION OF

NOTES AND VIEWS OF THE PURPLE EMPEROR

BY

I. R. P. HESLOP, M.A. G. E. HYDE, F.R.E.S. R. E. STOCKLEY

an enormous catch of at least 200 *Arctia caja* L., but without a single interesting abberation among the lot. *Nudaria mundana* L. abounded; I had also taken it in Donegal. The weather was distinctly unpromising, two of our five days at Newport being hopelessly wet, but we were lucky in having a fine sunny day for our one visit to the Mullet. Time only permitted of our visiting a small part of the sand dune area described by General Lipscombe as the habitat of the large *P. icarus*, but although the foodplant was growing quite freely here and there amongst the marram grass no "blues" were seen there. A few *P. icarus* were, however, flying in the hayfields in the area, still mostly uncut even at this late date; they were similar to the Donegal examples, but the males were slightly larger and certainly the finest seen on our trip. Hardly a female was to be found but the one or two caught did not approach the size described by the General.

there was not a single *Vanessa atalanta* L.! South again to London for the annual festivities and exhibition of the South London Ent. and Nat. Hist. Society at the end of the month, I experienced the one great immigrant thrill of the year by seeing alive, in Mr. J. L. Messenger's m.v.

CONTENTS

Some of the 33 papers contained in the work

Paper No. 1. *Maculinea arion and Apatura iris in Somerset.*

Paper No. 6. *The Breeding Log of an Apatura iris in* 1954.

Paper No. 10. *Pupa of Apatura iris attacked by Larva of Cosmia trapezina.*

Paper No. 11. *Hibernating Habit of Larva of Apatura iris.*

Paper No. 12. *Times of Flight of Apatura iris.*

Paper No. 14. *Somerset in its Relation to some of the Problems of Entomology.*

Paper No. 15. *Apatura iris ab. semi-iole.*

Paper No. 19. *Some notes on the Egg-laying and certain other habits of Apatura iris.*

Paper No. 20. *Some Notes on the Ecological Consequences of Virus Disease in Apatura iris and other Species.*

Paper No. 21. *The Wing Proportions of Butterflies.*

Paper No. 24. *Warden's Reports on a Wiltshire Nature Reserve.*

Paper No. 27. *Notes on Imaginal Habit.*

Paper No. 28. *Some Notes on Frequency and Extinction.*

Paper No. 33. *Aspects of Variation in Apatura iris, with the Description of one New Aberration.*

Comprising 207 pages plus 22 plates with 44 illustrations, of which 11 are in full colour.

A complete up-to-date work on the PURPLE EMPEROR butterfly, there is no repetition of the basic facts contained in the standard works. In addition to the Purple Emperor, 42 other species of British Butterflies and eight Moths are mentioned in the text at varying length.

The coloured plates are confined to the Purple Emperor in all its stages, including some extreme aberrations all previously unfigured.

This book should interest both the entomologist and field naturalist.

The work has been produced entirely by subscription.

Subscribers and persons interested in subscribing should *now* send their subscription together with order form to —

R. E. STOCKLEY

6 KINGSWAY, BLACKWATER, CAMBERLEY, SURREY

A list of subscribers will be published in the work

Price to subscribers £1 10s. Published price £2 10s. Postage 3s. 6d. extra

and although we found the second brood of *P. icarus* flying everywhere we were much too late for the single-brooded form. However, our trip was interesting entomologically, the scenery was delightful, the bathing excellent everywhere, and the hotels and guesthouses we had chosen when we booked in February could not have made us more welcome and comfortable.

I took with me an m.v. trap for use where a mains supply could be arranged, but to save space on this trip in our small Herald estate car I discarded my portable battery-driven m.v. equipment in favour of an ultra-violet outfit made to a specification kindly provided by Mr. Kennard, who described this lamp in last year's "Record" (Vol. 74, No. 2). Considerable use was made of both outfits. I was able to run the trap at three out of our four hotels, although only in the Burren did I find a really

rewarding site for it. The portable lamp I took out on every suitable night —not very many in all, as a number of nights were windy and wet or cold —as well as on some very unpromising ones. I did not find the 18 watt u/v equipment as effective as an 80 watt m/v lamp, but I had some quite successful nights with it.

We crossed from Holyhead on the night of 11th July, being landed at Dun Laoghaire in time to drive round the centre of Dublin before the traffic became thick, after which we wandered across central Ireland by way of Athlone, Carrick-on-Shannon, Sligo and Donegal, arriving at Portnoo in time for dinner. The Portnoo Hotel with its fine coastal view proved most comfortable, with easy access by car to many miles of wonderful coastal scenery, and with good collecting grounds within a mile or two. The Irish form of *Maniola janira* L. was plentiful and in fine condition; also flying were *Eumenis semele* L. and *Coenonympha pamphilus* L. with, sparingly, *P. icarus*. *Pamphilus* appeared typical, but throughout coastal Donegal examples of the other three butterflies similar to the forms previously observed in the Island of Mull were frequent, the *semele* very dark, many *icarus* with bright red lunules, and the *janira* very large and brilliant. But the whole of Donegal reminds one so irresistably of parts of the western Highlands of Scotland that it is no surprise to find similarity in its fauna.

I worked the lamp on coastal moorland on two nights without very much success, but amongst some 24 species I was surprised to take *Leucania straminea* Treits. At Muckros, on the north coast of Donegal Bay, we accidentally came across Sir Robert and Lady Saundby who were spending a fortnight in this very remote spot and who had recorded much the same list of insects.

Leaving Portnoo on 16th July we chose a coastal route for the journey north to Port-na-blagh, noticing on the way the same butterflies as at Portnoo with the addition of *Aphantopus hyperanthus* L. During the next four days I worked places in the Horn peninsula and moorland in the Glenveagh range by day and night, finding much the same insects as at Portnoo, with the addition, on moorland, of *Entephria caesiata* Schiff.

On 20th July we drove via Letterkenny, Donegal, Sligo and Ballina to Newport, Co. Mayo, where we had booked at the Abbey Villa guesthouse, a mile out of the town on the Achil road close to the southern end of L. Furnace. Here I was able to run the trap behind the hotel, but with indifferent success; a surprise on the very warm night of our arrival was an enormous catch of at least 200 *Arctia caja* L., but without a single interesting abberation among the lot. *Nudaria mundana* L. abounded; I had also taken it in Donegal. The weather was distinctly unpromising, two of our five days at Newport being hopelessly wet, but we were lucky in having a fine sunny day for our one visit to the Mullet. Time only permitted of our visiting a small part of the sand dune area described by General Lipscombe as the habitat of the large *P. icarus*, but although the foodplant was growing quite freely here and there amongst the marram grass no "blues" were seen there. A few *P. icarus* were, however, flying in the hayfields in the area, still mostly uncut even at this late date; they were similar to the Donegal examples, but the males were slightly larger and certainly the finest seen on our trip. Hardly a female was to be found but the one or two caught did not approach the size described by the General.

On only one night during our stay was the weather fine enough to tempt me out with the u/v lamp. I first tried a moorland site near L. Furnace, moving later to a more wooded spot in the same area, but although conditions seemed good I recorded 25 species only compared with 40 species in the trap at the hotel on the first night, and there was nothing of particular interest among them.

As we wanted to see something of Connemara, on leaving Newport we took a circuitous route to Galway by way of Lenane, Clifden and Oughterard, a diversion well worth while for the wild mountain scenery about Lenane alone; indeed, the scenery on the whole route was most attractive, culminating in the climb up Corkscrew Hill and our first view of the Burren. Mrs. O'Callaghan made us most welcome at Ballynalackan Castle, where we found we were sharing the hotel with a cheerful party of members of the Bristol University Speleological Society, engaged in exploring the limestone caves in the vicinity, a task which members of the society undertake every summer. On their departure a day or two later, their place was taken by Messrs. G. M. Haggett and A. J. Wightman, who like us were in pursuit of *C. virens* but who, though they were able to stay a little longer, were also unsuccessful.

During our week in the Burren I worked the coastal strip between Doolin in the south and Black Point in the north, including the dunes at the mouth of the Caher river and places up the river valley, and various spots on the north coast between Black Point and Ballyvaughan. The same butterflies were to be found as in Donegal and Mayo, with the addition of a very few 'whites' and *Argynnis aglaia* L., which was numerous but mostly in tatters; I did not take a single specimen worth keeping. At considerable risk to life and limb, *Prokhedes captiuncula* Treits. was successfully pursued over the broken limestone slabs in the late afternoon. A very few *Setina irrorella* L. were found in a rough field on the coast at Doolin, and further north *Aspitates gilvaria* Schiff. was plentiful.

At night I worked the u/v outfit in a number of spots on or near the coast, taking a considerable list of insects, including *Apamea furva* Schiff. in plenty and a few *Ammogrotis lucernea* L. My first pitch for the trap at the Castle was unproductive, but I soon found a better place at a farm near Oughtdarra, a few miles away and below the Castle, where the owner kindly undertook to switch on at dusk and cover the trap at dawn. Here several quite large catches were made, particularly on the very wet night of 30th July when the catch was enormous and I actually recorded 68 species, though the real number was undoubtedly considerably greater. Unfortunately, as I was not using an anaesthetic, the whole contents of the trap was spoiled, including a single example of *Apatele euphorbiae* s.sp. *myricae* Guen., but there was something to be saved from the many hundreds of moths outside the trap, in the grass and herbage and on the surrounding rocks. A last expedition was made to the Ballyvaughan area in company with Messrs. Haggett and Wightman on the night of 31st July, none too warm and the ground very wet after a rainy day, in search of *C. virens*. On the following day we crossed Ireland to Wexford, en route for Rosslare and home.

A list of the species noted is appended. Admittedly, we did not stay in any one place long eonugh to work it at all seriously, but our holiday was not unrewarding entomologically, and the weather was probably as good as one has any right to expect in the west of Ireland. Owing to the date no attempt was made to look for *Erebia epiphron* Knoch., but with

Mr. Haynes' articles in the "Record" of 1955 and 1956 in mind, a lookout was kept for possible mountain localities. The number of peaks in north-western Ireland lofty enough to harbour this butterfly is certainly impressive, and from the records few of them seem to have been searched for *epiphron*. No doubt a reconnaissance would show many of these hills to be quite unsuitable, but it would be surprising if a number of them were not found to possess the type of ground favoured by the butterfly. However, to find *epiphron*, let alone prove that it is absent, the place, the date and the weather must all be right, and a systematic search of the west Irish highlands for the butterfly would be a task of some magnitude, requiring the concerted effort of several people over more than one season.

It is a far cry to the west of Ireland, but the lovely scenery, quiet roads and empty beaches, and the kind welcome everywhere, makes the long journey well worthwhile.

List of Lepidoptera taken in Western Ireland, July 12-31, 1963

Pieris brassicae L.
rapae L.
napi L.
Argynnis aglaia L.
Aglais urticae L.
Eumenis semele L.
Maniola janira L.
s.sp. *iernes*
Aphantopus hyperanthus L.
Coenonympha pamphilus L.
Polyommatus icarus Rott.
Laothoe populi L.
Deilephila elpenor L.
Pheosia tremula Clerck.
gnoma Fabr.
Notodonta ziczac L.
dromedarius L.
Lophopteryx capucina L.
Habrosyne derasa L.
Malocosoma neustria L.
Philudoria potatoria L.
Spilosoma lubricipeda L.
lutea Hufn.
Phragmatobia fuliginosa L.
Arctia caja L.
Nudaria mundana L.
Setina irrorella L.
Eilema lurideola Zinck.
complana L.
Apatele psi L.
euphorbiae Fabr
s.sp. *myricae* Guen.
rumicis L.
Agrotis exclamationis L.
Lycophotia varia Vill.
Ammogrotis lucernea L.
Graphiphora augur Esp.
Amathes c-nigrum L.
triangulum Hufn.
sexstrigata Haw.
xanthographa Fabr.
Diarsia brunnea Fabr.
festiva Schiff.
Ochropleura plecta L.
Axylia putris L.
Triphaena comes Hübn.
pronuba L.
Polia nebulosa Hufn.
Melanchra persicariae L.
Ceramica pisi L.
Diataraxia oleracea L.
Hadena thalassina Rott.
Cerapteryx graminis L.
Eumichtis adusta Esp.
Procus fasciuncula Haw.
literosa Haw.
Prothedes captiuncula Treits.
Apamea oblonga Haw.
furva Hübn.
secalis L.
lithoxylea Fabr.
sublustris Esp.
monoglypha Hufn.
Phlogophera meticulosa L.
Phalaena typica L.
Hydraecia oculea L.
Leucania pallens L.
impura Hübn.
straminea Treits.
lithargyria Esp.
conigera Fabr.

Caradrina blanda Schiff.
taraxaci Hübn.
Petilampa minima Haw.
Rusina umbratica Goeze.
Cucullia umbratica L.
Rivula sericealis Scop.
Plusia chrysitis L.
bractea Fabr.
festucae L.
iota L.
pulchrina Haw.
gamma L.
Abrostola triplasia L.
tripartita Hufn.
Zanclognatha tarsipennalis Treits.
Herminia barbalis Clerck
Hypena proboscidalis L.
Hipparchus papilionaria L.
Sterrha subsericeata Haw.
aversata L.
dimidiata Hufn.
Anaitis plagiata L.
Lygris populata L.
pyraliata Schiff.
Cidaria fulvata Forst.
Dysstroma truncata Hufn.
citrata L.
Thera obeliscata Hübn.
cognata Thunb.
Xanthorhoe ferrugata Clerck
montanata Borkh.
Colostygia salicata Hübn.
Pelurga comitata L.
Entephria ceasiata Schiff.
Epirrhoe alternata Müll.
Euphyia bilineata L.
Lyncometra ocellata L.
Perizoma alchemillata L.
albulata Schiff.
minorata Treits.
blandiata Schiff.
Hydriomena furcata Thunb.
Eupethecia centaureata Schiff.
absinthiata Schiff.
icterata Vill.
subumbrata Schiff.
Gymnoscelis pumilata Hübn.
Chloroclystis coronata Hübn.
Abraxas grossulariata L.
Lomaspilis marginata L.
Aspitates gilvaria Fabr.
Gnophos myrtillata Thunb.
Cabera pusaria L.
Campaea margaritata L.
Ennomos quercinaria Hufn.
Crocalis elinguaria L.
Opisthograptis luteolata L.
Ourapteryx sambucaria L.
Biston betularia L.
Cleora repandata L.
Eurrhypera hortulata L.
Rhodaria sanguinalis L.
Mesographa forficalis L.
Crambus hortuellus Hübn.
selasellus Hübn.
Hepialus humuli L.

Diptera in Galloway and Central Wales

By R. M. Payne

We spent the second half of August 1963 on the coast of Kircudbrightshire. The generally poor weather and apparent scarcity of Tipulidae led me to take an interest in some other families of flies.

During the whole fortnight there was a remarkable abundance of the large black fly *Bibio pomonae* (F.). The males could be seen drifting heavily over the pastures at about eye level, their long back legs hanging down. Clusters of *Angelica* flowers on the hillsides were often infested with them, as many as half-a-dozen on each head, while down at sea level they sprawled on the ragwort just above the shoreline. When on the flowers they were very easy to pick up by hand, appearing reluctant to take to flight. Males were everywhere, much more abundant than females. Our car had to be left in the open at night, and every morning there were numbers of the conspicuous red and black legs of the *Bibio* scattered on the roof and bonnet, presumably dropped by birds (or bats) that had captured the flies on the wing.

Amongst the Tipulidae, my first find was a pair of *Tipula scripta* Mg. *in cop.* on the lee side of a beech trunk in a wood near Annan (Dumfriesshire). A keen wind was blowing through the wood, and I have often noticed that in adverse weather—cold wind or driving rain—crane flies may be found in bark crevices on the more sheltered side of large trees.

Dalheattie Forest, a large coniferous plantation, did not prove very productive of flies. *T. scripta* and *Dicranomyia chorea* (Mg.) were taken in the rides, and I found single specimens of *Crunobia littoralis* (Mg.) and the handsome yellow-winged *Metalimnobia bifasciata* (Schrank) in more open boggy areas. *Ula sylvatica* (Mg.), one of the small hairy-winged Tipulids, occurred over a ditch. Ling was a common plant in open parts of the forest, and here *Syrphus cinctellus* Zett. was the most abundant Syrphid. The striking blue-banded *Syrphus glaucus* (L.) was taken several times from *Angelica* flowers. Is this fly commoner in the north than in the home counties? A hover-fly new to me was *Didea fasciata* Macq. which has a peculiar glassy appearance to its wings, and is at once noticeably flatter than most yellow-spotted *Syrphi*. I took a single male of this fly sunning itself on bracken in an open glade. The snipe-fly *Rhagio lineola* F. was often seen on spruce branches.

A very handsome Syrphid that proved itself to be widespread in the district was the large wasp-like *Sericomyia silentis* Harris. This was common flying low over the ling near the summit of Screel Hill, a local viewpoint rising to some 1100 feet, and I also found it in several boggy woods right down at sea level near Rockcliffe.

Flowery fields by the shore at Sandy Hills were a good hunting ground for flies, and three of the larger and less common Syrphids I caught here on ragwort were *Eristalis aeneus* Scop., *Arctophila fulva* Harris—a furry fly resembling a bumble-bee—and *Cheilosia bergenstammi* Becker. A boggy wood just above high-tide level produced the small Tipulids *Rhipidia maculata* (Mg.) and *Gonomyia dentata* de Meij.

A belt of alder scrub at the margin of Loch Arthur was carefully examined for crane-flies on day, but produced only the common species *Tipula fulvipennis* Degeer., *Dicranomyia modesta* (Mg.), *D. autumnalis* (Staeg.), *Limonia macrostigma* Schummel and *Austrolimnophila ochracea* (Mg.), From alder scrub at Loch Milton I took *Nephrotoma quadrifaria* (Mg.), the dusky-winged Empid *Rhamphomyia spinipes* (Fall.) and the brilliant Stratiomyid *Geosargus flavipes* (Mg.).

* * * *

In mid-September I spent a week in Brecon and Radnor, two of the wildest and least "developed" counties in the country. As a matter of interest, it is said that in the whole of Radnorshire there is not a single factory chimney! Armed with the necessary official permits (for which, of course, no charge is made) we visited several nature reserves, and here in mainly fine weather I concentrated on my favourite group, the crane-flies.

Craig Cerrig Gleisiad, in Brecon, is a splendid old red sandstone crag towering up to 2000 feet. At the foot of the rising ground below the cliffs I took *Dicranomyia didyma* Mg. amongst bracken by a stream (1200 ft.). A little higher up (1350 ft.) was an open area of boggy ground, and here I saw the common *Tipula marmorata* Mg. and *T. pagana* Mg. (no females of

the latter species) with *T. alpium* Bergroth, *Limonia nubeculosa* Mg., *Ormosia hederae* (Curtis) and *Rypholophus haemorrhoidalis* (Zett.). On ling and bilberry moorland at 1500 ft. *Dicranomyia autumnalis* and *O. hederae* occurred. Above this the ground rose very steeply to the top of the crags, and I followed up one of the mountain rills, finding *T. marmorata, L. nubeculosa, Paradicranota subtilis* Loew. (? a new county record), and *Crunobia straminea* (Mg.).

The *Crunobia,* with its uniformly pale yellow coloration and rather flaccid movements, has very much the appearance of a teneral insect.

Craig-y-Gilau N.R. (Brecon), a carboniferous limestone crag, produced nothing new, the only Tipulids seen being *T. marmorata, T. pagana* ♂♂ and *C. straminea.* In the extreme south of the county we visited the Cwm Clydach N.R., and in this steep, wooded gorge I took *Rhypholophus varia* (Mg.) and *R. bifurcata* (Goet.), as well as the common *Erioptera lutea* Mg. and *T. marmorata.*

R. varia also turned up, with *Limonia nubeculosa,* in a boggy oakwood in Nant Irfon (950 ft.) and in pasture by the R. Irfon I took *Dicranomyia autumnalis.* In the moorland bog above the valley (1200 ft.) were *Tricyphona claripennis* Verrall and *T. immaculata* (Mg.).

In Radnorshire we spent a warm afternoon on Rhosgoch Bog (800 ft.), where the yellow *Tipula melanoceros* Schummel was plentiful, with *Phylidorea lineola* (Mg.), *P. ferruginea* (Mg.) and *Ptychoptera albimana* (F.). Unfortunately, we picked a very wet day for the bleak, exposed moorland above Rhayader, where at 1500 feet the only crane-flies to be seen were *T. melanoceros,* although a single *T. marmorata* was noticed on some rocks by a waterfall at 1000 ft. A deep wooded ravine at Aberedw (550 ft.) produced *Rhypholophus haemorrhoidalis, Ormosia hederae* and the ubiquitous woodland fly *Limonia nubeculosa.*

I had long wanted to see the famous Tregaron Bog in Cardigan, reputed haunt of polecats and other scarce creatures. However, a brief visit on 20th September proved disappointing so far as insects were concerned. Amongst those I have so far identified, no particularly unusual species were taken, the only crane-flies being *Tipula melanoceros* and the very similar *T. luteipennis* Mg. (both abundant), *Dicranomyia modesta, Erioptera trivialis* Mg. and the huge Limoniid *Pedicia rivosa* (L.). (A single male *P. rivosa* also occurred in a muddy lane at Pencerrig, in Radnorshire.)

In the Allt Rhyd-y-Groes N.R. (Carmarthen) I took the following species in the damper parts of the oak wood (500 ft.): *Tipula fulvipennis, Limonia nubeculosa, Dicranomyia modesta, Phylidorea aperta* Verrall, *Pilaria nemoralis* (Mg.), *Rhypholophus varia* and *R. haemorrhoidalis.* Higher up the valley of the Doethie *Tipula rufina* Mg. and *Crunobia straminea* occurred in boggy oak wood.

8 Hill Top, Loughton, Essex.

The *Silvicola* Burgeff Group of the genus *Zygaena* Fabricius (Lep., Zygaenidae)

By W. Gerald Tremewan

(*Continued from p. 10.*)

Z. romeo Duponchel

♂ genitalia. Horns of uncus short, broad and flat, variable within the species. In the aedeagus, lamina dorsalis broad, triangular in shape, laterally edged with strong spines, with a larger and more strongly developed spine on each side at the base. Between these two large basal spines, a row of spines which vary in number and length but which are usually short and reduced and often vestigial. Central area of lamina dorsalis spiculate. Basal portion, anterior to the large spines, scobinate. Lamina ventralis rather broad, comprised of a field of short, strong spines. A large portion of the vesica spiculate with two groups of cornuti, one large and strongly developed, ending in 2-6 short, strong spines, the other group merely a field of short, minute spines. Vesical pad or "Blase" generally absent.

♀ genitalia. "Schildchen" broadly triangular but variable in shape. Lamella post-vaginalis undeveloped. Lamella antevaginalis strongly sclerotized, somewhat ovoid in shape and variable in width. Ductus bursae flattened, anterior two-thirds weakly sclerotized, angulated at entrance of ductus seminalis. Bursa copulatrix spherical, signum present or absent. When present, signum composed of a field of spines varying in number from 3-35 spines.

First pair of tibial spurs present or absent.

Z. romeo romeo Duponchel

Z. romeo Duponchel, 1835, in Godart & Duponchel, Histoire naturelle des Lépidoptères ou Papillons de France, Supplement, **2**: 131, pl. 12, fig. 1.

Z. celeus Herrich-Schäffer, 1844, Systematische Bearbeitung der Schmetterlinge von Europa, **2**, pl. 6, figs. 48, 49; 1846, *ibidem*, **2**: 38.

Type locality: Randazzo (at the foot of Etna), Sicily.

Material examined: A series from Nicosia; Bosco; Mistretta, Sicily.

♂ genitalia. Spines at the base of the lamina dorsalis reduced and almost vestigial, sometimes absent. Many of these spines may also be extended in length. Both groups of cornuti present.

♀ genitalia. A slight development of the lamella postvaginalis, lamella antevaginalis broad, ductus bursae weakly sclerotized, signum present, rather strong.

Superficially, the nominate subspecies is rather distinct from the remainder of the subspecies of *romeo* in having enlarged forewing spots.

Z. romeo calberlai Burgeff (comb. nov.)

Z. scabiosae calberlai Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 23.

Type locality: Sila; San Fili de Cosenza, S. Italy.

Material examined: A series of over one hundred specimens of both sexes from San Fili, Calabria.

♂ genitalia. Spines at the base of the lamina dorsalis variable in length. Both groups of cornuti strongly developed.

♀ genitalia. Lamella postvaginalis weakly developed, lamella antevaginalis broad, ductus bursae weakly sclerotized, signum present.

Z. romeo neapolitana Calberla

Z. scabiosae neapolitana Calberla, 1895, *Iris*, **8**: 209.

Type locality: Campania, Prov. Avellino, Italy.

Material examined: Over fifty specimens of both sexes from S. Angelo and Mte. Castello, Italy.

♂ genitalia. Spines at the base of the lamina dorsalis short and vestigial, cornuti of both groups reduced.

♀ genitalia. Lamella postvaginalis undeveloped, lamella antevaginalis narrower than that in ssp. *calberlai.* Ductus bursae rather moderately sclerotized compared with that in ssp. *calberlai.* Signum absent (? constant).

Z. romeo faitocola nom. nov.

Z. scabiosae faitensis Holik, 1944, *Iris,* **57**: 53 (preoccupied).

Type locality: Mte. Faito, Sorrento, Italy.

Material examined: A series of over seven hundred specimens of both sexes from Mte. Faito, Sorrento.

♂ genitalia. Spines at the base of the lamina dorsalis reduced, cornuti of both groups reduced.

♀ genitalia. Lamella postvaginalis weakly developed, lamella antevaginalis broad, ductus bursae weakly sclerotized, signum present, very weak.

The name *faitensis* Holik, 1944, is preoccupied by *faitensis* Stauder, 1929, which is a subspecies of *punctum* Ochsenheimer. We propose the name **faitocola** nom. nov. to replace the name *faitensis* Holik, 1944.

Z. romeo adumbrata Burgeff (comb. nov.)

Z. scabiosae adumbrata Burgeff, 1926, *Mitt. münch. ent. Ges.,* **16**: 22.

Type locality: Mte. Sirente, 1500-2000 m., Abruzzi, Italy.

Material examined: 1 ♂, Mte. Sirente (coll. H. Reiss).

♂ genitalia. Spines at base of lamina dorsalis vestigial, two lateral spines at base well developed, both groups of cornuti present.

Z. romeo jalina Rostagno (comb. nov.)

Z. transappenina jalina Rostagno, 1911, *Boll. Soc. zool. ital.,* (2) **12**: 106.

Z. scabiosae minima Turati, 1915, *Atti Soc. ital. Sci. nat.,* **53**: 609 (**syn. nov.**).

Type locality: Monti Aurunci, Italy.

Material examined: A series of over two hundred and forty specimens of both sexes from Monte Petrella and Monti Aurunci, Val de Petrella, Caserta, Italy.

♂ genitalia. Basal spines of lamina dorsalis short but somewhat longer than those in the above mentioned subspecies, both groups of cornuti moderately strong.

♀ genitalia. Lamella postvaginalis weakly developed, lamella antevaginalis broad but narrower than that in the above mentioned subspecies, ductus bursae weakly sclerotized, signum weak and reduced to a few spines.

The name *jalina* Rostagno was recognised by Verity (1920: 36) who correctly referred it to the populations of *romeo* from Monti Aurunci. Burgeff (1926: 12) incorrectly placed the name *jalina* as synonym of *neapolitana* Calberla and, querying Rostagno as the correct author, referred to Verity (*loc. cit.*). Holik (1944: 51) also recognised the name *jalina* but was unable to trace the reference to the original description. Verity (*loc. cit.*) considered the name *minima* Turati to represent small, aberrant specimens of ssp. *jalina* while Burgeff (1926: 13) considered *minima* as a subspecies from Monti Aurunci. Turati originally described

minima as a subspecies from the Monti Aurunci and the name is now placed as a synonym of *jalina* Rostagno.

Z. romeo romana Burgeff (comb. nov.)

Z. scabiosae romana Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 21.

Type locality: Albani Mts. and Roman Campagna, Italy.

We have been unable to examine material of this subspecies.

Z. romeo orion Herrich-Schäffer (comb. nov.)

Z. orion Herrich-Schäffer, 1843, Systematische Bearbeitung der Schmetterlinge von Europa, **2**, pl. 1, fig. 3; 1846, *ibidem*, **2**: 33.

Type locality: Tuscany; Marche (Sibillini), Italy.

Material examined: A series of both sexes from Monti Sibillini, Piceno.

♂ genitalia. Spines at the base of the lamina dorsalis reduced in number, cornuti of both groups well developed.

♀ genitalia. A slight development of the lamella postvaginalis, ductus bursae moderately sclerotized, signum present but reduced and rather weak.

Z. romeo ssp.

A series of specimens from Val Camaione, Lucca, Italy, 300 m., represents a new and undescribed subspecies. In size the specimens are similar to ssp. *orion* H.-S. but are more thickly scaled, consequently the coloration is brighter. The ground colour is intense blue-black with a slight gloss, forewing streaks and hindwings dark scarlet tinged with crimson, spot 3 reduced and very small, lower streak constricted in the middle and sometimes broken, forming two spots (2 and 4), especially in the females.

♂ genitalia. Spines at the base of lamina dorsalis lengthened. Both groups of cornuti well developed.

♀ genitalia. Lamella postvaginalis undeveloped, lamella antevaginalis narrow. Signum absent (? constant), ductus bursae moderately sclerotized.

Z. romeo megorion Burgeff (comb. nov.)

Z. scabiosae megorion Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 21.

Type locality: Pegli; Genoa; coastal regions of the Italian and French Riviera.

Material examined: 1 ♂, Mte. Sperone, Genoa (coll. H. Reiss), a series of both sexes from Moulinet and La Turbie near Nice, Alpes-Maritimes, France.

♂ genitalia. The number and length of the spines at the base of the lamina dorsalis rather variable. In some specimens, the spines are reduced in number and length and are often vestigial. In others, the spines may be lengthened and form a transverse row across the base. These moderately long spines, however, do not attain the length of those in *osterodensis*. Both groups of cornuti well developed.

♀ genitalia. Lamella postvaginalis undeveloped, lamella antevaginalis narrow, ductus bursae weakly sclerotized, signum vestigial.

This subspecies occurs as a mixture of races in the coastal regions from Genoa to Nice.

Z. romeo ssp.

A distinct and undescribed subspecies of *romeo* occurs in the neighbourhood of St. Baume and Marseilles in the department of Var. The

specimens are smaller than those of ssp. *megorion* and the more translucent wings have thinner scaling. The red coloration of the forewing spots and hindwings is a translucent carmine. In the forewings, spots 2 and 4 are narrowly connected by red scaling, this connection being often broken. Spots 3 and 5 are usually separate and are rarely connected by a fine line of red scaling.

♂ genitalia. Spines at the base of the lamina dorsalis variable in length, variation similar to that in ssp. *megorion*. Both groups of cornuti well represented.

♀ genitalia. Lamella postvaginalis variable and developed in some specimens, lamella antevaginalis narrow but variable; moderately strong, lateral sclerotization in the ductus bursae, signum absent. The absence of the signum appears to be constant.

This undescribed subspecies was recorded as "*scabiosae*" by Abeille (1909:9) who also noted that the broken forewing streaks are characteristic of this subspecies. According to Abeille (*loc. cit.*) the larva feeds on *Lathyrus pratensis* L. and exceptionally on *Hippocrepis comosa* L.

Superficially, this subspecies is not unlike *giesekingiana* Reiss but may be readily separated on genital characters.

Z. romeo loritzi Reiss

Z. romeo loritzi Reiss, 1958, *Bull. Soc. ent. Mulhouse*, p. 56.

Z. romeo loritzi Reiss, 1958, *Z. wien. ent. Ges.*, **43**: 182 (nomen nudum).

Type locality: St. Barnabé, Col. de Vence, Alpes-Maritimes, France, 900-1000 m.

Material examined: 18 ♂♂, 1 ♀, Vence, Alpes-Maritimes.

♂ genitalia. Spines at the base of the lamina dorsalis variable in length and number but generally reduced. Cornuti well represented in both groups.

♀ genitalia. Lamella postvaginalis undeveloped, lamella antevaginalis rather broad, ductus bursae weakly sclerotized, signum present, rather weak.

Z. romeo ssp.

An apparently new and undescribed subspecies of *romeo* occurs at St. Martin Vésubie, Alpes-Maritimes. Specimens from this locality have bright, scarlet forewing streaks and hindwings, ground colour of forewings blue-black with a slight gloss. Hindwing border fairly broad, especially at the apex. The lower forewing streak (2 + 4) is not broken although in some specimens it is constricted in the middle. The central streak is broken, forming two spots (3 and 5).

♂ genitalia. Spines at the base of the lamina dorsalis short and reduced in number. Both groups of cornuti strong, well represented.

♀ genitalia. A slight development of the lamella postvaginalis, lamella antevaginalis fairly broad, ductus bursae moderately sclerotized, signum vestigial.

Z. romeo parvorion Holik (comb. nov.)

Z. scabiosae parvorion Holik, 1944, Iris, **57**: 48.

Type locality: Digne, Basses-Alpes, France.

Material examined: 4 ♂♂, 1 ♀, Digne, Basses-Alpes.

♂ genitalia. Spines at the base of the lamina dorsalis variable in length and size, generally reduced; both groups of cornuti strong and well developed.

♀ genitalia, Lamella postvaginalis undeveloped, lamella antevaginalis narrow, ductus bursae moderately sclerotized. Signum absent (? constant).

The true *romeo* occurs in the neighbourhood of Digne and it is interesting to note that *osterodensis* (ssp. *schultei* Dujardin) occurs at Les Dourbes near Digne. It is not known whether the two species fly together on the same ground. The variability of the lamina dorsalis suggests possible hybridization between the two species. Holik originally described *parvorion* as a race of ssp. *subalpina* Calberla.

Z. romeo subalpina Calberla (comb. nov.)

Z. scabiosae subalpina Calberla, 1895, *Iris*, **8**: 205.

Type locality. Piedmont, N. Italy.

We have been unable to examine material of this subspecies.

Z. romeo freyeri Lederer (comb. nov.)

Z. freyeri Lederer, 1852, *Verh. zool.-bot. Ver. Wien*, **2**: 70, 94 (nomen novum for *triptolemus* Hübner *sensu* Freyer).

Z. triptolemus Hübner *sensu* Freyer, 1833, Neuere Beiträge zur Schmetterlingskunde, **1**: 28, pl. 14, fig. 4.

Z. scabiosae meridionalis Vorbrodt, 1913, in Vorbrodt & Müller-Rutz, Die Schmetterlinge der Schweiz, **2**: 253.

Z. scabiosae ephemerina Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 20 (**syn. nov.**).

Type locality: southern Alpine Valleys of Switzerland (Grono, Misox) and south Tyrol except the Etsch and Eisack valleys.

Material examined: A series of specimens from Tessin, Rovio; Bignasco, Switzerland; Val Randena, S. Tyrol.

♂ genitalia. Spines at the base of the lamina dorsalis variable, rather longer than those in the central and southern Italian subspecies of *romeo*. The two lateral spines at the base are stronger and very much enlarged. Both groups of cornuti strong and well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis variable, ductus bursae moderately sclerotized, angulated anteriorly. Signum absent or, when present, weak.

The tendency of the genitalia of ssp. *freyeri* to show transitory characters to *osterodensis* suggests that hybridization is taking place.

The ssp. *freyeri* was first described and figured by Freyer who incorrectly attributed it to *triptolemus* Hübner, the latter being a subspecies of *achilleae* Esper. In 1852, Lederer proposed the name *freyeri* for the subspecies which was later renamed *meridionalis* by Vorbrodt. The latter name is preoccupied by *meridionalis* Oberthür, 1911, which is a synonym of *hippocrepidis provincialis* Oberthür, 1907. Burgeff proposed the name *ephemerina* to replace *meridionalis* Vorbrodt but these names now fall in synonymy under *freyeri* Lederer.

Z. romeo orionides Burgeff (comb. nov.)

Z. scabiosae orionides Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 21.

Type locality: Trient and Adamello region, N. Italy.

Material examined: 2 ♂♂, Trient, N. Italy.

♂ genitalia. Spines at the base of the lamina dorsalis variable in length and number, suggesting transitory characters to *osterodensis*. Both groups of cornuti present, well developed.

Z. romeo ssp.

A most remarkable and distinct subspecies of *romeo* occurs in the neighbourhood of Geneva, Switzerland. The British Museum collection contains a series of over eighty specimens of both sexes from Boix d'Onex and Bois de Bay. The forewing spots are confluent and form well defined streaks as in *osterodensis*. There is, however, a strong constriction in the middle streak (3 + 5) of the forewings. The lower streak has a slight constriction in the middle but is never completely broken. In the females, however, the middle streak may be more frequently broken to form two spots (3 and 5). The specimens have rounded forewings as in *romeo* and have a wingspan of 23-28 mm. in the males and 25-28 mm. in the females. The red coloration is a bright scarlet, ground colour of forewings blue-black with a slight gloss. Thorax and abdomen black, thinly haired and without gloss.

♂ genitalia. Lamina dorsalis short and broad, spines at the base variable in length and number. Two males show the formation of additional short spines in the disc of the lamina dorsalis. Both groups of cornuti well developed.

♀ genitalia. Lamella postvaginalis undeveloped, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum absent (? constant).

Z. romeo lozerica Holik (comb. nov.)

Z. scabiosae lozerica Holik, 1944, *Iris*, **57**: 49.

Type locality: Florac, Lozère, France.

Material examined: 24 ♂♂, 5 ♀♀, Florac, Lozère.

♂ genitalia. Spines at the base of the lamina dorsalis variable, both in length and number. In one male examined, the spines are of equal length and form a transverse row across the base and are characteristic of *osterodensis*. Both groups of cornuti strong and well developed.

♀ genitalia. Slight development of the lamella postvaginalis, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum present, very weak.

In superficial characters the subspecies is obviously referable to *romeo*. The male genitalia show slight transitory characters to *osterodensis* but are referable to *romeo*.

Z. romeo urania Marten (comb. nov.)

Z. scabiosae urania Marten, 1957, *Ent. Z.*, **67**: 218.

Type locality: Neighbourhood of Ripoll, Spanish East Pyrenees, 900-1100 m.

Material examined: 3 ♂♂, Thués-les-Bains, Pyrénées-Orientales; 2 ♀♀, Mt. Taga, Catalonia, 900 m.

♂ genitalia. Spines at the base of the lamina dorsalis variable in length and number. Both groups of cornuti present, well developed.

♀ genitalia. Slight development of lamella postvaginalis, lamella antevaginalis rather broad, ductus bursae moderately sclerotized, signum present and very weak in one female, absent in the other.

The two specimens examined from Mt. Taga, Catalonia, are true *romeo* and agree with the original description of ssp. *urania* Marten. Marten

himself considered *urania* to be a race of *orion* H.-S., i.e., the species *romeo*. The three males from Thués-les-Bains are also true *romeo*. It is interesting to note that, in a large series of over two hundred specimens of *osterodensis eupyrenaea* Burgeff, there are no specimens from Thués-les-Bains. This suggests that the two species do not fly together on the same ground. As noted under *osterodensis eupyrenaea*, certain specimens of that subspecies have superficial characters which resemble those of *romeo* while the spines at the base of the lamina dorsalis of these specimens are variable in length. This suggests that hybridization is taking place.

Z. osterodensis Reiss

♂ genitalia. Horns of uncus short, broad and flat, variable within the species. In the aedeagus, the lamina dorsalis is triangular in shape, rather longer than that in *romeo*, laterally edged with strong spines, with a longer and more strongly developed spine on each side at the base. Between these two large, basal spines, a transverse row of long spines, varying in length, but usually two-thirds that of the lamina dorsalis. Central area of lamina dorsalis spiculate. Basal portion, anterior to the large spines, scobinate. Lamina ventralis rather narrower than that in *romeo*, comprised of a field of short, strong spines. Spines of central area of lamina ventralis thicker and more strongly developed. A portion of the vesica spiculate, this part developing into a single, large cornutus ending in a group of from 3-9 short, strong spines, arranged rather to one side. Vesical pad or "Blase" absent or vestigial.

♀ genitalia. "Schildchen" broadly triangular in shape but variable. Lamella postvaginalis well developed but not sclerotized as in, e.g., the *filipendulae-lonicerae* group. Lamella antevaginalis strongly sclerotized, ovoid in shape and variable in width. Ductus bursae more strongly angulated at entrance to ductus seminalis compared with that in *romeo*, weak to moderate sclerotization in the anterior two-thirds, especially laterally. Bursa copulatrix spherical, signum present (in all specimens examined), varying from 20-27 spines.

First pair of tibial spurs absent.

Z. osterodensis asiatica Burgeff (comb. nov.)

Z. scabiosae asiatica Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 19.

Type locality: Sojmonowsk, northern part of the southern Ural Mountains.

Material examined: 4 ♂♂, 5 ♀♀, Ural Mts.

♂ genitalia. Spines at the base of the lamina dorsalis long and well developed, forming a transverse row across the base. Single group of cornuti strong and well developed.

♀ genitalia. Lamella postvaginalis well developed, ductus bursae weakly sclerotized, signum present and well developed.

Z. osterodensis filipjevi Holik (comb. nov.)

Z. scabiosae filipjevi Holik, 1939, *Rev. franç. Lépid.*, **9**: 276, pl. 7, figs. 12-15.

Type locality: 50 km. south-east of Uzjan, Bashkir.

No material of this subspecies was available for examination.

Z. osterodensis saratovensis Holik & Sheljuzhko (comb. nov.)

Z. scabiosae saratovensis Holik & Sheljuzhko, 1955, *Mitt. münch. ent. Ges.*, **44/45**: 106.

Z. scabiosae transiens Spuler, 1906, Die Schmetterlinge Europas, **2**: 155 (preoccupied).

Type locality: Saratov, southern Russia.

Material examined: 1 ♂, Churalinsk, 1 ♀, Sarepta.

♂ genitalia. Spines at base of lamina dorsalis long and well developed, cornuti reduced in length.

♀ genitalia. Lamella postvaginalis developed, lamella antevaginalis broader than that in *altaica* (see below), ductus bursae weakly sclerotized, signum present, rather weak, number of spines reduced.

Z. osterodensis sibirica Holik & Sheljuzhko (comb. nov.)

Z. scabiosae sibirica Holik & Sheljuzhko, 1955, *Mitt. münch. ent. Ges.*, **44/45**: 109.

Type locality: Tobolsk, west Siberian steppe region.

We have been unable to examine material of this subspecies.

Z. osterodensis altaica Holik & Sheljuzhko (comb. nov.)

Z. scabiosae altaica Holik & Sheljuzhko, 1955, *Mitt. münch. ent. Ges.*, **44/45**: 111.

Type locality: Altai, central Siberia.

Material examined: 13 ♂♂, 5 ♀♀, Baikal region and Irkutsk.

♂ genitalia. Spines at the base of the lamina dorsalis long and well developed, forming a transverse row, single group of cornuti present, well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum present but number of spines reduced.

Z. osterodensis kenteina Burgeff (comb. nov.)

Z. scabiosae kenteina Burgeff, 1926, *Mitt. münch, ent. Ges.*, **16**: 19.

Type locality: northern Urga, Kentei Mts., Mongolia.

Material examined: 2 ♂♂, 2 ♀♀, Urga, Kentei.

♂ genitalia. Spines at the base of the lamina dorsalis long and strongly developed, cornuti strong, well developed.

♀ genitalia. Lamella postvaginalis developed, lamella antevaginalis narrow, ductus bursae weakly sclerotized, signum present, strongly developed as in ssp. *asiatica*.

Z. osterodensis caucasi Burgeff (comb. nov.)

Z. scabiosae caucasi Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 19 (nomen novum for *caucasica* Spuler).

Z. scabiosae caucasica Spuler, 1906, Die Schmetterlinge Europas, **2**: 155 (preoccupied).

Type locality: Achalzych, Georgia, Transcaucasia.

Material examined: 1 ♂, labelled "Causcasus".

♂ genitalia. Lateral spines of the transverse row at the base of the lamina dorsalis enlarged, central spines of transverse series shorter, but still well developed. Single group of cornuti present.

(To be continued.)

The genus *Idiocerus* (Hem.-Hom., Cicadellidae) in suburban North-west Kent

By A. A. Allen, B.Sc., A.R.C.S.

F. B. Jennings, writing over half a century ago (1909, *Ent. mon. Mag.*, **45**: 89), remarked on the paucity of records of insects of this suborder in general, and of this—in life—distinctly attractive genus in particular, which can hardly be said to share the obscurity of so many of its smaller relatives. To this day, however, it remains little known to the average field entomologist, and I therefore make no apology for offering some notes on the species of *Idiocerus* encountered during the past autumn within a few miles of my home.

I will first illustrate the above point by a comparison. Taking for this purpose a local list for a productive and well-worked area, compiled over a number of years—*The Natural History of the Oxford District*, 1926: 295—one finds only four species of *Idiocerus* listed for a circular area of seven miles' radius from the centre of Oxford. This contrasts oddly with a total of eleven species of these leaf-hoppers that may mostly quite readily be collected in a single day near here in an area a fraction of the size—nearly three times as many! W. West, working in the same district around the turn of the century, recorded in 1909 ('Woolwich Surveys') ten species of the genus, and later added one more; all of which the present writer, assisted at times by Mr. D. Collins, has met with recently either at Blackheath or Shooters Hill—places frequently mentioned in West's list. It is, perhaps, unlikely that any further species will now be found to inhabit the district, though one or two possibilities remain. At any rate it is interesting to note, in view of metropolitan 'sprawl' and increasing pollution, that every one of those taken over 50 years ago by West still occurs—most of them freely.

As the salicaceous host-plants of these bugs usually each support more than one species (up to three here in the case of certain kinds of poplar) it will be convenient to list the species under their foodplants. Synonyms are added where a different name is now in use.

Salix fragilis L.—*I. lituratus* Fln., Blackheath, in plenty, with *I. stigmaticalis* Lew. (=*adustus* H.-S.) much less commonly on the same willows. The former species appears to be at its peak in July, the males almost over by August (at least it seemed so in 1963), but females—as usual in the genus—may persist till late in the year. I know of only one tree of the white willow (*S. alba* L.) in the neighbourhood, which is almost unworkable but might probably yield the same two species.

Salix caprea L.—*I. confusus* Flor, Shooters Hill, one specimen; this apparent scarcity must be due to the lack of sallow in the area, the bushes being only very few and far between; in most localities this host supports *lituratus* besides *confusus*.

Populus alba L.—*I. distinguendus* Kbm. (=*cognatus* Fieb.), abundant at Blackheath on a row of young white poplars planted only a few years ago; this tree also is scarce in the district, which probably accounts for the absence of *I. albicans* from the row just mentioned. The young stages plentiful in July, more or less pale green—of which colour little remains in the adults.

Populus canescens Sm.—A single grey poplar in the woods at Shooters Hill, whose foliage is out of reach but which has given rise to a number of

seedling bushes growing mixed up with aspen, harbours thriving colonies of *I. distinguendus* and *laminatus* Kbm. on the bushes, together with *albicans* Kbm. very sparsely. The latter species perhaps breeds only on the parent tree, the few examples seen having strayed from it.

Populus tremula L.—*I. populi* L., Shooters Hill, generally distributed and common, locally plentiful; the striking form of the female having the normal bright green replaced by deep rosy or orange-pink (as fugitive after death as the green) occurs very sparingly. *I. tremulae* Estl. is considerably more local on the same aspens, its headquarters in one small area (with an outlier or two) and another even more restricted colony quite separate from this. At least one specimen of *I. laminatus* has been swept from aspen here but it may have been a straggler from the grey poplar, though some little distance from it. At Darenth Wood, however, we found these three species together and in about equal numbers on a row of mature aspens, the *laminatus* showing a wider range of colour than at Shooters Hill; one remarkable female had the normally rosy-flushed parts clear green—a very deceptive form, strongly resembling a large ♀ *populi*— while others showed a transitional phase in that only the abdomen was wholly or partly green instead of rosy.

Populus italica Moench.—Another productive host-tree regularly supporting three species around Blackheath: *I. fulgidus* F., *vitreus* F. (=*h-album* Fieb.) and *decimusquartus* Schrank (=*scurra* Germ.). The first two are general on it, occurring nearly always in company (as West and Jennings found), the last a good deal less common, at least this season, but still far from rare. West recorded it as abundant at Blackheath. Yet, apart from several localities around London, mostly on the north side (Jennings, *l.c. sup.*), British records of *I. decimusquartus* are very few—the most distant are isolated ones from West Sussex and Oxon. The same observers remark on the seemingly exclusive attachment of both '*scurra*' and *vitreus* to the Lombardy Poplar, and this we can fully confirm. (Unfortunately, this tree, known to yield two other species of *Idiocerus* in Britain, is by its situation and mode of growth often almost unworkable!)

Populus (*deltoidea* Marsh. × *nigra* L.=) × *canadensis* Moench.—The common hybrid 'black' poplar of the suburbs appears for some reason to be less acceptable to these insects than *P. italica,* notwithstanding the very close affiinity of the two trees; the only species found by us on it here and elsewhere is *I. fulgidus,* tolerably freely. One female among numerous typical specimens from Cheshunt, Herts., was bright salmon-pink instead of green—the only such specimen seen corresponding to the similar form of *populi* already noticed. (Whether the third green species, *confusus,* ever produces a like form seems uncertain.) Mr. Collins has found what appears to be colour-dimorphism in the 'larvae' of *fulgidus* at Carshalton Beeches, Surrey, where green and black forms occurred together last year in equal numbers on a bush of the above foodplant; but whether this is a sexual difference has not yet been demonstrated.

Besides these 11 species, there is a specimen standing over the name *I. cupreus* Kbm. (=*aurulentus* Kbm.) in the collection of British Homoptera at the British Museum (Nat. Hist.) with a label 'Blackheath, Kent/x.1909/W. West'—one of a series from various sources. With the exception, however, of the original specimen taken by James Edwards at Cossey, Norfolk, and recorded by him as *I. aurulentus* (his *cupreus* being probably an abnormal overwintered *vitreus*), they appear to have been

incorrectly placed as that species and to be in fact referable to *vitreus*. I suspected this from a naked-eye comparison and am glad to find that it is also the view of Dr. W. J. Le Quesne.

As a guide to anyone wishing to work the group, it may be mentioned that East Anglia is seemingly the richest part of the country in Idioceri, with two or three very rare species recorded many years ago for which further data, and any recent records, are badly needed; and that for many remoter parts virtually nothing at all is known of the fauna. It would be strange if some of our many northern and mountain species of *Salix*, for instance, did not harbour one or two species of *Idiocerus* not yet known from Britain. For all 18 species now reckoned as British, August to September is the peak period. One of the rarer, *I. vittifrons* Kbm., is exceptional in being attached to the field maple, *Acer campestre* L. Knowledge of foodplant is a most valuable aid to specific determination. The slight or pronounced sexual differences in colour or marking shown by about half the species may be rather confusing at first, but as they are all gregarious and the sexes are easily known by the different formation of the apical sternites, this will not give much trouble; besides, closely similar species do not as a rule affect the same host-plants. Each species in the fresh state has a distinctive facies which soon becomes familiar (hard as it may be to describe).

The curious 'allochromatism' among females of the *populi* group of species* seems to have a parallel in the pigmental changes undergone by females of certain Heteroptera (e.g. some Pentatomids and Mirids) in connection with hibernation, and beginning in the abdomen (cf. our experience with *I. laminatus*). As only females of the present genus are known to hibernate—a small proportion normally surviving the winter—it may well be that the phenomenon under notice is basically similar, i.e. a by-product of physiological changes preparatory to overwintering; but the low percentage of any population to be so affected seems to offer difficulty, moreover the colour-change (assuming it *is* a change, and not a constant feature of certain individuals) can be complete before mid-August. Clearly, the question could only be settled by keeping whole broods under constant observation in captivity, and breeding if possible from allochromatic females.

In conclusion I would thank my friend Mr. Collins for directly or indirectly drawing my attention to these interesting insects, and Dr. Le Quesne for his kindness in elucidating certain points and in freely giving us the benefit of his great knowledge of the 'hoppers'. 31.xii.63.

*Reversed in *laminatus*, where the green form is the exception, the rosy one the rule. In addition, there is sexual colour-dimorphism in *laminatus* (with brownish male) and *populi* (with yellow male), but in *confusus* and *fulgidus* both sexes are normally green. The reference throughout is of course to the ground colour—the markings remain unchanged.

Current Literature

Diptera Visitors to the Stinkhorn, Phallus impudicus Pers., in Denmark.

The Stinkhorn is a toadstool with a scent repulsive to human beings but attractive to many species of flies. Records of visitors to this fungus have been published by H. Luther in 1947 for Finland, for this country by myself in 1947 and 1951 and by K. G. V. Smith in 1955, 1956, and for Belgium by A. Collart in 1950.

B. Overgaard Nielsen in 1963, FLORA AG FLORA, **69**: 126-134, records *Phaonia errans* Mg. and *Helomyza fuscicornis* Zett. as new to the list of the Diptera of Denmark in an article on 1699 flies of 16 families captured at the fungus in two localities to the north of Copenhagen, Denmark, in September and October. The most numerous visitors were *Polietes lardaria* F., *Phaonia variegata* Mg., *Calliphora vomitoria* L. and *Drosophila phalerata* Mg. A comparison is made of the captures made in the four countries but it is evident that there is scope for further work to ascertain the full range of visitors and the reasons for the visits. Nielsen records breeding *Drosophila busckii* Coq. from the stinkhorn.

L. PARMENTER.

"The Biting Midges of Lyngby Aamose" in 1963, Natura Jutlandica, **10**: 1-46.

B. Overgaard Nielsen of the Zoological Institute, University of Aarhus, Denmark, presents his report of an investigation of the biting midges which were causing a great nuisance to the inhabitants of Lyngby Aamose. The town is in wooded fenland on the shores of Lake Lyngby, a few miles north west of Copenhagen. A description of the vegetation and the several methods of collecting is given before proceeding with the account of the midges. Some 20,000 *Culicoides* (Ceratopogonidae) adults were collected in 1960-62 with *C. impunctatus* Goet. providing over 90%. This is the species which was accidentally omitted from the British List in Kloet and Hincks, 1945, but is known as one of the most annoying species of the family in Scotland. The seasonal and daily activities of the species are discussed and also its dispersal, illustrated with tables and maps. The trapping of emerging midges and the micro-distribution of *Culicoides* larvae are described and a brief note on their pupation follows before the final summary. The paper concludes with a useful reference list of 27 items.

L. PARMENTER.

New Locality Records for British Ants, 1963

By C. A. COLLINGWOOD

Ponera coarctata Latr. workers were found in soil among loose rock on Brean Down. Somerset, in April 1963; this is the first record for Somerset. *Myrmecina graminicola* Latr. has usually been taken in limestone country, typically nesting under deep stones on well drained sites. It was a surprise, therefore, to find a strong colony nesting in the sphagnum bog on Stoke Heath Dorset. The nest had a small pile of fine litter fragments on top in which the *Myrmecina* were incubating their brood. Various *Myrmica, Lasius niger* L. and *Formica transkaucasica* Nas. were occupying similar situations nearby.

A large and thriving colony of *Leptothorax nylanderi* Foerst. was disclosed under flaking rock in a sheltered position on Stanner Rocks just within the county of Radnorshire in October 1963. This is the second record for Wales where previously it has only been found at Chepstow by the late H. M. Hallett. This is also the second time only that I have found this species in Britain other than in tree stumps or under bark.

More typically the species was abundant on old oak trees in Chilston Park, Kent, in September. Conversely, a strong colony of *L. tuberum* Fab. which normally nests in rock crevices or in moss, was found under ash bark in Goblin Coombe, Somerset, a locality where this species is not uncommon among the limestone exposures. These experiences illustrate the difficulty of attempting to define too closely the apparent ecological requirements of a species

Myrmica schencki Em. was found in two new localities, nesting in sand at Kenfig, Glamorganshire in June 1963, and in a grassy bank near Coombe Halt, Oxfordshire, in July. The Glamorgan discovery supplements the discovery of H. M. Hallett who first discovered this species in the British Isles nesting in a marl bank at the edge of a wood near Sully. To date, this ant is now recorded from 13 locations in England and Wales compared with twice that number in South Ireland. *Lasius rabaudi* Bond. was also found on Kenfig dunes nesting in sand banks. One colony was found in a large *L. flavus* Fab. like mound in the sand. The interior of the nest was constructed of blackened carton. The nest was probably of fair age and contained very large numbers of males and also a very few alate queens. Some of the males and workers were retained in captivity for a few weeks and I was surprised to see the males which are robust in form with well developed mandibles, feed themselves from moistened sugar and also drag about insect corpses.

Other new county records include *L. fuliginosus* Latr. seen foraging among willow near Hilton, Hunts., in September. *Myrmica rubra* L. and *M. sabuleti* Mein. at Portknockie, Banffshire, and *Formica sanguinea* Latr. on a wooded bank at Bridge of Canny, near Banchory, in Kincardineshire, in July 1963. This last place was about a mile away from a similar site where I found it in 1958 near Kincardine O'Neil, just over the county border into Aberdeenshire. Dr. Guy Morison also sent me some *F. sanguinea* from Marywell, in the same area.

Prodenia litura Fabricius: The Mediterranean Brocade (Lepidoptera: Noctuidae) in England in 1963

By J. M. Chalmers-Hunt

Newspaper entomology is not renowned for its reliability, and seldom contains information of import that cannot be located in the entomological literature. It was therefore of interest to read in the *Evening News* of 13th December 1963, a well-informed article drawing attention to the appearance of this species in England in unprecedented numbers. This short article, entitled "Looking for the Prodenia Litura", by L. B. Powell, is based on a Press notice issued by the Ministry of Agriculture, who have since confirmed that the moth occurred in this country as a pest on chrysanthemums in 1963.

Mr. F. H. Jacob of the Plant Pathology Laboratory, Harpenden, writes that from July onwards, a few chrysanthemum growers in the southern half of England noticed unusual damage, and that caterpillars proved

difficult to kill with the common insecticides used in glasshouses. Cases were reported to the Ministry of Agriculture, whose staff identified the larvae as those of *P. litura*. Subsequently, infestations were found in a number of glasshouses on nurseries in Kent, Sussex, Hampshire, Norfolk, Essex, Somerset, Gloucestershire, Glamorgan and Worcestershire. The species is believed to have been accidentally introduced as ova or young larvae on chrysanthemums.

P. litura has a wide range abroad in tropical and sub-tropical regions, and its larva is well-known as a potentially dangerous pest, notably on tomato and citrus fruits. Prior to 1963, however, it appears to have been very seldom noticed in this country, and the only instance of its occurrence to my knowledge, is of a specimen bred from a larva stated to have been imported from the Canaries in bananas, and which was feeding on the skin. The larva, and later the moth which was bred from it, were exhibited by Classey in 1949 (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1949-50: 10, 25).

The species is not in Barrett (*Lep. Br. Isles*), South (*Moths Br. Isles* (1907)), nor in Meyrick (*Rev. Handbook Br. Lep.* (1927)). South (*Moths Br. Isles*, New Edition, 1961) states that it "has occasionally been reared here from caterpillars found on imported tomatoes", but gives no further particulars.

Notes and Observations

Some Late Records for 1963.—As usual, my mercury vapour light trap has produced some exceptionally late records here, among which are the following: October 13th, *Apamea monoglypha* Hufn.; October 24th, *Epione repandaria* Hufn.; November 4th, *Hypena proboscidalis* L.; November 5th, *Leucania pallens* L.; November 14th, *Plusia gamma* L., and I also saw a fully-fed larva of *Pieris brassicae* L. crawling up the wall of the museum at Haslemere on November 30th.—C. G. M. de Worms, Three Oaks, Shore's Road, Woking, Surrey. 22.xii.1963.

Euphia luctuata Schiff. and Rhodometra sacraria L. in 1963.—I would like to mention two insects caught in 1963 which may be of interest. The first is a female *Euphia luctuata* Schiff. (white banded carpet) which I caught flying around some birch trees near Lewes on 5th May. The 1961 edition of "South" mentions June to August as the months of emergence of the moth. The second record is of a male *Rhodometra sacraria* L. (vestal). This was caught at light on 17th October at Cheltenham. The oblique stripes on the forewings are of a deep chocolate brown colour.—R. M. C. Vaux, M.B., B.Ch., 29 Leckhampton Road, Cheltenham, Gloucestershire. 27.xii.1963.

Eupithecia insigniata Hübn. and Hadena compta Schiff. in North Bucks.—*E. insigniata* Hübn. appeared in my mercury vapour light trap on 16th and 27th May last year; there are several old apple trees near to where I station the trap and next year I hope to find larvae. A worn and slightly battered specimen of *H. compta* was taken in the trap on 22nd July. The only highlights of an otherwise undistinguished season.—J. Ellerton, Captain, R.N., Granborough Lodge, Granborough, Bucks.

Obituary

ALFRED E. BURRAS (1871-1963)

Alfred Burras passed away at Newbridge Hospital, Salisbury, on 15th November 1963, at the great age of 92 years, and in spite of his advanced years, his death came as a great shock to a very large circle of his friends, for until he reached his nineties he was a man of very great energy with a tremendous zest for his entomological and ornithological pursuits. All who met him, even in his later years, must well remember his unbounded enthusiasm which he kept up virtually to the end. He might well be termed the doyen of field naturalists, since he had a very wide and all-round knowledge of natural history and was one who spent all his years in practical field work.

Excepting those years interrupted by hostilities, he pursued his interests almost annually on the continent, and among his favourite hunting grounds may be mentioned the Pyrenees, Alpes Maritimes, and such famous resorts in the Basses Alpes as Digne, Uvernet, Maurin and Dieulefit, while the Swiss Alps were an equally happy and profitable collecting ground for him. From all these trips abroad, which were often carried out twice a year so as to coincide with the spring and autumn emergences, he brought back much interesting material, especially among the high level lepidoptera. On many of these expeditions he was accompanied by his very close friend, the late William Fassnidge, and they collaborated to provide some very valuable data for entomologists at home and abroad. On all these occasions went with him his devoted wife, whose help in the field has been of inestimable value to his success in many spheres of natural history. But these collecting trips were not without adventure, and he used to tell how he was once taken for a smuggler on the Italian frontier, but was saved by his net, which acted as his emblem of office.

Although he spent much time out of this country, it was the New Forest which was his real home, and since 1907 he worked every corner of this famous region and had an unrivalled knowledge of its fauna, and it was here that he made his final home, near Redlynch, among its lepidoptera and birds which he also studied so closely, for he possessed a very extensive collection of eggs as well as of British butterflies and moths.

Of his earlier days, he was born of humble parents in Westmorland, where he first showed the flair for observation in the field. From 1894 he was assistant master at several grammar and high schools, both in Cumberland and the south of England, until he finally settled, in 1907, at the Boys Secondary School at Portsmouth, where he taught mainly English and French, and he remained on the staff there until he retired shortly before the 1939 war. Here again, he was recognized as a naturalist of marked talent. He was also a keen sportsman, being a cricketer, and especially a bowler, of no mean repute, being also an equally enthusiastic angler. In his early days he won an open swimming championship on Lake Windermere.

In the scholastic field he was a B.A. of London University, and also held the Diplome Superieur of the University of Caen, being fluent in French and Spanish. In the natural history world he was a fellow of the Royal Entomological Society of more than forty years standing, as well as a member of the British Ornithologists' Union, and he had been presi-

dent of the Society for British Entomology. He was also on the Convocation of the National Trust.

The sympathy of all his friends goes out to his beloved and devoted wife who, at the age of 86 years, carries her head high and is still living on the edge of those wild expanses of the New Forest that her husband loved so much throughout his long and active life.

C. M. R. P., W. G. T., C. G. M. de W.

H. E. HAMMOND, F.R.E.S. — An Appreciation

Ted Hammond was unusual amongst entomological personalities in that he earned his reputation as a taxidermist rather than as a collector or field-worker, and the sphere in which he not only excelled but which he truly made his own was in the preservation of lepidopterous larvae by what is called "blowing". This particular form of preservation had been carried on in only a desultory sort of way until Cockayne did it systematically and then Hammond perfected the art, which is now recognised as making an important taxonomic contribution to collections both public and private.

During the past twenty-five years Hammond devised new apparatus and ingenious techniques, all the while so polishing his expertise that he was able to operate on a tremendous scale and preserve great numbers of specimens for commercial distribution to schools and educational centres in addition to providing the large numbers of skins for private collections which was his major task and enjoyment. His industry was prodigious. He was never able to spend much time in the field so he became the centre of a highly organized band of widely scattered colleagues who maintained with him a rich and entertaining correspondence by which larvae were posted and preserved and distributed; the tales born of this enterprise are a legion and all gained from the earthy and indomitable joviality of Big Ted Hammond.

His reputation extended beyond Britain but he was known intimately only to his own Birmingham colleagues and to a small inner circle of his correspondents. He wrote two major papers about his work, one for the Amateur Entomologists' Society entitled "Preserving Caterpillars" (A.E.S. leaflet, no. 20, 1948) and one entitled "The Preservation of Lepidopterous larvae using the inflation and heat-drying technique" (Journ. Lep. Soc, 14, no. 1, 1960). He was a member of the South London Natural History and Entomological Society, and one of the pleasures of the Annual Exhibition was to meet him at Burlington House each October.

For many years, and for most of us for as long as we had known him, Hammond was afflicted by acute deafness but during recent years his health was much troubled by additional illness culminating in an exacting aorta operation just over a year ago; that he was able to maintain his energies and interests was due in part to his robust constitution and unyielding courage, but due equally to the devotion and care of his wife.

Ted Hammond died on 15th December 1963, aged sixty-one. His work will live in the beautiful and exquisitely preserved specimens that will eventually occupy a permanent place in the national collections, and his memory will live with those of us who were fortunate to know him and to share in his work.

To his widow we express our deepest sense of loss.

G.M.H.

11. Wateringbury, one, July 1906 (Goodwin coll.). Edenbridge, at light, 1930 (F. D. Greenwood). Aylesford, four, 1954 (G. A. N. Davis).

12. Chartham, one, c.1950 (P. B. Wacher). Wye, one, July 14, 1955; Willesborough, two, July 19, 1956 (W. L. Rudland). West Ashford, one, 1957 (M. Enfield).

13. Tunbridge Wells district*, scarce (R. H. Rattray, in Knipe (1916)). Goudhurst, noted almost annually (W. V. D. Bolt, *personal communication*, 1961).

14. Sandhurst, at sugar and light (G. V. Bull).

15. Romney Marsh (Bull, *Entomologist*, **69**: 266). Dungeness, larvae, 1947 (de Worms, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1947-48: 12); July 27, 1956 (R. F. Bretherton) June 13, 1962 (T. W. Harman); one, in m.v. trap, June 14, 1962 (R. E. Scott).

16. Folkestone (A. M. Morley).

First Record, 1796: "Mr. Crow, of Feversham [Faversham] . . . met with two or three specimens" (Donovan, *Br. Ins.*, **5**: 14). The first definitely Kentish record, however, dates from 1809: "Habitat in Cantio, at valde infrequens" (Haworth, *Lep. Brit.*, **2**: 235).

Heliothis viriplaca Hufn. (**dipsacea** L.): Marbled Clover.

Suspected immigrant and temporary resident. Shingle beach, chalky places, etc.; on *Senecio viscosus, Silene nutans, Ononis repens.*

Note.—Many of the following records were made before *H. maritima* Grasl. (*q.v.*) obtained recognition as a British species, so that in the absence of specimens it is nearly always impossible to know to which species they refer. It is a significant fact, nevertheless, that of the total number of records for both species that it has been possible to check, with two exceptions only, all refer to *H. viriplaca.*

2. Sheppey, 1873, one at sugar (Hodgson, *Ent. mon. Mag.*, **10**: 180).

4. Sandwich,, one, June 13, 1904†, one, June 3, 1905†, both in J. Platt Barrett coll. (C.-H.).

6a. Near Dartford* (see *First Record*). "Found occasionally flying in the clover fields, by day, near Darenth-wood" (Stephens, *Haust.*, **3**: 110).

7. Westwell, a fresh ♀†, taken by P. Cue, August 17, 1955, in E. Scott's garden (C.-H.).

8. Dover (Stephens, *loc. cit.*). Near Dover*, exhibited at Soc. Br. Entomologists, August 5, 1851 (*Zoologist*, 3240). Kent Coast* [Deal], exhibited by H. J. Harding, at Soc. Br. Entomologists, September 6, 1853, and September 6, 1854 (*Zoologist*, 4071, 4484). Deal district*.—1856, 1858 (Harding, *Ent. week. Int.*, **1**: 108, **4**: 125); taken by E. G. Baldwin and F. O. Standish, July 1858 (*Ent. week. Int.*, **4**: 134, 146); 1859, 1860 (Harding, *Ent. week. Int.*, **6**: 124, **8**: 155). Folkestone*.—The species is included in the 1859 edition of *English's Guide to Folkestone*, edited by S. J. Mackie, and it is possible it appeared in the earlier editions, but none of these have been traced (C.-H.); ♀, between July 24 and August 1, 1858 (H. Tompkins, *Diary*). Folkestone Warren, not common, July (Knaggs (1870)).

9. "In 1818 I saw three or four specimens in the beginning of August, sporting about the vicinity of Broadstairs" (Stephens, *loc. cit.*).

13. Tunbridge Wells district*, scarce (R. H. Rattray, in Knipe (1916)).

15. Dungeness.—"In 1931, taking *Silene nutans* heads for young larvae of *Dianthaecia*, I found a few larvae of *dipsacea* (*viriplaca*) in June, which the following July produced a form of imagines that were redder in

ground colour than East Anglian examples. Pennington who was also working there got the same form by netting in July" (A. J. Wightman, *in litt.*); a series bred, from larvae taken by Sir Beckwith Whitehouse, in September 1934, when searching for larvae of *H. peltigera* (F. H. Lees, *Ent. Rec.*, **48**: 18; and *in litt.*); several bred June 11-21, 1935, from June 1934 larvae (A. J. Wightman *in litt.*); bred 1948, from larva taken with *H. peltigera*, September 1947 (H. C. Huggins); a larva on *S. viscosus*, in 1952, from which an imago emerged, May 31 1953† (C. G. M. de Worms); four larvae on *O. repens*, July 11, 1959, from which two imagines were bred (B. F. Skinner).

VARIATION.—de Worms (*Entomologist*, **72**: 132) states that the series bred by Whitehouse, from larvae found at Dungeness, "is very similar to the dark continental form of this insect".

Attention is directed to Wightman's note above, of a number of Dungeness specimens that were taken and bred, which "were redder in ground colour than East Anglian examples".

The Kentish *viriplaca* that I have seen all appear indistinguishable from specimens in my coll. from the Suffolk Breck district (C.-H.).

FIRST RECORD, 1801: "Dr. Latham found it in great abundance in a clover field near Dartford, Kent" (Donovan, *Nat. Hist. Br. Ins.*, **10**: 9, plt. 327, fig. 3) (the figure appears to be that of *viriplaca*).

H. maritima Graslin: Fulvous Clover.

Immigrant. Lucerne fields.

9. St. Nicholas-at-Wade.—♀, taken by W. B. L. Manley, flying among *Colias hyale* L., in a lucerne field, August 20, 1947. W. H. Tams and I have examined the specimen, and we are agreed that it conforms to the nymotypical race. The example has an al. expanse of 36 mm., and agrees closely with the illustration of the nymotype in Culot (*Noctuelles et Geometres d'Europe*, **2**: plt. 64, fig. 12), and Graslin's specimen (in Oberthür coll., Br. Mus., S. Kensington), from which the figure was executed (C.-H.).

FIRST RECORD, 1947: St. Nicholas-at-Wade, Isle of Thanet (W. B. L. Manley). It appears that this is also the first and only confirmed occurrence of *H. maritima maritima* in Britain.

H. septentrionalis Hoffmeyer[1]: Shoulder-striped Clover.

Immigrant. Sandy places.

4. Sandwich.—♂, in J. Platt Barrett coll., labelled "Sandwich June 10 1904", in Barrett's handwriting. The specimen has the characteristic "shoulder stripe" well marked, and appears to be indistinguishable from several examples of New Forest, Hants., *septentrionalis* in my coll., with which I have compared it (C.-H.).

[(Cockayne (1941, *Amat. Ent.*, **5** (38): 23) gives "on the shingle at Dungeness"; and this statement is exactly repeated in South (1962, *Moths Br. Isles*, edit. Edelsten and Fletcher, **1**: 317). I very much doubt if this refers to *septentrionalis* however, and strongly suspect that the information was based on Whitehouse's series of *H. viriplaca* (*q.v.*). According to Huggins (*Ent. Rec.*, **69**: 175, and *in litt.*), Whitehouse erroneously recorded his specimens from Dungeness as *septentrionalis*, but that later, Cockayne discovered they were all *viriplaca* (C.-H.).)]

First Record, 1904: Sandwich (J. P. Barrett).

[1]Treated here as distinct from *H. maritima* in accordance with Heslop's classification; most authors, however, recognise *septentrionalis* as of sub-specific status.

H. peltigera Schiff.: Bordered Straw.

Immigrant[1], and perhaps temporary resident. Shingle beach, sandhills, gardens, waste places, etc.; on *Senecio viscosus, Calystegia soldanella,* "marigold", *Ononis repens.* Recorded from 1, 3, 4, 6, 7-9, 11-16, but chiefly from the east coast. Most frequent in the shingle beach area of 15, where the choice of pabulum is *S. viscosus,* and where in fact it appears to occur on nothing else; the species is apparently not found on *S. viscosus* elsewhere in Kent.

19th Century Occurrence.—The earliest recorded occurrence is that of Stephens (*Haust.,* **3**: 109), who states that in 1827, it was found near Dover, and about London. Over thirty years then elapsed before it was again noticed in Kent, and the following is a chronological record of its subsequent appearance. 1858: Deal, four larvae (Harding, *Ent. week. Int.,* **4**: 164). 1869: Folkestone (Standish, *Entomologist,* **4**: 323) (Knaggs (1870), *Simpson's Handbook to Folkestone* (1871), and Ullyett (1880), may all refer). 1870: Near Margate, two (Cox, *Entomologist,* **5**: 165). 1877: Deal, two, August (Tugwell, *Naturalist,* new series, **3**: 41). 1883: Dover, two, July (Coverdale, *Entomologist,* **16**: 221). 1888: Sydenham (div. 1), one (Sellon, *Ent. Rec.,* **2**: 164); Deal, one, August 29 (Fenn, *Diary*). 1889: Dover (Webb (1891)). N.d.: Folkestone (Briggs, *Proc. S. Lond. ent. nat. Hist Soc.,* 1890-91: 130). 1894: Lee (div. 1), one, June 4 (Fenn, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1894: 46).

1904-(1924).—1904: Deal, one, June 17 (Pearce, *Entomologist,* **37**: 287). 1906: Margate, ♂, August 9 (Colthrup, *Ent. Rec.,* **18**: 290). 1910: Plumstead, one (H. C. Huggins). 1923: Sidcup, one, July 13 (A. R. Kidner, *Diary*). (1924): Blackheath, one (Edwards, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1924-25: 99) (Dannatt, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1925-26: 59, may refer).

1928-1937.—Margate (Huggins, *Entomologist,* **62**: 71). Deal, larvae on *C. soldanella* (Cockayne, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1928-29: 68; idem, *Ent. Rec.,* **40**: 166). Ramsgate, one, September 9 (J. W. C. Hunt). Dungeness and near Hythe, larvae swarming, August 29 (Kettlewell, *Ent. Rec.,* **41**: 26; *Proc. S. Lond. ent. nat. Hist. Soc.,* 1928-29: 67). Lympne, one, by day, flying over lucerne, September 5 (W. Rait-Smith, *teste* A. M. Morley). Folkestone, one, flying over knapweed at dusk on the downs, September 18 (A. M. Morley). [1929-30: Dungeness, apparently absent (Wightman, *Ent. Rec.,* **43**: 143)]. 1930: Edenbridge (div. 11), one at light (F. D. Greenwood). 1931: Sandhurst (div. 14), two, June (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1931-32: 61; idem, *Entomologist,* **64**: 187). Sidcup, one larva, July 12 (A. R. Kidner, *Diary*). Brook, a few specimens (Scott (1936)). Dungeness, larvae abundant, end July, September (Wightman, *Ent. Rec.,* **43**: 143); about 50 larvae by E. Scott, C. A. W. Duffield, and A. M. Morley, August 1, 7, 12, from which A.M.M. bred seven, October 5-19, 1931, and four, July 9-August 8, 1932 (A. M. Morley). 1932: Dungeness, small number of larvae, August 20 (Bull, *Entomologist,* **65**: 238); one, at sugar, September 17 (A. M. Morley). 1933: Dungeness, over a dozen larvae, August 14 (de Worms, *Entomologist,* **67**: 131). 1934: Dungeness,

one by B. Whitehouse, September 16 (A. M. Morley). 1935: Dungeness, larvae, July 30-August 7 (Bull, *Entomologist*, **68**: 217). [1936: Dungeness, apparently absent (A. J. L. Bowes, *Diary*).] 1937: Near Lydd, larvae, September 15 (Dannreuther, *Entomologist*, **70**: 254).

1938-1947.—1938: Sandwich, imago, June (A. J. L. Bowes). Herne Bay, two ♂♂, in a lucerne field by day, August 28, 30 (C.-H.) (Dannreuther, *Entomologist*, **72**: 15, refers). Dungeness, twenty-four larvae, July 29 (A. H. Lanfear MS.); July-October 1, larvae widespread, abundant, several imagines (Dannreuther, *Entomologist*, **72**: 15, 120; de Worms, *Entomologist*, **72**: 263); one imago, June 11, at night sitting on wire between posts; one imago, at sugar, September 18; twenty larvae, from which eight moths emerged August 23-30, 1938, and three, August 21-October 10, 1939 (A. M. Morley). Lydd, in one afternoon, about the middle of August, about 100 full-grown larvae shaken out of plants of *S. viscosus* that had been pulled up by other collectors (C.-H.). [1939: Dungeness, apparently absent (A. J. L. Bowes, *Diary*)]. 1940: Near Lydd, larvae plentiful, September 10 (Dannreuther, *Entomologist*, **74**: 60). 1941: Sandhurst, one, June 25 (Bull, *Diary*; *Entomologist*, **74**: 280). 1944: Folkestone Town, one, flying in garden, July 8 (A. M. Morley). 1945: Westwell (div. 7), one, June 7 (E. Scott). Pinden (div. 6), ♂, July (Hare, *Entomologist*, **79**: 20). Eynsford (div. 6), August 8 (Blyth, *Entomologist*, **78**: 175). Rolvenden (div. 14), ♂, August 27, in clover field; Littlestone to Dungeness, larvae (Bull, *Entomologist*, **78**: 175). Deal, one, August 3 (C. M. Gummer, *teste* Riley, *Entomologist*, **78**: 175). Ramsgate, two (ffennell, *Entomologist*, **79**: 174). Bexley (div. 1), a larva on marigold, mid-July (L. T. Ford). Dungeness-Folkestone area, August, imagines numerous, eleven taken, including one in clover field, the rest over *Echium* at dusk, larvae plentiful (Richardson, *Entomologist*, **79**: 19). Dungeness, two, August 5 (de Worms, *Entomologist*, **79**: 76). 1946: Dartford, ♂, July 1 (B. K. West). Folkestone Warren, ♂, July 11 (C.-H.); three, flying over bugloss, July 13 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 36); two larvae on *O. repens*, August 15 (A. M. Morley). Westwell, three, July (*Bull. Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 168); larvae on marigold, September (Dannreuther, *Entomologist*, **80**: 140). Dungeness, larvae widespread and plentiful, mid-August (Dannreuther, *Entomologist*, **80**: 140). 1947: Deal, one, June 10 (C. M. Gummer, *per* Rothamsted). Westwell, larvae on marigold (Scott (1950)). Sandwich, one, June 20, by R. Demuth (A. M. Morley). Dungeness, twenty-four larvae, August 31 (H. King).

1948-1962.—1948: Pinden, one (G. Law). Whitstable, one, August 15 (P. F. Harris). Deal (E. & Y. (1949)). 1949: East Kent (Parfitt, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1949-50: 39). 1951: Waltham (div. 8), nineteen larvae on marigold (J. W. C. Hunt). Dungeness, larvae plentiful, early July (A. J. Wightman); ♂, at m.v.l., August 4 (C.-H., *Entomologist*, **84**: 257). Folkestone Town, one, June, in m.v. trap, by A. G. Riddell (A. M. Morley). 1952: Dover, one in m.v.t., March 16 (G. H. Youden). Dymchurch, imagines, July 8, 10 (Wakely, *Ent. Rec.*, **65**: 44). Folkestone, one, July 18 (D. Marsh, *per* Rothamsted). Dungeness, about 24 larvae, August 16 (de Worms, *Entomologist*, **86**: 146). 1953: Plumstead, one, at m.v.l. (C. Hards). Dungeness, three larvae, September 19-20 (R. F. Bretherton). 1954: Brook, one, May 30 (French, *Entomologist*, **88**: 128). 1955: Dungeness, ten small larvae, September 24-25 (R. F. Bretherton). 1956: Dungeness, few larvae, September 29 (R. F. Bretherton). 1957: Hythe,

larvae numerous, August 11 (R. M. Mere, *per* Rothamsted). Goudhurst (div. 13), three, at light (W. V. D. Bolt). 1958: Lydd, three larvae, on *S. viscosus*, August 2, from which two emerged September 2, 4, 1958 (C.-H.). Willesborough, May 25 (French, *Entomologist*, **92**: 174). Maidstone (div. 11), one at buddleia, August 30 (Philp, *Bull. K. Fld. Cl.*, 1958: 20). 1959: Broadstairs, September 23 (French, *Entomologist*, **95**: 175). 1962: Dungeness, one, in m.v. trap, July 29 (R. E. Scott); three larvae, September 23 (Bretherton, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1962: 22).

VARIATION.—My captured specimens all appear to conform to typical *peltigera* Schiff., but the bred ones are all darker with the markings more intense (C.-H.). Richardson (*Entomologist*, **91**: 212) records ab. *omicronata*, holotype ♂, Dungeness.

Of the variation, A. M. Morley writes (*in litt.*): "I have one ab. *pallida* Cockerell, which is very pale indeed, Warren, 13.vii.1946. However, the most interesting variety is the dark form represented by the seven bred in October 1931. These are darker than the type, which itself varies considerably in depth of colour, and are suffused with brown. They are nearly as dark as the ones bred artificially by Kettlewell". (Note: A. M. Morley states that he always keeps his pupae in the garage so as to have the insects emerge at the normal date).

Kettlewell experimented with hundreds of Dungeness larvae, breeding very pale to very dark imagines (cf. *Proc. S. Lond. ent. nat. Hist. Soc.*, 1943-44: 69-79, plt. 1).

FIRST RECORD 1930: Sterhopteryx sp.

[1]Kettlewell (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1943-44: 78) states that "there is evidence that our Kentish ones are the progeny of immigrants from Southern Germany". Unfortunately, however, he does not say what constitutes this evidence, and it would be interesting to know this.

H. armigera Hubn.: Scarce Bordered Straw.

Immigrant; also casual importation. Clover fields, waste places, etc. Recorded from 1-3, 6a, 8, 9, 13, 16; but mainly noted from the north-east coastal areas. Abundant in 1875.

There is no record of the discovery of any of the early stages in nature, but there are indications that in exceptionally favourable years, the species may survive for at least a generation, such as during the period 1875-83, when the moth is recorded as having occurred annually in Kent.

1859-1865.—1859: Folkestone, one, October (R.C.K.); Ramsgate, one (Wormald, *Ent. week. Int.*, **7**: 52); West Wickham, one, at sugar (Barrett, *Ent. week. Int.*, **7**: 75). 1860: Herne Bay, two (Butler, *Ent. week. Int.*, **8**: 172). 1865: Folkestone, mid-July, over *Echium* (Knaggs, *Ent. Ann.*, 1866: 155) (Knaggs (1870), may refer); two, September (Briggs, *Ent. mon. Mag.*, **2**: 164; idem, *Ent. Ann.*, 1866: 155).

1868-1882.—Except in 1870 and 1872, when it was perhaps absent, the species is recorded as having occurred annually during this period. 1868: Margate, August (Boyd, *Ent. mon. Mag.*, **5**: 147); Sheerness, ♂, September 22 (Walker, *Ent. mon. Mag.*, **8**: 185; Walker MS.). 1869: Sheerness, two (Walker, *Ent. mon. Mag.*, **8**: 185). 1871: Sheerness, one, at ivy, October (Walker, *Ent. mon. Mag.*, **8**: 185) (in J. J. Walker coll. are two *armigera* labelled "Isle of Sheppey", but without date (C.-H.)). 1873: Darenth Wood, at sugar, taken by Bird (Fenn, *Diary*, 30.ix.1874). 1874: Darenth Wood, ♂, taken by Packman, at ivy, September 29 (Fenn, *Diary*). 1875: Near Folkestone, one (Haggar, *Entomologist*, **8**: 300). 1875-82: Dover district.—

one by B. Whitehouse, September 16 (A. M. Morley). 1935: Dungeness, larvae, July 30-August 7 (Bull, *Entomologist,* **68**: 217). [1936: Dungeness, apparently absent (A. J. L. Bowes, *Diary*).] 1937: Near Lydd, larvae, September 15 (Dannreuther, *Entomologist,* **70**: 254).

1938-1947.—1938: Sandwich, imago, June (A. J. L. Bowes). Herne Bay, two ♂♂, in a lucerne field by day, August 28, 30 (C.-H.) (Dannreuther, *Entomologist,* **72**: 15, refers). Dungeness, twenty-four larvae, July 29 (A. H. Lanfear MS.); July-October 1, larvae widespread, abundant, several imagines (Dannreuther, *Entomologist,* **72**: 15, 120; de Worms, *Entomologist,* **72**: 263); one imago, June 11, at night sitting on wire between posts; one imago, at sugar, September 18; twenty larvae, from which eight moths emerged August 23-30, 1938, and three, August 21-October 10, 1939 (A. M. Morley). Lydd, in one afternoon, about the middle of August, about 100 full-grown larvae shaken out of plants of *S. viscosus* that had been pulled up by other collectors (C.-H.). [1939: Dungeness, apparently absent (A. J. L. Bowes, *Diary*)]. 1940: Near Lydd, larvae plentiful, September 10 (Dannreuther, *Entomologist,* **74**: 60). 1941: Sandhurst, one, June 25 (Bull, *Diary*; *Entomologist,* **74**: 280). 1944: Folkestone Town, one, flying in garden, July 8 (A. M. Morley). 1945: Westwell (div. 7), one, June 7 (E. Scott). Pinden (div. 6), ♂, July (Hare, *Entomologist,* **79**: 20). Eynsford (div. 6), August 8 (Blyth, *Entomologist,* **78**: 175). Rolvenden (div. 14), ♂, August 27, in clover field; Littlestone to Dungeness, larvae (Bull, [illegible] August 3 (C. M. Gummer, *teste* Riley,

79: 76). 1946: Dartford, ♂, July 1 (B. K. West). Folkestone Warren, ♂, July 11 (C.-H.); three, flying over bugloss, July 13 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1946-47: 36); two larvae on *O. repens,* August 15 (A. M. Morley). Westwell, three, July (*Bull. Proc. S. Lond. ent. nat. Hist. Soc.,* 1946-47: 168); larvae on marigold, September (Dannreuther, *Entomologist,* **80**: 140). Dungeness, larvae widespread and plentiful, mid-August (Dannreuther, *Entomologist,* **80**: 140). 1947: Deal, one, June 10 (C. M. Gummer, *per* Rothamsted). Westwell, larvae on marigold (Scott (1950)). Sandwich, one, June 20, by R. Demuth (A. M. Morley). Dungeness, twenty-four larvae, August 31 (H. King).

1948-1962.—1948: Pinden, one (G. Law). Whitstable, one, August 15 (P. F. Harris). Deal (E. & Y. (1949)). 1949: East Kent (Parfitt, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1949-50: 39). 1951: Waltham (div. 8), nineteen larvae on marigold (J. W. C. Hunt). Dungeness, larvae plentiful, early July (A. J. Wightman); ♂, at m.v.l., August 4 (C.-H., *Entomologist,* **84**: 257). Folkestone Town, one, June, in m.v. trap, by A. G. Riddell (A. M. Morley). 1952: Dover, one in m.v.t., March 16 (G. H. Youden). Dymchurch, imagines, July 8, 10 (Wakely, *Ent. Rec.,* **65**: 44). Folkestone, one, July 18 (D. Marsh, *per* Rothamsted). Dungeness, about 24 larvae, August 16 (de Worms, *Entomologist,* **86**: 146). 1953: Plumstead, one, at m.v.l. (C. Hards). Dungeness, three larvae, September 19-20 (R. F. Bretherton). 1954: Brook, one, May 30 (French, *Entomologist,* **88**: 128). 1955: Dungeness, ten small larvae, September 24-25 (R. F. Bretherton). 1956: Dungeness, few larvae, September 29 (R. F. Bretherton). 1957: Hythe,

larvae numerous, August 11 (R. M. Mere, *per* Rothamsted). Goudhurst (div. 13), three, at light (W. V. D. Bolt). 1958: Lydd, three larvae, on *S. viscosus*, August 2, from which two emerged September 2, 4, 1958 (C.-H.). Willesborough, May 25 (French, *Entomologist*, **92**: 174). Maidstone (div. 11), one at buddleia, August 30 (Philp, *Bull. K. Fld. Cl.*, 1958: 20). 1959: Broadstairs, September 23 (French, *Entomologist*, **95**: 175). 1962: Dungeness, one, in m.v. trap, July 29 (R. E. Scott); three larvae, September 23 (Bretherton, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1962: 22).

VARIATION.—My captured specimens all appear to conform to typical *peltigera* Schiff., but the bred ones are all darker with the markings more intense (C.-H.). Richardson (*Entomologist*, **91**: 212) records ab. *omicronata*, holotype ♂, Dungeness.

Of the variation, A. M. Morley writes (*in litt.*): "I have one ab. *pallida* Cockerell, which is very pale indeed, Warren, 13.vii.1946. However, the most interesting variety is the dark form represented by the seven bred in October 1931. These are darker than the type, which itself varies considerably in depth of colour, and are suffused with brown. They are nearly as dark as the ones bred artificially by Kettlewell". (Note: A. M. Morley states that he always keeps his pupae in the garage so as to have the insects emerge at the normal date).

Kettlewell experimented with hundreds of Dungeness larvae, breeding very pale to very dark imagines (cf. *Proc. S. Lond. ent. nat. Hist. Soc.*, 1943-44: 69-79, plt. 1).

FIRST RECORD, 1830: Stephens, *loc. cit.*

[1]Kettlewell (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1943-44: 78) states that "there is Southern Germany". Unfortunately he does not say what constitutes this evidence. It would be interesting to know this.

H. armigera Hübn.: Scarce Bordered Straw.

Immigrant; also casual importation. Clover fields, waste places, etc. Recorded from 1-3, 6a, 8, 9, 13, 16; but mainly noted from the north-east coastal areas. Abundant in 1875.

There is no record of the discovery of any of the early stages in nature, but there are indications that in exceptionally favourable years, the species may survive for at least a generation, such as during the period 1875-83, when the moth is recorded as having occurred annually in Kent.

1859-1865.—1859: Folkestone, one, October (R.C.K.); Ramsgate, one (Wormald, *Ent. week. Int.*, **7**: 52); West Wickham, one, at sugar (Barrett, *Ent. week. Int.*, **7**: 75). 1860: Herne Bay, two (Butler, *Ent. week. Int.*, **8**: 172). 1865: Folkestone, mid-July, over *Echium* (Knaggs, *Ent. Ann.*, 1866: 155) (Knaggs (1870), may refer); two, September (Briggs, *Ent. mon. Mag.*, **2**: 164; idem, *Ent. Ann.*, 1866: 155).

1868-1882.—Except in 1870 and 1872, when it was perhaps absent, the species is recorded as having occurred annually during this period. 1868: Margate, August (Boyd, *Ent. mon. Mag.*, **5**: 147); Sheerness, ♂, September 22 (Walker, *Ent. mon. Mag.*, **8**: 185; Walker MS.). 1869: Sheerness, two (Walker, *Ent. mon. Mag.*, **8**: 185). 1871: Sheerness, one, at ivy, October (Walker, *Ent. mon. Mag.*, **8**: 185) (in J. J. Walker coll. are two *armigera* labelled "Isle of Sheppey", but without date (C.-H.)). 1873: Darenth Wood, at sugar, taken by Bird (Fenn, *Diary*, 30.ix.1874). 1874: Darenth Wood, ♂, taken by Packman, at ivy, September 29 (Fenn, *Diary*). 1875: Near Folkestone, one (Haggar, *Entomologist*, **8**: 300). 1875-82: Dover district.—

"Swarmed in every cloverfield near Dover in 1875, and specimens occurred annually afterwards until 1882; these were no doubt due to immigration and the natural results of it" (Webb (1899)). 1876: Folkestone, one, September (R.C.K.). 1877: Deal, ♀, August (Tugwell, *Naturalist*, new series, **3**: 41; idem, *Entomologist*, **10**: 255; idem, *Ent. mon. Mag.*, **14**: 112). 1878: Strood, one (Woodforde, *Entomologist*, **54**: 162). 1879: Deal, one, July; Kingsdown, one, July (R.C.K.); Dover, common (S. Webb, in *V.C.H.* (1908)). N.d.: Between Kingsdown and Deal on a bank, one taken flying in the hottest sunshine, also one at night with light (Tugwell, *Young Nat.*, **4**: 105) (may refer to the 1877 ♀, and 1879 Kingsdown specimen).

1888-1900.—1888: Dover (Webb (1891)). 1890: Chatham, one, September 5 (Mathew, *Entomologist*, **23**: 344). 1894: Folkestone, one, W. J. Austen (Brit. Mus., S. Kensington). 1894: Bidborough (div. 13), one, over Valerian, July 5 (Shepheard-Walwyn, *Entomologist*, **28**: 233). 1897: Kingsdown, one, July (Brit. Museum, S. Kensington). 1899: Sheppey, one in lucerne field (Walker, *Ent. mon. Mag.*, **35**: 236). 1900: Margate district, one, at sugar, September (Barrett, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1900: 101).

1922-1963.—1922: Bexley (div. 1), one over Valerian, June 21 (MacTaggart, *Entomologist*, **55**: 188). 1933: Folkestone Town, one, September 4 (Williams, *Proc. S. London. ent. nat. Hist. Soc.*, 1933-34: 52). 1948: Herne Bay, ♀, September 30 (Marsh, *Entomologist*, **82**: 107). [1950: West Wickham, a larva, February 13, in tomato imported with others from Canary Is. (C.-H., *Entomologist*, **83**: 95).] 1951: Dover, one, August 5, one, September 4, both at m.v.l. (Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1951-52: 47; idem, *Entomologist*, **84**: 261). [1957: St. Peters, Broadstairs, a larva, January 4, in tomato from Las Palmas, Canary Is. (W. D. Bowden).] 1959: Otford (div. 6), one, at m.v.l., September 30 (Manley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1959: 41); St. Peters, Broadstairs, one taken by W. D. Bowden at m.v.l., September 23 (C.-H., *Ent. Rec.*, **72**: 97). [Ashford, larva in imported tomato, May 15 (P. Cue).] 1963: West Wickham, ♀, at rest by a light on the wall of a house, October 24, 1963 (R. Birchenough).

First Record, 1859: Ramsgate (Wormald, *Ent. week. Int.*, **7**: 52).

ANARTINAE

Anarta myrtilli L.: Beautiful Yellow Underwing.

Native. Heaths; on *Calluna vulgaris*. "Generally common on heaths" (*V.C.H.* (1908)); appears to be less plentiful now, and is perhaps decreasing.

1. Belvedere (see *First Record*). West Wickham Wood, 1857, flying in sunshine, full-fed larva feeding on *C. vulgaris* at same time (Tugwell, *Ent. week. Int.*, **3**: 11); (1891) (Wells, *Ent. Rec.*, **3**: 35). Farningham Wood, several larvae, July 5, 1939 (Kidner, *Diary*). Pauls Cray Common (Fenn, in *Wool. Surv* (1909)); fairly common, c. 1905 (S. F. P. Blyth). Chislehurst (Jones, in *Wool. Surv.* (1909)). Plumstead (Courtney, *Entomologist*, **1**: 227). Bostall Common, one, August 25, 1862 (Fenn, *Diary*). Abbey Wood (Jones, in *Wool Surv.* (1909)). Bexley (Newman, in *Wool. Surv.* (1909)). Joydens Wood (J. F. Burton). Dartford Heath, larvae, 1950 (L. T. Ford); larvae fairly numerous, August 28, 1954 (C.-H.). Keston and Hayes Common, a larva, August 14, 1897; three larvae, October 8, 1919; four larvae, September 29, 1920; three larvae, September 16, 1921 (Kidner,

Diary); imagines frequent, 1946-47 (J. F. Burton); six imagines, May 18, 1952; three imagines, August 21, 1955 (C.-H.).

3. [Faversham] "taken by Mr. Crow, of Faversham" (Donovan, *Nat. Hist. Brit. Insects*, **7**: 11). Canterbury, 1888 (Hampson, *Ent. mon. Mag.*, **37**: 118). Thornden Wood, May 26, 1933 (A. J. L. Bowes, *Diary*). Oldridge Wood, c. 1946 (J. A. Parry).

6a. "I have taken it occasionally near Darenth"* (Stephens, *Haust.*, **3**: 111).

10. Ightham Common, one, August 20, 1899 (H. Elgar, in Maidstone Museum coll.); 1952 (L. W. Siggs). Seal Chart, 1905 (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1905-06: 41); frequent, 1951, larvae on ling (A. M. Swain). Brasted Chart, July 6, 1901 (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1901: 22); May 17, 1913, June 16, 1913, larva, September 22, 1913 (Gillett, *Diary*). Westerham, larvae (Attwood, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1937-38: 18).

11. Mid. Kent [Mereworth] (Reid, *S.E. Nat.*, 1904: 52). Wateringbury, one, 1907, in Goodwin coll. (C.-H.). Mereworth, July 27, 1912 (Gillett, *Diary*); one, May 14, 1939 (A. R. Kidner, *Diary*).

12. Ashford, July 1898 (Heitland, *Entomologist*, **31**: 222). Ham Street, larvae fairly common, 1936, August 17 onwards (de Worms, *Entomologist*, **70**: 88) (I have no record of occurrence there since 1936 (C.-H.)). Hothfield Common, one, May 26, 1955 (P. Cue); several larvae swept from *C. vulgaris*, September 9, 1961 (C.-H.); common, July 4, 1963 (M. Singleton).

13. Tunbridge Wells district, common, 1868 (Cox, *Entomologist*, **4** (62), ii). Groombridge (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 59). Southborough (Morgan, *Lepidoptera of Tunbridge Wells District* MS.). Tunbridge Wells (H. E. Hammond).

14. Tenterden (Stainton, *Man.*, **1**: 294). Cranbrook, one at rest, May 22, 1939 (G. V. Bull, *Diary*).

Variation.—My Kentish series from Hayes and Hothfield has the ground of forewing dull dark fuscous purple, and appears to conform to typical *myrtilli* L. These Kentish specimens are quite different from those of a series from Scotland, taken by me, Sidlaw Hills, Angus, July 1942, in which the markings are more distinct, and the ground of forewing is bright reddish-purple (C.-H.).

Hampson (*Ent. mon. Mag.*, **37**: 118) records a ♀, bred by R. South, Canterbury, June 1888, with hindwings reduced ⅔ nat. size.

First Record, 1775: "Belvidere wood near Earith" (Harris, *Aurelian's Pocket Companion*, 53).

HADENINAE

Mamestra brassicae L.: Cabbage Moth.

Native. Gardens (especially market gardens), cultivated and waste places; on cabbage. Found in all divisions.

"Generally abundant" (*V.C.H.* (1908)); but the records indicate that it has become generally less numerous since. A. R. Kidner (*Diary*) with reference to the Sidcup area (div. 1) from 1909-1939, has:—"Usually plentiful and sometimes abundant in larval and perfect states, especially in autumn, up to 1928, after which it appeared to have become scarcer".

The moth seems to be in two generations, occurring on the wing from about mid May to late July, and again in August and September; but the records often show little or no clear break between the broods. Occasion-

ally it has appeared much earlier, as in 1868, when one was taken in Sheppey on April 18 (Walker MS.). In 1911, A. R. Kidner noted it at Sidcup on October 16; possibly an instance of a partial third generation.

I have found the larvae in fair numbers on cabbage at Broad Oak and West Wickham (C.-H.); and A. R. Kidner records finding a larva on this at Sidcup, July 30, 1939, from which the imago emerged July 8, 1940.

VARIATION.—Tremayne (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1894-95: 10) exhibited one from Deal, "which had a pale yellowish-grey ground colour and very distinct dark transverse lines, the usual dark mottling being almost entirely absent".

FIRST RECORD, 1861: Lee, June 17, 1861 (Fenn, *Diary*). An earlier record by Stephens (who resided at Eltham), but which does not specify Kent, dates from 1829: "One of the most abundant of the indigenous Noctuidae, frequenting every garden, and abounding in banks and weedy hedges" (*Haust.*, **2**: 194).

M. persicariae L.: Dot.

Native. Gardens, woods, waste places, etc.; on Delphinium, Convolvulus, Hazel, Birch, Poplar, Clematis, Potato. Recorded from all divisions, except 15. "Generally common" (*V.C.H.* (1908)).

A. A. Allen states that the moth is numerous at m.v.l. at Blackheath (div. 1), and considerably more plentiful than *M. brassicae*, particularly in 1959. This comparative numerical superiority is also shown by W. L. Rudland's records for Wye and Willesborough, where the numbers for each locality were never less, but often at least double, those of each brood of *M. brassicae*.

The larva is perhaps polyphagous on deciduous foliage. Bower (*Ent. Rec.*, **16**: 335) observed that in the Chislehurst district in 1904, the larvae were such a pest in gardens that "no plant, shrub or tree—except evergreens—has escaped their ravages"; and D. F. Owen (in MS.) noted it as most abundant in the larval stage on a variety of plants, in gardens and overgrown bombed sites in the Lewisham area, in 1946-47. Jones (*Ent. week. Int.*, **10**: 188) recorded the larva in the Woolwich district on Convolvulus; Kidner (*Diary*) found several larvae at Birch Wood, October 9, 1909, on Hazel, and in September 1910, several on Birch and Poplar at Darenth, and two on Clematis near Dartford. At Charlton, J. F. Burton found larvae on potato and Delphiniums.

FIRST RECORD, 1829: "Occurs throughout the metropolitan district" (Stephens, *Haust.*, **2**: 196).

Polia hepatica Clerck (**tincta** Brahm): Silvery Arches.

Native. Woods; on birch, sallow. Mainly Wealden; perhaps extinct in 1.

1. Birch Wood, larvae on birch, April 1845 (Stevens, *Zoologist*, 1787); (Douglas, *Zoologist*, 3246). West Wickham, two, 1857 (Wood, *Ent. week. Int.*, **2**: 109); two (Barrett, *Ent. week. Int.*, **4**: 109); larvae, 1859 (Latchford, *Ent. week. Int.*, **6**: 123); six larvae on birch buds, April 1861 (Fenn, *Ent. week. Int.*, **10**: 196); at sugar, June 28, 1929 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1930-31: 75). Dartford Heath, three, 1848 (Hodgkinson, *Zoologist*, 2328). Shooters Hill Wood, one, June 22, 1862 (A. H. Jones, *teste* Fenn, *Diary*); Crown Woods, and Shooters Hill (West, *Ent. Rec.*, **18**:

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by
Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1(14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

ENTOMOLOGIST'S GAZETTE

A QUARTERLY JOURNAL OF BRITISH ENTOMOLOGY

Well illustrated

Subscription: 42/- per year

Free Sample Copy sent on request

353 Hanworth Road, Hampton, Middlesex

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

Information wanted, from anyone who has reared the Speckled Wood (*P. aegeria*) and can supply any of the following information.
(1) Number of broods per year.
(2) Proportion of autumn brood hibernating as larvae.
(3) Comments on the reason for (2).
Any information on the Scottish colonies would be welcome.—*A. J. Showler, 28 Lynsted Close, Bexleyheath, Kent.*

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W. Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years :

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact : Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

Facilities are offered to Entomologists at a Butterfly Paradise at the Rhine, with the additional advantage of Light-Trap collecting.

Good Kitchen : : Garage : : English Spoken.

HOTEL BONSTETTEN

5421 OSTERSPAI/LORELYKREIS, GERMANY.

Telephone Braubach 422.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 3 MARCH 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

PRACTICAL ENTOMOLOGY

by R. L. E. FORD, F.R.E.S., F.Z.S.

To those who have discovered the pleasures of Entomology, this book will prove indispensable. Forming part of the well-known Wayside and Woodland series, it is the only work of its kind.

The book opens with a section on the perfect insect, describing in turn its catching, killing, relaxing, setting and mounting. The next section is devoted to breeding in its various stages—egg, larva, caterpillar, chrysalis. There follow a number of sections on such important subjects as preserving larvae and the labelling and care of collections.

Although this book is primarily concerned with butterflies and moths, other insects are not neglected. Ants, wasps and humble-bees, for example, have sections to themselves.

36 line illustrations
12 pages of plates
3 valuable appendices

17s. 6d. net
From All Booksellers

FREDERICK WARNE & CO. LTD.
1-4 Bedford Court, Strand, London. W.C.2

Some Considerations on some Present Day Conditions as they affect the Continued Existence of Certain Butterflies

By Major-General C. G. Lipscomb and Captain R. A. Jackson, R.N.

1. It is sometimes stated that little is known about the management of downland so that it may continue to support its natural population of insects and flora. On the contrary there is a large fund of knowledge built up by field naturalists over the years that throws considerable light on this subject. It is the purpose of this paper to discuss this and kindred subjects dealing with conservation where it affects those insects whose larvae feed on grasses and low plants mainly growing on hillsides and downland.

Those which are most threatened by changing ecological conditions are:—

Maculinea arion Linn., the large blue
Lysandra coridon Poda, the chalkhill blue
Lysandra bellargus Rott., the Adonis blue
Melitaea aurinia Rott., the marsh fritillary

After examining the causes of the threat to these insects an attempt will be made to consider what can be done for their conservation.

2. Historical background

It has been said that towards the end of last century a man could hire a horse in Salisbury and ride out over downland the whole way to visit Stonehenge. If one did such a journey to-day one would be hard pressed to find a single patch of the original downs left undisturbed. Such is a fair measure of the changes that have taken place in Wiltshire and elsewhere in the life time of some of us.

In those long ago days it can safely be assumed from old records that *coridon, bellargus* and *aurinia* were of general distribution in Wiltshire and although colonies of any one of them were periodically reduced or destroyed by occasional grazing, once the foodplant had recovered the area was at once recolonised from outside and quickly regained its former strength. It is this mobility that these insects have now lost, confined as they are to small isolated areas which, once destroyed, can now never be recolonised by natural means. The same principle of loss of mobility applies to a certain extent in the case of *arion* although of course its habitat is different.

3. The threat to the present isolated colonies

This comes under four headings:—

(a) Ploughing downland.
(b) The virtual disappearance of the rabbit.
(c) New building and development.
(d) Intensive grazing by cattle, sheep and pigs.

Each of these threats will be considered seperately and known examples of localities lost to the various insects thereby will be quoted.

(a) **Ploughing**

The call for more and better pasture, on what might be called marginal land, aided by the Government subsidy has led to quite steep hillsides being ploughed up and reseeded.

A case in point was Homington Down near Salisbury, well known to many for its interesting colonies of Coridon and Bellargus. Initially the former was hardest hit as it was the feeding ground of the larvae at the western end of the down which came under the plough (*bellargus* suffered a different fate, see below). Another somewhat similar case has occurred at Camp Down on the northern outskirts of Salisbury where a thriving colony of *coridon* existed partly on unfenced downland and partly in an adjacent field. A few years ago the downland was ploughed up, grew a few crops of corn, and is now apparently abandoned to weeds and rough grass. At the same time the field is being heavily grazed by cattle and the chances of any *coridon* surviving this double onslaught seem remote.

(b) **The rabbit**

The increase of rabbits between the wars when so much land went out of cultivation, was almost phenomenal. Perhaps it reached its most damaging proportions in the stony fields of the North Devon and Cornish coasts. In this country of wide stone walls, it was almost impossible to control the increase and the loss to growing corn was very heavy. However, after the last war, relief was at hand, for in the early fifties that horrible disease myxamatosis appeared and in a year or two the rabbit was almost exterminated. This had a disastrous effect on both *arion* and *coridon*. The larvae of *arion* spends the first weeks of its life on thyme growing on anthills, but with no rabbits to keep them down, the coarse grasses are smothering the thyme—this is very clear in Gloucestershire, where the butterfly is now very scarce, if indeed it still exists. In many of its old localities, visited by the authors last summer, it is quite gone. The anthills are still there but they are smothered in grass and there is no thyme on them.

In Devon and Cornwall the same story is true but it is the young gorse which is smothering the thyme. In the case of *coridon* and *bellargus* the larvae feeds on the horseshoe vetch (*Hippocrepis comosa*) and it is this plant which is gradually choked out by the coarse grasses. It might be remarked here that on the other side of the picture the absence of rabbits has led to an amazing increase in the numbers of the larger fritillaries whose larvae feed on dog violet. This has occurred on poor stony hillsides, where the rabbit used to crop the violets, whilst, luckily, there are not the coarse grasses to choke the plants.

(c) **New building and development**

More and more land is required for housing and in some cases planning permission is given for downland dwellings. A case in point can be quoted again from Homington Down where ploughing killed poor *coridon*.

bellargus lived further to the East and was spared the plough, but instead a house was built there, a large garden was made on its breeding ground and some pigs did the rest.

(d) Intensive grazing

(i) pigs

There is no doubt that of all animals, pigs present the greatest menace to the butterfly population. Wherever they are turned out they create a complete upheaval and butterflies breeding there are doomed.

An outstanding example of this is Standlynch Down about 5 miles S.E. of Salisbury just west of the Southhampton Road. This was a small down with a good and variable colony of *coridon*. Directly pigs were turned out the colony was doomed to extinction, and has been completely destroyed.

(ii) sheep

In this county sheep have grazed on the Plain from time immemorial, but conditions to-day bear no resemblance to the past. Farming is so intensive now and so much land is under the plough that the grazing available is greatly reduced. The result is that the downs are overgrazed by great numbers of sheep, who are not moved until the down is cropped bare, with the result that the Horseshoe Vetch and any larvae on it are practically destroyed for a season. The plants recover but the insects are wiped out. Two cases may be quoted.

Between Codford and Chitterne there is a patch of down, too steep for the plough, where both *coridon* and *belargus* occurred in quantity and across the valley there was a colony of 'skippers' where the Essex skipper (*A. lineola* Ochs) far outnumbered its commoner relation the small skipper (*A. sylvestris* Poda). In the early fifties these downs were selected as a pasturage for a large flock of sheep in the early spring. The effect has been to blot out the colonies of all the insects named.

An even more extreme case must be quoted. On another down with steep sides running up to a level top, which is under the plough, there existed a vast colony of *coridon*, containing many thousands of butterflies as well as great numbers of meadow browns (*M. jurtina* Linn). The down was very extensive being nearly a mile long, and so great was the concourse of insects that a visiting collector, with unrivalled experience of this country, gave it as his opinion that it was the largest colony he had ever seen. This was in 1961 but in the spring of 1962 at least 600 ewes with their lambs were enclosed on the down. The spring was extremely dry with cold winds. When the flock was moved, the whole down was eaten bare. There were no flowers on the down and no *jurtina* were to be seen. Of *coridon* perhaps forty or fifty were seen over the whole season.

(iii) cattle

Until recent years the emphasis has been on milk production, but the government is now urging a large increase in home produced beef. The dairy herd hardly affected our problem, as the great majority of the cattle were pastured in the meadows near their stalls. With young bullocks being reared in large numbers, the downland is in great request and is often subject to heavy grazing. This is assisted by piped water being available at the most distant points on any downland farm. From the roads it is easy to see which land has been denuded of its butterfly population for it presents a bare appearance with the grass covered 'toomps' standing out clearly on the hillsides. Where this is the case, there will be no flowers and the butterflies will have been destroyed.

Cases in point which may be cited are Edington Down eaten bare, about 1952, Stoford Down about 1960 and a most interesting down near Upton Scudamore which produced good numbers of *coridon* and *bellargus* and in addition a colony of the marbled white (*S. galathea* Linn) containing an aberational form found previously only on the Polden Hills. The area was enclosed for grazing in the spring of '63 with the result that the butterflies were grazed out. Hod Hill, in Dorset, which possesses one of the fast dwindling colonies of *aurinia* is yet another example. The vallums which encircle the hill top are well clothed in scabious and are grazed heavily at various periods of the year by both cattle and sheep. There is, however, a very limited area of hillside which is fenced off and here *aurinia* can breed undisturbed as it did over the whole hill top up to world war II. Each year it attempts to expand its range on the vallums, but equally regularly stock destroy the larvae. If it wasn't for this small reservoir *aurinia* would have ceased to exist years ago.

4. **The present position**

From the foregoing paragraphs it is clear that the survival of many of our butterflies is in a very precarious position, and that some action is essential if they are to continue to exist. This review has been written from the Entomological standpoint, but the botanists are equally concerned. The absence of rabbits is equally detrimental to many of the choicer wild flowers especially the rarer orchids, whilst heavy grazing means that there will be practically no flowers at all, although the perennial plants themselves will be alive.

5. **What is to be done?**

To deal with a situation like this is one of the reasons for which the Nature Conservancy has been set up and it has acquired many properties as nature reserves. These are under special supervision and control by officers of the Conservancy

It is obvious however that the Conservancy can make but little impact on the whole countryside and its reserves are few and far between (in Wiltshire there is one, in Sussex two and in Kent five—two of small interest to naturalists). To further the work of the Conservancy and to make use of voluntary workers, County Trusts for Nature Conservation have been or are being set up in most counties of England and Wales. As a first action Nature Conservancy earmarked sites of Special Scientific interest (S.S.S.I.s) and the landowners concerned have been told of their existence. County Trusts are now equally concerned with the preservation of these areas and recommend further areas for preservation to the Conservancy. However, unless they can buy or lease them outright, which is seldom possible, they have no control over their management, and if agricultural or forestry interests choose to destroy them there is no redress or compensation. In the authors' opinion this is one of the weakest links in the conservation chain as it seems essential that S.S.S.I.s should be given more effective protection. At the same time it is fully realised that the farmer who has pigs, sheep or cattle, is running a business undertaking and it would be invidious for the Trust to approach an individual and ask him not to graze his land so heavily or even to fence off certain portions as reserves. Fortunately there have been a few bright spots in this gloomy picture at any rate in Wiltshire, where big farmers have

voluntarily undertaken to preserve areas of downland. In one case a farmer has fenced off several acres near Codford when it was explained to him that it contained rare orchids which were being destroyed by grazing cattle. In another near Salisbury a farmer has undertaken to preserve quite a large area of downland in its natural state.

6. The management of downland reserves

This is a most difficult problem for little experience is available as a guide. The idea to be aimed at is to preserve the Ecology of the area under consideration if the insects and flowers are still flourishing, or to restore it to its original state where grazing and other causes have led to a threat to that which we wish to preserve. Naturally we cannot reintroduce our best friend the rabbit so we must have recourse to controlled light grazing and in certain cases burning.

Where coarse grasses have established a hold and are choking the finer plants, fire will probably be essential. Burning must be carefully supervised and carried out in strips so that the insects remaining on the untreated portion will have good ground to transfer to when the portions burned have been rejuvenated. Where tor grass (*Brachypodium pinnatum*) is the trouble, careful watch will have to be kept to see that the burning does not lead to an actual expansion of the plant's territory.

This burning or swaling has proved most successful in the case of *arion* on the west coast and a reserve at St Catherine's Tor near Hartland maintained the species in this way for many years. On the other hand before the last war, a private reserve was established at the Dizzard and all swaling was strictly forbidden. When inspected in 1947 it was found that the whole area was smothered in a thick growth of young gorse and the thyme was completely choked out. Of course the butterflies had vanished, killed by the kindness of their protectors.

To return to our grass downs in Wiltshire where burning is either not judged to be necessary or is impracticable, grazing by a few cattle must be carried on.

Only experiment and the experience gained can decide on the extent, but it is only common sense that in the first instance this should be very light, Under no conditions should grazing be commenced before 1st November and the beast should be withdrawn by the end of January or middle of February at the latest. The number to be used must depend on the area to be controlled, but the figure of one beast to five acres is recommended as a start.

As experience is gained after one or two years, the number of beasts and the period of their employment will have to be reviewed.

7. Responsibility for the future

That the whole question of the preservation of the flora and fauna of our downland is of great importance not only to our County Trusts but to future generations cannot be gainsaid. Whereas in the past Wiltshire was renowned for its lovely flowery downs and was visited year by year by naturalists and nature lovers, the position to-day is that those downs worth a visit are few and far between.

A large part of the responsibility for their preservation should be shouldered by the County Council authorities who alone in the county have been invested with the powers to establish nature reserves. So far

few have taken advantage of this and to quote Mr. E. M. Nicholson, the Director General of the Nature Conservancy, speaking of County Councils in general, 'It is necessary that they wake up and exercise the powers they have got before it is too late'. (*Times* 5th Dec. 1963.)

Lepidoptera in the Isle of Wight, 1963

By T. D. Fearnehough, A.MET.

Following a blizzard which swept over the Island on 29th December 1962, the new year opened with arctic conditions which prevailed throughout January. Even so, entomology could not be completely forgotten, for during visits made to regions under the roof necessitated by frozen water pipes, masses of cobwebs were encountered thickly sprinkled with insect remains. Large numbers of *Pieris brassicae* L. had been caught in the webs and a little exploration showed these to have come from pupae cases attached to the roof spars. Only one living pupa was found. Remembering the old legends told of rare moths found in spiders' webs, I neglected the pipes for a while to investigate, but no entomological treasure was forthcoming. At the end of the month I brought indoors a few pupae of *Pieris rapae* L. obtained from larvae found wandering around the outside of the house during the previous autumn. These gave butterflies a few weeks later, and as the maximum temperature they experienced could not have exceeded 70°F. it was not surprising they were of the spring form. One specimen, however, was a fine example of the male ab. *praeterita*, having two black spots on the forewing.

The first day of February brought more snow and frost. A thaw began on the 6th but was short lived. The temperature went low again and frost, often severe, prevailed every night until 4th March. For several consecutive nights I then searched hedgerows for *Thria rupicaparia* Schiff. The moth was found in one spot only, on the 7th, but although there were good numbers, it was not to be seen again on following evenings. The 14th brought a mild evening which tempted me to try sugar in America woods. The only moths attracted were several each of *Conistra vaccinii* L., *Eupsilia transversa* Hufn. and *Agrotis ipsilon* Hufn. Evening searches in the same wood, using a lamp, produced a few *Erannis marginaria* Fab. and one each of *E. leucophaearia* Schiff. and *Alsophila aescularia* Schiff. About twenty larvae of *Nudaria mundana* L. were found under a piece of loose oak bark. On the 24th, a survey of the undercliff at St. Lawrence was unproductive of spring larvae with the exception of a single *Arctia villica* L. Larvae of *Endothenia gentianaeana* Hübn. were common in teazle heads but very few larvae of *Phalonia roseana* Haw. could be detected.

During the first week in April the mercury vapour trap in the garden attracted only four moths, one each of *Biston strataria* Hufn., *Xylocampa areola* Esp., *Orthosia gothica* L. and *O. stabilis* Schiff. On the 7th, which was warm and sunny, *Nymphalis io* L. and *Aglais urticae* L. were flying about the cliff path between Shanklin and Sandown. By the 17th sallow was fully out but was not very productive of moths. During several evenings the species seen were *O. gothica* L., *O. stabilis*, *O. incerta* Hufn., *O. cruda* Schiff., *Cerastis rubricosa* Schiff., and *C. vaccinii*. During this period mercury vapour light became more attractive, all the species noted

above at sallow being present and in addition were *O. gracilis* Schiff., *Anticlea derivata* Schiff. and *Earophila badiata* Schiff. On 24th April *Chimabacche fagella* Fabr. was present in large numbers in the local woodland. Almost every bole had specimens, sometimes as many as half a dozen. Whilst looking over these, a female *X. areola* was found. The following day a visit was made to the undercliff at St. Lawrence where larvae of *Melitaea cinxia* L. were found in very small numbers. However, a few days later a large number of larvae were seen near Binnel Bay. Only two larvae of *A. villica* were found during the whole spring. On 30th April a visit to Brading Down was unproductive, for apart from numbers of *Ancylis comptana* Fröl. flying over the turf, only a few fresh *Pararge egeria* L. were seen.

During early May, mercury vapour light in the garden was not well attended, the noteworthy captures being a few *Pheosia gnoma* Fab., *P. tremula* Clerck, *Cucullia chamomillae* Schiff., *Notodonta ziczac* L. and *Selenia bilunaria* Esp. Along the coast near Sandown, larvae of *Platyptilia gonodactyla* Schiff. were common in the flower heads of coltsfoot, and *Laspeyresia perlepidana* was flying in good numbers. On the 15th the butterflies *Syrichtus malvae* L., *Erynnis tages* L., *Aricia agestis* Schiff., and *Coenonympha pamphilus* L. were flying on Brading Down. *Laspeyresia ulicitana* Haw. was swarming around the gorse bushes. In Borthwood *Asthena albulata* Hufn. was common among the hazels, each tap with a stick causing several to take wing. In the same locality *Nemophora swammerdamella* L. was equally common. Brading Down was again visited on the 26th, when *Polyommatus icarus* Rott. was found to be emerging in fair numbers. Along the roadsides near the Down, *Anthocaris cardamines* L. was flying in better numbers than in the previous season, but later the larvae suffered severely when the roadsides were sprayed with weedkiller, and much of the foodplant, hedge garlic, was destroyed. Near home, a very limited colony of *Panemeria tenebrata* Scop. was found, but the species was not seen elsewhere during the season. At the end of the month *Cupido minimus* Fuessl. was common on Brading Down and later in the same locality *Lysandra bellargus* L. was seen in very small numbers. On the 31st, beating hedges at the foot of St. Boniface Down was quite productive of moths, the following species being obtained: *Epirrhoe alternata* Mühl., *E. galiata* Schiff., *Electrophaes corylata* Thinb., *Lyncometra ocellata* L., *Melanthis procellata* Schiff., *Colostygia pectinataria* Knock., *Xanthorrhoe spadicearia* Schiff., *Opisthograptis luteolata* L. and *Bapta temerata* Schiff. The same night proved to be the first good one for mercury vapour light, but although a large number of moths was attracted there were no rarities. Among those attracted were the first hawks of the season, one each of *Laothoe populi* L. and *Smerinthus ocellata* L. A feature of the season was the scarcity of hawk moths, a total of only twelve being attracted to the light trap during the whole year. This number was composed of seven *L. populi,* one *S. ocellata,* three *Deilephila elpenor* L. and one *Sphinx ligustri* L. The last mentioned was a female which subsequently laid a few eggs but these were infertile, confirming the scarcity of specimens in the district. Only two *Macroglossum stellatarum* L. were seen at flowers.

Beating broom in a local wood on 5th June showed larvae of *Chesias legatella* Schiff. to be plentiful. At dusk in the same locality *Perizoma affinitata* Steph. and *P. flavofasciata* Thunb. were flying together in

numbers. On 9th June a visit was paid to the cliffs at Luccombe to look for *Laspeyresia gemmiferana* Triets. One specimen only, a female, was seen, but many *Eucosma farfarae* Fletch. were flying in the sunshine. The *gemmiferana* locality is rapidly deteriorating, for not only did large cliff falls occur after the severe winter, burying a large amount of vegetation, but recently, abnormally high tides have caused extensive erosion and further falls of cliff. The night of the 9th was not good for mercury vapour light, but a fresh specimen of *Heliophobus albicolon* Hübn. was obtained.

The Acronyctinae had a very poor season here, only single figures of *Apatele megacephala* Schiff. and *A. rumicis* L. appearing in the trap. Apart from *Cryphia perla* Schiff., which was more numerous, none of the other species were recorded at all. Sugar was attempted several times towards the end of the month but proved a dismal failure. One evening, when applying the sugar, I noticed a larva of *Polyploca ridens* Fab. on the upper surface of a bramble leaf, a suspicious position later confirmed when a parasite proved to be present. At this period, larvae of *Cucullia verbasci* L. were to be found wherever mullein was examined. During the month, *L. bellargus* was seen in several widely spaced localities on the downs, but always in very small numbers. On 15th June, I led the entomological section of the Isle of Wight Natural History and Archeological Society on a visit to Brading Down. About 5 p.m. males of *Macrothylacia rubi* L. appeared on the wing, careering over the slopes of the down. We saw a swallow pursue and capture one of the moths. The only other moth of note was *Eupithecia scabiosata* Borkh.

The arrival of July brought better mercury vapour results in the garden, the best species captured being *Lithosia complana* L., *Miltochrista miata* Forst., *Euphyia unangulata* Haw., *Apamea furva* Schiff., *Sterrha trigeminata* Haw., *Hydrelia flammeolaria* Hufn., *Hadena bicolorata* Hufn., *Agrotis clavis* Hufn., *Habrosyne pyritoides* Hufn., and *Gastropacha quercifolia* L.

The July butterflies were generally disappointing. Of the fritillaries, *Argynnis selene* Schiff. was seen in fair quantity at Cranmore, where also a few *A. paphia* L. were recorded. *A. aglaia* L. was not seen at all, although the insect was searched for in several downland localities where it used to be plentiful. *Limenitis camilla* L. had a good year, being reported in numbers from Cranmore, Newtown, Havenstreet and Whitefield Wood. Most of the species of browns were below average with the exceptions of *Melanargia galathea* L. and *Pararge aegeria* L. the latter being widespread and continually in evidence through the season.

A visit to Tennyson Down failed to produce any *Alucita spilodactyla* Curt. and a search on Brading Down for *Pyrausta flavalis* Schiff. was unavailing. During the first few days of August a lot of time was spent looking for pupae of *Nonagria sparganii* Esp. in likely localities. None were found, but pupae of *N. typhae* Thunb. were plentiful and from these several fine ab. *fraterna* Treits. were reared. Night searching using a torch in the same localities was interesting. A strong colony of *Leucania straminea* was found, and at the same spot *Chilo phragmitellus* Hübn. was on the wing. Other species encountered were *Apamea unanimis* Hübn., *A. ophiogramma* Esp., and *Lampra fimbriata* Schr., the last named seeming out of place on marsh land. A worn specimen of *Laspeyria flexula* Schiff. was found at rest on a reed stem. Just before dusk one

evening a number of *Euschesis interjecta* Hübn. were flying around a clump of alders and proved most difficult to catch, as movement was hampered by the marshy ground.

During the second half of August attention was turned again to butterflies on the downs. *Lysandra coridon* Scop. emerged in good strength and hundreds were examined for variation. This, however, proved to be slight, only a few *arcuata* forms being found. *Pieris rapae* L. became abundant on the downs and again some hundreds were examined. A fine female, having a black spot on each hindwing was obtained and also a well banded female specimen. The latter, being damaged, was caged, but no eggs were forthcoming. A nice capture was a fresh *Aricia agestis* Stgr. with golden lunules. Finally, an asymmetrically marked specimen of *Maniola jurtina* L. rewarded my efforts in searching for vars.

September was a most unproductive month. Mercury vapour light attracted commoners in small numbers and sugaring on several nights gave no encouragement to persist with that particular sport. The native butterflies were waining on the downs and no migrants came to replace them. I turned to the pugs. After covering many miles of ground and spending many hours beating clematis, yarrow, ragwort, bramble, and other blossoms I acquired a good assortment of pug larvae. Alas, about 95% of them proved to contain parasites.

During early October mercury vapour light in the garden attracted moths in but small numbers, including *Aporophyla nigra* Haw., *Eumichtis lichenea* Hübn., and *Thera obeliscata* Hübn. On the 22nd, a young collector, Roger Oakley, drew my attention to the presence of large numbers of larvae of *M. rubi* L. at Carisbrooke. On the 25th a period of mild weather commenced and the attraction of mercury vapour light became much enhanced. The numbers of common species were accompanied by a few desirable ones including *Epicema caeruleocephala* L., *Lithopane ornitopus* Hufn., *Brachionycha sphinx* Hufn., *Dasypolia templi* Thunb. and *Leucania l-album* L. The better conditions tempted me to have a final go at sugaring in Borthwood. I got only one moth on the sugar, but it was a very nice *Anchosceles helvola* L. A disappointing feature of the month was the failure of ivy blossom to attract moths. On several nights I went to look over the masses of ivy blossom to be found along the landslip but the results were always negative.

The autumn butterflies were not very numerous; *Nymphalis io* L. and *Aglais urticae* L. were in fair numbers, *Vanessa atalanta* L. was scarce, *Pyrameis cardui* L. was seen twice. However, it was pleasant to see half a dozen *Polygonia c-album* L. feeding on blackberries at Luccombe on 4th October.

During November a few sorties were made to look for moths after dark with a torch. The scarcity of the late moths was not unexpected, for a feature of the spring had been the non-eaten condition of the leaves of woodland trees. A total of about two dozen *Erannis aurantiaria* Hübn. were seen but only two *E. defolaria* Clerck. A specimen of *E. marginaria* Fabr. which had presumably got its seasons mixed up was also found.

In summary the 1963 season has been generally disappointing, both climatically and entomologically. It was hoped that history would repeat itself and that the arctic winter would be compensated by a sub-tropical summer, but in fact we got a cool rather dull summer, unfavourable to insect life. Features of the season were the scarcity of many species of

lepidoptera normally abundant, the lack of migrants, and the failure of sugar.

Finally I should say, in these days of fugitive nomenclature, that the names of the macrolepidoptera were taken from "The Moths of the British Isles" by South, 1961, and those of the microlepidoptera from "A Guide to the smaller British Lepidoptera" by L. T. Ford, 1949.

26 Green Lane, Shanklin, Isle of Wight.

Cranleigh Butterflies, 1963

By Major A. E. Collier

The optimism of the entomologist dies hard, but it must be very tough to survive the steady, in some cases drastic, deterioration in numbers of most species of butterflies in this area of Surrey.

Twenty years ago the Chiddingfold woods abounded with most of the Fritillaries, and even ten years ago the High Brown *Fabriciana cydippe* L. was not uncommon, while the Silver-washed *Argymus paphia* L. could be found in every suitable bit of woodland, with a surprisingly high percentage of *Ab valesina* Esp.; and *Mesoacidalia charlotta* Haw. was frequently seen on the nearest parts of the North Downs.

The small fritillaries were unusually abundant and those collectors who were able to visit the area in the middle forties will not easily forget the sight of clusters of Small Pearl Bordered, *Argynnis selene* Schiff. on every patch of Birdsfoot Trefoil or Ragged Robin. The Pearl Bordered *Clossiana euphrosyne* L., although not quite so plentiful, was widespread, and both species produced a great number of spectacular aberrations.

Even in 1952 there were fifteen localities within ten miles of Cranleigh which demanded attention during May and June on account of their sizeable colonies of *euphrosyne* and *selene*. Of these localities only two remain to-day where small numbers may be seen, although many of the old localities are largely unaltered. The White Admiral, *Limenitis camilla* L., was not uncommon, and its hibernacula could easily be found along the paths and rides of the Canfold and Somersbury woods; while the Purple Emperor, *Apatura iris* L., was so widespread that I found no difficulty in recording its eggs and larvae in nineteen well-separated spots, all within five miles of Cranleigh.

The indigenous Vanessids could be seen in moderate numbers in every flower garden, and one did not have to search far to find the larvae of the Small Tortoiseshell, *Aglais urticae* L., and the Peacock, *Nymphalis io* L. The Pieridae and the Lycaenidae were reasonably plentiful, while the Satyridae and most of the Hesperiidae occurred in profusion and fortunately, in most cases, continue to do so.

To-day it is almost a contradiction in terms to speak of butterflies in the Cranleigh district, and that this is recognised will explain the fact that in the past nine years I have never met another entomologist working the many apparently attractive areas within a radius of six miles of the village.

The 1963 season with its generally cool and sunless weather, broken only by a short hot spell in early June and another slightly longer one at the end of July, showed a further decline in the numbers of most species of butterflies.

The Pieridae made their appearance from 26th April when *Pieris napi* L. and *P. rapae* L. were seen rather more often than for some years, and a week later *P. brassicae* L. appeared, but never became numerous or a nuisance in the garden. *Euchloe cardamines* L., first seen on 4th May, was subsequently recorded singly only three times, while two females were seen on the 25th, after which no more were noticed.

Leptidea sinapis L. started in a promising fashion when a dozen males were encountered on 17th May in a wood where the population remains steady, but could expand very easily. *Gonepteryx rhamni* L. were exceptionally scarce throughout the year, and there was no sign of *Coleas croceus* Fourcroy. Some of the Satyridae failed, particularly *Coenonympha pamphilus* L., which started the season well but dwindled later to such an extent that to see a second brood specimen in late summer was a rare event.

Judging by a number which I am rearing from eggs laid in May and June, the generally low temperatures and lack of sun has resulted in the larvae making very slow growth and failing to reach maturity before the winter. All my larvae have over-wintered, with occasional feeding observed, and in the wild this may lead to a sizeable emergence in the early summer.

Pararge aegeria L. also had a disappointing year and, after a fairly promising start in mid April, failed to improve, and the second brood was nearly a complete failure.

P. megera L. was even rarer than usual, and *Eumenis semele* L. was not seen at all in its usual habitat on the North Downs.

Maniola tithonus L. first appeared on 19th July and were to be found in good numbers in August, but with noticeably less variation than in 1962.

Aphantopus hyperantus L. was first recorded on 30th June, and in my three largest colonies numbers were well up to normal, *lanceolata* forms being not uncommon, though *caeca* forms were conspicuously absent. In two other colonies, where conditions appear to be very favourable, the population remains low in spite of the room for expansion.

Maniola jurtina L. were on the wing from 11th June and had obviously not suffered, or been delayed, by the long hard winter. They flew in great numbers during their long overlapping emergence, and were almost a nuisance on the North Downs until nearly the end of September.

The Nymphalidae continued their decline. *Clossiana euphrosyne* L., in evidence from 16th May, failed to improve on 1962, and *A. selene* were even more disappointing, a reversal of the usual course of events.

Two specimens of *M. charlotta* were seen on the North Downs on 25th July, but I again failed to record *cydippe*. *Paphia* was recorded only three times, a solitary male on 7th July, three on the 20th and a single female on 5th August, and this in areas which might have been expressly designed for the species.

Euphydryas aurinia Rott. appeared in very small numbers from 31st May, and in the autumn I saw no signs of larvae in either of two large, and once well populated, areas.

Urticae io, Vanessa atalanta L. and *V. cardui* L. were rarely seen at any time of the season.

Polygonia c-album L. was met with on three occasions, and then only singly or in pairs, until one rare sunny day on 19th October when no

fewer than seven appeared together on a small plant of Michaelmas daisies.

Apatura iris L., although now very rare in this neighbourhood owing to the destruction of most of the oak woods, still persists in some outlying patches of forest. Many hours of searching revealed three eggs, recently laid, on 15th August, and a male insect was seen flying in another wood earlier in the month.

I do not expect to see *camilla* nowadays, and was surprised and delighted to meet with a couple on 29th July in what was recently an oak forest, but is now a devastated area, almost impassable in places, but with a few clear patches surrounded by birch trees, brambles and honeysuckle.

The Lycaenidae made a mixed showing. *Lycaenopsis argiolus* L. was not recorded, nor was *Strymon w-album* Knock. A single specimen of *Quercusia quercus* L. was seen on 17th July but later visits to many once favoured localities produced no results, although the insect was reported to be plentiful in the Hook district.

Callophrys rubi L. seems to have become rarer locally, as has *Thecla betulae* L. whose eggs a few years ago could be found in a great many situations round Cranleigh.

Lycaena phlaeas L. again failed almost completely in the wooded areas, although a few were seen in late September on the downs.

It was good to find that *Lysandra coridon* Poda and *L. bellargus* Rott. were holding their own in an environment where conditions are still favourable for a great increase in numbers if, or when, we get a succession of reasonably warm seasons.

The Hesperiidae made a mixed showing, with great numbers of *Ochlodes venata* B. & G. and *Thymelicus sylvestris* L. in every suitable locality, whereas *Syrichtus malvae* L. and *Erynnis tages* L. were noticeably less plentiful than usual.

The past season was remarkably free from spring frosts, and I cannot recollect another year when it has been impossible to find a wild strawberry flower with a blackened centre; on the other hand the cool and unsettled June, and the stormy and cold August and September, will have seriously interfered with mating and egg-laying by certain species, particularly *selene* and *coridon*. In the case of *coridon*, however, the ill effects will be minimised by the fact that owing to the cold autumn few, if any, eggs will have hatched prematurely.

VANESSA IO L. IN EARLY FEBRUARY.—While on a visit on February 2nd to Mr. W. J. Kaye at his home at Longdown on the downs just south of Guildford, we were surprised to see a peacock butterfly fluttering about in front of his house at about mid-day, with a temperature of about 56° F. That in the sun was just on 70° F. on his verandah where the butterfly eventually settled. I do not remember ever having seen a hibernated Vanessid as early in the year.—C. G. M. DE WORMS, Three Oaks, Woking. 3.ii.1964.

The *Silvicola* Burgeff Group of the genus *Zygaena* Fabricius (Lep., Zygaenidae)

By W. GERALD TREMEWAN

(*Concluded from p. 54.*)

Z. osterodensis irpenjensis Holik & Reiss (comb. nov.)

Z. scabiosae irpenjensis Holik & Reiss, 1932, in Holik, *Iris*, **46**: 114, pl. 1, figs. 12-15.

Type locality: Irpenj near Kijev, North Ukraine.

Material examined: 1 ♂, paratype, Irpenj (coll. H. Reiss); 2 ♂♂, 2 ♀♀, Podolia.

♂ genitalia. Transverse spines at base of lamina dorsalis long and well developed, single group of cornuti well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum present, well developed.

The populations of Podolia are probably referable to ssp. *irpenjensis* Holik & Reiss.

Z. osterodensis ssp.

A short series of specimens from Gyergyo Szt. Miklos, Transsylvania, probably represent a new and undescribed subspecies.

♂ genitalia. Cornuti well developed, transverse spines at base of lamina dorsalis well developed but a slight reduction in the length of the central spines.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis narrow, sclerotization of ductus bursae weak or absent, signum present, well developed. In one female, however, the signum is reduced to three spines.

Z. osterodensis budensis Holik (comb. nov.)

Z. scabiosae budensis Holik, 1942, *Ent. Z.*, **56**: 197.

Type locality: Budapest, Budakeszi, Hungary.

Material examined: 1 ♂, 1 ♀, Budapest.

♂ genitalia. Spines at the base of lamina dorsalis long, well developed, single group of cornuti well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis narrow, ductus bursae weakly sclerotized, signum present, reduced and rather weak.

Z. osterodensis matrana Burgeff (comb. nov.)

Z. scabiosae matrana Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 18.

Type locality: Matra Mts., 500-800 m., northern Hungary.

Material examined: a short series from Galyatetö and Nagzkovacsie, Matra Mts.

♂ genitalia. Spines at base of lamina dorsalis long and well developed, single group of cornuti well represented.

♀ genitalia. Lamella postvaginalis developed, lamella antevaginalis narrow, ductus bursae moderately sclerotized, signum present, rather weak.

Z. osterodensis ssp.

A series of specimens (6 ♂♂, 16 ♀♀) from Mezoeseg, Transsylvania, represent a new subspecies. According to the superficial characters these specimens might easily be placed as a subspecies of *romeo*. However, an examination of the genitalia shows that the specimens are conspecific with *osterodensis*. In superficial characters, the specimens have short,

rather rounded forewings as in *romeo*. In the majority of specimens, the middle streak is divided, forming two spots (3 and 5). Apparently this is a constant character of the Mezoeseg populations.

♂ genitalia. Spines at the base of the lamina dorsalis long, well developed, single group of cornuti strong, well developed.

♀ genitalia. Lamella postvaginalis strongly developed, lamella antevaginalis broad, variable, ductus bursae moderately sclerotized on one side only, signum present, rather weak, number of spines reduced.

Z. osterodensis ssp.

A series of specimens (3 ♂♂, 1 ♀) from Rila Dagh, south-west Bulgaria, probably represents a new subspecies. The ground colour of the forewings is dull, bluish black, without gloss, forewing streaks and hindwings scarlet, the middle streak of the forewings divided and forming two spots (3 and 5). Hindwing border fairly wide, thorax and abdomen rather hairy. According to the genitalia these specimens are conspecific with *osterodensis*.

♂ genitalia. Transverse row of spines at base of lamina dorsalis long and well developed, single group of cornuti well developed. In one specimen, however, the central, basal spines of the lamina dorsalis are reduced in length while the vesica shows a slight formation of a second group of cornuti.

♀ genitalia. Lamella postvaginalis developed but somewhat reduced, lamella antevaginalis fairly broad, ductus bursae moderately sclerotized, signum present but number of spines reduced.

Z. osterodensis koricnensis Reiss (comb. nov.)

Z. scabiosae koricnensis Reiss, 1922, *Int. ent. Z.*, **16**: 66.

Type locality: Maklen-Pass, Koricna, Bosnia.

Material examined: Holotype ♂, Koricna, Bosnia (coll. H. Reiss).

♂ genitalia. Spines at base of lamina dorsalis long and fully developed, single group of cornuti developed.

Z. osterodensis goriziana Koch (comb. nov.)

Z. scabiosae goriziana Koch, 1937, in Holik, *Mitt. münch. ent. Ges.*, **27**: 7.

Type locality: Görz, Istria.

Mr. M. Koch, Dresden, very kindly supplied drawings of the genitalia of a male and female (paratypes) of *goriziana* in his collection. The subspecies *goriziana* is referable to *osterodensis* (= *scabiosae auct.*).

♂ genitalia. Spines at base of lamina dorsalis long and well developed, forming a transverse row, single group of cornuti present.

♀ genitalia. Lamella postvaginalis developed, moderate, lateral sclerotization in the ductus bursae, signum present, moderately strong.

Z. osterodensis ssp.

A female from Mte. Simeone, Interneppo, Friaul, north Italy, 400-600 m. (coll. H. Reiss) is referable to *osterodensis*.

♀ genitalia. Lamella postvaginalis large and fully developed, lamella antevaginalis rather broad, ductus bursae sclerotized, signum present but very weak and vestigial.

Z. osterodensis praecarpathica Holik (comb. nov.)
Z. scabiosae praecarpathica Holik, 1942, *Ent. Z.*, **56**: 198.

Type locality: Smrkovica, Djumbir region, Little Carpathians.
We have been unable to examine material of this subspecies.

Z. osterodensis austrocarpathica Holik (comb. nov.)
Z. scabiosae austrocapathica Holik, 1942, *Ent. Z.*, **56**: 198.

Type locality: Kosow; Kobaki, northern slopes of the east Carpathians.
We have been unable to examine material of this subspecies.

Z. osterodensis polonia Przegendza (comb. nov.)
Z. scabiosae polonia Przegendza, 1933, *Ent. Z.*, **47**: 27, figs. 4-6.

Type locality: Szerszeniowce near Lemberg, Poland.
Material examined: 2 ♂♂, 1 ♀, Genow, Lemberg, Poland.

♂ genitalia. Transverse spines at base of lamina dorsalis well developed, especially laterally, central spines somewhat reduced in length, single group of cornuti well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis rather broad, ductus bursae moderately sclerotized, signum present but reduced and rather weak.

Z. osterodensis warszawiensis Holik (comb. nov.)
Z. scabiosae warszawiensis Holik, 1939, *Ann. Mus. zool. Polon.*, **12**: 26, pl. 1, figs. 31-33.

Type locality: Pyry near Warsaw, Poland.
We have been unable to examine material of this subspecies.

Z. osterodensis ladina Holik (comb. nov.)
Z. scabiosae ladina Holik, 1944, *Iris*, **57**: 44.

Type locality: Gröden, Dolomites, Italy.
We have been unable to examine material from this locality.

Z. osterodensis curvata Burgeff (comb. nov.)
Z. scabiosae curvata Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 17.

Type locality: Bruck a. d. Mur, Thörl, Styria, Austria.
Material examined: A series from Judenburg, Styria.

♂ genitalia. Spines at the base of the lamina dorsalis long and well developed, single group of cornuti well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, ductus bursae weakly sclerotized, signum present, rather weak.

Z. osterodensis tenuicurva Burgeff (comb. nov.)
Z. scabiosae tenuicurva Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 18.

Type locality: Neuhütten, Karlstein near Prague, Bohemia.
Material examined: A series from Prague.

♂ genitalia. Strong, well developed spines at the base of the lamina dorsalis, single group of cornuti present, strong and well developed.

♀ genitalia. Lamella postvaginalis developed, lamella antevaginalis broad, ductus bursae weakly sclerotized, signum present, strong and well developed.

Z. osterodensis kessleri Reiss (comb. nov.)

Z. romeo kessleri Reiss, 1950, *Jber. naturf. Ges. Graubünden*, **82**: 102, fig. 4.

Type locality: Albulatal, Bergün, Switzerland, 1300-1400 m.

Material examined: 1 ♂, paratype, Bergün (coll. H. Reiss); 5 ♂♂, 2 ♀♀, St. Moritz; Ragatz; the Engadine.

♂ genitalia. Spines at base of lamina dorsalis long and well developed (somewhat reduced in Bergün specimen), single group of cornuti well represented.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis fairly broad, ductus bursae moderately sclerotized, signum present, fairly strong.

Z. osterodensis validior Burgeff (comb. nov.)

Z. scabiosae validior Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 17.

Type locality: Martigny, Wallis, Switzerland.

Material examined: 1 ♀, Martigny (coll. H. Reiss).

♀ genitalia. Lamella postvaginalis broad, well developed, ductus bursae sclerotized, signum present, well developed.

Z. osterodensis vosegiensis Le Charles (comb. nov.)

Z. scabiosae vosegiensis Le Charles, 1960, *Bull. Soc. ent. Fr.*, **65**: 103 (nomen novum for *vogesiaca* Le Charles).

Z. scabiosae vogesiaca Le Charles, 1957, *Rev. franç. Lépid.*, **16**: 20, pl. 6. fig. 6 (preoccupied by *vogesiaca* Przegendza, 1932, ssp. of *trifolii* Esper).

Type locality: Nonnenbruch près Cernay; Mulhouse; Haut-Rhin, France.

Material examined: Lectotype ♂, Nonnenbruch; 3 ♂♂, Nonnenbruch; 1 ♂, Uffholtz near Cernay; Haut-Rhin (Paris Museum coll.).

♂ genitalia. Spines at base of lamina dorsalis variable but long and well developed. Single group of cornuti present.

The lectotype was selected by Le Charles (1960: 103).

Z. osterodensis expansa Le Charles (comb. nov.)

Z. scabiosae expansa Le Charles, 1957, *Rev. franç. Lépid.*, **16**: 20, pl. 6, figs. 9-11.

Type locality: Lac de Montrion, Haute-Savoie, France, 1200 m.

Material examined: Lectotype ♂, Lac de Montrion; 2 ♂♂, 1 ♀, same locality (Paris Museum coll.).

♂ genitalia. Spines at base of lamina dorsalis well developed, single group of cornuti present.

♀ genitalia. Lamella postvaginalis developed, ductus bursae moderately sclerotized, signum present, spines rather weak.

The lectotype was selected by Le Charles (1960: 103).

Z. osterodensis droiti Le Charles (comb. nov.)

Z. scabiosae droiti Le Charles, 1960, *Bull. Soc. ent. Fr.*, **65**: 103 (with reference to Le Charles, 1957, *Rev. franç. Lépid.*, **16**: 20).

Type locality: Céuze, Hautes-Alpes, France.

Material examined: Holotype ♂, allotype ♀, Céuze; 3 ♂♂, same locality (Paris Museum coll.).

♂ genitalia. Spines at base of lamina dorsalis long and well developed, single group of cornuti present.

♀ genitalia. Lamella postvaginalis developed, ductus bursae weakly sclerotized, signum present, weak.

Z. osterodensis schultei Dujardin (comb. nov.)

Z. minos schultei Dujardin, 1956, *Bull. mens. Soc. linn. Lyon*, **25**: 256.

Type locality: Les Dourbes near Digne, Basses-Alpes, France, 1500 m.

Material examined: 38 ♂♂, 4 ♀♀, Les Dourbes, Digne.

♂ genitalia. Transverse row of spines at base of lamina dorsalis well developed, single group of cornuti well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, well developed, ductus bursae moderately sclerotized, signum present, rather weak and reduced to a few minute spines.

Z. osterodensis valida Burgeff (comb. nov.)

Z. scabiosae valida Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 17.

Type locality: Schwäbische Alb, Württemberg (Klingenstein, Blaubeuren, Neuffen, etc.), Germany.

Material examined: 1 ♂, Blautal bei Ulm (coll. H. Reiss); 4 ♀♀, Hohen-Neuffen, Württemberg.

♂ genitalia. Spines at base of lamina dorsalis strong and well developed, single group of cornuti present.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis fairly broad, ductus bursae moderately sclerotized, signum present, rather weak.

Z. osterodensis lineata Reiss (comb. nov.)

Z. romeo lineata Reiss, 1933, in Seitz, Die Gross-schmetterlinge der Erde, Supplement, **2**: 253, pl. 16k.

Type locality: Dollnstein, Fränkischer Jura; Neighbourhood of Stuttgart and Leonberg (Württemberg), Germany.

Material examined: 1 ♂, 1 ♀, Stuttgart (coll. H. Reiss).

♂ genitalia. Spines at base of lamina dorsalis long, forming a transverse row, single group of cornuti present.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, ductus bursae sclerotized on one side, anteriorly, signum present, well developed.

Z. osterodensis hassica Burgeff (comb. nov.)

Z. scabiosae hassica Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 17.

Type locality: Ingelheim, Heidesheim, Rheintal, Hessen, Germany.

Material examined: 1 ♂, Unter-Ingelheim (coll. H. Reiss), 4 ♂♂, 1 ♀, Frankfurt on the Main.

♂ genitalia. Spines at the base of the lamina dorsalis well developed, single group of cornuti present.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum present, strong and well developed.

Z. osterodensis osterodensis Reiss

Z. scabiosae osterodensis Reiss, 1921, *Int. ent. Z.*, **15**: 118.

Type locality: Grünortspitze, Osterode, East Prussia.

Material examined: 1 ♂, 1 ♀, paratypes, Grünortspitze (coll. H. Reiss).

♂ genitalia. Spines at the base of the lamina dorsalis well developed, single group of cornuti present.

♀ genitalia. Lamella postvaginalis very broad and well developed, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum present, well developed.

Z. osterodensis masoviensis Reiss (comb. nov.)

Z. romeo masoviensis Reiss, 1941, *Z. wien. EntVer.*, **26**: 58.

Type locality: Rüdzanny, Masuren, East Prussia.

Material examined: 1 ♂, paratype, Masuren (coll. H. Reiss).

♂ genitalia. Spines at the base of the lamina dorsalis long and well developed, a single group of cornuti.

Z. osterodensis haegeri Reiss (comb. nov.)

Z. romeo haegeri Reiss, 1941, *Z. wien. EntVer.*, **26**: 58.

Type locality: Bublitz (Stadwald), east Pommerania.

Material examined: 1 ♂, paratype, Bublitz (coll. H. Reiss).

♂ genitalia. Spines at base of lamina dorsalis well developed, single group of cornuti present.

Z. osterodensis trimacula Le Charles (comb. nov.)

Z. scabiosae trimacula Le Charles, 1957, *Rev. franç. Lépid.*, **16**: 15, pl. 6, fig. 8.

Type locality: Forêt de Sainte-Maure, Indre, France.

Material examined: Lectotype ♂, Forêt de Sainte-Maure; 1 ♂, 3 ♀♀, same locality (Paris Museum coll.).

♂ genitalia. Spines at the base of the lamina dorsalis long and well developed, a single group of cornuti.

♀ genitalia. Lamella postvaginalis moderately developed, ductus bursae weakly sclerotized, signum present, moderately strong.

The lectotype was selected by Le Charles (1960: 103).

Z. osterodensis eupyrenaea Burgeff (comb. nov.)

Z. scabiosae eupyrenaea Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 20.

Type locality: Vernet-les-Bains; Mt. Canigou, 800-1200 m., Pyrénées-Orientales, France.

Material examined: Over two hundred specimens of both sexes from Vernet-les-Bains; Haut-Cady; Mariailles; Casteil à la Forêt de Rondai; Pyrénées-Orientales (B. M. coll.); 1 ♂, Mt. Louis (C. W. Mackworth-Praed coll.).

♂ genitalia. Spines at the base of the lamina dorsalis long and fully developed but in many specimens a slight reduction in length of those in the centre. Single group of cornuti present, number of spines varying from 3-8.

♀ genitalia. Lamella postvaginalis large and well developed, lamella antevaginalis rather broad, ductus bursae moderately sclerotized, signum present, variable but generally strong and well developed.

A small percentage of the males have short forewings with a rounded apex and, in superficial characters, resemble *romeo*. The middle streak of the forewings is broken and forms two spots (3 and 5) and in more extreme examples all the streaks are divided and form five spots (1, 2. 3, 4, 5). The genitalia of these specimens, which have superficial characters

resembling those of *romeo*, are rather variable. The spines at the base of the lamina dorsalis are often reduced in length. It is possible that hybridization is taking place between *osterodensis eupyrenaea* and *romeo urania* Marten although it is not known whether the two species fly together on the same ground.

Z. osterodensis leridana Marten (comb. nov.)
Z. scabiosae leridana Marten, 1957, *Ent. Z.*, **67**: 218.

Type locality: Espot, Prov. Lerida, central Pyrenees, 1000-1100 m.

Material examined: A series of over one hundred and eighty specimens of both sexes from Cauterets, Hautes-Pyrénées.

♂ genitalia. Spines at base of lamina dorsalis long and well developed, single group of cornuti fairly well developed.

♀ genitalia. Lamella postvaginalis well developed, lamella antevaginalis broad, ductus bursae moderately sclerotized, signum present, generally strong and well developed.

In superficial characters this subspecies is fairly constant and the forewing streaks are not divided into spots as in some examples of ssp. *eupyrenaea*. Only in extremely aberrant examples of *leridana* are the streaks rather constricted in the middle but then, are not completely broken. The genitalia do not exhibit any diverse variation as in some specimens of *eupyrenaea*.

The ssp. *leridana* was described from a series of specimens from Espot, Prov. Lerida, on the south (Spanish) side of the central Pyrenees. Specimens from Cauterets (Hautes-Pyrénées) agree with the original description of *leridana* and are placed under that subspecies.

Z. osterodensis cantabrica Marten (comb. nov.)
Z. scabiosae cantabrica Marten, 1957, *Ent. Z.*, **67**: 217.

Type locality: Gorges of the Cantabrian Mts., between the Sierra de Covadonga and the Massif of the Picos de Europa, North Spain, 500-700 m.

We have been unable to examine material of this subspecies but, according to the original description, it should be referred to *osterodensis*. Marten described *cantabrica* as a race of *scabiosae auct.* (= *osterodensis*). The specimens were found flying together with *nevadensis* Rambur. The populations of *nevadensis* from the Picos de Europa have been described by Agenjo as ssp. *picos*. *Z. osterodensis cantabrica* was previously recorded by Reiss (1931: 113) and Koch (1948: 322).

Z. osterodensis ssp.

Two specimens (♂, ♀) from Bronchales, Teruel, Aragon, probably represent a new subspecies. The middle streak of the forewing is constricted, especially in the male. Ground colour of forewings bluish black, without gloss, forewing streaks and hindwings bright scarlet, hindwing border rather wide at the apex. Thorax and abdomen rather hairy, black, without gloss.

♂ genitalia. Spines at base of lamina dorsalis long and fully developed, single group of cornuti present.

♀ genitalia. Lamella postvaginalis poorly developed, ductus bursae sclerotized on one side, signum present, weak.

REFERENCES

Abeille, E. 1909. Études sur les Zygènes des Environs de Marseille et de la Région de la Saint-Baume. *Mem. Soc. linn. Provence*, **1** : 1-24.

Alberti, B. 1958. Über den stammesgeschichtlichen Aufbau der Gattung Zygaena F. und ihrer Vorstufen (Insecta, Lepidoptera). *Mitt. zool. Mus. Berl.*, **34** : 243-396, pls. 1-32.

———. 1959. *Ibidem. Mitt. zool. Mus. Berl.*, **35** : 201-242, pls. 33-64.

Bernardi, G. & Viette, P. 1960. Note sur la Nomenclature de trois Espèces du Genre Zygaena Fabricius. *Bull. mens. Soc. linn. Lyon*, **29** : 238-248.

Boisduval, J. A. 1834. Icones historiques des Lépidoptères nouveaux ou peu connus, Vol. **2**.

Burgeff, H. 1926. In Strand, *Lepid. Cat.*, **33** : 1-91.

Dujardin, F. 1952. Nomenclature et Synonymie de certaines Espèces de Zygaena Européennes. *Bull. mens. Soc. linn. Lyon*, **22** : 245-247.

Holik, O. 1935. *Zyg. lathyri* Bsd. und *Zyg. dalmatina* Bsd. *Ent. Rdsch.*, **53** : 56-60.

———. 1940/41. Kaukasische und armenische Zygaenen. *Ent. Z.*, **54** : 201-205, 209-215.

———. 1944. Verbreitung und Variation der *Zygaena scabiosae* Schev. südlich des Alpenkammes. *Iris*, **57** : 41-55.

———. 1961. Qu'est-ce que la Zygaena dalmatina Bsd.? *Bull Soc. ent. Mulhouse*, p. 51-54.

Holik, O. & Sheljuzhko, L. 1955. Über die Zygaenen-Fauna Osteuropas, Kleinasiens, Irans, Zentralasiens und Sibiriens. *Mitt. münch. ent. Ges.*, **44/45** : 26-158.

Koch, M. 1939. Zygaena Fab. V. Eine Zygaenenausbeute aus Georgien. *Mitt. münch. ent. Ges.*, **29** : 397-415.

———. 1940. *Zygaena Fab.* VII. *Ent. Z.*, **54** : 199-200.

———. 1948. Las *Zygaena* españolas del Instituto de Entomologia de Madrid. *Eos, Madr.*, **24** : 319-333.

Kirby, W. F. 1892. A Synonymic Catalogue of Lepidoptera Heterocera (Moths), Vol. **1**.

Le Charles, L. 1953. Contribution a l'Étude des Zygènes gallica-mana-erebus. *Rev. franç. Lépid.*, **14** : 13-16, figs. 1-6, pl. 2, figs. 1-4, pl. 3, figs. 1, 2.

———. 1960. Nouvelle sous-espèces de Zygènes françaises [Lep. Zygaenidae]. *Bull. Soc. ent. Fr.*, **65** : 102-103.

Reiss, H. 1931. Die Formen der Zygaena scabiosae Schev. in Spanien und Portugal. *Int. ent. Z.*, **25** : 109-114, figs.

———. 1933. In Seitz, Die Gross-Schmetterlinge der Erde, Supplement, **2** : 249-278, pl. 16.

———. 1953. Über drei Zygaenen die als regressive Endemiten bezeichnet werden können, deren Entstehung vermutlich in der Pliozänzeit erfolgte. *Z. wien. ent. Ges.*, **38** : 131-141, pls. 8-10.

Reiss, H. & Tremewan, W. G. 1962. Réponse a l'article "Qu'est-ce que la Zygaena dalmatina Bsd.?". *Bull. Soc. ent. Mulhouse*, p. 39-43, figs. 1-3.

Schäffer, J. C. 1766. Icones Insectorum circa Ratisbonam indigenorum, **1**, pl. 16, figs. 4, 5.

Scheven, P. von. 1777. Beiträge zur Naturgeschichte der Insecten. Der Naturforscher, Halle, **10** : 88-101.

Tremewan, W. G. 1961a. Notes on *Zygaena* Species, with descriptions of New Subspecies from Spain (Lepidoptera, Zygaenidae). *Ent. Rec.*, **73** : 1-8.

———. 1961b. A Catalogue of the Types and other Specimens in the British Museum (Natural History) of the Genus *Zygaena* Fabricius, Lepidoptera : Zygaenidae. *Bull. Brit. Mus. (nat. Hist.) Ent.*, **10** (7) : 239-313, pls. 50-64.

———. 1963. Notes on *Zygaena* Species from South-west France and Spain with Descriptions of three new Subspecies (Lepidoptera : Zygaenidae). *Ent. Rec.*, **75** : 1-10, pl. 1, figs. 1-21.

Verity, R. 1920. Contributo alle ricerche sulla variazione e la distribuzione dei Lepidotteri in Italia : *Zygaenides, Grypocera* e *Rhopalocera* del Massiccio delle Mainarde (Prov. di Caserta). *Boll. Lab. Zool. Portici*, **14** : 33-62.

———. 1953. Les noms des Zygènes gallica-mana-erebus, d'après les règles de la nomenclature zoologique. *Rev. franç. Lépid.*, **14** : 50-51.

Salad Days

By A. D. Irvin

In nearly every edition of the *Entomologist's Record* we read an article entitled "Collecting Notes for 1963" or "This Year in the New Forest". Many of these I find extremely interesting, but some tend to be so much a list of latin names that, I regret, with my lack of classic learning (*Ent. Rec.*, **74**: 253) I tend to give up the struggle. Such articles must surely give the writers great pleasure as they look back through their notes and diaries, and recall the pleasures of the chase and excitement of new and rare captures. Thinking along these lines has prompted me to write some collecting notes with a difference and to look back at the diaries which I started at the tender age of fourteen, my second year at Bradfield College in Berkshire.

My entomological career began at the age of twelve when my father presented me, as a reward for passing my Common Entrance Exam., with a second-hand cabinet full of butterflies and moths, and the three essential Wayside and Woodland Volumes by Richard South. The second step on going to Bradfield was meeting two other new boys, Michael Braid and Nigel Webb, both in the same house as myself and both enthusiastic entomologists; this remarkable coincidence (during the whole of our five years there only two other boys showed any interest in entomology) really laid the foundation to what looks like being a lifelong hobby.

As I look back, it is interesting to note the gradual change that occurs throughout the years from youthful enthusiasm to the gradual introduction of the latin names and a more scientific approach to the subject. Also I can look back at the great day among my entries when Braid and Webb became Mike and Nigel; at last seniority was affording me the privilege of calling my friends by their christian names.

The very first entry I made was 1/1/54, and here I read that I had fifty-three pupae in my possession including six lime hawks (this compares somewhat sadly with this year's pupa digging, nine pupae and only one *M. tiliae*). Also on that day I notice "ruby tiger hatched", this record is followed on 31/1/54 by "small white chrysalis hatched", surely somewhat premature hatchings. As well as similar extraordinary entries there are some which reveal the rather naïve approach we had to the subject in those days, particularly with regard to killing agents; 1/2/54 "Killed my small white with Windolene", 7/2/54 "Webb tried to kill Best minor's elephant hawk with D.D.T., it turned black". Presumably having found these agents unsuccessful I read on 12/2/54, "Resorted to extremities in killing my ruby tiger".

As with all eager young entomologists we did at times let our imagination run away with us; 26/1/54, "Braid and Webb convinced me that my powdered quaker var. *rufescens* was only a common quaker"; 23/1/54, "Went to Great House Woods to look for young bee hawk larvae, found none"; 29/9/54, "Went to Streatley in search of brown hairstreaks". Although our imagination did at times run riot, our enthusiasm appears to have been endless, there are numerous entries such as 15/5/54, "Went to Bucklebury but found nothing"; all these entries were recorded in great detail, even to the extent of 4/4/54, "Removed from setting board one lime hawk". I notice in the beginning of April 1954 that on seven

sugaring expeditions in ten days I caught six moths, and still our ardour could not be damped. We must have cycled thousands of miles and run and walked hundreds, we would think nothing of an hour's cycle ride to a haunt where we might only be able to spend half an hour before we had to return for tea, and often as not we would come away empty handed. This cycling certainly kept us fit and we were doing things then, which most of us would shudder at now; 8/5/54, "Went to Bucklebury and saw several emperors, Braid caught two"; 7/6/54, "Went to Bucklebury but caught nothing, Braid caught five fox moths". (Michael Braid later went on to captain the school athletics team and equalled the hundred yards record.)

There must be few entomologists who had the opportunities that we had at school; there were four half days each week and we were allowed to go wherever we liked on our bicycles (except into Reading); and on top of that we were set in the middle of some of the finest collecting countryside in the British Isles, within easy reach of us were woods, marshes, downs, heathland and fields—apart from cliffs and mountains we had everything. Despite this and despite our enthusiasm there were no real rarities that we recorded; rather local captures included *H. lucina, S. w-album, E. aurinia, C. minimus* and *L. bellargus.* Probably our best capture was a variety of *H. fusconebulosae* taken at rest on a tree trunk, and once Michael Braid saw *N. antiopa* at rest in the College's open-air Greek theatre, but alas no net. There were probably two reasons for our apparent failings, the first was plain ignorance, we just didn't know when to look, where to look or what to look for. The second reason was lack of equipment, our nets were the spring-steel type (twelve inches in diameter), we possessed no beating trays or m.v. traps, and of course no transport other than bicycles. We manufactured several moth traps ourselves, these were usually made out of old oil drums or biscuit tins, with an inverted enamel lampshade as the cone, and an ordinary 75 w. bulb as the light source; these were used more or less non-stop throughout the summer term and gave us a very good cross section of the moth population of that area. Various unsuspecting masters were persuaded to run these traps in their gardens, one even lived four miles away, and he would duly bring the trap in each morning with the moths scrabbling inside trying to escape, and of course when we opened it in the house-room they invariably did escape much to everyone's annoyance.

In spite of our limited knowledge and facilities we of course had our good luck (Michael Braid especially). 2/6/57, "Mike and Nigel went to Beggars Bridge Green, Mike caught five marsh fritillaries and two narrow bordered bee hawks, Nigel caught nothing". Then there was the occasion when I saw three male *A. iris* flying round the top of an oak tree (surely a rare sight nowadays). I was up that tree an hour and a half before I captured one, during which time two elderly ladies had their picnic lunch under the tree completely oblivious of my presence. Nigel Webb, envious of my capture and obviously intent on subtler methods, disappeared for some time and then returned with several fresh cow pats neatly wrapped in newspaper and these were distributed in likely-looking spots, but all to no avail; and I remained during the whole five years the only one of our trio who possessed this rarity.

As well as our luck in the field we were very fortunate in meeting two very distinguished entomologists while at school. The thrill it gave us was

tremendous, but I feel that it must also have given them immense pleasure showing these wide-eyed schoolboys their superb collections, and we, hanging on their words would avidly lap up any information or tips we could. The first of these men was the late F. A. Oldaker who, in addition to having Nigel and myself to supper and showing us his collection, very kindly invited us on the Haslemere N.H.S. annual ramble which he was leading (unfortunately his last) on 30/7/55. It was on this expedition that we saw our first specimen of *A. iris* while having our lunch in a small clearing. This magnificent insect came sailing down over the trees, possibly attracted by our white sandwich papers, Nigel in his enthusiasm leapt up, scattering his sandwiches, missed the butterfly by a good six feet and sadly watched it sail back over the treetops. Our second great meeting was on 30/11/55, my diary reads, "Went to see Air Marshal Sir Robert Saundby with Mike and Nigel, who showed us a specimen of *Plusia acuta* he had taken in his m.v. trap. This is only the third time it has been recorded in England; of the others one was taken in about 1870, the specimen of which has since disappeared, the other was taken on the same night as his at Woking. Incidentally we were the first outsiders to whom he had shown this rarity". A great day for us.

As the years progress the entries in my diaries seem to become less, and those in my last year at school are all in Latin and confined to records of more unusual captures; we were beginning at last to become more particular in what we chased and more scientific in our approach. The entries lost any comic touch which youthful ignorance often betrayed, and were now more clear and concise as we began to learn the whats, whens and wheres of entomology. Some of the early entries I made now seem extremely amusing although at the time were written in all seriousness: 12/3/54, "Fox caught a satellite for me in my net", quite a feat in this modern age! 11/3/54, "Caught a peacock in the changing room"; 16/10/54, "Caught a brick in the house-room"; these must surely have been *N. io* and *A. circellaris* respectively. I think pride of place must go to an entry on 12/8/55 and here I repeat in full: "Went swimming at Wellington College Baths, saw six old ladies sheltering in the place where the water goes out, two of these I managed to catch in my hands and kill by pinching. The others escaped".

These were indeed our Salad Days but inevitably they had to come to an end, Michael Braid went to Sandhurst, but on manœuvres would always conceal his net or try and post himself near likely-looking sallow bushes; Nigel Webb did a year's teaching at a preparatory school before going to Cambridge, he managed to borrow an m.v. trap from one of the masters and recorded some good captures in 1958, including *P. fuliginosa*; I went to Cambridge on a six year veterinary course, but there was always an empty tin in my pocket ready for any unsuspecting moths which might creep into lectures or practicals.

I feel it would be wrong to end on such a nostalgic note, when the most satisfying and enjoyable day's entomology any of us ever knew was to come six months after leaving school. We had arranged to meet on 29/6/58 and try for the black hairstreak; after a week of rain and dull weather we almost decided to cancel our expedition, but the Saturday dawned one of the best days of the summer. I left home at 8.30 and collected Michael Braid half an hour later outside the main gate of Sandhurst, we had an hour or so to kill before meeting Nigel so a quick

trip to Chobham Common and I added two new species to my collection. Having picked up Nigel, off to Oxford; before we had got out of the car two *S. pruni* had been seen on privet blossom. All of us were lucky, and in addition I beat one fully-grown *T. betulae* larvae and obtained one *A. prunaria* (another new species). Leaving late in the afternoon we had a rapid drive over to Aldworth Downs and here collected several *C. minimus* at rest among the long grass, and finally before returning home just to clock up our hundred miles, we dropped in at Bradfield just to make sure it hadn't changed. The perfect ending to this day was provided by some explosive beer tins, having been shaken up in the car, these emptied most of their contents on the ceiling, but we managed to salvage sufficient to drink to *S. pruni* and the future.

15 Jenkinson Road, Towcester, Northants.

Current Notes

ENTOMOLOGICAL RECORDS FROM WILTSHIRE

In this wide but sparsely populated county, entomologists are very few and far between. In fact a reviewer of our recently published volume, The Macrolepidoptera of Wiltshire, by de Worms, remarked that the county lists often showed the distribution of collectors as well as that of the insects. This is particularly true of Wiltshire.

This society is very anxious to extend the scope of the annual report which is compiled mainly from local sources. To this end it is requested that visiting collectors would be good enough to let me have a few notes of their observations. In this way we may get a better knowledge of the distribution of the various species in the county. For instance, there are indications that *E. ochroleuca* is extending its range, and that *P. chryson* has also occurred.

Reports would be welcomed at any time up to the end of January each year and a copy of our report will be sent to all contributors as soon as possible after publication.

Should rare or local insects seem to be endangered by human activities, early information on the subject would be very welcome. This would then be referred for any action that might be desirable to the newly-formed Wiltshire Trust for Nature Conservation.—B. W. Weddell (Recorder for Lepidoptera for the Wiltshire Archaeological and Natural History Society), 11 The Halve, Trowbridge, Wilts.

Notes and Observations

Apatele Leporina L. Overwintering Two Years.—When I read Mr. M. J. Leech's note on this subject in the January Record (p. 29), I felt sure that I had had pupae of *leporina* (miller) that had gone over for a second year. On examining my series of this moth, I found one that had been bred in 1923 from a larva taken in 1921 near Winchester, and another bred in 1931 from a New Forest larva taken in 1929, but these were merely isolated instances, quite different from the brood mentioned by Mr. Leech.—H. Symes, 52 Lowther Road, Bournemouth. 25.1.1964.

A Very Early Butterfly.—On 2nd February, a warm, sunny morning, when we were out in the garden at 10.50 a.m., my wife called my attention to a butterfly that was fluttering around. It was *Polygonia c-album* L. (comma) and it alighted on the lawn almost at our feet. After about ten minutes there, it took to the air again and settled on my wife's dress. It was very tame and quite content to stay there for a while. Eventually it came to rest on a patch of damp, warm earth in a very sheltered position, spead its wings to the sun and remained motionless until I went indoors after observing it for over half an hour in all. It was a female in perfect condition and I think it must have been one of those that I saw on my Michaelmas daisies last October. There were a few wallflowers and purple primroses in bloom within a few yards and I hoped that these would provide food for its needs.—H. Symes, 52 Lowther Road, Bournemouth. 3.ii.1964.

Emergence of Monopis rusticella Hübn. in Early January.—From the fact that the late L. T. Ford (1949, *Guide Small. Brit. Lep.*: 180) gives 5-6 and 8-9 as the months for the appearance of this common Tineid in the imago state, I conclude that a midwinter emergence is distinctly unusual. It was therefore surprising to find an example fairly freshly disclosed—it had not been there a short time previously—on one of the first few days of January, in a perspex box in which I had put some dipterous pupae collected from an old blackbird's nest in the garden, along with some of the nest debris in which, no doubt, the *Monopis* pupae* had been concealed. The box had stood ever since in an unheated room, so, although of course the temperature would be a little higher than outdoors, there was no question of forcing. It is true, however, that after a cold Christmas period the last week of December had been rather mild, and this sudden marked change may have sufficed to precipitate the moth's emergence. As a matter of interest, it seems to follow that with pupae hatching usually in spring or summer but occasionally the previous winter, imaginal development within the pupa must either take place at an unsuspectedly early stage in its life, or be capable of remarkably rapid onset and completion in response to an abnormal (and necessarily unpredictable!) mild spell.—A. A. Allen, 63 Blackheath Park, S.E.3. 2.ii.64.

*One more was later found in the box; and, just before dispatching this note, a second *M. rusticella* has made its appearance.

Gynandromorphism in British Lycaenidae.—I was much interested in Mr. Bretherton's article on the intersex forms of *P. argus* from north-west Surrey. The species is well known for this kind of aberration, and over the years, I have taken almost every form of gynandromorph, from those slightly marked with blue (male) scaling, to extreme blue nearly all over all four wings, some three wings male and one female, others with three wings female and one male, and last July and August I took five halved gynandromorphs from one small ground, but not in the Woking area.

In each case, even in those specimens with only one or two wings affected, the male wings are always smaller than the female wings, and

the sexual organs appear to be female. Over the forty years I have been collecting Lycaenidae vars., I have heard of only two hermaphrodites in this species where the insect is truly halved in wings and including antennae and sexual organs.

In *L. coridon*, gynandromorphism is more varied (see Bright and Leeds's Monograph on *coridon*) and includes ab. *roystonensis* and the mosaic forms with one wing male, another female, and the others mixed. Yet there are many more halved gynandromorphs in *coridon* (I know of at least fourteen) with sexual organs different on both sides, and even more in *P. icarus* than in any other of the Lycaenidae. *L. bellargus*, again, I know of only two halved true hermaphrodites, and although I possess two gynandromorphs, one with right side male, left side forewing female and half hindwing male, other half female. The other taken by myself in the presence of the late L. W. Newman in 1929, and seen alive by him, had left forewing completely female, the other three wings all male. The left antenna was shorter and apparently female.

To sum up, although gynandromorphism is obviously fairly common in *P. argus*, except for the halved and three winged ones of the same colour, the truly halved hermaphrodite, which includes the distinctly different sexual organs, is extremely rare.—A. E. STAFFORD, "Corydonis", Colborne Way, Worcester Park, Surrey. 7.i.1964.

EUPHYDRYAS AURINIA LARVAE IN SECOND WINTER.—The following behaviour of larvae of *Euphydryas aurinia* Rott., the marsh fritillary, was so unusual that I thought it worth recording.

Aurinia having now gone from the county of Northamptonshire, and knowing that the original stock was still being bred by Major Alan Collier of Cranleigh, I requested some larvae in 1962 and in August of that year I received a very fine web of larvae.

They were put on a growing plant of *Scabiosa succisa*, Devil's bit scabious, that had all available sunshine until about 2 p.m. each day: they went into hibernation between two leaves spun together, the size of a walnut, on the ground. They remained under deep snow throughout the winter and were first seen sunning themselves on 8th March 1963, and fed well on *Symphoricarpus*, snowberry, to suppliment the scabious.

With the exception of two batches of ova, the whole brood of imagines were released in suitable surroundings. Both batches of ova were from observed pairings; one was sent to Douglas Fearnehough in the Isle of Wight, and the other I retained. Both batches succumbed to the fungal growth referred to by Dr. E. Lees (*Ent. Rec.*, **75**: 264).

On cleaning out the wood-framed, glass-fronted, muslin-covered cage, 16″×16″×24″ high, I found up in one corner a strong silken web about an inch in diameter inside which were some fifteen small, active larvae, the same size as when I saw them sunning on 8th March 1963. One fed up and was a male pupa by the second week of August, but was taken by a bird. I have three small larvae still, and on 2nd January 1964 (these have not eaten during the summer) and remain in a curled leaf in a small plastic container.—J. H. PAYNE, 10 Ranelagh Road, Wellingborough, Northants. 3.i.1964.

Current Literature

Butterflies in Britain. By George E. Hyde. 48 pp. Jarrold Tableau Series, 5/-.

This book is a small collection of coloured and black and white photographs of British butterflies and their early stages together with short notes on the insects illustrated, preceded by a page of general introduction to the lives and status of British butterflies. The book should appeal mainly to young people interested in the subject and could well encourage some of them to take up entomology as a hobby and possibly an eventual calling. It should also appeal to those who like to have well executed picture books. I could wish, however, that the author had ascribed the Satyrids to the satyrs, or rustic sprites rather than to Saturn, who is the property of the emperor moths.—S. N. A. J.

The Amazing World of Insects. Arend T. Bandsma and Robin T. Brandt. x+46+134 plates, 42/-.

With the perfection of cameras and of colour photography, many books have been put on the market recently, giving collections of excellent insect photographs with comments either by the photographer if he be an entomologist, or by an entomologist employed for the purpose. This volume, however, has an additional interest in that the insects treated come mainly from the southern hemisphere, and accordingly, they arouse the interest of northern entomologists.

The subjects are well spread over the Arthropoda and the main groups of this phylum are explained on the first page of the introduction, the remainder of which goes into Evolutionary Development, Wings, Adaptability, Sense Organs, and Limits of Size, bringing out interesting facts which should help those merely interested in nature to take a closer interest in one or more of the insect orders.

The following 45 pages are taken up with short comments on the subjects of each plate, with the plate number in the outside margin against each description, which makes reference very easy.

The photographs are excellent without exception and cannot fail to be of interest to any intelligent reader, and it is to be regretted that the relation of cost and circulation debar more serious works from making more use of such photographs for illustration purposes, but possibly in due time this difficulty may be overcome. In the meantime, the volume under consideration is a worthy accession to the picture book shelf for moments of pleasurable browsing.—S. N. A. J.

The Distribution and Abundance of Tsetse. J. P. Glasgow. 241 pp., 2 plates. Pergamon Press, Oxford. 1963. Price 60/-.

The tsetse flies were first described as of a single genus *Glossina* by Wiedemann in 1830. By 1861 they were known to be responsible for the absence of cattle in certain parts of Africa. They have attracted the attention of many entomologists with support from governments and universities. This has resulted in the publication of several hundred papers covering a variety of aspects of study in field, laboratory and museum.

C. F. M. Swynnerton's *The Tsetse Flies of East Africa*, 1936, volume 84 of the Transactions of the Royal Entomological Society, comprised some 600 pages with plates and figures galore. Although primarily a report of the work in East Africa for the years 1931-4, it included a mass of data on the genus and was in effect a study of the ecology of *Glossina*.

In 1955, P. A. Buxton's *The Natural History of Tsetse Flies* was published. Its 800 pages, abundance of plates, figures and tables covered every aspect and gave 27 pages of references up to 1953. It is a work essential to all working on tsetse flies and needs to be read by all dipterists. Whilst it was in the press, there appeared *The Distribution and Abundance of Animals* by H. G. Andrewartha and L. C. Birch. This had an immediate consideration by ecologists.

The present work under review serves two functions. It is concerned with the ecology of the genus *Glossina*, dealing with the advances since Buxton's work and considers Andrewartha and Birch's work, testing their theory with the facts of a single genus. This has been done mainly under the headings of weather (including heat, humidity and light), food, interrelations with other animals and the habitat. The biology of the genus is first dealt with in a chapter labelled "Background information". Numerical increase and dispersal are next considered before the main chapters in which the research work on the factors affecting the ecology of the genus are discussed. Then follow chapters on the variation in the flies, their numbers and distribution. The general theory of the numbers of tsetse flies in natural populations is considered with the views of Andrewartha and Birch and is followed by an admirable summary which takes into account the earlier reviews of their work by O. W. Richards, L. C. Cole, A. Milne, etc.

The list of references is comprehensive, encompasses the spate of publications since 1953 and includes many items not mentioned in Buxton's work prior to that year. The numerous figures and tables include many useful original summaries.

The author maintains an open mind throughout the book and time and time again points out where more studies need to be undertaken. The index, where tested is accurate and adequate and the proof reading well done, but it was a surprise to see the name Wigglesworth twice misquoted as Wrigglesworth. The sole coloured plate misses the detail and accuracy such as is shown in the coloured figure of *Glossina austeni* in B. Weitz, "Feeding habits of tsetse flies". 1964. *Endeavour*, **23**: 39.

The book is one that should be studied by all ecologists as well as by entomologists. It must attract attention from many, to whom the destruction of game animals in the attempt to control the numbers of tsetse flies and their spread of trypanosomes, has been of interest. With a quarter of Africa denied to cattle by the genus that transmits Nagana, this book may form a further step in the effort to increase food production in the continent.—L. PARMENTER.

230). Bromley district (Tutt, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1888: 35; Barker, *Entomologist*, **21**: 95). Lewisham, 1885 (Marriott, *Young Nat.*, **7**: 79). Joydens Wood, four, July 3, 1888 (Fenn, *Diary*). Pauls Cray Common, about twenty larvae on birch, April-May 1896 (Fenn, *Diary*) (Chislehurst (*Wool. Surv.* (1909)), may refer); several (W. A. Cope). Farnborough (H. Alderson, in *Wool. Surv.* (1909)).

6. Clay Lane Wood (H. C. Huggins); larva in dead wood of birch stump under moss, February 22, 1919, imago reared (F. T. Grant). Otford, two at light, 1955 (W. B. L. Manley).

6a. Darenth Wood, found on tree trunks a few years since (Curtis, *Br. Ent.*, 248); two or three times by beating out the branches of lofty oaks (Stephens, *Haust.*, **3**: 30); abundant, 1855 (Stainton, *Ent. Ann.*, 1856: 47); two, June 16, 1862 (Fenn, *Diary*); 1870 (Standish, *Entomologist*, **5**: 147); July 10, 1881 (Finzi, *Entomologist*, **14**: 185).

7. Wigmore Wood; Fir Grove; very uncommon (Chaney (1884-87)).

8. Folkestone* (Ullyett (1880)). Wye Downs (Scott (1936)). Wye, one, at m.v.l., June 24, 1955 (W. L. Rudland). Brook*, one (C. A. W. Duffield).

10. Goodly Stock, larvae numerous on birch, April 16, 1947 (R. C. Edwards).

11. Wateringbury (E. Goodwin MS.); (*V.C.H.* (1908)). Hoads Wood, one, c. 1953 (P. Cue).

12. Ham Street.—A few at light, June 17-18, 1934; June 26, 1936 (A. J. L. Bowes, *Diary*); larvae on sallow shoots in spring (Scott (1936)); Long Rope, two at sugar, June 17, 1939, several at light, June 14, 1947; about a dozen at sugar and light in Long Rope and Burnt Oak, June 4-10, 1948; several at m.v.l., in Faggs Wood, July 7, 1962 (C.-H.); one, June 23, 1938 (A. H. Lanfear); June 18, 1950 (R. C. Edwards); larvae, May 6, 1960 (R. G. Chatelain).

13. Tunbridge Wells, 1892 (Beeching, *Ent. Rec.*, **3**: 158); two, 1957 (L. R. Tesch, *fide* C. A. Stace). Southborough (M. M. Phipps, in Knipe (1916)).

14. Tenterden (Stainton, *Man.*, **1**: 272).

Variation.—At meeting of South London ent. nat. Hist. Soc., on January 26, 1888, J. W. Tutt exhibited an ab. on behalf of H. Alderson, taken in the Bromley district (Barker, *Young Nat.*, **9**: 56). This presumably became the holotype of ab. *suffusa* Tutt: cf. Tutt, *Br. Noct.*, **3**: 70 (C.-H.).

First Record, 1829: Darenth Wood (Curtis, *Br. Ent.*, 248).

P. nitens Haw. (**advena** Schiff.): Pale Shining Brown.

Native. Woods, chalky places (apparently prefering inland situations); foodplant unknown.

This species has shown a marked increase and spread into new areas since about 1950, and was particularly numerous in 1956.

1. Shooters Hill, one, June 25, 1863 (A. H. Jones, in *Wool. Surv.* (1909)) (Eltham (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1899: 76) may refer). Lee, three, June 19, one, June 21, one, June 26, 1865 (Fenn, *Diary*) (Hither Green (*Wool. Surv.* (1909)) may refer). Bexley (L. W. Newman, in *Wool. Surv.* (1909)). Farnborough (H. Alderson, in *Wool. Surv.* (1909)). Orpington, 1948 (L. W. Siggs). West Wickham, one, June 18, 1952 (R. Birchenough); ♂, in m.v. trap, June 1963 (C.-H.).

2. Sheppey, one, June 16, 1868 (J. J. Walker MS.). Dartford, ♂, at valerian, June 24, 1946 (B. K. West).

3. Blean, one, July 5, 1902, in J. Platt Barrett coll. (C.-H.).

4. Littlebourne, one at m.v.l., July 15, 1958 (G. H. Youden).

5. Westerham, 1959 (R. C. Edwards).

6. Greenhithe* (Farn MS.). Pinden, one, 1947, three, 1949; all at light (E. J. Hare, *in litt.*); fairly common since (E. J. Hare, *personal communication*, iv.1956). Otford, at m.v.l., common, 1955, very common, 1956 (W. B. L. Manley). Eynsford, two, June 2, 1959; June 10, 1960 (R. G. Chatelain). Meopham (J. Ellerton).

6a. Darenth Wood (Douglas, *Zoologist*, 3218); June 1862; one at sugar, June 22, 1864 (Fenn, *Lep. Data* MS.). Between Gravesend and Shorne, not uncommon at flowers, i.e. half a dozen any good evening, 1902-10 (H. C. Huggins). Cobham, June 10, 1912, at white campion at dusk, not uncommon (F. T. Grant).

7. Wigmore Wood; Fir Grove; Darland Hill, at sugar and at rest on trunks; "I have also taken it in my garden at New Brompton, where it seemed very partial to the flowers of the great orange lily" (Chaney (1884-87)). Near Bredgar, two or three an evening, 1920-23 (H. C. Huggins). Westwell, June 27, 1935, at valerian (A. J. L. Bowes, *Diary*); one at sugar, July 5, 1946 (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 168); a few annually since the war (E. Scott, *personal communication*, autumn 1954).

8. Folkestone* (Ullyett (1880)). Reinden Wood, a series exhibited on August 6, 1891 (Clark, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1891: 20). Folkestone*, June 27, 1892 (*teste* Fenn, *Diary*). Wye (Scott (1936)). Brook (C. A. W. Duffield). Near Barham, one, July 17, 1927 (E. & Y. (1949)).

11. Yalding (*V.C.H.* (1908)). Wateringbury, E. Goodwin took about three (W. A. Cope) (*V.C.H.* (1908)). Aylesford, one, June 1951, five, July 1953, two, 1955, two or three per night, June 1956; all at m.v.l. (G. A. N. Davis). Goldwell Pit, near Great Chart, one at white campion, June 27, 1955 (P. Cue). Sevenoaks Weald, one, at m.v.l., June 30, 1960 (E. A. Sadler).

12. Ashford*, one in H. D. Stockwell coll., labelled "Ashford, 1896, Chittenden" (C.-H.). Ham Street, June 29, 1934, at light (A. J. L. Bowes, *Diary*); June 30, 1935 (R. C. Edwards); July 1956 (W. L. Rudland). Chartham, three, 1949-52 (P. B. Wacher). Wye, six, June 22-July 10, 1953, eight, June 22-July 18, 1954, ten, July 2-15, 1955, fifteen, June 19-July 14, 1956 (W. L. Rudland).

14. Knock Wood, Tenterden, two at sugar, June (1853) (Beale, *Zoologist*, 4130).

First Record, 1851: Darenth Wood (Douglas, *Zoologist*, 3218).

P. nebulosa Hufn.: Grey Arches.

Native. Woods, copses; on birch, sallow, dock, hawthorn. Fairly frequent, and recorded from all divisions except 2, 15; scarce or casual in 4, 9. "Generally common" (*V.C.H.* (1908)).

The larva has been found on birch and sallow at West Wickham (Huckett, *Ent. week. Int.*, **10**: 117); on dock, hawthorn and birch, at Bromley, and the imagines reared (D. R. M. Long); and on dock and birch at Petts Wood (R. G. Chatelain).

4. Deal, July 6, 1891 (Fenn, *Ent. Rec.*, **2**: 203).

9. Ramsgate, one at light, 1916; one, June 13, 1919 (J. W. C. Hunt).

Variation.—Tutt (*Br. Noct.*, **3**: 68) records ab. *pallida* Tutt, from Chattenden.

FIRST RECORD, 1829: Near Darenth and Birch Woods (Stephens, *Haust.*, **3**: 29).

P. sagittigera Hufn. (**leucophaea** View.): ssp. **britannica** Turner: Feathered Ear.

Native. Chalk downs; foodplant unknown. Fairly frequent locally along the south-western border of 8; apparently very scarce elsewhere on the chalk. Probably casual in 11, 12, 15, 16.

6. Gravesend, one taken by R. W. Bowyer, May 24 (1871) (Button, *Entomologist*, **5**: 393). Halling, one, on beech trunk, 1910 (Ovenden, *Ent. Rec.*, **22**: 191). Shoreham district, taken by L. W. Newman (H. C. Huggins); two taken by W. A. Cope on the rifle-range, June 1912 (C.-H. coll.).

7. Boxley, one, 1904, in E. Goodwin coll. (C.-H.); one, 1910, taken by W. A. Cope (C.-H. coll.). Hollingbourne, not uncommon, 1919-22 (H. C. Huggins). Near Ashford*, one on a birch trunk, June 7, 1876 (Jeffery, *Ent. mon. Mag.*, **13**: 64). Westwell (*V.C.H.* (1908)); singletons, May 26, 1933, May 23, 1952, June 21, 1954 (E. Scott). Soakham Downs, one, May 29, 1930, one on a beech trunk, May 29, 1938 (E. Scott). Broad Street, two at light, May 28, 1955 (E. Philp).

8. Brook.—Two, 1872, and many others subsequently (Parry, *Entomologist*, **6**: 142, 430, **7**: 16, **26**: 296); ♀, knocked from grass by day, Punch Bowl, June 9, 1934 (A. J. L. Bowes, *Diary*); Devil's Kneading Trough, May 31, 1936, July 3, 1951 (H. King); one, at m.v.l., May 21, 1953 (W. L. Rudland); two, at light, May 27, 1960 (R. F. Bretherton); one, May 31, 1963, a cold night (R. G. Chatelain). Wye Crown.—1935; twenty taken, May 29, 1936; 1939 (A. J. L. Bowes, *Diary*); of regular occurrence from about May 20, mostly at light, sometimes a few at sugar; I have periodically visited the locality since 1937, and have seldom failed to see the moth (C.-H.); locally common along the Wye Downs (Scott (1950)). Crundale, two, 1926 (H. C. Huggins). Chilham, June 9, 1934, two ♀ knocked from hawthorn by day (A. J. L. Bowes, *Diary*). Folkestone*, one taken by H. Ullyett, 1870 (Knaggs, *Ent. Ann.*, 1871: 74). Warren; River Minnis (Webb (1891)). Near Alkham; Ewell Minnis (E. & Y. (1949)).

11. Tonbridge, two taken in the town at gas lamps (1870) (Eedle, *Entomologist*, **5**: 200). Tunbridge Wells district*, noted by R. H. Rattray and M. M. Phipps (E. D. Morgan, *in litt.*). Holt Wood, Aylesford, five at m.v. trap, 1953 (G. A. N. Davis); none seen since (C.-H.).

12. Wye, one, June 9, one, June 21, one, June 30, 1956, all in m.v. trap (W. L. Rudland).

15. Dungeness, one, June 3, 1934, by Mrs. Cole (A. M. Morley).

16. [Folkestone, one worn specimen on a fence near the Junction Station, early June 1861 (Knaggs, *Qtly. J. Folkestone nat. Hist. Soc.*, **4**: 74; idem, *Ent. Ann.*, 1871: 74); may have been this species.] Folkestone Town, one in m.v. trap, May 27, 1952 (A. M. Morley).

VARIATION.—Kentish examples conform to ssp. *britannica* Turner, which is recognisably distinct owing to the whiter element, particularly in the hind marginal area, and the more strongly emphasised markings; whereas those examples from abroad have the ground much tinged with pale umbreous or smoky brown (cf. Turner, *Supplement to Tutt's Br. Noct.*, **1**: 284).

In R.C.K. is a very large representative series from Kent. Three of

these resemble the continental form, and are labelled: "D. Chittenden, Wye, vi.03" (1); "East Kent, F. Davis" (2).

Heath (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1912-13: 30) records one from Wye, 1912, "with ground colour much whiter, and markings black".

First (Confirmed) Record, 1870: Tonbridge (Eedle, *Entomologist*, **5**: 200).

Diataraxia oleracea L.: Bright-line Brown-eye.

Native. Marshes, gardens, cultivated and waste places; on "Orache", "Sea Beet", *Thalictrum flavum*, *Artemisia absinthium*, "Restharrow", *Hypericum*, *Chenopodium*, "Persicaria", hazel, elm, *Clematis vitalba*, lupin, *Epilobium hirsutum*, *Convolvulus arvensis*. Plentiful and found in all divisions, particularly on river-banks and at the edges of saltings and marshes in 2.

Occasionally, there appears to be a partial second generation. Thus, in 1953, at Wye, W. L. Rudland noted fifty *oleracea* in his trap from May 3-August 3; then a gap, followed by a total of seven from August 14, with last appearance on October 3.

The larva is perhaps polyphagous on deciduous foliage. H. C. Huggins (*in litt.*) states that at Seasalter (div. 2), he found them "abundant on anything, especially Sea Beet and Orache", adding incidentally that they were badly infested with Tachinids. Knaggs (1870) records it on Restharrow, at Folkestone; A. R. Kidner (*Diary*) found the larva on hazel, Sidcup, October 9, 1909; and B. K. West has found it on elder, lupin, and *C. vitalba* at Dartford. A. M. Swain found larvae on *Hypericum* at Petts Wood; Ovenden (*Ent. Rec.*, **21**: 33) on *Chenopodium* in the Strood district; and West (*Ent. Rec.*, **18**: 230) records it on Persicaria. It has also been found on *C. arvense* at Crofton, and on *E. hirsutum* at Bromley, by D. R. M. Long; and on *A. absinthium* on Dartford Marshes, and *T. flavum* at Snodland, by me (C.-H.).

Variation.—Tutt (*Br. Noct.*, **3**: 89) records ab. *rufa* Tutt, from Westcombe Park and Deal.

In R.C.K., are ab. *rufa* Tutt, one, Sheppey, bred 1899, one, "North Kent, W. Crocker, 1908"; ab. *obsoleta* Lambillion, three, Sheerness, one, Greenhithe; also an ab. with "large tooth-marks in submarginal line", one, "Brockley, bred 1890".

First Record, 1858: Deal (Harding, *Ent. week. Int.*, **4**: 197).

Ceramica pisi L.: Broom Moth.

Native. Commons, heaths, saltmarshes, waste places, etc.; on bracken, broom, birch, *Aster tripolium*, *Rumex acetosella*, elm, sloe, *Diplotaxis tenuifolia*, *Lotus corniculatus*, *Galium mollugo*, *Chenopodium album*, Yarrow, "knapweed", "plantain", "dock". Frequent and recorded from all divisions, except 9. "Generally common in larval state" (*V.C.H.* 1908)).

The imago appears from about the third week in May and often continues well into July. Newman (*Ent. Rec.*, **23**: 276) records one that came to sugar (at Bexley) in perfect condition, on September 15, 1911, probably a second brood specimen.

The larva may be polyphagous on deciduous foliage. On *R. acetosella*, Bostall Woods (A. A. Allen); *L. corniculatus*, Bromley, September 4, 1949 (D. Lanktree); *D. tenuifolia*, Charlton, September 24, 1958 (J. F. Burton);

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

R. N. BAXTER

Supplier of EXOTIC INSECTS to

Museums, the research worker, the amateur entomologist, etc.

LEPIDOPTERA and COLEOPTERA a speciality.

16 Bective Road, Forest Gate, London, E.7, England.

Mail Orders Only.

In your Replies please mention "The Entomologist's Record".

AREND BANDSMA and ROBIN BRANDT

The Amazing World of Insects

A PHOTOGRAPHIC STUDY

The authors, two New Zealand school teachers, have specialized in taking close-ups and insist that too much is lost if the animals are not photographed alive and in their natural surroundings. Each of the pictures reproduced here represents a great deal of careful preparation and perhaps several hours of patient watching and waiting and results speak for themselves. A clear and authoritative text accompanies the illustrations making it an exciting guide into a fascinating and mysterious world. *42s. net*

A prospectus for this book can be obtained from:

ALLEN & UNWIN **40 MUSEUM ST., W.C.1.**

"MIKROPS"
2" x 2"
COLOUR
SLIDES
OF
BRITISH
INSECTS
by S. Dalton
A.R.P.S.

Catalogue K5/ER now in preparation

FLATTERS & GARNETT LTD.
309 Oxford Road, Manchester 13

Part of our extensive service to Biologists

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1- 14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

Information wanted, from anyone who has reared the Speckled Wood (*P. aegeria*) and can supply any of the following information.
(1) Number of broods per year.
(2) Proportion of autumn brood hibernating as larvae.
(3) Comments on the reason for (2).
Any information on the Scottish colonies would be welcome.—*A. J. Showler, 28 Lynsted Close, Bexleyheath, Kent.*

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years :

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact : Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

George E. Hyde

Butterflies in Britain

48 lavishly illustrated pages
Handy size, 7½ x 5 in., in board covers
15 brilliant colour plates and 29 half-tone
illustrations from photographs by the author.
Informative text by one of the best
known experts in this field.
Real value for money at only 5/-
from all stationers and booksellers, or direct
from the publishers at 6/-, post free

JARROLD & SONS LTD
London Street, Norwich

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 4 APRIL 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

THE FRESHWATER LIFE OF THE BRITISH ISLES

JOHN CLEGG

In preparing the second edition of this work, full advantage has been taken of the opportunity to make corrections, particularly to the nomenclature, and to add a little new matter to bring the book up to date.

This guide to the plants and invertebrate animals of ponds, lakes, streams and rivers, is intended for those generally interested in the subject, as well as for the serious student. It is one of the very few books to be published in recent years which deals with every aspect of freshwater life in a systematic manner.

Among other subjects are described the physical and chemical conditions in water, the interrelations of organisms and the impact of freshwater biology on mankind. In regard to species, plant and invertebrate life have received the main attention of the author, but there is an additional chapter on the vertebrates to complete the ecological picture. The book also includes a useful chapter on the collection and examination of specimens.

The illustrations are a special feature of the book, and include representations of most of the groups of organisms described.

16 plates in full colour
51 half-tone plates
95 text drawings
21s. net

From all Booksellers

FREDERICK WARNE & CO. LTD.

1 - 4 Bedford Court, Strand, London, W.C.2.

Holiday at Greatstone, Kent—July 1963

By J. M. Chalmers-Hunt and S. Wakely

This holiday together was planned early in the year, and the time chosen was from 13th to 27th July. So many interesting species of lepidoptera were taken that it was decided to write an account of the holiday. For convenience we decided to make separate items of the various places visited, arranged in alphabetical order, and it was also felt that in this form it would be of most interest to readers interested in each particular place mentioned.

The nomenclature used is that adopted by I. R. P. Heslop in his "Revised Indexed Check-list of the British Lepidoptera, 1962", and printed in various numbers of the "Entomologist's Gazette".

Appledore.—Several visits were made to Appledore searching for the larvae of *Depressaria ultimella* Staint. The foodplant is the Fine-leaved Water Dropwort (*Oenanthe aquatica* (L.)) Poiret (*phellandrium* Lamarck), a very local plant which grows in abundance in some of the roadside ditches in this area. On our first visit only a few small larvae were found, but on the 25th we made a special effort and found about three dozen larvae, some of which were full-grown. The larvae were found not only in the main stem (which often grows three inches or more in diameter), but also in the smaller branches. The plants were pulled out of the ditch and came up with heavy clots of mud, the plant itself being five or six feet tall. It took a long time to open up every stem of a single plant, so we were able to examine a few plants only in the time at our disposal. The larvae of *D. ultimella* are pale green or yellow in colour and feed only on the internal pith of the stems. Six-inch sections of the stem were also taken for foodplant and the larvae fed up rapidly on this on our return home. They were kept in large glass jars or plastic containers with plenty of tissue paper to absorb excess moisture. Several thicknesses of linen material were tied tightly over the top of each container as the larvae are apt to eat their way through a single thickness when full fed. If the foodplant is kept in an airtight receptacle it quickly goes mouldy and rotten. The larvae spun up readily among the tissue paper. While searching the plant, many larvae and pupae of *Depressaria apiella* Hb. (*nervosa* Haw.) were found in the stems. This is an exceedingly common species which has a number of other foodplants and feeds in external spinnings among the flowers or leaves and frequently enters the stem to pupate. Larvae and pupae of the beetle *Prasocuris phellandrii* (L.) were to be found in every stem in large numbers. One lepidopterous larva which was actually feeding on the pith inside the stem was subsequently reared and proved to be *Clepsis costana* F.—a common species usually found in spun leaves of various plants. Another small larva found feeding inside the stem was kept for some weeks and grew into a large fat noctuid larva, which is probably *Agrotis segetum* Schiff. It fed up latterly upon dock, groundsel, etc., but had not emerged at the time of writing.

Brooke, near Wye, was visited on the 19th, when Colonel Duffield took us round his fields. Many species were noted, the most interesting being: *Phalonia cnicana* Westw., *Epinotia immundana* F.R. (a late larva found in rolled alder leaf), *Coleophora fuscedinella* Z. and *Caloptilia elongella* L. (larvae of both on alder), and *Opostega crepusculella* Zell. (one imago taken by Col. Duffield).

Camber, Sussex.—We found this one of the most rewarding places to visit and as it was so near, several visits were made, usually to the same spot—the salterns to the west of Camber Golf Course by Rye Harbour. Hereabouts, *Artemisia maritima* grew in large clumps and at dusk one evening a few *Eucosma maritima* Westw. were taken flying round its foodplant. A few more were taken later by sweeping the *Artemisia*. The 22nd was one of the best nights at this locality. *Pediasia* (*Crambus*) *aridellus* Thunb. (*salinellus* Tutt) was quite plentiful, many being freshly emerged and drying their wings on the grass. A surprise was the capture of a single *P. contaminellus* Hb.—the dark form known as ab. *sticheli* Constant. This was thought to have strayed from the adjoining golf course. Single specimens of *Hysterosia inopiana* Haw. and *Depressaria badiella* Hb. were also taken. Two local moths taken here were *Bactra furfurana* Haw. and *Aristotelia lucidella* Steph. The larvae of both these species feed in the stems of the Common Spike-rush (*Elocharis palustris*), and we found several ditches where this plant grew in abundance. By sweeping this rush, many moths were obtained, especially *A. lucidella*. The foodplant of *B. furfurana* is given by several authors of well-known standard books on lepidoptera as *Elocharis lacustris*. There is no plant with this name, although there is a *Scirpus lacustris*. *Elocharis palustris* was formerly called *Scirpus lacustris*, but *Scirpus lacustris* has never been known as *Elocharis lacustris* as far as we can find out.

Ditchling, Sussex, was visited on the 21st. Parking the car near the pond on the Common, we had not gone far before a small, dark tortrix was netted and determined as *Dichrorampha pseudoalpestrana* Danil. This species was first recorded for Britain in 1893, when specimens were taken in Epping Forest among its foodplant, Sneezewort (*Achillea ptarmica*). We noted there was plenty of Sneezewort growing nearby and spent an hour or more walking slowly among the plants and occasionally netting one of the moths. In this way we took four each—eight in all. They were not in perfect condition and had evidently been out some days, but it was quite an exciting find. Other very local species taken here were: *Phalonidia manniana* F.R. (one near the pond), *Ancylis inornatana* H.-S. (among its foodplant, *Salix repens*), *Coleophora vibicella* Hb. (larval cases were found and a few imagines taken, but most of the cases were empty or produced hordes of minute parasites, although a few moths emerged a day or two later), and *Leucoptera wailesella* Stt. (a minute moth common among *Genista tinctoria*) and on which its larvae —and those of *Coleophora vibicella*—feed. If Ditchling had been nearer Greatstone, we should certainly have visited it again.

Dungeness was practically "on our doorstep"—only a few minutes' run by car along the coast road. The best capture here was undoubtedly three specimens of *Thalera frimbialis* Scop. at dusk on the 18th. Although larvae have been actually taken on *Achillea millefolium* here, they probably feed locally on other plants as no Yarrow was seen in the immediate vicinity of where the moths were taken although it occurred not far away. On the Continent its foodplants are numerous and even include birch, blackthorn and whitethorn, as well as several low plants, so it is probably the hibernating problem that makes it so difficult to rear. *Eilema pygmaeola* Doubl. ssp. *pallifrons* Zell. was quite common at rest on grass stems after dark on most of our visits. When returning from Camber about midnight on one occasion we saw a bright light on the shingle near the road at Dungeness. Being curious, we investigated

and found Mr. C. G. Bruce (of Lee) having a wonderful time with his M.V. light, surrounded by an unbelievable number of moths. They were milling round in a mass in the immediate vicinity of the light, and the sheet was covered by others resting. He kindly let us help ourselves to the micros as he was only selecting the pick of the macros. The two commonest species present were *Eilema pygmaeola* and *Synaphe punctalis* F. (*angustalis* Schiff.), which were in hundreds, together with odd specimens of *Eurhodope marmarea* Haw. and crowds of common species. He said he had hoped to get a few *E. pygmaeola*, but, he added, pointing to the mass present—"This is ridiculous". Evidently, conditions were perfect, as this kind of night is not of frequent occurrence. Other species of special interest to us taken on our visits to Dungeness included: *Dolicharthria punctalis* Schiff., *Thiodia citrana* Hb. (quite common at rest on Yarrow), *Aristotelia palustrella* Dougl., *Agonopterix flavella* Hb. (common at flowers of rushes), *Ethmia terminella* Fletch. (a number taken at rest on *Echium vulgare* after dark), and *Oegoconia quadripuncta* Haw. (flying in abundance at one spot where a pair *in cop.* were at rest on a twig of dwarf broom).

Folkestone Warren.—We paid several visits to the Warren. Larvae were found in spinnings on *Daucus carota* and proved to be *Depressaria rotundella* Dougl. A single specimen of the extremely local and little-known *Cnephasia genitalana* Pierce was netted on one occasion. A few *Cochylidia rupicola* Curt. were taken in clumps of *Eupatorium cannabium*, and a single *Aplasta ononaria* Fuessl. was seen but left. We were disappointed at not finding two local species which we had hoped to come across; notably *Lobesia euphorbiana* Freyer (larvae of which had been taken in numbers here by the late L. T. Ford), and *Agonopterix pallorella* Zell., of which a single larva had been taken here by one of us in 1962, and successfully reared.

Greatstone.—As our bungalow was here, it is natural that this place produced the greatest number of moths recorded on our holiday. We ran a light trap every night and on many nights the captures were in embarrassing numbers. One of our first finds was the larvae of *Calophasia lunula* Hufn., which occurred on plants of *Linaria vulgaris*. It is an attractive looking larva which is conspicuous enough when spotted. It comes up and feeds on the newest growths at the top of the shoots. Half-a-dozen from a good-sized bed of the plant is a usual find, but a visit again the following day will often produce the same number, so presumably the larvae rest lower down when not feeding. It is still a local species here, but seems to be holding its own, in spite of the previous cold winter when the Dungeness district was snowbound for months on end. At the eastern end of Greatstone there are some high sand dunes covered with Sea Buckthorn. On the 21st we visited these dunes after dark and also used a Coleman's lamp on a sheet. It was a remarkably good night and several species were taken which had not been seen at the bungalow, including the rare *Melissoblaptes zelleri* Joan. (one). A number of *Witlesia pallida* Steph. came to light, which puzzled us as it is usually taken in marshy places, particularly in the fens—a very different habitat to dry sand-dunes. Other species of interest taken here included *Melanargia galathea* L. (one at rest—also seen flying at Lydd on 26th—a new record for this area), *Nola albula* Schiff., *Semiothisa alternaria* Hb., *Anerastia lotella* Hb. (common), and *Argyritis pictella* Zell. (a small tineid) swarming on the ground round the lamps. The commonest species in the

trap was undoubtedly *Apamea monoglypha* Hufn. A complete list of the species seen would be too long, but the following which were taken in the trap are worthy of mention: *Dasychira fascelina* L. (several males), *Spilosoma urticae* Esp. (one, very worn), *Euschesis interjecta* Hübn., *Pyrrhia umbra* Hufn., *Heliophobus albicolon* Hübn., *Leucania litoralis* Curt., *Nonagria dissoluta* Treits., *Apamea oblonga* Haw., *Lygephila pastinum* Treits., *Laspeyria flexia* Schiff., *Plemyria rubiginata* Schiff. (*bicolorata* Hufn.), *Hydrelia flammeolaria* (*luteata* Schiff.), *Eupithecia millefoliata* Rossl., *Eupithecia tenuiata* Hübn., *Eupithecia haworthiata* Double., *Cynaeda dentalis* Schiff., *Nyctegretis achatinella* Hübn., *Heterographis oblitella* Zell. (one), *Phalonia margaritana* Haw. (*dipoltella* Hübn.), *Ancylis achatana* Schiff., *Yponomeuta evonymella* L., and *Monopis imella* Hübn.

Lydd.—On the 14th we spent some time in the fields by Lydd Town Station. *Mesotype virgata* Hufn. was as common as usual among its foodplant, *Galium verum*, and a single *Ethmia bipunctella* F. was taken at rest on a fence post. Larval mines of *Aspilapteryx* (*Gracillaria*) *tringipennella* Zell. were exceedingly abundant here, as many as three being found on a single leaf of *Plantago lanceolata*.

St. Margarets-at-Cliffe.—This picturesque spot, with the French coastline visible on clear days, was visited twice and provided some very good records. Larvae of *Amelia* (*Tortrix*) *paleana* Hb. in their characteristic large spinnings were found on various plants including *Plantago lanceolata, Centaurea scabiosa, Carduus arvensis*, Larvae of *Agonopterix subpropinquella* Staint. were found in spun leaves of *Centaurea nigra* and those of *A. rotundella* Dougl. on *Daucus carota*. Very local species captured included: *Childonia piercei* Obraztsov (*subbaumanniana* Wilk.), *Stenodes alternana* Steph., *Eana osseana* Scop., *Grapholita caecana* Schlag. (a single specimen taken among *Onobrychis viclifolia* (Sainfoin)), *Eucosma fulvana* Steph. (on plants of *Centaurea scabiosa*) and *Thiotricha subocellea* Steph. A number of plants of *Solidago virgaurea* were seen growing here, a plant not usually associated with chalk, and the blue flowers of the local *Phyteuma tenerum* (Round-headed Rampion) were also noticed. On the way to St. Margarets on the 17th we stopped at a wood near Dover, and collected a number of rolled leaves of *Centaurea nigra*. It was a great surprise to find later that the moths which emerged were *Agonopterix carduella* Hübn., a local moth more common in the north and so far as we are aware has not been taken in Kent for many years.

Westwell.—On the 24th we were invited by Dr. Scott to have an evening's collecting in his garden and the adjoining woods. Several other entomologists were present and we were delighted with the opportunity to take some of the very local species occurring in his garden. At dusk, with hand lamps, we collected on the high wooded ground near the house and took *Schrankia taenialis* Hübn., *Orthotaelia sparganella* Thunb. (a very unexpected find on such high ground), and *Tinea semifulvella* Haw. Returning to the garden we found two M.V. lights fixed up—one at each side of the house—and were allowed to help ourselves to the numerous micros attracted to the sheets. These included *Pandemis cinnamomeana* Treits. (18), *Phycholomoides aeriferana* H.-S. (6) (a rare species first recorded for Britain by Dr. Scott in 1952), *Spilonota lariciana* Hein. (30), and a single *Brachmia gerronella* Z. We greatly enjoyed this trip and the hospitality accorded by Dr. and Mrs. Scott.

Looking Back Over 1963

By T. W. Harman

The hard winter caused a very late start to the season and it was 4th March before m.v. light was used and resulting in only half a dozen *Theria rupricapraria* Schiff. This period was enlivened by the emergence of *Trichopteryx polycommata* Schiff. from larvae taken on privet at Folkestone Warren last year. Seven specimens from nine larvae successfully came through. My wife saw a Brimstone butterfly on 6th March and this one must have revived very quickly after its refrigeration. The first field trip was with Mr. T. J. G. Homer on 14th March to an oak wood near Twyford, Berks. After a warm day the temperature stayed at 53°F. with cloud culminating with heavy rain at 9.30 p.m. when we had to pack up. By this time we had seen an extraordinary number of insects for this time of the year. There were several forms of *Apocheima hispidaria* Schiff. in dozens, *Achlya flavicornis* L. in plenty and some lovely forms of *Erannis leucophaearia* Schiff. Except for numbers of species it was like collecting in June. On calling at a local hostelry after getting back on to the metalled road, we found all these species settled around the light over the entrance porch. By mid-March *Gypsitea leucographa* Schiff. from local ova began hatching and a nice series resulted, mostly well marked.

The rest of March was uneventful and it was 1st April before we made another field trip, to another oakwood in the area mentioned earlier. Among seventeen species, only *Trichopteryx carpinata* Borkh. was of any interest. On 2nd April the first of several *Lophopteryx cucullina* Schiff. from local ova hatched, these did not seem particularly difficult to rear. After several poor days we made a trip to Crowthorne, Berks. The temperature dropped to 46°F. with a slight wind, but we did manage to get one specimen of *Dasycampa rubiginea* Schiff. and *Nycteola revayana* Scop. On the return home that night we stopped at some local sallows and shook out five specimens of *G. leucographa* Schiff. and one *Lithophane semibrunnea* Haw. At light here was one *Hypena rostralis* L. The following night saw us in Hampshire, again after *D. rubiginea* Schiff. Three specimens came to light by 9.30 p.m. and also one *Panolis flammea* Schiff., but we were washed out by rain at 10 p.m. Mr. S. Coxey came down from the 'Far North' on 12th April for a few days. His main quarry was *G. leucographa* Schiff., but the first night produced low temperature and no moths. The night of 13th April was rather unusual and worth describing. After heavy showers all day and up to 8.30 p.m., the sky suddenly cleared and the stars shone brightly. The temperature dropped to 42°F. and all looked hopeless, but after such a long journey for the moth, we decided to try sallows. From a lone male sallow bush close to a beechwood we shook seventeen *leucographa*, surely a world record!? Mr. Coxey's other quarry was *D. rubiginea* Schiff. and we went to Fleet, Hants., for it on 14th April, without luck except for one *Orthosia miniosa* Schiff. We went back the following night with great hopes as the temperature was 55°F. Within twenty minutes it began to rain and we had to retreat to Mr. Coxey's car at intervals. Still we managed three *rubiginea* and Mr. Coxey patiently fed a male until June for eggs! Mr. Homer had a female which obliged us with five eggs, from these I reared one moth and he got two. The 16th April found us on the banks of the river Kennet searching for the larvae of *Panaxia dominula* L. We found quite a number, but they

seemed local, very easy to bring about their extinction, I should think, if collectors fail to use restraint. One of the most pleasant evenings of the year was on 17th April when Mr. Homer and I accompanied Sir Robert and Lady Saundby and Mr. B. R. Baker on a *leucographa* hunt. A visit was made to the 'Coxey' sallow, but the entrance to the site was blocked by a car containing a courting couple. Our noisy arrival followed by the extraction of numerous white sheets from the car boots disturbed the amorous pair who decided to leave hastily, much to our delight. Sir Robert's prize comment was, "They can do that anywhere but this is a local insect". At the conclusion of operations the sorting of sheets for their rightful owners proved rather difficult and a voice from the fray remarked, "Whose is this marked 'British Railways'?". Our evening's endeavours produced nine *leucographa*.

Another larvae hunt was made on 20th April, this time Mr. B. R. Baker took Mr. Homer and myself to Burghfield Common for the larvae of *Polia hepatica* Clerck. on birch saplings. We searched for an hour with little success, but after finding a larva on a clean, thin stem which arose where a tree had been cut, I decided to stick to these and forget saplings whose catkins proved distracting. This made things easy as these single growths were much more backward with still quite small buds. The larvae showed up for yards in the light of an ordinary cycle lamp. We all got a nice number which subsequently hatched well. Yet another trip to the oak-woods near Twyford was made on 22nd April, this time with *Polyploca ridens* F. in view. We did get five even though the temperature dropped to 37°F. and two policemen were also attracted but did not settle! The next day at Medmenham produced another *H. rostralis* L. and the only female *Lycia hirtaria* Clerk I have ever seen at light. One *Abraxas sylvata* Scop. from local larvae hatched on 24th April, few came through all told. 25th April produced the first *Odontosia carmelita* Esp. for the year here so on 28th April Mr. Homer and I tried light under some birches in a large beechwood clearing not far from here. We got seven specimens by 10.0 p.m. when they appeared to stop flying. At home that night was another *O. carmelita* Esp., *T. polycommata* Schiff., *Clostera curtula* L. and *Cucullia verbasci* L.

May began with a dreadful night. On 3rd May Messrs. Fairclough and Parfitt came up hoping to obtain *Eupithecia insigniata* Hübn., but it was such a cold night that we held a conference rather than collect. The next night saw Messrs. Baker, Homer and myself at Padworth, Berks, after *Cleora cinctaria* Schiff. I managed to get one worn male but little else was taken apart from one *O. carmelita*. The same evening saw the first *Stauropus fagi* L. of the year at Medmenham. The 7th May resulted in one *Orthosia advena* Schiff. and a very nice male melanic *Menophra abruptaria* Thunb. My brother and I made a long trip to Devon for *Xylomyges conspicillaris* L. on 10th May. It was nearly midday on 11th May before we began the ritual of searching railway posts and it took three hours to find two moths. A quick glance at a tree in a nearby copse resulted in one *conspicillaris* but this must have been luck as no other trees held moths of any species. That evening we returned with the generator. It was so cold that only three moths turned up by 11.30 p.m., one of which was *conspicillaris*! This made a grand total of four for the trip. It was 16th May before I could record another night as excellent. Among nine new species for the year was *E. insigniata* Hübn. The banks of the Kennet were again visited on 19th May, this time a search being

made for the larvae of *Plusia chryson* Esp. Only two were found the whole afternoon, but a later visit to another locality with Mr. B. R. Baker produced more which duly hatched well. The first *Cucullia lychnitis* Ramb. from larvae obtained near Henley-on-Thames emerged on 24th May. About half a dozen came out and the rest chose to lie over another winter. A female *E. insigniata* Hübn. taken on 30th May laid eggs and 23 larvae later pupated having fed up easily on hawthorn. Mr. R. Fairclough beat a large amount of hawthorn for larvae of this species without success, so perhaps it does not feed on this bush in the wild state.

The 5th June found me at Dungeness, but it was a rather colourless trip except for a journey to Orlestone Woods with Mr. R. E. Scott on 5th June. Thundery conditions prevailed and all was perfect. By 11.0 p.m. we had three specimens of *Moma alpium* Osbeck, and all came within 15 mins. of each other. Sugar yielded *Tethea or* Schiff. fairly commonly. We were back again the following night under less favourable conditions, the only thing of interest seen being *Anagoga pulveraria* L. Back at Medmenham on 9th June saw one of the best days I have known so far, with the temperature at 68°F. at 10.0 p.m. and 93 species taking advantage of the conditions. A sun temperature during the day in the upper 80's F. produced 16 new species for the year. On 10th June Mr. Homer and I visited Pamber Forest where we took *Apoda avellana* L., *Hadena contigua* Schiff., and *Apatele alni* L. as a new species. At Woolhampton, Berks, on 13th June I managed to obtain two specimens of *Leucania obsoleta* Hübn. and one *Leucania straminea* Treits., the latter being quite common here later in the month. Another new species to me, *Polia nitens* Haw., appeared on 28th June. There was then little to report until 20th July when Messrs. Baker, Homer and myself went to Pamber Forest. Among 101 species were *Parastichtis suspecta* Hübn., *Nola strigula* Schiff., *Bupalus piniaria* L. and *Schrankia costaestrigalis* Steph. as new ones to me. This turned out to be a very late night and it was 5.0 a.m. before we got home. Awaiting me was another new species, *Xanthorhoe biriviata* Borkh. with another the following night, both males. A couple of even better nights followed with my record of species for one night at Medmenham broken with 118 species on 22nd July.

After reading and hearing so much about Southwold, we booked up for 27th July to 10th August and hoped the fortnight would give us a few nights without wind. Mr. Homer was there for the first of the two weeks and we ran three m.v. lights over this period and I ran two from our bungalow in Ferry Road for the second week. The second week was in fact the best of the two. Among the highlights of the holiday was a visit to Walberswick Marshes with the generator. Although rather breezy, some shelter was found on a path between tall reeds and here *Nonagria neurica* Hübn. proved fairly common. On 3rd August I joined Mr. and Mrs. F. H. Lyon and Mr. H. E. Chipperfield at Walberswick and we had a couple of wonderful hours on the edge of the marsh with hundreds of insects coming in, the best of which were *Arenostola brevilinea* Fenn, *Arenostola fluxa* Hübn., *Coenobia rufa* Haw., *Sterrha emarginata* L., *P. suspecta* Hübn. and *N. neurica* Hübn. There were two *A. brevilinea* Fenn in the trap at Southwold that night. A hunt for pupae of *N. neurica* Hübn. proved pretty hard work but of course I was a little late in the season. It took an hour to find two pupae and both hatched before leaving Suffolk. Other moths of interest were *Apamea oblonga* Haw., fairly frequent over the fortnight, *Hadena compta* Schiff., one only, *Arenostola*

elymi Treits., common at light, *Zanclognatha cribrumalis* Hübn., a few worn specimens and *Cucullia asteris* Schiff., fairly common at light and very common as larvae in one area near Southwold. Sugar at Southwold was useless and marram grass was almost as unproductive. I found there were two natural baits that were extremely attractive to a fair number of species. One was honeydew on a small patch of phragmites, which was well attended every night by moths. An even better attractant, but to rather less species, were the heads of a small rush, not more than nine inches high, which grew commonly at Southwold. In places it was covered with moths on good nights, namely *Leucania impura* Hübn., but also *Euxoa tritici* L., *Euxoa cursoria* Hufn. and the occasional *A. oblonga* Haw. The rushes are on the opposite side of the road from the beach and are more sheltered than the marram grass, which may account partly for the differences in numbers of insects at the two plants. Altogether it was a wonderful holiday for anyone interested in lepidoptera, especially those with a family. The beach is ideal for children and not overcrowded. I must admit I did not try the water as my feet rebelled too strongly for more tender parts to be immersed!

After getting home again we were soon at Woolhampton where we saw *Zenobia retusa* L. and a single *Oria musculosa* Hübn. on 12th August. On this and the following night all three 'Cosmias' showed up at Medmenham. The rest of August was rather dull and it was 3rd September before another field trip was made, to Burghfield Common for larvae of *Bomolocha fontis* Thunb. About a dozen fell to the trays and on heather nearby, the larvae of *Anarta myrtilli* L. were quite common. The autumnal moths really began in force on 9th September with *Anchoscelis litura* L. and *Tiliacea aurago* Schiff., the latter being very common here this year. The 21st September saw a successful hunt for *Tiliacea citrago* L., five specimens were obtained before 11.0 p.m., with one *Cosmia affinis* L. putting in a late appearance. This day saw another emergence, that of our second son, a typical specimen of F_1 generation from abnormal parents!! Two nights later was the only occasion I can remember seeing three species of 'Snouts' together. They included *Hypena proboscidalis* L., *Schrankia taenialis* Hübn. and *H. rostralis* L. Pamber Forest was again visited on 7th October and we noted *Anchoscelis helvola* L., *Asphalia diluta* Schiff., *Griposia aprilina* L. and *Episema caeruleocephala* L. On the way home we spotted a moth high on a lampost, and after a scramble and the help of a net we had another *E. caeruleocephala* L. We then zig-zagged our way from lampost to lampost into Reading!

The next trip of interest was with Mr. Homer to Swanage from 18th-21st October. We stayed at a guest house where we received royal treatment and ran four m.v. lights on the cliffs between Swanage and Durleston. It was a wonderful four-day visit and we got everything we went for plus some bonus species. Among those of interest were *Dasypolia templi* Thunb., about sixty seen with thirty at one trap on the last night, *Lithophane leautieri* Boisd., eleven specimens, *Lithophane ornitopus* Hufn., one fresh specimen, *Nycterosea obstipata,* three males and two females, all fresh specimens, *Rhodometra sacraria* L., one fresh male on 19th October, *Palpita unionalis* Hübn., two fresh males on 21st October.

One *R. sacraria* L. came to light at Medmenham on 23rd October, so there must have been quite a number migrating around that time. The first *L. semibrunnea* Haw. appeared on 25th October and *Ptilophora*

plumigera Schiff. on 5th November, a day earlier than last year.

Before closing the year's notes, mention had better be made of *Trisateles emortualis* Schiff. It was seen again this year and so is definitely resident. We have, however, learned little of its status or breeding habits. This is due mainly to the fact that we avoided overcollecting in the area in case it is extremely local and liable to extinction. So far all specimens, nine in all, have been taken within one hundred yards of each other and one task for 1964 is to try and find the insect in other localities.

In conclusion may I defend the shocking summer by saying that the moths of 1963 kept me extremely busy and what we looked for we nearly always found. It was particularly satisfying to hunt larvae and find them and no matter what the weather is like, larvae still appear to feed and be found. The migrant hawks continue to pass me by but here is looking forward to 1964 and another fortnight at Southwold.

3 Lodge Farm Cottages, Medmenham, Marlow, Bucks.

Scientific Names

By Hans Reisser

I have read with great interest the discussions about Latin or English names for the Lepidoptera. As a "continental" reader, may I be permitted to say that Latin names are indispensible. What shall I, as a foreigner, understand of the species treated when there is only a name like, for instance, Lulworth skipper? When I am interested, I am compelled to fall back on South, from which I see that it is *Thymelicus actaeon*. What should an English collector do on reading in a German paper names like "Hausmutter" or "Erdpfahl" only without the correct name *Noctua pronuba*?

Certainly, a pure collector, not interested in any literature, is not upset by the using of popular English names only, and without the authors' names. But every lepidopterist who writes and intends to be understood by other (which include foreign) colleagues should be obliged to use scientific, i.e. Latin, names and also cite the author's name. In synonyma it is important to know the author's name for consulting the literature to see exactly which species is treated. Nobody should be forced to omit English names, but everybody should be so helpful to his colleagues as to use at least *once* in every species he treats, the Latin name and that of the author together with the English name.

In many cases using South, I am angry that the vernacular name is set first, and it is rather difficult to discover the scientific name together with the complication that the Latin names used in England are different from those used in publications in other countries. It is to be hoped that one day names shall be the same in all countries based on exact priorities or the exceptions agreed by the commission of nomenclature.

Excuse me for having spoken with frankness; I have no wish to offend my English colleagues, and of course, anyone may use the popular names, which are often very signficant in the different languages, but in order to enable easy understanding, we should always employ the Latin names, too.

Wien I, Rathausstrasse 11, Austria.

More about Latin

Mr. Burton's letter in the issue of October last was indeed welcome and so was the information vouchsafed in Mr. Jacobs' opening paragraph on 'Scientific names'.

But do some of Mr. Jacobs' statments stand up to analysis?

I should like to know how he reconciles 'names which are known and accepted throughout the world' with the numerous alterations made in recent years.

One need go no further than to compare the scientific names given by South in 1906 in his 'Butterflies of the British Isles' with those by Frohawk in 1934. Since when were these scientific names known throughout the world?

Judging by an article by Commander Harper in the December issue, chaos is still the order of the day; however, let us get down to elementary facts.

The Entomologists Record is printed in English for those people who are capable of reading and understanding English, and no one else, as it is utterly unintelligible to Chinese, Muscovites or Patagonians.

To these latter and similar nationalities it might as well be printed in Sanscrit.

The Record is intended primarily for readers in the British Isles, and I am prepared to gamble that 'not so scientific' readers outnumber the soi-distant scientific ones; I fully appreciate however that there are a large number of pukka scientists.

There is no 'vernacular name only' class as far as I am aware; it is the 'Latin name only' class that is responsible for the paternity of this correspondence and the numerous offspring of supporters of Irvin and myself, neither of whom incidentally suggested popular names for the vast army of 'Micros'.

It is not without significance that the supplements on the 'Lepidoptera of Kent', which have been such a feature of the Record for many months, give the English as well as the Latin names of the respective insects.

This defection from scientific standards will doubtless be frowned on by the cognoscenti, who 'scorning the base degrees by which they did ascend' gaze down from their Olympian heights at the rabble below.

The diversity of opinions at present is as wide as the gap that separated the Rich Man from Lazarus; can we narrow it?

L. G. F. WADDINGTON.

9 Greenleafe Avenue, Doncaster.

Was Linnaeus a Bighead?

By S. N. A. JACOBS

Some reply to Mr. Waddington's note is required, and in the hope that it may close this correspondence, I put the following on record. The whole correspondence was brought into being by Mr. Irvin asking why vernacular names were printed before instead of after the scientific names: a very reasonable question, and one to be commended to the publishers of popular and semi-popular natural history books.

The Record has Argentinian (if not Patagonian), Chinese and Muscovite readers, whom it is most pleased to welcome, and I can see no reason for making it unintelligible to these friends by talking of drinkers and lackeys

and Mother Shiptons, fanciful as these names may seem to some of us. We have a long list of interested subscribers in other foreign lands, too, some of whom have written to me on this subject.

I very strongly refute any suggestion of snobbery in the use of world-wide names in preference to those only known to a small community. It is true that the world-wide names are apt to change in the light of new discoveries, but they change in accordance with rules (albeit somewhat complicated rules) accepted throughout the world, and these changes are notified throughout the world by the medium of the entomological periodicals and other publications. Commander Harper's perhaps not unjustified strictures were against the complicated nature of these rules, an entirely different matter.

I am convinced that objection to scientific names is, I regret to say it, a mixture of mental laziness and a "with it" objection to the classical languages on unreasoning principle. I am also shocked by the separation of Macro- and Micro-Lepidoptera. If vernacular names are necessary for the one they are necessary for the other, but I do not agree that they are necessary to either. What is the imaginary difference? I would suggest the slightly higher degree of care needed for handling the smaller subjects, and although there is something imaginary about this, it again comes down to some sort of laziness. By all means specialise in certain families but the "Micros" are not a separate order. For the matter of size, I have many "micros" exceeding two inches in expanse, and some even exceeding three inches, and if it were a matter of classification, the *Cossidae, Zeuzeridae* and *Hepialidae,* among which are some of the world's largest moths (oh, sorry, goats, leopards and swifts) are all "micros" while *Psychidae* (bag-worms) are considered by some to be "macros."

There is nothing against using an intelligible vernacular name to a layman; in fact, it would be snobbish to mention the scientific name alone, but when talking to a gardener, a warehouseman, a miller, or some other person who, though not an entomologist, is constantly in touch with insects, the scientific name should be added so that he may be able to follow up the matter in the literature should he so wish.

One of the most pleasing features of the naturalist world is the entire absence of snobbery from amongst its fellows, who are to be found in almost all social strata. The only passport required is a genuine interest in the subject, and a genuine interest would take the stile of international nomenclature in its stride.

Throughout the centuries of our history, latin has been the basis of the *lingua franca,* and this became "dog latin" as it became necessary to use its natural flexibility in the manufacture of new words. On what better bank of names could Linnaeus have drawn than on the inexhaustible resources of Latin and Greek to form euphonious appellations which could be regarded as standard throughout the world. Did this make him a "bighead"? Do not forget that he was a Swede, not a native of this staunch island—and just think what it would have been like had he named his insects in Swedish only!

Then, again, let us think of some of our best field naturalists, the artisan naturalists of the past century, who spent their week-ends "sleeping rough" on the moors, collecting and studying the insects which gave them so much healthy interest. During my few months in the early summer of 1914 as an engineer apprentice at the Erith (Kent) works of Vickers Ltd., I derived much pleasure from an old labourer, known to all as "Toby"

(I never knew his real name) from whom I learned a great deal of my early butterfly and moth lore, and I cannot recollect him using vernacular names on any occasion, although I very much doubt whether his schooling had lasted many years in the village school.

In my 1914-18 army days, I met a few kindred spirits, who always discussed insects by their scientific names (with the possible exception of *Pedicularis pubis*). Even "Chums" and "The Boys' Own Paper" gave us scientific names to lead us to the upper levels, and in those days the challenge of a little more effort caused practically all to follow this sensible lead. There is no scorn for the "base degrees from which they did ascend", only for those who took the "primrose path" of vernacular names.

The main object of the study by the greater number of non-professional entomologists is to have an interesting hobby which brings them in contact with the outdoor world and which gives them a mental stimulus. The scientific side is also important, and the amateurs contribute to this as well as the professionals, by providing material and data on which the professionals can work, but what good would this be if only Britishers could understand their writings.

Mr. Parkinson-Curtis, who has figured in this correspondence, refers to the vernacular name for *Melanotus vulgaris*, the common cockchafer, in his letters to me, which in Dorset is known, irrespective of sex, as a buck buzzard. Hearing this appellation, a foreigner might well ask whether it was a mammal or a bird, but he could hardly suspect that it was indeed an insect.

A Continental Holiday, 1963

By Dr. Neville L. Birkett

I left England complete with family and caravan on 8th August 1963 for my annual holidays. After a dismal summer in England the main objective was to seek sunshine and with this in view Venice was our goal. Many friends had eulogised the charms of this ancient city but we had been frequently warned also of the excessive heat and pungency of Venice in August. These prognostications were fortunately not fulfilled during the time we spent near Venice. We had a pleasant trip motoring across France via Reims, then across the Jura to cross into Switzerland at Vallorbe. Then a wonderful stretch of motoring, with superb views, past Lake Leman to reach Martigny in the Rhone valley at tea-time on the 11th. Here we found an excellent site for the caravan and stayed about five nights. The superb weather of the 11th was too good to last so that by the evening there started a series of thunderstorms and torrential rains which were to last for over twenty-four hours. In consequence the "Glorious Twelfth" was most inglorious and was spent in idleness watching the rain descend and the only entomology was another look through Wheeler's excellent little book on the Butterflies of Switzerland dreaming day dreams of what treasures would be in store if the weather would clear.

On 13th August, perhaps in answer to the prayers of the many holiday-makers, the day broke gloriously sunny and we set out early from Martigny ascending the Col de la Forclaz—which is the road leading to Chamonix. Most of the Swiss side of the Col is a magnificent new

road but there is a steep and rough middle section which, however, will soon be altered by the new construction actively in progress. The top of the Forclaz provides magnificent scenery and having taken this in and taken some photographs we then ascended by the Télésiège de l'Arpille to the top of that mountain—about 6,400 ft. Apart from the even more magnificent views, especially looking up the whole length of the upper Rhone Valley, there is an extensive summit plateau which provided interesting and good collecting. I noted the following species in the course of a morning collecting here:—

Erebia tyndarus carmenta Frhst. Very common and in excellent condition all over the summit of Arpille.

Erebia melampus tigranes Frhst. Common. The males getting worn but many of the females in good condition.

Erebia montanus de P. Common but passé.

Erebia euryale f. *isarica* Heyne. Fairly common and the female undersides were very fine.

Erebia ligea L. A few specimens were noted flying among the pine trees on the summit plateau but the species was much more common when I walked down from the summit to Forclaz through the pine woods later.

Erebia epiphron Knock. I took only a single female of this species in this area.

Colias palaeno L. Two fine males taken and others seen. Species of this genus are not the easiest to net!

Lasiommata maera L. A few seen and taken. This was more commonly seen during the descent through the woods than on the summit.

Melitaea diamina hebe Borkh. (*dictynna* Esp.). Frequent.

Fabriciana niobe L. Many seen but few taken due to their rapid flight.

Boloria pales Schiff. Frequent—very few females seen.

Vacciniina optilite Knock. Two quite fresh males taken but I saw no signs of the females.

Other more common species seen were:—*Pieris rapae* L., *Papilio machaon* L., *Vanessa cardui* L., *Aglais urticae* L. and a few common "skippers".

In the early afternoon I walked down through the aromatic pinewoods and had a picnic lunch before setting out along the Val du Trient towards the Trient glacier. As so commonly happens in alpine regions the clouds began to gather and butterfly activity diminished in consequence. In fact by the time we got within a mile of the glacier there was so much cloud that we did not continue the excursion on to the glacier itself. However a number of interesting species was taken on this walk but in smaller numbers than would have been the case had the sun continued with its morning brilliance.

Fabriciana niobe niobe L. and f. *eris* Meig. were taken in small numbers.

Mesoacidalia charlotta Haw. (*aglaia* L.). Common. (And perhaps I should, in utilising this name, apologise to various writers who dislike the change from the more familiar 'aglaia'!).

Argynnis amathusia Esp. Two good ones taken and numerous other worn examples seen.

Heodes virgaureae f. *zermattensis* Fallou. Fairly common and in good condition.

Lasiommata maera L. Frequent.

Erebia ligea L., *E. montanus* de P., and *E. euryale* Esp. were all quite common.

Erebia manto mantoides Esp. Quite common and well marked.

Erebia melampus tigranes Frhst. A single fine female taken. I also took a few each of *Mellicta athalia celadussa* Frhst. and *Melitaea diamina hebe* Borkh.

14th August was another sunny morning and we set off in good time for the summit of the Grand St. Bernard Pass, 8,100 ft. En route I passed many likely-looking collecting grounds which lack of time prevented my exploring. Considerable time was also lost on the journey by traffic congestion caused by vast construction works in operation near the summit. The summit was rather disappointing being very bleak and windy, the wind being very cold at this rather high altitude. Few butterflies were in evidence and I took only a single fresh male *Boloria pales* Schiff. seeing a few others as well as having a distant view of an *Erebia*! While I was failing to find butterflies my family visited the museum at the Hospice on the summit. My wife drew my attention to a collection of insects exhibited in the museum which I duly inspected. The collection was the relics of one formed by the well-known Ch. Favre who did so much to elucidate the lepidopterous fauna of the Valais. The lepidoptera were in a poor state and the coleoptera little better. The whole lot were in store boxes covered with dusty cellophane and exhibited in a rather dark set of glass-fronted cupboards.

As usual the afternoon was very cloudy and no further collecting could be attempted.

On 15th August we struck camp and moved up the valley to Brig finding a well-run site at the foot of the Simplon Pass. That afternoon, in spite of the inevitable cloud, I went to the top of the Simplon Pass (6,600 ft.) there finding the inevitable crowd of tourists but little signs of butterflies. In fact I found only a single *Erebia tyndarus* Esp. However by way of compensation sitting about on the low vegetation was a great mass of *Zygaena exulans* Hoch. and I was able to take a short series of these in a few minutes. Returning towards Brig the sun began to shine again and I made a short halt just below Berisal. Here I took *Erebia montanus* de P., *E. alberganus* Esp. and *Heodes virgaureae montana* M-D. The latter was a fine female abundantly distinct from the f. *zermattensis* Fallou which Wheeler indicates to be the form found on the northern side of the Simplon.

In glorious sunshine we set off on the 16th for Zermatt deciding beforehand that we should not let any water pass our lips even though having the protection of suitable inoculation. We motored to Stalden and then took train up the fantastic Nikolaital to Zermatt. While waiting for the train at Stalden I saw the only *Euvanessa antiopa* L. of the whole trip but by the time my net was operational le "Morio", as our French confrères term it, had disappeared. Having taken many photographs ascending the Nikolaital and also in Zermatt itself I turned my attention to the butterflies which were plentiful in the fields beyond the town. Here in two hours I filled my boxes, a large cyanide bottle as well and developed a wonderful thirst! The following species were seen and/or taken:—

Parnassius apollo L. Only two females taken but many others seen. These females are heavily dusted with dark grey and no doubt have a varietal name. Unfortunately this species is beset with a plethora

of named forms and I do not pretend to understand its many geographical races, etc.

Heodes virgaureae f. *zermattensis* Fallou. Both sexes abundant and I took a good series.

Hyponephele lycaon Rott. This also was common. The males were for the most part worn to shreds but the females were fine and varied.

Aporia crataegi L. One only taken. I may well have seen others and not recognised them on the wing. The area I was working was rather difficult ground for running after fast flyers.

Argynnis niobe niobe L. Frequent but rather difficult to contact.

Mesoacidalia charlotta Haw. (*aglaia* L.). Common.

Lysandra coridon Poda. Abundant. There appeared to be two overlapping broods as far as concerns the males. Many were quite fresh with well-marked spotting on the undersides. Others equally numerous, were decidedly passé and had generally weaker underside spotting. It is possible there may be two species here which I have failed to recognise. The few females I took were fresh and with strong spotting.

Palaeochrysophanus hippothoë L. Two males only taken. The specimens were fresh and I did not see any other specimens.

Agrodiaetus damon Schiff. I took a single worn male only.

Aricia glandon de P. I took a single male only of this species.

Lycaenides idas var. *aegidion* Meissner. I took a fine male of this form. There seems to be some confusion in the nomenclature of this form. Wheeler describes *aegidion* for *argyrognomen* Bergst. (which is now *idas* L.) while Verity in Le Farfalle Diurne D'Italia, Vol. 2, gives *aegidion* as a variety of *argus* L. (*aegon* Schiff.). My putative *aegidion* from Zermatt definitely has got a spine on the tip of the anterior tibia. Thus it is definitely a form of *idas*.

Lysandra escheri Hübn. Frequent.

Aricia agestis Schiff. and *Hesperia comma* L. were both frequent at Zermatt.

Polyommatus eros Ochs. A single male only taken.

Pyrgus carlinae Ramb. A few.

Pyrgus 'alveus' s.l. A number taken. I have examined the genitaliea of these and seem to have (1) *accreta* Verty., (2) *alveus* Hübn., and (3) *sifanicus* Gr.-Gr. However I have little experience of this group and confirmation of these tentative diagnoses will have to be sought.

So ended my day at Zermatt—a wonderfully exhilarating place with many butterflies to be obtained amidst most magnificent scenery.

17th August dawned very cloudy and rain soon followed. We set forth from Brig to cross the Simplon Pass into 'sunny' Italy. Hopes of collecting at the summit were literally drowned in the great downpour which continued throughout our journey as far as Bergamo. We there found a rather primitive site for the caravan just outside the town and thought little of the weather we had come so far to enjoy! After an entertaining meal at a somewhat plebeian restaurant in Bergamo we were glad to get to bed and forget the weather. Fortunately the morning of the 18th was bright and sunny and a few *Graphium podalirius* flying about the camp site cheered up at least the entomologist of the party. As the weather in the hills looked unsettled from our vantage point in the Plain of Lombardy we decided to proceed to Venice. After a satis-

factory run on the fine autostrada, stopping once to buy a box of peaches at just over one penny each, we reached the Venice area in the early afternoon. We went north a little from Venice and pitched our caravan some fifty yards from the Adriatic on the fine and superbly appointed German site at Cavallino. Here we stayed for eight nights and had superb weather for most of the time. During the time we spent in this area I did a considerable amount of collecting in the rough fields near the caravan site and on some rough ground a few miles away. The site, incidentally, was among many poplar trees and at night the lights attracted multitudes of *Leucoma salicis* L. which were also seen frequently by day sitting about on the buildings and poplar trunks. This in spite of twice-weekly spraying of the trees with some anti-pest substance, possibly D.D.T. The following species were seen or taken near Cavallino between 19th and 25th August:—

Graphium podalirius L. Many seen and a few taken. The species was common flying about the sun-bathers on the beach. Specimens are fine and large with relatively pale ground colour.

Pontia daplidice L. Many seen and a few taken. Most of the specimens were more or less worn and very few were worth taking.

Vanessa cardui L. A few seen. A large and well-coloured form.

Colias croceus Fourc. Generally common. Two females agree with the description of the f. *suffusa* Tutt with considerable suffusion of dark scaling at the base of the forewings. Var. *helice* Hübn. was also present and frequent.

Pieris rapae L. Common.

Coenonympha pamphilus L. This species was plentiful and interesting. The form taken appears to be referable to f. *ferrea* Verty. It is large with well-marked marginal suffusion. One or two specimens have the double apical spots on the forewing—ab. *bipupillata* Cosmovici. The under surface of the hindwings in one specimen shows complete absence of the whitish central suffusion normally present. The submarginal discal series of dots is indicated by small brightly metallic dots as described for ab. *marginata* Ruhl. I only took a small series not at the time realising the great interest and variety exhibited in this area.

Syntarucus pyrithous L. (*telicanus* Hübn.). I took a single specimen only of this interesting blue. I have read somewhere that it is a difficult species to see when on the wing so perhaps my failure to take more is accounted for by this fact.

Plebeius icarus Rott. Common in the rough fields and not showing any particularly interesting features.

Lysandra bellargus Rott. Abundant. All the specimens fine and large with magnificently marked undersides referable to ab. *magnolutea* Verty.

Everes argiades Pallas. Common. In general the specimens seem rather small, especially compared with a short series I have taken last year in the Landes area of France. Perhaps the Landes specimens are true *argiades* and those from Cavallino are *polysperchon* Bergstr.

Plebeius argus L. (*aegon* Schiff.). Common about the fields and not showing any strong racial characteristics.

(To be Continued)

Formica sanguinea Latreille (Hym. Formicidae) in Southern England

By K. E. J. Barrett

Introduction

The habits of this robust and interesting ant have been reviewed in detail by Donisthorpe (1927). During the summer months raids are made by *sanguinea* workers on nests of the *Formica fusca* group, from which

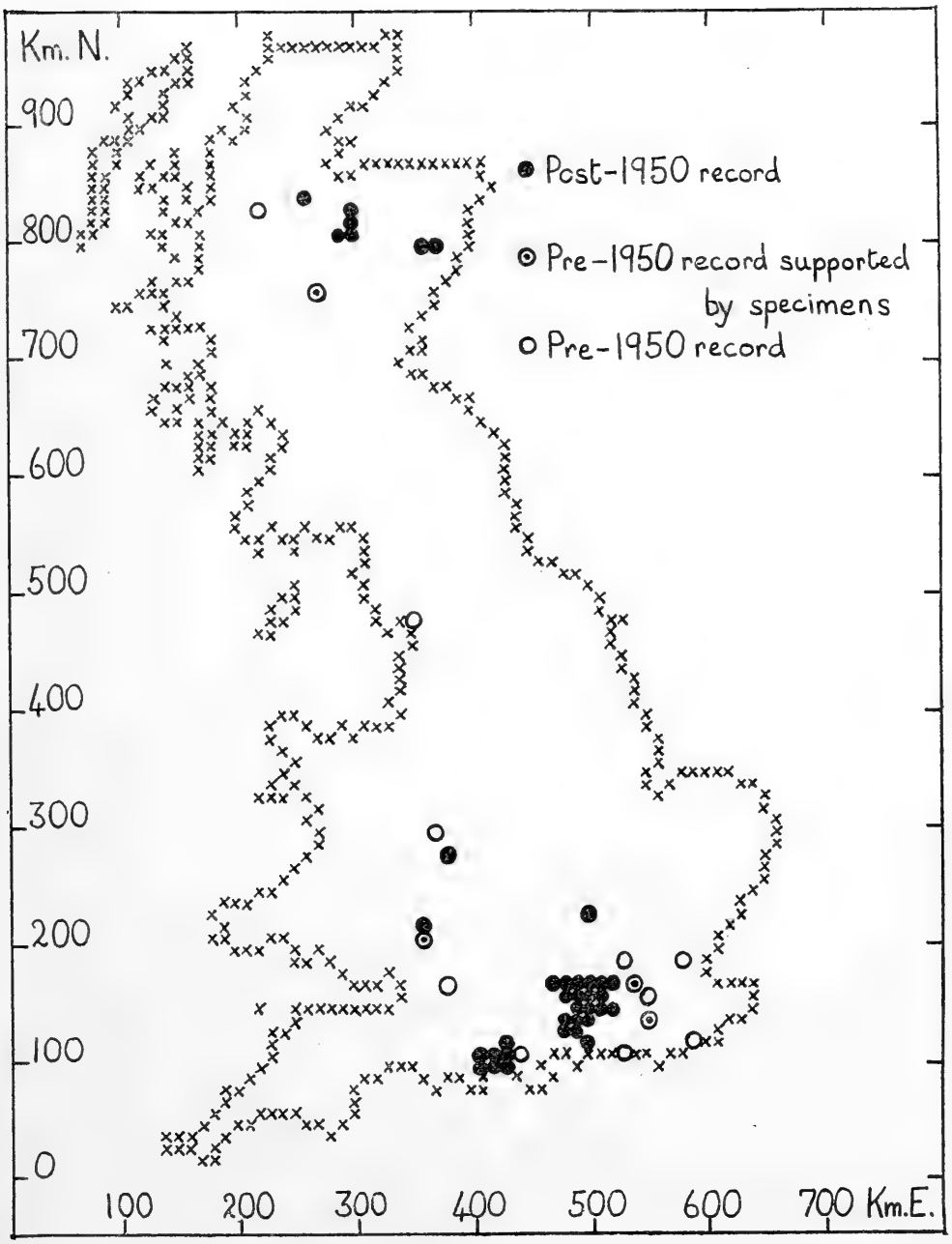


Figure 1. Distribution of *Formica sanguinea* Latr. in Britain.
(Based upon the Ordnance Survey map with the sanction of the Controller of H.M. Stationery Office. Crown copyright reserved.)

worker cocoons are carried back to the raiders' nest and which hatch out there to become auxiliary workers or "slaves". In Southern England and the Midlands *Formica fusca* L. is enslaved; in Scotland the more abundant *Formica lemani* Bond., a species not recognised by Donisthorpe, is taken. In Continental Europe, other species of the *Formica fusca* group, including *F. cunicularia* Latr. and *F. rufibarbis* Fab. are also enslaved. These species, however, are much less abundant in this country and no recent authentic record of their occurrence here as *sanguinea* slaves has been reported. Workers of the *Formica rufa* group of species have also been found in *sanguinea* nests in Continental Europe. Such occurrences have been described in Scotland (Donisthorpe, 1927; Weatherill, 1939) and these probably refer to the northern species, *F. lugubris* Zett. Surprisingly no such observations appear to have been recorded yet from the Midlands and Southern England where *F. rufa* L. often abounds in the same vicinity as *F. sanguinea*.

Descriptions of "slave-raids" were assembled by Donisthorpe (1927), but few observations have been published in recent years. On a hot day in July 1963, in the early afternoon at Lichett Plain, N. Hants., several raids were in progress. One in particular was observed for over an hour. At first, a few *sanguinea* workers were seen in and about the entrances of a *fusca* nest situated in sandy soil surrounding the roots of an upturned tree. After about fifteen minutes, a sudden evacuation of the *fusca* workers carrying cocoons occurred and these were seldom molested by the *sanguinea* workers, who then systematically began to carry worker cocoons from inside the nest back to their own nest situated about forty yards away.

One supposed mode of *sanguinea* colony foundation is by the capture and rearing of *fusca* pupae by the *sanguinea* female after the marriage flight. A number of incipient colonies have been described in support of this theory (Donisthorpe, 1927). Such colonies containing uniformly small and active *sanguinea* workers with an unusually large proportion of *fusca* workers have been seen by the author, at Yateley Common, N. Hants, 1961, and at Lavington Common, W. Sussex, 1963.

General Distribution

Formica sanguinea Latr. occurs widely throughout Europe. In Britain it has a discontinuous distribution resembling that of *Formica exsecta* Nyl. (Yarrow, 1954). *F. sanguinea* is known in Britain from the Scottish Highlands, the Wyre Forest, the Forest of Dean and the sandy heaths of Southern England. It does not occur in Ireland. No structural difference has been detected between specimens from the different areas in Britain in which it occurs. This species, in all its castes, is readily distinguishable from the other members of its genus by the frontal emargination of the clypeus.

The known British records have been assembled in Table I and Table 2. For species with a localised occurrence it is convenient to replace the vice-county system with a distribution plan based on the 10 kilometre squares of the Ordnance Survey which has previously been used for the British Flora (Perring and Walters, 1962). In Table 1, records for Southern England have been assembled, together with the geological formations on which they occur. Where the position of a record can be accurately assigned, the 1 kilometre square (within the 10 kilometre square) is given in parenthesis. In Table 2, records for the rest of Britain are listed but

are not further discussed. The overall British distribution is illustrated in Figure 1.

The author (K.E.J.B.) would like to acknowledge the assistance of the following who have given details of their own recent unpublished records or helped in other ways:—Mr. S. C. S. Brown (S.C.S.B), Dr. V. H. Chambers, Mr. D. Chapman, Mr. C. A. Collingwood (C.A.C.), Mr. J. C. Felton (J.C.F.), Dr. G. Morison (G.M.), Mr. A. J. Pontin (A.J.P.), Mr. M. Speight (M.S.), and Dr. I. H. H. Yarrow (I.H.H.Y.).

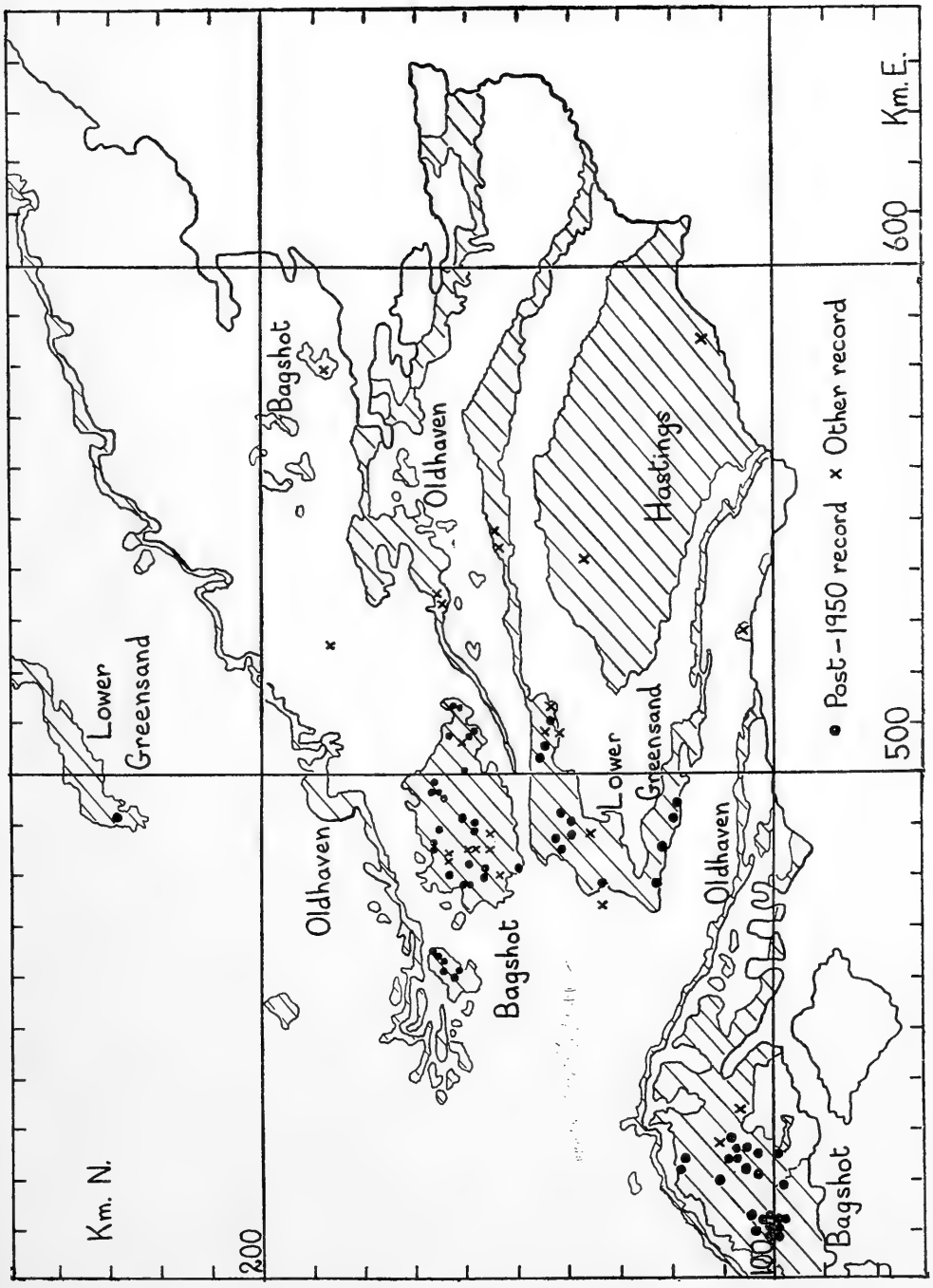


Figure 2. Distribution of *Formica sanguinea* Latr. in southern England. (Based upon the Ordnance Survey map with the sanction of the controller of H.M. Stationery Office. Crown copyright reserved.)

TABLE 1

Distribution of *Formica sanguinea* Latr. in Southern England.

10 Km. Square	*Geology*	*Localities*
SZ 09	Bagshot	Parley Heath (Donisthorpe, 1927); Parley Common (99), Dorset, C.A.C., 1962.
SZ 19	Bagshot	East Parley Common (09), C.A.C., 1962; West Heath (19), S.C.S.B., 1955 Hurn Heath (Brown 1958); Pussex Common (28), S.C.S.B., 1955; Avon Common (28), K.E.J.B., 1963; Week Common (29), S.C.S.B., 1955; Bransgore (98), S. Hants., I.H.H.Y., 1955.
SZ 29	Bagshot	Broadley Inclosure (59), S. Hants., A.J.P., 1959.
SU 00	Bagshot	Ferndown (90), Dorset, S.C.S.B., 1955.
SU 10	Bagshot	St. Leonards (03), Barnsfield Heath (10), C.A.C., 1962; Matcham's (21), Week Wood (30), S.C.S.B., 1955; Ashley (34), S. Hants., K.E.J.B., 1963.
SU 20	Bagshot	"New Forest", 1858, 1908 (Donisthorpe, 1927); Burley (13), I.H.H.Y., 1955; Oakley Inclosure (25), S.C.S.B., 1962; Mark Ash (47), S.C.S.B., 1954; Bolder Wood (48), S.C.S.B., 1953, A.J.P., 1959; Rhinefield (53), Vinney Ridge Inclosure (65), A.J.P., 1959; Holidays Hill (67), K.E.J.B., 1957; Emery Down (88), M.S., 1962; Lyndhurst, S. Hants., 1908 (Donisthorpe, Brit. Mus. Nat. Hist. Collection).
SU 21	Bagshot	Milkam Inclosure (00), S. Hants., K.E.J.B., 1963; Redlynch (28), C.A.C. 1961; Hamptworth Heath (47), S. Wilts. (Collingwood 1962); Manor Wood (70), S. Hants. (Brangham, 1937).
SU 30	Bagshot	Brockenhurst, I.H.H.Y., 1955; Beaulieu Road (46), S. Hants., (Brangham, 1937).
SU 66	Bagshot	Tadley Common (02), A.J.P., 1950; Pamber Heath (11), Padworth (14), I.H.H.Y., 1955; Mortimer (Donisthorpe, 1927), (34, 45), A.J.P., 1959; Burghfield, 1906 (Donisthorpe, 1927); Burghfield Common (56), Berks., K.E.J.B., 1951, 1953, I.H.H.Y., 1955.
SU 72	Lower Greensand	West Heath Common (82), W. Sussex, K.E.J.B., 1963.
SU 73	Upper Greensand	Selbourne (43), N. Hants., ca. 1880 (Donisthorpe, 1927).
	Lower Greensand	Blackmoor (83), N. Hants., K.E.J.B., 1963.
SU 75	Bagshot	Eversley Common (89), N. Hants., K.E.J.B., 1963.
SU 76	Bagshot	Eversley (80), N. Hants., K.E.J.B., 1963.
SU 82	Lower Greensand	Iping Common (51), W. Sussex, K.E.J.B., 1963.

SU 83	Lower Greensand	Hindhead (85), (Donisthorpe, 1927); Kettlebury Hill (89), Surrey, K.E.J.B., 1963.
SU 84	Bagshot	Farnham (29), Surrey, C.A.C., 1962.
	Lower Greensand	Frensham Common (51), Tilford Common (72), Surrey, K.E.J.B., 1963.
SU 85	Bagshot	Fleet (03), (Donisthorpe, 1927); Lichett Plain (06), Minley Wood (16), K.E.J.B., 1963; Yateley Common (29), K.E.J.B., 1961; Cove (55), 1843, Hawley (58), 1858, Blackwater (59), 1871 (Donisthorpe, 1927), N. Hants.; Mytchett (85) (Annotation in Brit. Mus. Nat. Hist. Copy of Donisthorpe, 1927); Frimley (98), Surrey, K.E.J.B., 1962.
SU 86	Bagshot	"Windsor Forest" (Donisthorpe, 1933); Finchampstead Ridges (03), I.H.H.Y., 1955; Wellington College (33), 1895, 1916, (Donisthorpe, 1927); Crowthorne (43), 1895, (Donisthorpe, 1927), (Steel 1946); Ninemile Ride (56), Easthampstead Wood (56), Caesar's Camp (66), Penny Hill (95), Berks., K.E.J.B., 1962.
SU 91	Lower Greensand	Ambersham Common (19), Lavington Common (48), W. Sussex, K.E.J.B., 1963.
SU 93	Lower Greensand	Thursley (09), Surrey, K.E.J.B., 1963.
SU 94	Lower Greensand	Rodborough Hill (21), Surrey, K.E.J.B., 1963.
SU 95	Bagshot	Frith Hill (08), Surrey, K.E.J.B., 1962.
SU 96	Bagshot	White Hill (10), K.E.J.B., 1962; Chobham, 1880, (Donisthorpe, 1927); Chobham Common (54, 65, 66), Longcross Halt (86), Surrey (Barrett, 1963).
TQ 04	Lower Greensand	Blackheath (Donisthorpe, 1927), (35), K.E.J.B., 1962; Farley Heath (54), K.E.J.B., 1962; Ewhurst (81), (Donisthorpe, 1927); Peaslake (84), Surrey, 1938 (K. M. Guichard, Brit. Mus. Nat. Hist. Collection).
TQ 05	Bagshot	Woking, 1896, 1923, (Donisthorpe, 1927; Leicester City Museum Collection, Collingwood, 1957); Wisley Common (79), K.E.J.B., 1963; Ockham Common (88), Surrey, K.E.J.B., 1962.
TQ 06	Bagshot	Horsell Common (00), K.E.J.B., 1962; Byfleet (60), (Donisthorpe, 1927); Weybridge Heath (73), Surrey, 1855, 1915, (Donisthorpe, 1927; Leicester City Museum Collection, Collingwood, 1957), C.A.C., 1953.
TQ 14	Lower Greensand	Holmbury Hill (03), J.C.F., 1953; Leith Hill (33), Surrey, (Donisthorpe, 1927).
TQ 16	Bagshot	Oxshott Heath (31), Esher Common (32), Surrey, A.J.P., 1963.
TQ 20	Oldhaven	Hove (85), E. Sussex, 1905, Donisthorpe, 1927).

TQ 28	Bagshot	Hampstead Heath (56), Middlesex, ca. 1880, now extinct (Donisthorpe, 1946).
TQ 36	Oldhaven	Croydon (34), 1865 (Donisthorpe, 1927); Shirley (55), Surrey, 1877, 1882 (Donisthorpe, 1927; undated specimens in Brit. Mus. Nat. Hist. Collection).
TQ 43	Hastings	Ashurstwood (26), E. Sussex, 1913 (Leicester City Museum Collection, Collingwood 1957).
TQ 45	Lower Greensand	Westerham (43), Brasted (74), W. Kent, (Donisthorpe, 1927).
TQ 78	Bagshot	Thundersley (97), S. Essex, (Donisthorpe, 1927).
TQ 81	Hastings	Guestling Wood (53), E. Sussex, (Donisthorpe, 1927).
SP 92	Lower Greensand	Heath and Reach (Donisthorpe, 1927); Baker's Wood (18), Bedfordshire, 1945, (Chambers, 1949), K.E.J.B., 1963.

TABLE 2

Distribution of *Formica sanguinea* Latr. in the rest of Britain

10 Km. Square	*Localities*
ST 76	Monkton Combe,* N. Somerset (Annotation in Brit. Mus. Nat. Hist. Copy of Donisthorpe, 1927).
SO 50	Trelleck, Monmouth (Hallett, 1931; Specimens in Nat. Mus. Wales, Cardiff, Hallett, 1939).
SO 51	Speechhouse—Coleford Road, Forest of Dean, W. Gloucester, (Collingwood, 1950).
SO 69	Much Wenlock*, Shropshire (Donisthorpe, 1927).
SO 77	Bewdley, Worcestershire, 1909, (Donisthorpe, 1927); Wyre Forest, Worcestershire-Shropshire (Donisthorpe, 1927, Collingwood, 1955).
SD 47	Grange-over-Sands,* Westmorland (Donisthorpe, 1927). Not seen in recent survey (Collingwood and Satchell, 1956).
NN 65	Rannoch, Mid-Perth, 1913 (Donisthorpe, 1927). Specimens in Leicester City Museum (Collingwood, 1957).
NO 59	Kincardine O'Neil (Collingwood, 1961); Marywell, S. Aberdeen, (G.M., 1963).
NO 69	Bridge of Canny, Kincardine (C.A.C., 1963).
NH 12	Glen Affric, Westerness (Weatherhill, 1939).
NH 53	Loch Ness, Easterness (Collingwood, 1961).
NH 80	Loch an Eilein, Easterness (C.A.C., 1961).
NH 90	Loch Morlich, Easterness (C.A.C., 1961).
NH 91	"Aviemore and Nethy Bridge", 1907 (Donisthorpe, 1927); Coylumbridge, Loch Garten, Abernethy Forest, Easterness (C.A.C., 1961).
NH 92	Carrbridge, Easterness (Collingwood, 1961).

*These records are unsupported by specimens and must be regarded as doubtful until confirmed.

Distribution in Southern England

In Southern England this ant occurs exclusively, but abundantly, on

heaths and woodland borders based on sands and gravels. It is now largely confined to the sandy deposits of East Berkshire, Surrey, North Hants., West Sussex and the New Forest. Although still abundant in many areas, many sites have now been, and are being, extinguished by the extensive building operations of the last decade. The detailed distribution is illustrated in Figure 2. The species has been recorded from the following geological formations.

1. *Oldhaven, Blackheath, Woolwich, Reading and Thanet Beds.* (Eocene).
   Although apparently abundant on the heaths of Croydon and Shirley in Surrey in the nineteenth century, the area is now largely built over and is probably extinct there. (It could not be found this past season in the Addington Hills area nor on Headley Heath in Surrey on this formation.) Similarly, an early record from Hove, E. Sussex, is unlikely to be substantiated now. These gravel beds (Figure 2) extend widely from Dorset to Sussex and to the north and south of the Thames Valley, but no recent records are known from these areas.

2. *Lower Greensand.* (Cretaceous).
   This ant occurs widely on the western lower greensand areas of Surrey, Hampshire and West Sussex, particularly on heather-covered hillsides facing south (Figure 2). The very old record for Selbourne, North Hants., which is situated on the upper greensand-chalk border, if authentic, is unlikely to refer to a nest-site, but could possibly refer to the presence of an air-borne winged sexual from sites on the near-by lower greensand a few miles to the east on which it is now known to occur (Blackmoor). It is not known to occur with certainty to the east of the Leith Hill area of Surrey, nor to the east of the Petworth area of West Sussex. The records for Westerham and Brasted, West Kent, quoted by Donisthorpe (1927) are unsupported by specimens and could not be confirmed this year in that area. Although it would not be surprising for the species to be found on the sands from Reigate to Folkestone or from Petworth to Eastbourne, suitable heathlands are not as abundant as in the eastern areas and have not so far been found.
   A further belt of lower greensand spreads from Leighton Buzzard, Bedfordshire, northwards to Hunstanton, Norfolk. Its presence in the Leighton Buzzard area was confirmed in 1945 by Dr. V. H. Chambers (1949). A few colonies were still present this year at the site described in a very small area of heather on an otherwise bracken-covered hillside. It is not now known elsewhere in this area or further north.

3. *Barton, Bracklesham and Bagshot Beds.* (Eocene).
   The species occurs widely on heaths and woodland borders on this formation (Figure 2). It abounds around Bagshot and around Mortimer, although extensive building in these areas has reduced the number of sites on which it now occurs. It has not been recorded from the smaller areas of sand to the west, near Newbury. Smaller outcrops of sand occur in the London Clay towards the east. The species apparently formerly occurred at Hampstead Heath (Donisthorpe, 1946) and has been recorded from Thundersley in Essex (Donisthorpe, 1927), but no supporting specimens are known. The latter site is now largely built over and A. J. Pontin (private communication, 1963) has not found it in the South Benfleet-Thundersley-Hockley area.
   The species has been found throughout the New Forest and is particu-

larly abundant in the Parley Heath area on the South Hants-Dorset border. S. C. S. Brown (private communication, 1963) has pointed out that Dale and Curtis, who collected extensively in the Parley Heath area in the early nineteenth century, did not record it and believes that the westward extension from the New Forest has occurred over the last one hundred years. This view is supported by the absence of records from sandy heaths further west into Dorset towards Dorchester, where much collecting has gone on. The species has not been found on the Bagshot sands to the east of the New Forest, nor does it occur on the Isle of Wight.

4. *Hastings Beds.* (Cretaceous).

This ant was recorded by Donisthorpe (1927) from Guestling Wood, E. Sussex, on this formation. It could not be confirmed when this site was visited during 1963. The habitat, mixed woodland (mainly oak) on a heavy soil, would seem unlikely. *Formica rufa* L., however, occurred abundantly there. Specimens of *sanguinea* from Ashurstwood, E. Sussex, are included in a collection of British Ants (1908-1914) presented by Donisthorpe to the Leicester City Museum (Collingwood, 1957) and this locality, which was omitted from Donisthorpe's distribution list (1927) may have been confused with Guestling Wood. The heather-covered areas of the Ashdown Forest are much more likely but recent confirmation of its presence here has not so far been obtained.

REFERENCES

Barrett, K. E. J., 1963. Ants from the Chobham Common Area of Surrey. *Ent. Rec.*, **75** : 29-30.

Brangham, A. N., 1937. Formicidae of the New Forest. *J. Soc. Brit. Ent.*, **1** : 175-176.

Brown, S. C. S., 1958. Five species of Ants inhabiting the same nest. *Ent. mon. Mag.*, **95** : 5.

Chambers, V. H., 1949. The Hymenoptera Aculeata of Bedfordshire. *Trans. Soc. Brit. Ent.*, **9** : 197-252.

Collingwood, C. A., 1950. *Formica sanguinea* in the Forest of Dean. *Ent. Rec.*, **62** : 91.

———, 1955. Ants in the South Midlands. *Ent. Gaz.*, **6** : 143-149.

———, 1957. A Collection of Ants in the Leicester City Museum. *Ent. Rec.*, **69** : 1-8.

———, 1961. Ants in the Scottish Highlands. *Scot. Nat.*, **70** : 12-21.

———, 1962. New Records for British Ants, 1961-1962. *Ent. Rec.*, **74** : 234-236.

Collingwood, C. A. and Satchell, J. E., 1956. The Ants of the South Lake District. *J. Soc. Brit. Ent.*, **5** : 159-164.

Donisthorpe, H. St. J. K., 1927. British Ants, 2nd Edn., London.

———, 1933. Additional Records of Ants and Myrmecophiles in Britain. *Ent. Rec.*, **45** : 132-136.

———, 1946. Slavery in Ants. *Discovery*, 154-155.

Hallett, H. M., 1931. Myrmecophilous Notes from Monmouthshire. *Ent. Rec.*, **43** : 125-126.

———, 1939. Guide to the Collection of British Aculeate Hymenoptera, Cardiff.

Perring, F. H. and Walters, S. M. (Ed.), 1962. Atlas of the British Flora, London.

Weatherill, L. H., 1939. Ants in the North of Scotland. *Ent. Rec.*, **51** : 5-6.

Yarrow, I. H. H., 1954. *Formica exsecta* Nylander in the British Isles. *Ent. mon. Mag.*, **90** : 183-185.

129 Smith's Lane, Windsor, Berks. 20th October 1963.

Eremobia ochroleuca (Schiff.), the Dusky Sallow, in Wiltshire—a Further Report

By Captain R. A. Jackson, C.B.E.

As a result of reports in the late summer of 1962, it appeared possible that this insect was on the increase in the county.

To gain information on this subject, I appealed to collectors who had come across it in Wiltshire to let me know of their experiences (*Ent. Rec.*, **75**: 122-3), and I received a good many replies. May I take this opportunity for thanking your readers although I hope they all received an acknowledgment at the time.

Of these reports, only one referred to 1962, when 18 *ochroleuca* were recorded as coming to mercury vapour light near Salisbury on 18th August. This taken in conjunction with Commander Harper's report of "many" on 30th August on the Devizes road, west of Tilshead, confirms that the insect was far commoner in 1962 than hitherto.

The other replies, of equal value, dealt with cases of either one or two specimens observed prior to that year, which support the conclusions reached above.

In 1963 the weather on the Plain was most unpropitious, and I saw no *ochroleuca* on knapweed at all.

O. musculosa was late in appearing, and I found it freshly emerged about two miles west of Tilshead on 14th August. Mr. Weddell was with me that night and one very fresh *ochroleuca* came to his lamp. He told me that he had taken one a few days earlier to the east of Tilshead, and that two other collectors had taken three a day or two later.

As last year, I should be very grateful for any further records. However, in view of the cold clear nights we had, and the chilly winds, these captures seem to indicate that this insect is definitely on the increase in the county.

Middle Farm, Codford St. Mary, Warminster, Wilts.

Idaea lineata Scop. (the Black Veined Moth)

By Clifford Craufurd

My friend Mr. Curtis of 'Loxwood', Sussex, when writing to me on 9th February informed me that some members of the South London Ent. & N.H.S. were not convinced that the above insect occurred in West Sussex. They contended that there were no records from Sussex. This is probably my fault as I did not put upon record my finding of the insect.

On 9th June, 1935, I was staying in Plaistow and on the Sunday evening went for a walk over a farm with a friend. Passing through some fields near the old Coach Road, I saw a white moth flying ahead and caught it by putting my cap over it, having no net. I recognised it at once from the plate in South. I also saw several more. Next evening I again visited the same fields and found the moth was flying in good numbers.

On 10th June, 1938, I visited the locality in the evening and there were large numbers flying. I should say that I saw at least a hundred.

Mr. Curtis generally accompanied me when I was visiting the farm in question in the years 1935 to 1938 and can testify that we regarded *lineata* as a common, though local moth as far as we were concerned.

The specimens in my cabinet—fifteen in all—are dated 9th and 10th June, 1935, and 10th June, 1938. I did not visit Plaistow in 1939, 1940 or 1941.

The fields where the insects flew were at those times yellow with *Genista tinctoria* in bloom. I do not remember seeing the insect flying where the *Genista* did not occur. Allan's *Larval Food Plants* gives *Genista*, with a note of interrogation as the Foodplant. I had probably told him of my experience with *lineata*.

I advised the late Dr. Cockayne in 1935 regarding *lineata* in Sussex and told him I considered *Genista* to be the Foodplant. He told me to prove it by taking a torch at night and lying down beside the Foodplant to observe the larvae feeding.

Mr. Curtis advises me that the insect is not to be found in its old haunts. The fields were burnt and "scruffed up" in 1942 and I believe the *Genista* has gone.

I. lineata (*dealbata*) has been recorded by Barrett and various other authors as taken in Herts. (1), Gloucester (1), Somerset, Dorset, Sussex (1) and of course at its headquarters in Kent where it was getting rarer in 1901. I should be pleased if readers who have taken *lineata* in Kent would advise me whether *Genista tinctoria* grew where the moth was found.—17.iii.1964.

Notes and Observations

PLATYTES ALPINELLUS HÜBN. AT BLACKHEATH.—On the night of 2nd-3rd August last I boxed an unfamiliar Crambid from a wall of my m.v. 'trap' (a small upper room) just before turning off the light about dawn. I believe the moth was a genuinely late arrival, rather than that it had entered early in the night and secreted itself for some time—this not being the usual habit of Crambids attracted to the light. Next day I found to my great astonishment that it was without doubt *Platytes alpinellus* Hübn., a very local species of coastal sandhills, recorded no nearer here than parts of the East Kent coast and the Isle of Wight, etc., and never at any distance inland. On informing Mr. S. Wakely some time later, I learnt that single specimens had turned up at light at several places in the south-east that year (of which probably we shall be hearing more in due course). Thus, a small immigration from the Continent appears to have taken place —a phenomenon not, I think, previously recorded for the species in question— and suffices to explain the occurrence of a specimen at Blackheath, which it is probably safe to claim as the first for the London area. It will be interesting to see whether similar inland captures of *alpinellus* are made this year, which would suggest that some of the moths had succeeded in breeding outside their usual haunts, but this seems quite unlikely.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 2.iii.1964.

EUCHELIA JACOBAEAE L. IN AUGUST.—On the occasion just mentioned, two examples of the cinnabar moth surprised me by coming to the light. I have seen no record of this familiar insect for the month of August, or even late July; although there probably have been cases of second-brood specimens, the works I have by me make no mention of them. Moreover, last year was hardly one likely to produce abnormal second broods of normally univoltine species—in this part of the country at any rate. I wonder whether others, who run light-traps more regularly, had August

specimens of *jacobaeae*. It seems scarcely possible that the two Blackheath moths were retarded individuals of the ordinary May and June brood (which, as it happens, I did not notice last season). In any case the species is quite irregular in this district, though I see one or two flying—always a welcome sight—in or about the garden in most years; possibly they are vagrants from further afield where it is more frequent, as I never see the larvae here though the Oxford ragwort is common enough.—A. A. Allen, 63 Blackheath Park, S.E.3. 2.iii.1964.

A Note on Two Species of Hyponomeuta Latr. at Blackheath — *Hyponomeuta evonymellus* L. was not uncommon at my m.v. lamp for a short time in early August, 1963; one undersized specimen had occurred about the same time in 1959. Four appeared on 22nd July, and on 2nd August several more, some very fine. It increased somewhat during the next few nights, but seemed to have disappeared after the 6th or 7th. I understand that this species is quite common towards the west and in Wales (and perhaps in the north) but that near London it occurs by odd specimens only—corresponding, presumably, to the rarity there if its recognized foodplant, *Prunus padus* (the bird cherry). The occurrence of the insect here in considerable numbers, however, suggests that it may have lately adapted itself to the common cherry trees of our gardens (*P. avium, P. serratula*). Possibly the question will be settled by the finding of larval colonies of *evonymellus* thereon in future years.

I have seen no reference in the literature to the striking variability in ground-colour of the forewings which the ubiquitous *H. padellus* L. (*sensu lato*) exhibits here; perhaps this too is recent, and an instance of industrial melanism. I have a long series showing a steady gradation from the typical clear whitish-grey to a smoky brown. Intermediate stages, which are common, have the wing-tips and a patch about middle of costa faintly to very distinctly darkened, the two patches enlarging and coalescing until they cover the wing; one does not, apparently, find forms that are the result of a progressive darkening of the wing as a whole. Specimens thus in varying degrees darkened were already common in 1959, the first year that I ran the lamp; but I have not seen one such specimen among those met with at large or the few I have bred, either here or elsewhere. I believe that Mr. Wakely finds similar variation in *padellus* at Camberwell, S.E. Which of the biological races composing the species is or are involved in this variation I am unable to say, but it is likely that most of the specimens belong to *malinellus* Zell. There appears to be no comparable tendency, so far at any rate, in the local populations of *H. evonymellus* and *cognatellus* Hübn.

Nomenclature has not been at its happiest with this genus, the two species which are the subject of this note being most misleadingly named. I may add that the generic name, whether spelt with or (barbarously) without its initial aspirate, is unquestionably masculine; and therefore we ought to write *padellus*, etc., as of old, and not *padella* etc. as is often now done. (Another case is *Nematois*, a specifically masculine* formation (Greek, = 'threadlike'; the feminine would be *Nematoessa*), so the rules require *N. fasciellus*, etc., not *-a*. Further, it should be written with a medial *a* (cf. nematode, Nematocera)—unless priority insists on the misspelling with o, now common).—A. A. Allen, 63 Blackheath Park, S.E.3. 2.iii.64.

*Like *Myelois*, *Colotois*, etc.

PHYTOMYZA SCOLOPENDRII ROB. DESV. [DIPT., AGROMYZIDAE]—EARLY MINE IN DORSET.—The months when mines occupied by the larvae of *Phytomyza scolopendrii* in the Hart's Tongue fern, *Phyllitis scolopendrium* (L.) Newm. in Europe have been stated by Hendel and Hering in their standard works as May, June and September, October. Mr. G. C. D. Griffiths found the larvae in mines on this fern and on *Polypodium vulgare* L. at Thursley, Surrey, on 21st August 1955. At a recent meeting of the Entomology Section of the London Natural History Society, Mr. J. F. Shillito mentioned finding the mine in Dorset in February. He kindly sent me a pressed specimen taken on 10th February this year at Nether Compton, near Sherborne. The mine contained a larva. This may be the earliest date on which the larva has been found and suggests that in suitable habitats the insect may have more than the two broods previously known.

The mine is linear and generally found wandering near to the mid-rib on the upper side. The last portion of the mine usually runs parallel and close to the mid-rib itself. The frass is laid at the edge of the mine in a continuous line and not in dots. The fly pupates in the earth. The fly has been found in Lancashire and Cornwall and no doubt occurs in many counties. It is known to mine also in ferns of the genera *Asplenium, Ceterach* and *Polypodium.* Some of these are attacked by other diptera and lepidoptera leaf-miners, but only *P. scolopendrii* has been found in *Phyllitis scolopendrium.* Could readers please look at this fern in gardens and report, and so extend our knowledge of at least one small fly?.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey.

PRODENIA LITURA FABR.—Referring to Mr. Chalmers-Hunt's note on this species (*antea,* **59**), I would point out that the larva of this species is almost the most catholic feeder I know and could, if it established itself in English glass-houses, become a most serious pest.

The following is my list of food-plants, from which it will be seen that there is little it might not eat:—Lantana, Antirrhinum, Zinnia, spinach, lettuce, castor, Caladium, cotton, bersin, lucerne, maize, ground-nut, beet, sweet potato, Colocasia, potato, leaf beet, mallow, jews mallow, French bean, *Hibiscus esculentus,* sesame, red pepper, tomato, vine, orange, plum, mulberry, chrysanthemum, wheat, rice, soya bean, fenugreek, egg plant, water melon, cucurbit, cabbage, onion, mandarin, guava, fig, poplar, banana, rose, mint, viola, agathi, tobacco, jute, indigo, elephant yam, peas, grass, *Eugenia malacensis, Carissa carandas, Moringa pterygosperma, Ficus religiosa,* celery, cauliflower, shaddock, apple, pear, radish, *Clitorea ternata, Cestrum nocturnum, Thuya orientalis, Anona squamosa,* papaya, mango, *Glycosmis pentaphylla,* teak, dahlia, *Argemone mexicana, saintpaulia.*

P. litura is the cotton leaf worm of Egypt, although it does little apparent damage to cotton in Uganda, where it is common.—D. G. SEVASTOPULO, F.R.E.S., Mombassa. 22.iii.1964.

ERIOGASTER LANESTRIS L., SECOND YEAR.—These notes are a sequel to my previous article, *Ent. Rec.,* **75**: 171). Some time in April 1863, I put the cage containing about 70 cocoons on a lower shelf in my garden shed, screened from the sun, to avoid the possibility of the pupae being dried up in the heat of the summer, a precaution scarcely necessary last year. Here they stayed until 1st February, when, in spring-like weather, I inspected the cocoons and found that there were 65 good ones. Besides

these, there were also four or five that consisted only of the inner white lining, and one normal cocoon with a crack down one side. All these, when opened, were found to contain the dried remains of a larva. I brought the cage indoors and put it in a sunny window. The first moth emerged on 3rd February. Several very sunny days followed, and although there were sharp night frosts, by 7th February eight more moths had emerged.

There followed a long period of dull weather, lasting until 24th February, and broken only by a sunny day on the 13th, when five moths duly emerged. Another came out on the 24th, after which there ensued another long sunless spell until 7th March. On the 9th, the third sunny day running, a very small male came out. Altogether sixteen moths emerged, of which three did not develop their wings perfectly. There were also four cocoons from which the caps had been cut out, but the moths had been unable to extricate themselves. There remain 41 cocoons, the contents of which are anyone's guess.—H. Symes, 52 Lowther Road, Bournemouth, Hants. 21.iii.1964.

An Occurence of Pontia Daplidice L. in Wiltshire in 1945.—I regret that I omitted a reference to this occurrence in my paper on the Macrolepidoptera of Wiltshire (*Ent. Rec.*, **75**: 199) and the present note may be considered as a postscript to that paper.

The late Major Stuart Maples, of East Grimstead, Wilts., told me that in 1945 he had taken a specimen of the Bath white in a clover field near his home and was going to look there again. Major Maples was no longer a systematic collector (in fact he had sold his collection), but on his death on 11th September 1949, there passed into my possession some of his later casually taken insects (approximately 1944 onwards). Besides a few set specimens of various species in a store box, there was a pocket collecting tin into which were pinned, just as they had been taken, two specimens of the Bath White (♂ and ♀) and also some Clouded Yellows and other insects. I relaxed and set all these but naturally have kept them separated from my own collection, with the result that they were overlooked until recent events brought them to mind.

Those who remember Major Maples as a successful and discriminating collector of *Coenonympha tullia* Müll, *Apatura iris* L., *Lysandra coridon* Poda and other species, of all of which he had the most beautifully set specimens, will be sorry to hear of the death also of his widow, Judith Maples, at East Grimstead on 28th November last.—I. R. P. Heslop, "Belfield", Burnham-on-Sea, Somerset. 22.iii.1964.

Nymphalis antiopa L. in Surrey.—In *Ent. mon. Mag.* for June/July 1963 (vol. 99) Mr. P. A. Hitch of Juniper Hall Field Centre, Dorking, Surrey, records a specimen of *Nymphalis antiopa* L. (Camberwell Beauty) which flew in and out of the door of his house on 3rd October 1963. A specimen of this butterfly, possibly the same one, had been seen in the garden two days previously and, says Mr. Hitch, "it may well have been looking for a suitable place for hibernation".

This note is printed on the wrapper of the magazine, and as wrappers are not always included when the monthly parts are bound up into a volume, those of our readers who collect records of the Camberwell Beauty in England may like to have this reference.

Current Literature

Ecological Genetics. By E. B. Ford. 1964. Methuen & Co. Ltd., London. $8\frac{1}{2}'' \times 5\frac{1}{2}''$. Pp. xv and 335, 16 plates, 11 text figures, 7 maps and 17 tables. Price 42/-.

Although this book is primarily intended for research workers and students nevertheless there is much in it to attract the intelligent amateur entomologist. In the first place the author is well known as a writer on entomology and he frequently refers to other distinguished entomologists. Secondly, a glance at the contents list shows that many chapters deal with such familiar insects as *Melitaea aurinia, Maniola jurtina, Panaxia dominula, Cleora repandata* and *Triphaena comes*. A word of warning must follow. There is assumed a knowledge of ordinary genetics and ecology and of the technical terms.

In the first chapter we are told what is meant by ecological genetics. Briefly it is a combination of laboratory work and field studies. The chapter goes on to describe the material chosen and the methods used.

Chapter two deals with fluctuations in numbers due to climate, food, predators and vegetation. The author is concerned to show that marked numerical increase can greatly accelerate the speed of evolution.

It may come as a surprise to some to learn that though the number of spots on the wing of a butterfly is perhaps of itself of no biological significance yet the polygenes which control the spots may be of importance for survival. This is fully explained in chapter four, where the spot frequencies of *M. jurtina* in the Isles of Scilly and elsewhere are carefully considered and are found to illuminate various aspects of ecological genetics.

In chapter five there is an exciting account of the discovery of an instance of the apparently rare phenomenon of sympatric evolution in animals. The precise location of the boundary line between the two forms of *M. jurtina* was found.

It is truly said that no natural population of animals has been so fully quantified as *P. dominula* at Cothill in Berkshire and a chapter is devoted to a study of this colony.

Many species of Lepidoptera are reviewed in chapter eight. The remarks about *T. comes* and the reference to the specimens collected by the late Dr. E. A. Cockayne will interest entomologists.

The subject of mimicry has often been treated but it is refreshing to read a modern account. A whole chapter is given over to describing the evolution of mimicry in *Papilio dardanus* and it is shown that recent experiments have made clear the mechanism involved.

Kettlewell's long-continued work on Industrial Melanism is fully analysed and receives well deserved praise.

In the concluding chapter the following points are stressed:—(1) the universality of the principles illustrated; (2) the unsuspected rapidity of the operation of genetic forces in evolution; (3) the comparative unimportance of mutation and of random drift; (4) the probable increase in the part played by genetics in medicine.

The book seems to be almost free from printers' errors. One only was noticed: on p. 19 *Achillea* becomes *Achilles*. The section describing the plates is most useful. Even if the ordinary amateur entomologists does not quite understand it all he will be the better for reading this excellent book.—T. R. EAGLES.

bracken, Tunbridge Wells (Knipe (1916)); on railway banks at Sidcup, on knapweed, yarrow, plantain, sallow, dock (A. R. Kidner, *Diary*); on *C. album* and *A. tripolium,* Stoke Saltings, September 20, 1962, and on *G. verum,* sloe, and bracken at Downe (C.-H.); common on bracken, birch, broom, Dartford Heath, also on *A. tripolium,* Dartford Marshes (B. K. West).

VARIATION.—Ab. *splendens* Steph., four, Broad Oak, 1946-52 (C.-H.).

Hawkins (*Proc. S. Lond. ent. nat. Hist. Soc.,* 1932-33: 74) exhibited a specimen 'labelled "Dartford, June 1905" and apparently very near var. *pallens* Stdgr.'; and another from Folkestone, stated to be referable to ab. *pallens* Tutt, was exhibited by Morley (*Proc. S. Lond. ent. nat. Hist. Soc.,* 1933-34: 50).

In R.C.K., is ab. *splendida* Robson, one, "N. Kent, W. Crocker, 1909"; ab. *pallida* Tutt, ♀, "Herne, coll. Battley".

FIRST RECORD, 1720: The larva "found on the female Fearn, in a Wood by Charlton in Kent" (Albin, *Nat. Hist. English Insects,* facing pl. 32)..

Hada nana Hufn. (**dentina** Esp.): Shears.

Native. Downs, rough uncultivated fields, shingle beach; foodplant unknown. Recorded from all divisions, but with a marked preference for maritime shingle and open uncultivated areas on chalk soils. Plentiful in 8, 15. The moth appears about the third week in May, and continues until late June or into July, with what appears to be a partial second generation in August.

1. West Wickham (Allchin, *Ent. week. Int.,* **7**: 204); several, 1951 (E. J. Trundell); July 11, 1963 (R. Birchenough). Westcombe Park; St. Paul's Cray; Lewisham; Eltham; Blackheath; Greenwich; Lee; Erith (*Wool. Surv.* (1909)). Chislehurst, 1906 (1), 1908 (1), 1909 (2) (S. F. P. Blyth). Hayes; Bexley (Carr, *Entomologist,* **27**: 170, **32**: 40). Bickley (Rait-Smith, *Ent. Rec.,* **27**: 170). Sidcup, mostly on trees, 1912 (1), 1913 (1), 1924 (several), 1926 (1), 1933 (1) (A. R. Kidner). Petts Wood, 1946, 1948 (A. M. Swain). Dartford Heath (B. K. West). Bromley, 1960 (2), 1962 (1), 1963 (9) (D. R. M. Long).

2. Sheppey, two, June 30, 1937 (A. H. Lanfear).

3. Whitstable (P. F. Harris). Broad Oak, two, May 30, 1952 (C.-H.).

4. Sandwich, June 6, 1934 (A. J. L. Bowes); two, June 16, 1950 (C.-H.).

5. Chevening, 1912, 1913, 1916, 1917 (Gillett, *Diary*). Biggin Hill, one, May 20, 1953 (C.-H.).

6. Gravesend (H. C. Huggins). Pinden (E. J. Hare).

6a. Chattenden Roughs, one, June 28, 1869 (Walker MS.); June 14, 1913 (F. T. Grant).

7. Wigmore Woods; Fir Grove (Chaney (1884-87)). Faversham; Sittingbourne (H. C. Huggins). Boxley, 1953 (A. H. Harbottle).

9. Margate, on fences, 1915 (2), 1924 (1), 1931 (1) (H. G. Gomm, *Diary*).

10. Brasted (R. M. Prideaux). Sevenoaks (Gillett, *Entomologist,* **53**: 23).

11. Aylesford (G. A. N. Davis). Mereworth (Morgan, *Lep. Tunbridge Wells,* MS.).

12. Orlestone Woods, August 5, 1945 (1), June 1948 (1), June 1951 (several) (C.-H.). Ashford Town (P. Cue). Willesborough, 1954 (1), 1955 (1), 1956 (2); Wye, 1953 (1), 1954 (1), 1955 (1) (W. L. Rudland).

13. Tunbridge Wells, one (Beeching, *Ent. Rec.,* **2**: 230). Ramslye and High Rocks, Tunbridge Wells (Morgan, *Lep. Tunbridge Wells* MS.).

14. Sandhurst (G. V. Bull).

16. Folkestone Town (A. M. Morley).

VARIATION.—As far as I can judge, the majority of Kentish examples I have seen approximate to nymotypical *nana* Hufn.; one, Bickley, 1914 (*Ent. Rec.*, **27**: 170) may be ab. *latenai* Pierr., and I have several from various localities that approach this; and others that are transitional to ab. *leucostigma* Haw.; ab. *ochrea* Tutt is recorded (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1938-39: 34) for the county but is evidently uncommon, and I have two apparently referable to this from Wye (div. 8) (C.-H.).

FIRST RECORD, 1809: "Habitat in Cantio at rarissime, tempore oblito. Exemplaria duo solum vidi" (Haworth, *Lepidoptera Britannica*, **2**: 198).

Scotogramma trifolii Hufn. (**chenopodii** Schiff.): Nutmeg.

Native. Marsh-sides, gardens, bombed-sites, derelict land (mainly in towns), waste places; on *Chenopodium alba.* Found in all divisions. "Generally common; sometimes abundant" (*V.C.H.* (1908)).

The moth is probably most frequent in 2. Mathew (*Entomologist*, **23**: 34) records that at Marine Town, Sheerness, the larvae were in swarms; and at Strood, Ovenden (*Ent. Rec.*, **16**: 294, **21**: 33) found them in abundance, on *Chenopodium.* It has also been seen in great plenty elsewhere, on bombed-sites. Thus in 12, J. A. Parry observed that the species had much increased about 1946 in the City of Canterbury, where bombed-sites had been colonised by *Chenopodium*, and upon which he found the larvae plentifully; likewise in 1, at Lewisham and its neighbourhood, D. F. Owen noticed it in abundance on waste ground.

On a small piece of waste ground by the roadside in the heart of Bromley, I noted several larvae on *Chenopodium alba*, October 13, 1963 (C.-H.).

FIRST RECORD, 1829: Stephens, *Haust.*, **2**: 196. The first *positive* Kentish occurrence, however, dates from 1858: Folkestone, July 24-August 1, 1858 (Tompkins, *Diary*).

Hadena w-latinum Hufn. (**genistae** Borkh.): Light Brocade.

Native. Woods, commons, etc.; on broom.

1. Noted from many localities in this division. Recent records are:— Dartford Heath, three larvae on broom, 1948 (B. K. West). West Wickham, 1952 (E. Trundell). Abbey Wood, 1952 (A. J. Showler). Bexley, several, May 30-June 13, 1952 (A. Heselden). Petts Wood, one, 1950 (E. Evans). Orpington, 1948-53 (L. W. Siggs); one, 1958 (R. G. Chatelain). Lee, not common (C. G. Bruce). Bromley, 1959 (1), 1960-61 (none), 1962 (2) (D. R. M. Long).

2. Kingsferry Marshes, two, June 25, 1937 (A. H. Lanfear).

3. Whitstable (P. F. Harris). Herne Bay, 1946 (D. G. Marsh). Broad Oak, several at light, 1946, 1952 (C.-H.). Eddington, frequent, 1948, "very plentiful", at light, June 2, 1950 (D. G. Marsh, *Diary*).

4. Sandwich, two, June 3, 1937 (A. H. Lanfear); (E. & Y. (1949)). Ickham, rather scarce, 1954-59 (D. G. Marsh).

5. Chevening, several, May 20-31, 1914, 1917 (Gillett, *Diary*). Halstead (R. E. Frampton, *teste* S. Wakely). Westerham (R. C. Edwards). Biggin Hill, one, 1953 (C.-H.).

6. Shoreham (Carr, *Entomologist*, **33**: 47). Otford (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1902: 50). Gravesend (H. C. Huggins). Pinden, one (E. J. Hare).

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1(14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

Information wanted, from anyone who has reared the Speckled Wood (*P. aegeria*) and can supply any of the following information.

(1) Number of broods per year.

(2) Proportion of autumn brood hibernating as larvae.

(3) Comments on the reason for (2).

Any information on the Scottish colonies would be welcome.—*A. J. Showler, 28 Lynsted Close, Bexleyheath, Kent.*

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years :

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact : Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

Announcing the publication of

Notes and Views of the Purple Emperor

by

I. R. P. Heslop, G. E. Hyde, R. E. Stockley

Size of book: 10″×7½″

Comprising 207 pages plus 22 plates with 44 illustrations, of which eleven are in colour.

A complete up-to-date work on the PURPLE EMPEROR butterfly, there is no repetition of the basic facts contained in the standard works. In addition to the Purple Emperor, 42 other species of British Butterflies and eight Moths are mentioned in the text at varying length.

The plates are confined to the Purple Emperor in all its stages, including some extreme aberations all previously unfigured.

The book is now in course of preparation and will be published in October.

This book should interest both the entomologist and field naturalist. The work has been produced entirely by subscription. The authors are now mailing all subscribers and it is unnecessary for them to write for further information.

THE SUBSCRIPTION LIST IS OPEN UNTIL JULY

Price to Subscribers, **£1 10/–**; Published price, **£2 10/–**

Postage 3/6 extra

Persons interested in subscribing should write to:

R. E. STOCKLEY

6 Kingsway, Blackwater, nr. Camberley, Surrey

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 5 MAY 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

CENTIPEDES OF THE BRITISH ISLES

By E. H. EASON

This is the first British work to provide a comprehensive guide to the study of Centipedes in this country. All the species to be found in the British Isles, including those doubtfully recorded, are fully described and illustrated. A great deal of the information given by the author is the result of his own observations and research and will stimulate the reader's interest in this much neglected group.

As well as details of structure and life-history, the book contains an account of the natural history of the group as a whole, with an explanation of the principles governing distribution and classification. There is also a comprehensive glossary of technical terms and a full bibliography.

500 line drawings

4 pages of half-tones

4 colour frontispiece

£3 3s. 0d. net

From All Booksellers

FREDERICK WARNE & CO. LTD.

1-4 Bedford Court, Strand, London, W.C.2.

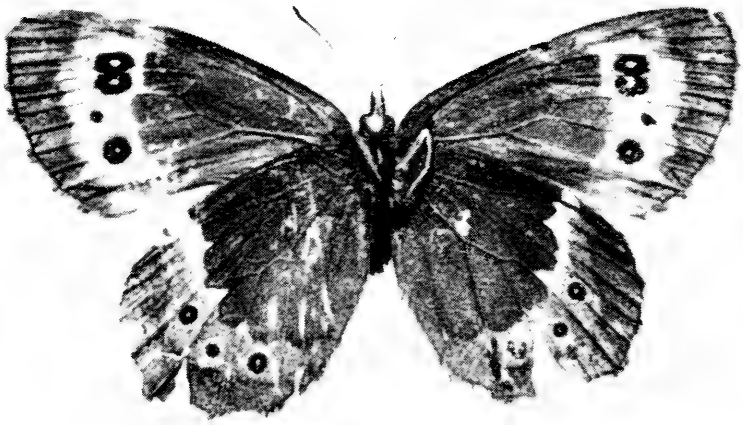


Fig. 1 (upper). *Erebia ligea* (Linnaeus): Gillespie specimen. Fig. 2 (lower). Tray from Gillespie collection as received containing this specimen (in row at left).

Comments on the supposed occurrence in Scotland of *Erebia ligea* (Linnaeus) (Lepidoptera, Satyridae)

By E. C. Pelham-Clinton,
The Royal Scottish Museum, Edinburgh

In January 1963, an old and almost entirely unlabelled collection of Lepidoptera was brought into the Royal Scottish Museum by Mr. A. C. Gillespie of Colinton, Edinburgh. In the section devoted to British butterflies was a female *Erebia ligea*.

Although investigations inspired by this discovery made it seem unlikely that this was a genuine Scottish specimen, some of the possibilities revealed by a study of the literature concerning the species are worth putting on record.

ALLEGED DISCOVERY BY SIR PATRICK WALKER

The history of the discovery in Scotland of *Erebia ligea* (Linnaeus) and of *E. aethiops* (Esper) has been confused ever since the original announcements by Sowerby (1804-5). In December 1804 Sowerby described and figured *Erebia ligea* as "*Papilio Blandina*" (the species we know as *aethiops*); it was stated to have been caught in the Isle of Arran and to be in the cabinet of Alexander McLeay, secretary of the Linnean Society. In January 1805, *Erebia aethiops* was described and figured as "*Papilio Ligea*": a note on the species reads "This is another new British Insect, procured by A. MacLeay, Esq. Sec. L.S., from the same place as the one figured in *tab.* 3. [an error for *tab.* 2.] of this Work".

Donovan (1807) corrected the error of indentification and stated (p. 87) that "*Papilio Ligea* was discovered by Major Walker [i.e. Sir Patrick] in the isle of Arran at the same time as *P. Blandina*". Thereafter, the majority of British authors told the same story. Ford (1945), for instance, was interested in the possibilities of *Erebia ligea* occurring in Britain, and wrote (p. 148) "when Sir Patrick Walker captured the first British specimens of the Scotch Argus, *Erebia aethiops*, in 1804, it is said that he took in addition to that well-known British butterfly a second species flying with it. This was the "Arran Brown", *E. ligea* . . . . . ". But who had ever stated that the first *aethiops* were *captured* in 1804? As I will show, the truth is that *aethiops* was first found by a different collector about 40 years earlier.

J. F. Stephens is the only British author I have discovered who has attributed the discovery of *Erebia aethiops* in Scotland to the right man. He stated in his "Illustrations" (1828) under *Hipparchia blandina* (p. 62) "Discovered many years since, at the beginning of August, in the Isle of Arran, by Dr. Walker, and, subsequently, taken there by Sir Patrick Walker and Dr. Leach". Stephens later (1850, p. 9) showed that he had seen a manuscript description of *aethiops* by Dr. Walker (as *Papilio Amaryllis*) for he put "*Papilio Amaryllus* [sic], Walker, MSS" in the synonymy of *Erebia blandina*.

Dr. John Walker (no relation to Sir Patrick), Professor of Natural History at Edinburgh University from 1779 till his death in 1803, must have discovered *aethiops* during one of his tours of the Hebrides between 1760 and 1786. There is an excellent description of the species (as *Papilio Amaryllis*) in a notebook in Edinburgh University library entitled

"Miscellaneous Papers Vol. 1": the place of capture is here given as "in Insula Bota. Septembro.", but no year is given. Other dates in this notebook range from 1763 to 1777. I presume "Bota" to be Bute, though I cannot find this form of latinisation elsewhere. A similar description of *Papilio Amaryllis* is given in another notebook dated 1769, one of a series in Edinburgh University library containing descriptions of specimens in his collection: here he adds "Mr. Fabricius assured me that this was different from the Ligea, and a species not in Linnaeus" and (judging by the handwriting at a later date) "I found in in [*sic*] Abundance Aug. 13 in Drifesdale [=Drysdale, Dumfriesshire] in the Meadows. At a Distance it seems quite Black". Dr. Walker's collection remained at Edinburgh University, but very few of his specimens (no insects) are still in existence and few of his descriptions were ever published. He has been ignored by British writers on insects since Stephens.

Sir Patrick Walker (1772-1837) was also a well-known collector. According to a manuscript journal of Lawrence Jameson, nephew of Robert Jameson who succeeded Dr. Walker as Professor of Natural History at Edinburgh, his uncle Robert "derived much knowledge from Peter's [=Sir Patrick Walker's] elegant and select collection of Insects, a collection considered at the time, the second best in this country—Dr. Walker's being superior". His collection appears to have been dispersed at Stevens' in 1839, but I have seen no details of the sale. We have no first-hand evidence from Sir Patrick of his capture either of *ligea* or *aethiops*. Presumably he gave specimens of both species to McLeay, but there is only the confused evidence of Sowerby and Donovan that both were taken in Arran, and it is quite possible that Sir Patrick had the two species confused and that *ligea* was not recognised until the specimens were in McLeay's collection. The manuscript journal of Robert Jameson's tour of Arran and Ireland in 1797 reveals that Mr. Walker (later Sir Patrick) joined him in Arran on July 25th that year—just the right time and place to collect *aethiops*. From this time onwards Patrick (or Peter) Walker must have had less time for collecting: he was admitted to the Faculty of Advocates in June 1798, became Heritable Usher of the White Rod in 1806, was knighted in 1814 and fought at Waterloo. He was a founder member of the Wernerian Society in 1808 and became its first treasurer, but his few contributions to its proceedings were never published and he took no part in the society's later activities. Charles Stewart, another early member of the Wernerian Society, in his Elements of Natural History, 2nd edition, Vol. 2 (1817) gave a hint that *aethiops* and *ligea* may not have been found in the same localities. Under *Papilio Blandina* (p. 133) his note reads "Found plentifully in the island of Arran by Sir Patrick Walker", but for *Papilio Ligea* he wrote "Found in woods in Scotland by Sir Patrick Walker". The earlier edition of this work (1801-2) included neither species.

The two specimens of *ligea* figured by Stephens (1828) were stated by him to be a pair in his own collection, and must therefore have been presumed by him to be British, but he did not say how he acquired them. McLeay emigrated to Australia in 1825 and I cannot find what happened to his British collection, but this may have been the origin of Stephens' specimens. This pair is at present in the British Museum (Natural History) and both are undoubtedly *ligea*, although Butler (1867) supposed that the male was *E. euryale* (Esper.).

The confused accounts of Sir Patrick Walker's "discovery" of *Erebia ligea* are open to a number of interpretations. I think it most likely that the specimens were not captured in Arran, but not being recognised as distinct from *aethiops* by Sir Patrick, they were added to his series of *aethiops* from Arran. It is possible that they were of continental origin but, for reasons which will appear later, just as likely that they were captured by Sir Patrick elsewhere in the south of Scotland.

SUBSEQUENT RECORDS

Since *Erebia ligea* was given a place in the British list it was inevitable that other supposedly British specimens would appear. "Inquisitor" (1837) mentions "*Ligea*, in the cabinet of Mr. Stephens, and lately introduced into those of Mr. B. Standish, and several of our dealers". A third "British" specimen has mysteriously appeared alongside the two originals in the Stephens collection. Mercer's (1875) record of *ligea* in a Margate garden provides a touch of humour and cannot have deceived many.

The specimen in the Tring collection recorded by Willoughby-Ellis (1929) is in a different category as it nas been given some prominence by Ford (1945, pp. 148-9). It was found by Lord Rothschild in the collection of A. E. Gibbs labelled simply "Galashiels". However, I am indebted to Mr. A. L. Goodson of the Zoological Museum, Tring for information (*in litt.*) which suggests that the specimen was wrongly labelled. Mr. Goodson tells me that Gibbs collected on the continent every year: his British specimens were set fresh, but those from the continent were papered and set during the winter. The "Galashiels" *ligea* had been papered before setting. Moreover, Gibbs knew the Continental species well enough to recognise *ligea* and would surely not have overlooked it among his *aethiops*. But in spite of this it appears that the specimen must at some stage have been mistaken for *aethiops*, for it was found in a box of that species.

THE GILLESPIE SPECIMEN

The collection presented by Mr. Gillespie was contained in two wooden boxes, each containing two wooden trays of insects. One box contained a tray of British moths, all of species resident in the south of Scotland, and a tray of mixed insects, chiefly Lepidoptera and Coleoptera: apart from a few British moths these Lepidoptera were probably all non-European—the butterflies were certainly all from America and Australasia. The second box contained two trays: except for one British dragonfly (*Agrion virgo* (Linnaeus)), one exotic cockroach of a frequently imported genus (*Panchlora*) and a few British moths, the contents of both appeared at first sight to consist entirely of unnamed, unarranged, unlabelled British butterflies, among which by its setting low on the pin and slightly ragged condition a single female *Erebia ligea*, set underside uppermost, did not look out of place (Plate II). Mr. T. G. Howarth has since pointed out to me that the single *Papilio machaon* Linnaeus included is of the continental race, but this could of course have been a migrant individual. The only locality label in the whole collection was lying loose in the tray that included *ligea* and a number of *aethiops;* it reads—"*Erebia blandina*/Taken on Bute (North End) July 1891." and has a hole made by a pin of the same size as that bearing the *ligea* specimen. Why

should a locality label have been written for only one specimen in the collection unless it was an unusual one, such as a *blandina* with white spots under the hindwings!? But it is also possible that the label was never on a specimen and at one time could have applied to a whole row of *aethiops*.

Mr. Gillespie has kindly informed me that the collection was formed by two uncles of his, A. B. and J. W. Gillespie, who, at the time they were collecting, lived at Bonnybridge, Stirlingshire. They died in 1942 and 1941 respectively, but probably did not collect after 1900. Both travelled to many parts of the British Isles and always took collecting apparatus (there are several southern species in the collection). J. W. Gillespie travelled on the continent and the countries visited included Austria, but not Scandinavia. They corresponded with relatives in America and Australia. The "*Erebia blandina*" label is in the hand of A. B. Gillespie.

I think it likely that this specimen of *Erebia ligea* was taken and set by one of the Gillespie brothers. They set many of their butterflies underside up, and the specimen is set in the same manner and on one of the same types of pin as other specimens in the collection. The fact that J. W. Gillespie travelled abroad makes it possible for him to have taken a continental example to fill a blank space in the collection (though the complete lack of arrangement and naming does not suggest that he would have been tempted to do so) and were it not for this there would be a strong presumption that the specimen is of Scottish origin.

The races of *ligea* are not sharply distinguished, and comparing the Gillespie specimens with material in the British Museum (Natural History) Mr. Howarth and I were able to match it fairly well with specimens from Scandinavia and from central Europe. In the opinion of Mr. L. G. Higgins, however, the specimen could not be well placed in a Scandinavian race. Of the two Stephens specimens the male looks more Scandinavian, the female more central European.

OTHER CONSIDERATIONS

The foodplant of *Erebia ligea* is stated by continental authors to be the grass *Milium effusum* L. Some authors also give *Digitaria sanguinalis* (L.) Scop., a rare casual in Britain, and other unspecified grasses. *Milium effusum* is an uncommon grass in Scotland. Clapham, Tutin and Warburg (1957) state that it is "local and *perhaps less frequent than formerly*" (my italics). Perring and Walters (1962) show that it is (or was) thinly scattered over the south of Scotland, almost absent from the highlands, and that there is no definite record from Arran. I am indebted to Mr. B. L. Burtt of the Royal Botanic Garden, Edinburgh, for a record from Kintyre, presumably not accurate enough to be recorded by Perring and Walters, and there is another vague record for Kintyre given by Ewing (1901).

The distribution of its foodplant suggests, then, that it is most unlikely that *Erebia ligea* ever occurred in Arran. If Sir Patrick Walker's specimens were British they would more probably have been captured somewhere on the mainland.

Erebia ligea has a two-year life cycle and in some parts of its continental range the adult appears in the odd-numbered years only: some references to this phenomenon were given by Cockayne (1953).

CONCLUSION

It now seems to me a distinct possibility that *Erebia ligea* once occurred or may even still occur in damp woods in the south of Scotland. This area has still not been investigated sufficiently by lepidopterists; intensive sheep-farming has made large parts of it desolate in appearance and most unrewarding to the collector, but there may yet be remote habitats suitable for *ligea*. I have learnt recently of another butterfly species never yet recorded from the south of Scotland found for the first time in 1963 apparently resident in a border county. I doubt whether anyone has ever looked for *ligea* in Britain in the right places and at the right time. By now, owing to the destruction of suitable habitats and probably to the increasing scarcity of its foodplant, it may be too late.

ACKNOWLEDGMENTS

Besides those whose help has been acknowledged above, my thanks are due to Mr. T. G. Howarth of the British Museum (Natural History) for enabling me to examine the reputed British specimens of *Erebia ligea* and for some literature references. I am also much indebted to Miss J. M. Sweet, lately of the Department of Mineralogy, British Museum (Natural History) and now working at the Royal Scottish Museum, for references to the Jameson journals, and to the Librarian of the Edinburgh University Library for allowing me to quote from these and from the John Walker notebooks.

REFERENCES

Butler, A. G. 1867. *Erebia Euryale* of Esper, a species of Lepidoptera possibly new to the British lists. *Ent. mon. Mag.*, **4**: 151-152.

Clapham, A. R., Tutin, T. G. and Warburg, E. F. 1957. *Flora of the British Isles*. Cambridge.

[Cockayne, E. A.] 1953. Current Notes. *Ent. Rec.*, **65**: 358-360.

Donovan, E. 1807. *The Natural History of British Insects*, **12**. London.

Ewing, P. 1901. Phanerogams. In Elliot, G. F. S. Laurie, M. and Murdoch, J. B. *Fauna, Flora & Geology of the Clyde Area*. British Association Committee, Glasgow.

Ford, E. B. 1945. *Butterflies*. Collins, London.

"Inquisitor". 1837. Note on Butterflies questionably British. *Ent. Mag.*, **4**: 177-179.

Mercer, W. J. 1875. *Erebia Ligea* at Margate. *Entomologist*, **8**: 198.

Perring, F. H. and Walters, S. M. 1962. *Atlas of the British Flora*. Nelson, Edinburgh & London.

Sowerby, J. 1804-5. *The British Miscellany*. Nos. 1 and 2.

Stephens, J. F. 1828. *Illustrations of British Entomology*. Haustellata. **1**. London.

———. 1850. *List of specimens of British Animals in the collection of the British Museum*. Part V. Lepidoptera. London.

[Stewart, C.] 1801-2. *Elements of Natural History*. 2 vols. London and Edinburgh.

———. 1817. *Elements of the Natural History of the Animal Kingdom*. 2nd edition. 2 vols. London & Edinburgh.

[Willoughby-Ellis, H.=] "H.W.-E.". 1929. [Report of meeting of the Entomological Club at Tring, 27th October 1928]. *Entomologist*, **62**: 47.

A Continental Holiday, 1963

By Dr. NEVILLE L. BIRKETT

(*Continued from page 106*)

Mellitaea didyma Esp. Just emerging at the time of my visit and very plentiful. Many pairs in cop. were found on the low vegetation bordering the irrigation channels of the ground I collected on. The facies is very bright and well-marked, especially the females. The females I took showed no evidence of the extensive suffusion associated with Staudinger's *meridionalis*, but otherwise they seem nearer to this form than the f. *occidentalis* of the same author.

Pararge megaera L. Quite common.

Hipparchia statilinus Hufn. Became common towards the end of my stay in the area. My specimens seem referable to f. *marmorea* Verty. This species requires considerable stalking to effect its capture. Much patience is required especially when the temperature is nearly or quite 90 degrees F. Skippers were not much in evidence and I took only *Erynnis tages* L. and *Carcharodus alcaeae* Esp.

On a visit to Venice itself I saw half a dozen *Polygonia egea* Cramer sunning themselves on the wall of an ancient church. Unfortunately I had no net with me and was unable to make closer contact. Incidentally I saw this species, again when I had no net available, in the Roman arena at Padua! Outside built-up areas I did not see the species so came home without any specimens to my considerable disappointment.

We left the Venice area on 26th August and journeyed to the shore of Lake Garda where I was not able to do any collecting during the period of our short stay. Then we journeyed across north Italy taking advantage of the extremely good autostrada and reached a most pleasant lakeside site by one of the lakes of Avigliana. On 29th August we made a trip from here to the summit of the Col de Sestriere—about 6,000 ft. A number of interesting butterflies was taken here in the morning before the almost inevitable cloud put a stop to proceedings in the afternoon.

Parnassius apollo L. Quite common but getting very worn. I took two only—both females with considerable dark suffusion of the wings.

Graphium podalirius L. A few seen but none taken.

Colias phicomone Esp. A few seen but only one taken. This is of the f. *pulverulenta* Verty. (*Ent. Rec.*, 1926: 171).

Vanessa cardui L. Common.

Aglais urticae L. Common and of a bright form.

Mesoacidalia charlotta Schiff. Common.

Argynnis lathonia L. One only seen and taken.

Mellitaea didyma Esp. Common. The females definitely of the *meridionalis* Stgr. form.

Agapetes galathea L. Common but very worn.

Lasiommata maera L. Common.

Satyrus bryce Hübn. (*cordula* Fab.). A single female taken.

Erebia neoridas Boisd. I took five males of this species and these seem referable to f. *nichocares* Frhst. I find the separation of this form from typical *neoridas* (of which I have a series I took at Vernet les Bains in the Pyrenees Orientales a few years ago) none too easy. Warren in his famous Monograph of the Genus *Erebia*, p. 344, states

that *nichocares* features are found among races of the typical *neoridas* and vice-versa. This agrees with my own observations. One point of difference not noted by Warren seems to be that the red banding on the underside of the fore-wings of *nichocares* is narrower and altogether more irregular in outline than in typical *neoridas*. But my series of both forms is not really big enough for me to feel quite sure that this character affords means of separation of the forms.

Agrodiaetus damon Schiff. Both sexes of this blue were abundant and in good condition.

Philotes baton Bergstr. A few very worn specimens of this species were seen.

Lysandra coridon Poda. Common but worn.

After the clouds had blocked the sun in the afternoon I spent some time searching rough herbage and in this way found a number of skippers at rest on the grass, etc. In this way I took *Thymelicus sylvestris* Poda, *Hesperia comma* L., *Pyrgus alveus* Hübn., *Pyrgus carlinae* Ramb., and *P. carthami* Hübn. Regarding the last-named Warren in his Monograph of the Tribe *Hesperiidi* (*Trans ent. Soc. Lond.*, **74**: 71) states that the latest date he has taken this species is 22nd August in the Rhone Valley. My specimen, a male in good condition, was taken on 29th August. I should perhaps add that the determination was checked by genitalia preparation and the appearance of my slide agrees well with the figure on Plate XV of Warren's Monograph.

On 30th August we crossed the Mont Cenis Pass into France. Just below the summit on the French side I stopped to take photographs and see if any butterflies were about. I took *Erebia euryale* Esp. very worn out; *Erebia epiphron* Knock., *Erebia tyndarus* Esp. and a single *Boloria pales* Schiff. Later we stopped for picnic lunch at lower altitude between Modane and Lansleburg. I did a little collecting in a rough field by the road. Quite a lot of interesting insects were in evidence including:— *Lysandra bellargus* Rott.: common, but not nearly so finely marked as those from Cavallino. *Plebeius icarus* Rott.: common. *Melitaea didyma* Esp.: common. One male taken was of extremely dark facies and approaching f. *graeca* Stgr.; *Colias callida* Verty.—a few taken; *Boloria pales* Schiff., frequent. One female appears to be *B. napeae* Hoffmsg. *Fabriciana niobe niobe* L. and *A. cydippe* L. both frequent. This was quite a useful list of insects in an hour especially as I was not feeling very energetic after a dose of unknown species and race of Italian abdominal virus the night before.

The only other collecting I did on this trip was again when we stopped for lunch, this time near Avallon, Yonne, France, in the foothills of the Mont. de Marvan. Here on 1st September on a rough hillside I found butterflies plentiful and quite interesting. The following species were noted:—

Erebia aethiops Esp. Common and in very fine condition. I took six males and two females and could have taken many more. These are of a large size and with very bright markings referable to ssp. *sapaudia* Frhst. The differences from the British form in size and markings are most marked. Perhaps a curious feature was the lateness of the date for such fresh specimens at no great altitude.

Clossiana dia L., common but worn. *Melitaea phoebe* W.V., a single fresh male only. *Pontia daplidice* L., common and fresh. *Lysandra coridon* Poda, many fine large fresh males. *Plebius icarus* Rott., common. *Heodes tityrus* Poda (*dorilis* Hufn.), males common but worn. A fine female taken. *Hesperia comma* L., frequent. *Satyrus dryas* Scop., common but worn to shreds. The most interesting species I took here was *Lycaenides idas* L. (*argyrognomen* auct.). I got only three males and two females but the latter are shot with a wonderful shade of blue against which background the yellow marginal spots of the hindwings stand out brilliantly.

So ended the collecting part of this most interesting holiday in which I was able to visit a number of localities. One now wishes to return to some of these for a more leisurely sampling of their most interesting lepidopterous fauna.

It might be pertinent to add here a note on a thorny subject—that of the nomenclature of the European butterflies. At the present time this seems to be in a state of chaos. There is a great need at the present time for a really up-to-date check list of the species and races of the region. More and more entomologists are now turning their footsteps to the European mainland for their holidays and the formation of even a small collection of Continental species is interesting and also help to put into perspective the native British fauna. To find a chaotic nomenclature is far from encouraging and any official list which could form a basis for operations would be most welcome. Not all collectors are placed near London where ready access to up-to-date nomenclature of museum collections is available, with the advantage also of ready access to libraries. I have noted that most writers of notes on collecting experiences on the Continent do not give references to literature consulted in making determinations. In the hope that it may be of help to those placed away from the centre of activities, like myself, I append a list of references to works that I have found more or less helpful when working out my own captures from 'foreign parts'. I give these, not from the point of view of the expert, but as another tyro so far as concerns European species and collecting.

REFERENCES

Le Cerf, F. Atlas des Lepidoptères de France. Nouvel Atlas D'Entomologie, No. 6, Fasc. 1. (1960.)

Graves, P. P. and Hemming, A. F. (1928). The Geographical Variation of *Lycaena virgaureae* L. *Entom.*, **LXI** : 25 et seq.

Higgins, L. G. (1941). An Illustrated Catalogue of Palaearctic *Melitaea*. *Trans. R. ent. Soc. Lond.*, **91** : 175-365.

Higgins, L. G. (1950). A Descriptive Catalogue of the Palaearctic *Euphydryas*. *Trans. R. ent. Soc. Lond.*, **101** : 437-489.

Higgins, L. G. (1955). A Descriptive Catalogue of the Genus *Mellicta* Billberg. *Trans. R. ent. Soc. Lond.*, **106** : 1-131.

Lang, H. C. (1884). Butterflies of Europe. Two Vols.

Murray, D. (1954). The Genera of the European *Lycaenidae*. *Entom.*, **87** : 4-11. (Curiously this paper makes reference to other works by authors names but fails to give list of references.)

Seitz, A. Macrolepidoptera of the World. Vol. 1 (1906) and Supplement to Vol. 1 (1929).

Verity, R. Le Farfalle Diurne D'Italia. Vols. I-V.

Verity, R. Numerous papers in *Entom. Record* detailing great details of geographical variation.

Warren, B. C. S. (1926). Monograph of the Tribe *Hesperiidi*, etc. *Trans. R. ent. Soc. Lond.*, **74** : 1-170.

Warren, B. C. S. (1936). Monograph of the Genus *Erebia*. B.M. publication. Also many other papers in the journals on this interesting genus.
Warren, B. C. S. (1944). Review of the Classification of *Argynnidi*, etc. *Trans. R. ent. Soc. Lond.*, **94** : 1-101.
Warren, B. C. S. (1953). Three Unrecognised Species of the Genus *Pyrgus*. *Entom.*, **86** : 90-103. Splits the 'alveus' group mainly on genitalia characters.
Wheeler, G. (1903). Butterflies of Switzerland and the Alps of Central Europe. A most useful handbook though the nomenclature is out of date.

Kendal. 24th January 1964.

New Synonymy in the Genus *Zygaena* Fabricius (Lepidoptera : Zygaenidae)

By Hugo Reiss and W. Gerald Tremewan

The preparation of a systematic catalogue of the genus *Zygaena* Fabricius has revealed new synonymy. It should be pointed out that many of the synonyms cited below were originally published by Burgeff (1926a; 1926b) and Reiss (1930; 1933) as new names to replace certain names that were considered by them to be junior, primary homonyms. These names, however, represent aberrations and have no status in nomenclature, and therefore cannot be preoccupied by names which are of subspecific or specific status. Similarly, names of specific or subspecific rank cannot be preoccupied by names of forms or aberrations.

During the course of our work, many junior, primary homonyms have come to hand and new names are proposed for these below.

It is not intended to discuss here the systematic arrangement of the species, subspecies, forms and aberrations. We have merely cited the new synonymy and proposed new names to replace junior, primary homonyms. It is not considered necessary to discuss the regrouping of species and subspecies as this will be shown in the systematic catalogue which, it is to be hoped, will be published in the near future.

It might be appropriate here to draw attention to the dates of publication of two works on the *Zygaena*. These are Spuler, *"Die Schmetterlinge Europas"*, Vol. 2, the *Zygaena* part of which has been incorrectly dated 1910 by earlier authors, and Seitz, *"Die Gross-Schmetterlinge der Erde"*, Vol. 2, which has also been dated 1910. The work of Spuler was published in parts, the dates of which are shown on the reverse side of the page entitled "Schlusswort". The parts on the *Zygaena* were published in 1906 and the "Nachtrag", which contains references to the *Zygaena*, in 1910. Spuler's "Die Raupen" was also published in 1910. The part on the *Zygaena* by Seitz was published in 1907 and evidence of this is supplied by Griffin (1936: 261), and also by Dziurzyński (1908: 17), who refers to Seitz under *Z. brizae* Esper ab. *cingulata* Seitz and dates the work 1907. Holik & Sheljuzhko (1956: 119) considered the date of publication to be 1908 but the citation of Dziurzyński proves this to be incorrect.

Z. laeta occidentissima Holik ab. **pseudomannerheimi** Burgeff

Z. laeta occidentissima Holik ab. *pseudomannerheimi* Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 41.

Z. laeta occidentissima Holik ab. *pseudoorientis* Holik, 1935, *Sborn ent. Odd. nár. Mus. Praze*, **13**: 57, 64, fig. 21 (**syn. nov.**).

Holik proposed the name *pseudoorientis* Holik to replace the name *pseudomannerheimi* Burgeff but, as the latter is not preoccupied, *pseudoorientis* Holik is an unnecessary replacement name and is placed as a synonym.

Z. purpuralis rosea Burgeff

Z. purpuralis rosea Burgeff, 1914, *Mitt. münch. ent. Ges.*, **5**: 44.

Z. purpuralis rosalis Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 14 (**syn. nov.**).

The name *rosalis* Burgeff, 1926, was proposed to replace the name *rosea* Burgeff, 1914. However, the latter name is not preoccupied by the earlier, infrasubspecific names of other authors. The name *rosalis* Burgeff, 1926, is an unnecessary replacement name and is now placed as a synonym of *rosea* Burgeff, 1914.

Z. purpuralis rebeli Drenowski

Z. purpuralis rebeli Drenowski, 1928, *Spis. blg. Akad.*, **27**: 211.

Z. purpuralis drenowskii Holik, 1937, *Mitt. münch. ent. Ges.*, **27**: 1 (**syn. nov.**).

Holik proposed the name *drenowskii* Holik to replace the name *rebeli* Drenowski, 1928, which he considered to be invalid, as the description was published in Bulgarian and was not accompanied by a Latin diagnosis. Holik considered the name *rebeli* Reiss, 1932 (ssp. of *graslini* Lederer) to be valid but this is a junior, primary homonym of *rebeli* Drenowski, 1928. A new name is proposed to replace *rebeli* Reiss later in this paper. The name *drenowskii* Holik, 1937, is an unnecessary replacement name and is now placed as a synonym of *rebeli* Drenowski, 1928, which is valid.

Z. purpuralis reissi Burgeff

Z. purpuralis reissi Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 13.

Z. purpuralis reissiana Burgeff, 1926, in Strand, *Lepid. Cat.*, **33**: 8 (**syn. nov.**).

Burgeff proposed the name *reissiana* Burgeff, 1926, to replace the name *reissi* Burgeff, 1926, as he considered the latter to be preoccupied by *reissi* Stauder, 1922 (ab. of *oxytropis* Boisduval). As *reissi* Stauder has no status in nomenclature, the name *reissi* Burgeff, 1926, is valid and *reissiana* Burgeff, 1926, being an unnecessary replacement name, is placed as a synonym.

Z. felix felix Oberthür

Z. felix felix Oberthür, 1876, Études d'Entomologie, **1**: 36; 1878, *ibidem*, **3**: 41, pl. 5, fig. 4.

Z. eudaemon Mabille, 1885, *Bull. Soc. philom. Paris* (7) **9**: 57.

Z. felix andalusiae Burgeff, 1914, *Mitt. münch. ent. Ges.*, **5**: 53 (**syn. nov.**).

Burgeff described, from a series of specimens purported to have been taken in Andalusia by Korb, a subspecies of *felix* Oberthür under the name *andalusiae* Burgeff. There are no authentic records of the species occurring in Andalusia and we originally suspected that the specimens might prove to be the closely allied species *beatrix* Przegendza (*felix auctorum*) from west Algeria and Morocco. Prof. Burgeff, however, has very kindly supplied us with a photograph of the type series and the genitalia of the type ♂ in his collection. The genitalia agree with those of the true *felix* Oberthür and the photograph shows typical specimens

of the nominate subspecies. We therefore consider that the type series of *andalusiae* Burgeff originated from east Algeria and we place the name as a synonym of *felix felix* Oberthür.

Z. felix constantinensis nom. nov.

Z. felix faustula Reiss, 1933, in Seitz, Die Gross-Schmetterlinge der Erde, Supplement, **2**: 272 (preoccupied).

Z. felix Oberthür ab. *faustula* Staudinger, 1887, *Berl. ent. Z.*, **31**: 37 (infrasubspecific).

Staudinger originally described *faustula* Staudinger as an aberration. In 1933, Reiss quite justifiably raised the name to subspecific status and, according to the Rules of Nomenclature, the subspecific name *faustula* should date from 1933 and be attributed to that author and not to Staudinger. However, *faustula* Reiss, 1933, is a junior, primary homonym of *faustula* Rambur, 1866 (=*fausta genevensis* Millière, 1861). We propose the name **constantinensis nom. nov.** to replace the name *faustula* Reiss, 1933. The name *faustula* Staudinger, 1887, being infrasubspecific, has no status in nomenclature but, for convenience, is placed in synonymy under *constantinensis* nom. nov.

Z. cocandica cocandica Erschoff ab. **fumosa ab. nov.**

We propose naming the melanic aberration of *cocandica* Erschoff, figured by Burgeff (1906: 161, fig. 2; 1914: 52, pl. 6, fig. 54), ab. **fumosa ab. nov.** The specimen has spots 3, 4, 5 and 6 darkened with black scales. Type ♂ in H. Burgeff collection.

Z. algira algira Boisduval ab. **barraguei nom. nov.**

Z. algira algira Boisduval ab. *aurantiaca* Barragué, 1961, *Alexanor*, **2**: 135, 136 (preoccupied).

The name *aurantiaca* Barragué, 1961, is preoccupied by *aurantiaca* Holl, 1912 (ab. of *algira algira* Boisduval). The former is a true, genetical, orange aberration while the latter is merely tinged with orange in places and is probably only a pathological form. Mr. G. Barragué (*in lit.*) has agreed that we should re-name the genetical, orange form described by him. We propose the name **barraguei nom. nov.** to replace the name *aurantiaca* Barragué, 1961.

Z. algira exigua Rothschild

Z. algira exigua Rothschild, 1917, *Novit. zool.*, **24**: 340.

Z. algira Boisduval ab. *exigua* Seitz, 1907, Die Gross-Schmetterlinge der Erde, **2**: 29, pl. 8a (infrasubspecific).

Seitz originally described *exigua* Seitz as an aberration of *algira* Boisduval, but Rothschild, recognising it as a subspecies, raised it to subspecific rank in 1917. According to the Rules of Nomenclature, the subspecific name *exigua* should be attributed to Rothschild and date from 1917. The infrasubspecific name *exigua* Seitz, 1907, is placed, for convenience, in synonymy under *exigua* Rothschild, 1917. Rothschild cited as type localities, Batna, Lambessa and Khenchela, Algeria.

Z. fausta oranoides de Sagarra ab. **disjuncta** de Sagarra

Z. fausta oranoides de Sagarra ab. *disjuncta* de Sagarra, 1925, *Butll. Inst. catal. Hist. nat.* (2) **5**: 274.

Z. fausta oranoides de Sagarra ab. *sagarrai* Reiss, 1930, in Seitz, Die Gross-Schmetterlinge der Erde, Supplement, **2**: 25 (**syn. nov.**).

The name *sagarrai* Reiss was proposed to replace the name *disjuncta* de Sagarra, 1925, but the latter is not preoccupied by *Z. occitanica disiuncta* Spuler, 1906. The name *sagarrai* Reiss, 1930 is an unnecessary replacement name and is now placed as a synonym of *disjuncta* de Sagarra, 1925.

Z. carniolica onobrychis Denis & Schiffermüller ab. **nigra** Reiss

Z. carniolica onobrychis Denis & Schiffermüller ab. *nigra* Reiss, 1926, *Int. ent. Z.*, **20**: 217.

Z. carniolica onobrychis Denis & Schiffermüller ab. *totanigra* Reiss, 1930, in Seitz, Die Gross-Schmetterlinge der Erde, Supplement, **2**: 30, pl. 3d (**syn. nov.**).

The name *nigra* Reiss, 1926, is not preoccupied and *totanigra* Reiss, 1930, is an unnecessary replacement name and is placed as a synonym.

Z. carniolica formidacola nom. nov.

Anthrocera carniolica magnaustralis Verity, 1946, *Redia*, **31**:66 (preoccupied).

The name *magnaustralis* Verity, 1946, is a junior secondary hononym of *Z. trifolii magnaustralis* verity, 1926. We propose the name **formiacola nom. nov.** to replace the name *magnaustralis* Verity, 1946.

Z. carniolica sagarraiana nom. nov.

Z. carniolica catalonica de Sagarra, 1940, *VI Congr. int. Ent., Madrid*, p. 392 (preoccupied).

We propose the name **sagarraiana nom. nov.** to replace the name *catalonica* de Sagarra, 1940, which is preoccupied by *Z. hilaris catalonica* de Sagarra, 1924.

Z. carniolica gaumaisiensis Holik

Z. carniolica gaumaisiensis Holik, 1936, *Lambillionea*, **36**: 182.

Z. carniolica Scopoli ab. *torgniensis* Lambillion, 1909, *Rev. Soc. ent. namur.*, **9**: 75 (infrasubspecific).

Holik attributed the names ab. *dissociata* Lambillion, ab. *albilunaris* Lambillion, ab. *adunata* Lambillion, ab. *rubricostata* Lambillion, ab. *faustoides* Lambillion, ab. *flavicostata* Lambillion and ab. *torgniensis* Lambillion to Cabeau. These names were originally manuscript names of Cabeau, but should be attributed to Lambillion who first published them in 1909. The name *torgniensis* Lambillion represents the typical form, but being infrasubspecific, has no status in nomenclature and, for convenience, is placed in synonymy under *gaumaisiensis* Holik.

Z. carniolica berolinensis Lederer

Z. carniolica berolinensis Lederer, 1853, *Verh. zool.-bot. Ver. Wien*, **2**: 102.

Z. carniolica berolinensis Staudinger, 1871, in Staudinger & Wocke, Catalog der Lepidopteren des Europaeischen Faunengebiets, p. 49 (**syn. nov.**).

This subspecies of *carniolica* Scopoli from the neighbourhood of Berlin was first described by Lederer as ssp. *berolinensis* Lederer in 1853. In 1871, Staudinger described the same subspecies as *berolinensis* Staudinger which, in addition to being synonymous, is also a junior, primary homonym.

Z. exulans apennina Rebel

Z. exulans apennina Rebel, 1910, *Verh. zool.-bot. Ges. Wien*, **60**: (5).

Z. exulans abruzzina Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 25 (**syn. nov.**).

The name *apennina* Rebel, 1910, is valid and is not preoccupied by the earlier, infrasubspecific names of other authors. The name *abruzzina* Burgeff, 1926, is an unnecessary replacement name and is therefore placed as a synonym of *apennina* Rebel, 1910.

Z. loti ligustica Rocci ab. **latomarginata** Rocci

Z. loti ligustica Rocci ab. *latomarginata* Rocci, 1915, *Atti Soc. ligust. Sci. nat. geogr.*, **25**: 112, pl. 1, figs. 6b, 10c, 11c.

Z. loti ligustica Rocci ab. *latemarginata* Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 36 (**syn. nov.**).

The name *latomarginata* Rocci, 1915, is not preoccupied by *latomarginata* Tutt, 1899 (f. of *lonicerae transferens* Verity) as both names have no status in nomenclature and are infrasubspecific. The name *latemarginata* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *latomarginata* Rocci, 1915.

Z. loti ligustica Rocci ab. **diaphana** Rocci

Z. loti ligustica Rocci ab. *diaphana* Rocci, 1915, *Atti Soc. ligust. Sci. nat. geogr.*, **25**: 115.

Z. loti ligustica Rocci ab. *translucens* Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 36 (**syn. nov.**).

Burgeff proposed the name *translucens* Burgeff, 1926, to replace the name *diaphana* Rocci, 1915, but the latter is not preoccupied by the species name *diaphana* Staudinger, 1887. The name *translucens* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *diaphana* Rocci, 1915.

Z. loti ruberrima Verity

Z. loti ruberrima Verity, 1920, *Boll. Lab. Zool. Portici*, **14**: 37.

Z. loti maximerubra Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 33 (**syn. nov.**).

The subspecific name *ruberrima* Verity, 1920, is not preoccupied by the earlier, infrasubspecific names of other authors and the name *maximerubra* Burgeff, 1926, is an unnecessary replacement name and is now placed as a synonym of *ruberrima* Verity, 1920.

Z. loti achilleae Esper ab. **grisea** Reiss

Z. loti achilleae Esper ab. *grisea* Reiss, 1922, *Int. ent. Z.*, **16**: 84.

Z. loti achilleae Esper ab. *flavogrisea* Burgeff, 1926, in Strand, *Lepid. Cat.*, **33**: 21 (**syn. nov.**).

The name *grisea* Reiss, 1922, is infrasubspecific and has no status in nomenclature. It is therefore not preoccupied by *Z. rhadamanthus grisea* Oberthür, 1909. The name *flavogrisea* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *grisea* Reiss, 1922.

Z. graslini rebeliana nom. nov.

Z. graslini rebeli Reiss, 1932, *Int. ent. Z.*, **26**: 275, figs. (preoccupied).

We propose the name **rebeliana nom. nov.** to replace the name *rebeli*

Reiss, 1932, which is a junior, primary homonym of *Z. purpuralis rebeli* Drenowski, 1928.

Z. ephialtes ephialtes Linné f. **trigonelloides nom. nov.**

Z. ephialtes ephialtes Linné f. *quinquemaculata* Vorbrodt, 1913, in Vorbrodt & Müller-Rutz, Die Schmetterlinge der Schweiz, **2**: 276 (preoccupied).

Z. ephialtes ephialtes Linné f. *unipunctata* Vorbrodt, 1913, in Vorbrodt & Müller-Rutz, Die Schmetterlinge der Schweiz, **2**: 276 (preoccupied).

We propose the name **trigonelloides nom. nov.** to replace the names *quinquemaculata* Vorbrodt, 1913, and *unipunctata* Vorbrodt, 1913. The former is preoccupied by *quinquemaculata* Vorbrodt, 1913 (=*Z. ephialtes ephialtes* Linné f. *aemilii* Favre, 1897) while the latter is preoccupied by *unipunctata* Vorbrodt, 1913 (=*Z. ephialtes ephialtes* Linné).

Z. ephialtes slabyi nom. nov.

Z. ephialtes montana Slabý, 1953, *Acta Mus. Silesiae*, **3** (A):46, figs. C3, D1 (preoccupied).

We propose the name **slabyi nom. nov.** to replace the name *montana* Slabý, 1953, which is a junior, primary homonym of *Z. loyselis montana* Rothschild, 1925.

Z. transalpina intermedia Rocci

Z. transalpina intermedia Rocci, 1914, *Atti Soc. ligust. Sci. nat. geogr.*, **24**: 115.

Z. transalpina interjacens Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 74 (**syn. nov.**).

Burgeff proposed the name *interjacens* Burgeff to replace the subspecific name *intermedia* Rocci, 1914. However, *intermedia* Rocci is valid and is not preoccupied by the earlier, infrasubspecific names of other authors. The name *interjacens* Burgeff, 1926, is an unnecessary replacement name and is therefore synonymous with *intermedia* Rocci, 1914.

Z. transalpina maritima Oberthür ab. **trimaculata** Oberthür

Z. transalpina maritima Oberthür ab. *trimaculata* Oberthür, 1909, Études de Lépidoptérologie comparée, **3**, pl. 30, fig. 189.

Z. transalpina maritima Oberthür ab. *trimacula* Reiss, 1930, in Seitz, Die Gross-Schmetterlinge der Erde, Supplement, **2**: 39 (**syn. nov.**).

The name *trimaculata* Oberthür, 1909, is not preoccupied and *trimacula* Reiss, 1930, is an unnecessary replacement name and is placed in synonymy.

Z. transalpina bavarica Burgeff

Z. transalpina bavarica Burgeff, 1921, *Mitt. münch. ent. Ges.*, **11**: 102.

Z. transalpina boica Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 80 (**syn. nov.**).

The subspecific name *bavarica* Burgeff, 1921, is valid and is not preoccupied by *bavarica* Burgeff, 1914, which is the name of a hybrid and, being infrasubspecific, has no status in nomenclature, The name *boica* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *bavarica* Burgeff, 1921.

Z. hippocrepidis jurassica Burgeff

Z. hippocrepidis jurassica Burgeff, 1914, *Mitt. münch. ent. Ges.*, **5**: 65,

pl. 2, figs. 186, 187, pl. 4, figs. 124-128.

Z. hippocrepidis jurassicola Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 82 (**syn. nov.**).

The subspecific name *jurassica* Burgeff, 1914, is valid and is not preoccupied by *jurassica* Blachier, 1905, which is infrasubspecific. The name *jurassicola* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *jurassica* Burgeff, 1914.

Z. elegans Burgeff ab. **burgeffi nom. nov.**

Z. elegans Burgeff ab. *confluens* Burgeff, 1926, *Mitt. münch. ent. Ges.* **16**:83 (preoccupied).

The name *confluens* Burgeff, 1926, is preoccupied by *confluens* Reiss, 1925 (=*Z. elegans* Burgeff ab. *splendida* Reiss, 1920). We propose the name **burgeffi nom. nov.** to replace the name *confluens* Burgeff, 1926.

Z. viciae nigrescens Reiss

Z. viciae nigrescens Reiss, 1921, *Int. ent. Z.*, **15**: 118.

Z. viciae nigrina Burgeff, 1926, in Strand, *Lepid. Cat.*, **33**: 49 (**syn. nov.**).

The subspecific name *nigrescens* Reiss, 1921, is valid and is not preoccupied by the name *nigrescens* Rocci, 1914, which is infrasubspecific. The name *nigrina* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *nigrescens* Reiss, 1921.

Z. trifolii caerulescens Burgeff

Z. trifolii caerulescens Burgeff, 1914, *Mitt. münch. ent. Ges.*, **5**: 62.

Z. trifolii Esper ab. *caerulescens* Oberthür, 1910, Études de Lépidoptérologie comparée, **4**: 493 (infrasubspecific).

From the Sierra de Alfacar, Oberthür described specimens of *trifolii* Esper, which he named ab. *caerulescens* Oberthür. In 1914, Burgeff recognised the Sierra de Alfacar populations as a subspecies and raised the name *caerulescens* to subspecific rank. According to the Rules of Nomenclature, the subspecific name *caerulescens* should be attributed to Burgeff and date from 1914. Tremewan (1961: 7) incorrectly attributed the subspecific name *caerulescens* to Reiss (1936: 90), not realising that the status had been previously raised to subspecific rank by Burgeff in 1914.

Z. lonicerae lonicerae Scheven ab. **diaphana** Burgeff

Z. lonicerae lonicerae Scheven ab. diaphana Burgeff, 1906, *Ent. Z.*, **20**: 163, fig. 10.

Z. lonicerae lonicerae Scheven ab. *translucens* Burgeff, 1926, *Mitt. münch. ent. Ges.*, **16**: 70 (**syn. nov.**).

The infrasubspecific name *diaphana* Burgeff, 1906, is not preoccupied by the species name *diaphana* Staudinger, 1887, and the name *translucens* Burgeff, 1926, is an unnecessary replacement name and is placed as a synonym of *diaphana* Burgeff, 1906.

REFERENCES

Burgeff, H., 1906, Ueber einige neue oder wenig bekannte Zygaenenforme. *Ent. Z.*, **20**: 153-154, 161-163, figs. 1-10.

———, 1914, Kommentar zum paläarktischen Teil der Gattung Zygaena des von Chr. Aurivillius und H. Wagner herausgegebenen Catalogus Lepidopterorum. *Mitt. münch. ent. Ges.*, **5**: 35-70, pls. 2-6, figs.

———, 1926a, Kommentar zum palaearktischen Teil der Gattung Zygaena Fab.

des früher von Chr. Aurivillius und H. Wagner, jetzt von E. Strand herausgegebenen Lepidopterorum Catalogus. *Mitt. münch. ent. Ges.*, **16** : 1-86.

———, 1926b, in Strand, *Lepid. Cat.*, **33** : 1-91.

Dziurzyński, C., 1908, Die palaearktischen Arten der Gattung *Zygaena* F. *Berl. ent. Z.*, **53** : 1-60, pls. 1-2, figs. 1-22.

Griffin, F. J., 1936, The contents of the parts and the dates of appearance of Seitz' *Grossschmetterlinge der Erde* (the Macrolepidoptera of the World), Lieferungen 1 to 130 Palaearctic and 1 to 575 Exotic. Vols. 1 to 16, 1907-1935. *Trans. ent. Soc. Lond.*, **85** : 243-279.

Holik, O. & Sheljuzhko, L., 1956, Über die Zygaenen-Fauna Osteuropas, Kleinasiens, Irans, Zentralasiens und Sibiriens. *Mitt. münch. ent. Ges.*, **46** : 93-239.

Reiss, H., 1930, in Seitz, Die Gross-Schmetterlinge der Erde, Supplement, **2** : 1-50, pl. 1-4.

———, 1933, *ibidem*, Supplement, **2** : 249-278, pl. 16.

———, 1936, Neue Bausteine zur Zygaenenfauna der Pyrenäenhalbinsel. *Ent. Rdsch.*, **54** : 28-30, 57-60, 71-76, 88-92, pl. 2, figs.

Tremewan, W. G., 1961, Notes on *Zygaena* Species, with descriptions of New Subspecies from Spain (Lepidoptera, Zygaenidae). *Ent. Rec.*, **73** : 1-8.

Orthoptera Notes from S.W. Britain, 1963

By J. F. Burton, F.R.E.S., F.Z.S.
(B.B.C. Natural History Unit)

I have decided in this paper to give the recently standardized and now generally accepted English names of the British Orthoptera (*q.v.*, Kevan, 1952, 1961) together with the scientific ones, on each occasion a species is mentioned for the first time. Thereafter, the scientific name only will be used. I feel justified in following this course, as these English names are to be used in Dr. D. R. Ragge's forthcoming book on the British Orthoptera in the "Wayside and Woodland" series.

Tettigonia viridissima L. (Great Green Bush-cricket)

On 14th September, Michael Kendall and I found this species very common in several places in north Somerset. It was to be heard stridulating in great numbers in the roadside hedgerows and fields all along the road over the Mendip Hills from Cheddar via Shipham to Churchill. It was also met with in profusion on the Somerset Levels at Ashcott, Buscott and Shapwick. A male from Ashcott which I released in my garden at Pill on 15th September immediately ate a blade of grass and then climbed a bramble bush and consumed a ripe blackberry, tearing the skin with its mandibles and imbibing the juice.

Pholidoptera griseoaptera (De Geer) (Dark Bush-cricket)

The south-west of England is a real stronghold of this species and I again found it in abundance in many parts of north Somerset, including Pill, Portishead, Ashton Park (near Bristol), Failand, Cheddar, Churchill, Shipham, Ashcott, Buscott and Shapwick. In Gloucestershire, it is abundant at Shirehampton and along the cliff-tops of the Avon Gorge at Clifton and Durdham Downs.

In spite of the long and severe winter, I found the first very small nymph, at Pill, on 12th May, compared with 13th May in 1962. I heard the first adults stridulating on 5th August and the last on 5th November.

Conocephalus dorsalis (Latr.) (Short-winged Conehead).

On 14th September, Michael Kendall and I found this beautiful, active

little bush-cricket in great abundance in the Somerset Levels at Meare, Ashcott and Shapwick Heaths. At Meare we found it in association with *Stethophyma grossum* (L.) in a habitat comprising a mixture of wet fen and quite dry peat bog with great reed grass (*Glyceria maxima* (Hartman) Holmberg, red rattle (*Pedicularis palustris* L.) and purple loosestrife (*Lythrum salicaria* L.) dominant in the wetter parts. In another part of Meare Heath it occurred in a very wet boggy field and here we caught a fine female of the macropterous form *burri* Ebner, which I later presented to the British Museum (Natural History). The habitat at Shapwick Heath consisted of rather dry bog with sphagnum moss (*Sphagnum* spp.), cross-leaved heath (*Erica tetralix* L.) and bog myrtle (*Myrica gale* L.) dominant. We reached this locality around 6.00 p.m. B.S.T., and discovered both *S. grossum* and *C. dorsalis* congregating in the evening sunshine on the foliage of the big clumps of bog myrtle.

Mr. J. Cowley (1949 and *in. litt.*,) has also encountered *dorsalis* in this neighbourhood, namely at Street Heath (1945-48), Shapwick Heath (1952), Catcott Heath (1947 and 1950), Westhay Moor, Meare (1954), Walton Moor (1955) and Edington Moor (1947), as well as at Berrow (1949) and Clevedon (1952).

Leptophyes punctatissima (Bosc.,) (Speckled Bush-cricket).

On 7th July, I found an immature male on Canterbury Bells in my garden at Pill, N.W. Somerset, and several adult males and a female on Wild Hop (*Humulus lupulus* L.) and Traveller's Joy (*Clematis vitalba* L.) growing on the cliff-tops of the Avon Gorge at Clifton Down, Gloucestershire.

Acheta domesticus (L.) (House Cricket).

I heard this species stridulating at the Ashton Court Country Club, near Failand, Somerset, while attending a dance there one evening in late July.

Tetrix subulata (L.) (Slender Ground-hopper).

I collected a male from a grassy drove at Meare Heath, Somerset, on 14th September. This species has also been reported by Cowley (1949 and *in litt.*) from several neighbouring localities in the Somerset Levels.

Stethophyma grossum (L.) (Large Marsh Grasshopper).

This fine insect, the largest British Acridid, has been reported from the Somerset Levels by Walton (1944), who found a nymph near Shapwick, and by Cowley (1949), who discovered it in numbers at Catcott Heath in August 1947 and at Street Heath in September 1947. Subsequently he encountered it (personal communication) at Shapwick Heath in August, 1950 and July, 1952, and at Westhay Moor, near Meare, in August, 1954 and 1957. He also saw it again on Catcott and Street Heaths in the years 1948-1950.

On 14th September, a beautifully hot and sunny day, Michael Kendall and I decided to look for it ourselves and decided from a scrutiny of the 1" O.S. map that Meare Heath was a likely looking locality. We arrived by car soon after 1 p.m. and on getting out of the car, I immediately heard *S. grossum* stridulating from the boggy ground on both sides of the road. As already mentioned under the notes on *C. dorsalis*, the habitat consisted of a mixture of wet fen and quite dry peat bog. It was very plentiful here and I collected five males and four females in a very short time. Two pairs of these I sent to Dr. Ragge of the British Museum (Natural History) for the National Collection. I saw two females of the beautiful rose-

coloured form, one of which I managed to catch and included among the specimens I sent to Dr. Ragge.

Further south along the road over Meare Heath, we found both *grossum* and *Conocephalus dorsalis* very common in a boggy piece of pasture, which we learned from the owner was eventually to be sold and ploughed up. At Ashcott Heath, we came upon an adult male *grossum* in the marshy border of a meadow, but failed to find the species in apparently suitable areas just south-west of Buscott. We reached the western part of Shapwick Heath around 6 p.m. and, as already mentioned under *C. dorsalis*, we found it commonly on rather dry bog.

This habitat was in the process of being invaded by alder carr and, presumably, will eventually become drier still and therefore unfavourable to *grossum*, unless something is done by the Nature Conservancy, whose reserve it is, to reduce the alder growth. However, it was reassuring to discover that this magnificent insect is still well established and apparently in no immediate danger in this part of Somerset.

Omocestus viridulus (L.) (Common Green Grasshopper).

This species was plentiful in rough limestone turf at Failand Golf Course together with *Chorthippus parallelus* (Zett.) on 12th September. On the 14th I noted it stridulating at Meare and Ashcott Heaths.

On 6th August, my secretary, Miss Sheila McCarthy, gave me some live grasshoppers which she collected amongst bilberry (*Vaccininum myrtillus* L.) at 2,000 ft., on Twyn Tal-y-cefn, Breconshire, while camping at Capel-y-ffin the previous weekend (3rd-5th August). These proved to be two adults (male and female) of this species and three immature females of *Ch. parallelus*. The *viridulus* were the same rich green colour as those I collected on the adjacent mountains in August, 1948 (Burton, 1959).

Chorthippus brunneus (Thunb.) (Common Field Grasshopper).

In Gloucestershire in 1963 I noted *brunneus* commonly on the limestone turf of Clifton Down, near Bristol, and in North Somerset at Pill, Ashton Park, Failand, and in the drier parts of Meare Heath. I encountered the first adults on 5th August.

Ch. parallelus (Zett.), (Meadow Grasshopper).

This year *parallelus* was abundant in many parts of north Somerset including Pill, Portishead, Ashton Park, Failand, Abbot's Leigh, Cheddar, Wedmore, Meare, Shapwick and Ashcott. I did not find the first adults until 5th August at Pill, whereas I first noticed them in mid-June in 1961, and at the end of the first week of July in 1962 (Burton, 1963). The last ones of the year I saw at Pill on 19th October.

I have already referred under *Omocestus viridulus* to the specimens of *parallelus* brought me from Twyn Tal-y-cefn mountain, Breconshire, by my secretary in August.

REFERENCES

Burton, J. F. 1959. Notes on Orthoptera for 1958 from Breconshire, Kent and Oxfordshire. *Ent. Rec.*, **71** : 76-77.

Burton, J. F. 1963. Orthoptera Notes, 1961-62 with some casual observations on Lepidoptera. *Ent. Rec.*, **75** : 142-47.

Cowley, J. 1949. Orthoptera from Somerset. *J. Soc. Brit. Ent.*, **3** : 46-47.

Kevan, D. K. McE. 1952. A summary of the Recorded Distributon of British Orthopteroids. *Trans. Soc. Brit. Ent.*, **11** : 165-80.

———. 1963. A Revised Summary of the Known Distribution of British Orthopteroids. *Trans. Soc. Brit. Ent.*, **14** : 187-205.

Walton, G. A. 1944. *Mecostethus grossus* (L.) and *Chorthippus bicolor* (Charp.) (Orthop.) in Somerset. *J. Soc. Brit. Ent.*, **2** : 185.

Ant Records and Observations

By K. E. J. Barrett

Details of some records which have been incorporated in a forthcoming chart of the vice-county distribution of British ants assembled in collaboration with Mr. C. A. Collingwood are described here together with other general notes and observations. The following species have been recorded over the past few years:—

Strongylognathus testaceus Sch. Studland, Dorset, 1952 (with *Tetramorium caespitum* Latr.).

Tetramorium caespitum Latr. Headon Warren, Isle of Wight, 1962; Matley, Ridley Plain and Clay Hill, New Forest, S. Hants, 1962-3; The Warren, Bordon, N. Hants, 1963; Kettlebury Hill, near Thursley, Rodborough Hill, near Milford, Frensham Common and Horsell Common, Surrey, 1962-3; neither the author nor A. J. Pontin (private communication, 1963) have been able to confirm the Tubney record, 1912, for Berkshire (Donisthorpe, 1927).

Myrmecina graminicola Latr. Goblin Combe, Congresbury, N. Somerset, 1961 (with C. A. Collingwood).

Leptothorax acevorum Fab. Records (1961-3) from the Isle of Wight, S. Hants, N. Hants, N. Somerset, W. Sussex, E. Sussex, Surrey, Berks., Bucks, Oxon, Bedford, and for Carnarvon (1955), Cheshire (1955), Flint (1956), Derby (1955) and S. Lancs. (1954).

Leptothorax nylanderi Först. Great Hazes, near Twyford, Berks., 1962.

Leptothorax interruptus Sch. Rhinefield, New Forest, S. Hants, 1957 (a number of *Myrmica sulcinodis* Nyl. and *Tetramorium caespitum* Latr. colonies also occurred in the area).

Myrmica sabuleti Mein. Records (1961-3) for the Isle of Wight, N. Somerset, S. Hants, N. Hants, Berks. (one nest under the bark of a fir-stump in a wood near Hatford, an unusual nest-site for this species; an ergatandromorph was found on a railway embankment near Ruscombe), Oxon, Surrey, Bucks., W. Sussex, E. Sussex and for Carnarvon (1955), Merioneth (1956), Montgomery (1956), Flint (1956), Cheshire (1955) and Derby (1955).

Myrmica lobicornis Nyl. Heckfield Heath, N. Hants, 1962; Burghfield, Berks., 1951 (pterergates of *Myrmica scabrinodis* Nyl. were also found here); Frimley, Surrey, 1962; Welshpool, Montgomery (1956); Hebden Bridge, S.W. Yorks. (1956).

Myrmica schencki Em. The nests seen at Shipton on Cherwell, Oxon, in 1962 (Barrett, 1963a) were still there in 1963; root-aphids were present in one nest.

C. A. Collingwood (private communication, 1963) also found it at Coombe Halt, Oxon, in 1963. There are now four reported sites in the small area (Ordnance Survey 10 Kilometre Square, SP41) to the north of Oxford on the Cornbrash formation which also extends widely from Dorset to Yorkshire and which may indicate other areas in which this rather local species might occur. The records for Barnack, Northants., and for Wilsford, S. Lincoln (Collingwood,

1958) appear to be on or near this formation.

Lasius fuliginosus Latr. Horsell Common and Frimley, Surrey, 1962; Tubney and Bagley Wood, near Oxford, Berks., 1951-1962; Charndon, Bucks., 1963 (nest under the masonry of a railway bridge away from trees).

Lasius rabaudi Bond. A single male was found at Easthampstead Wood, near Bracknell, Berks., 1962.

Lasius umbratus Nyl. Rhinefield, New Forest, S. Hants, 1957; Frensham Common and Rodborough Hill, Surrey, 1962; Tubney and Windsor, Berks., 1963.

Lasius mixtus Nyl. Goblin Combe, N. Somerset, 1961; Windsor Great Park, Surrey (deälated female, October) 1962; Southport, S. Lancs., 1954.

Lasius brunneus Latr. Watereaton Copse, Oxon, 1955; Windsor Great Park, Berks., 1962; Langley Park, Bucks., 1962—all confirmations of previously recorded localities.

Lasius alienus Först. Studland, Dorset, 1952; Headon Warren and Arreton Down, Isle of Wight, 1962; Matley, New Forest, S. Hants, 1957; Goblin Combe, N. Somerset, 1961; Wisley Common, Horsell Common and Oxshott Heath, 1962, Kettlebury Hill, and Rodborough Hill, Surrey, 1963; Sullington Warren, W. Sussex, 1963.

Tapinoma erraticum Latr. Studland, Dorset, 1952; Rhinefield, New Forest, S. Hants, 1957.

Formica sanguinea Latr. Detailed records including localities in W. Sussex, 1963, a new vice-county record have been described elsewhere (Barrett, 1964).

Formica exsecta Nyl. This species was recorded from Parkhurst Forest, Isle of Wight, 1907-1913 (Yarrow, 1954) and was subsequently described as common there (Jeffery, 1931). S. Wakely (J. Lobb, private communication, 1963) states that Jeffery's site is now occupied by a factory. The species could not be found by the author during several visits to the Forest in 1962.

Formica rufa L. This species has been found or confirmed in the following localities in recent years: Goblin Combe, N. Somerset, 1961. Parkhurst Forest and Firestone Copse, Isle of Wight, 1962. Norley Inclosure, Broomy Inclosure, Milkham Inclosure, Slufter's Inclosure and Buskett's Wood, New Forest, and near Ampfield, S. Hants, 1963. Fleet and Bramshill, N. Hants, 1963. Langley and Cold Harbour Wood, Rake, W. Sussex, 1963. Five Hundred Acre Wood, Crowborough; Abbot's Wood, Hailsham (nests on old oak stumps in dense undergrowth on clay); Tilsmore Wood, Cross in Hand; Jews Wood, Tunbridge Wells; Creep Wood, Battle; Guestling Wood, Hastings (known here as the "soldier-ant") and Bixley Wood, Beckley (pseudogynes were present in one nest), E. Sussex, 1963. Frith Hill; Frimley (alate females were still present in one nest in August, 1962); Ockham Common; Oxshott Heath; Blackheath and Winterfold Heath, Guildford, 1962; Tilford, Surrey, 1963. Caesar's Camp and Easthampstead Wood; Great Hazes, Berks., 1962. Formerly abundant at Tubney, Berks. (1951-1955) but by 1962 the woodland had become much overgrown and had disappeared from the locality. A few colonies remain at Triangle Plantation, Tubney (A. J. Pontin, private communication, 1962). Burnham Beeches, Bucks., 1961-1963 (three examples of nests 6-8 ft. up in dead trees, a habit previously described

by Richards (1958) at Oxshott, Surrey, have been seen here). First found at Shabbington Wood, Bucks., by A. J. Pontin (private communication, 1962) a few colonies were also present nearby at York's Wood, 1962.

The author is grateful to the following who have supplied specimens for identification from Holne Bridge, Ashburton, S. Devon (F. W. Pexton, 1963); Birchden Wood, Groombridge (P. G. Osborn, 1963) and High Woods, Bexhill (J. P. Hodgkinson, 1963), E. Sussex; Joyden's Wood, Bexley Heath (W. D. Roberts, 1963), Oldbury and Bedgebury Park Woods (Miss S. Cloke, 1961), W. Kent; Hockley, S. Essex (R. Lambourne, 1963); Burleigh, Ascot, Berks. (A. J. Backhouse, 1962).

Many of the localities listed by Nelmes (1938) and by Yarrow (1955) still require confirmation. The author would welcome details of any new records or recent confirmations (year and map reference, if possible) of this species.

Formica nigricans Em. Guernsey, Channel Islands, 1961 (Miss S. Cloke).

Formica cunicularia Latr. Studland, Dorset, 1952; Beaulieu Road and Ogden's Purlieu, New Forest, S. Hants, 1963.

Formica rufibarbis Fab. A further nest of this rare species was found in a turf mound in June 1963, some 200 yards away from the nest at Ship Hill, Chobham Common, found in 1962 (Barrett, 1963). The latter nest was still flourishing and had reared sexuals. The following are the nest sites which are now known at Chobham Common —Staple Hill (1), Ship Hill (2), Longcross Halt (1). The nest at Longcross was found by A. J. Pontin (1960) and was still present in 1963. A single nest is also known at Oxshott Common (Pontin, 1960) and has also been seen again in 1963 (A. J. Pontin, private communication). No recent confirmations have been obtained from other recorded sites in Surrey—Reigate, 1905, Ripley, 1908, and Weybridge, 1937 (Yarrow, 1954).

The following introduced species have been found in heated buildings:— *Monomorium pharaonis* L. Reptile House, Belle Vue Zoo, Manchester, 1953; *Tetramorium simillimum* Smith and *Paratrechina longicornis* Latr. Kew Gardens, Surrey, 1953. The author is grateful to Mr. C. A. Collingwood for the identification of one of these species.

REFERENCES

Barrett, K. E. J., 1963. Ants from the Chobham Common Area of Surrey. *Ent. Rec.*, **75** : 29-30.

———, 1963a. *Myrmica schencki* Em. in Surrey and Oxfordshire. *Entomologist*, **96** : 82.

———, 1964. *Formica sanguinea* Latr. in Southern England. *Ent. Rec.*, **76** :

Collingwood, C. A., 1958. The Ants of the Genus *Myrmica* in Britain. *Proc. R. ent. Soc. Lond.* (A), **33** : 65-75.

Donisthorpe, H. St. J. K., 1927. British Ants, 2nd Edn., London.

Jeffery, H. G., 1931. *Proc. Isle of Wight Nat. Hist. Arch. Soc.*, **2** : 125.

Nelmes, E., 1938. A survey of the Distribution of the Wood Ant (*Formica rufa*) in England, Wales and Scotland. *J. anim. Ecol.*, **7** : 74-104.

Pontin, A. J., 1960. *Formica rufibarbis* in Surrey. *Ent. mon. Mag.*, **96** : 161.

Richards, O. W., 1958. *Formica rufa* nesting in a tree. *Ent. mon. Mag.*, **94** : XV.

Yarrow, I. H. H., 1954. The British Ants allied to *Formica fusca* L. *Trans. Soc. Brit. Ent.*, **11** : 229-244.

———, 1955. The British Ants allied to *Formica rufa* L. *Trans. Soc. Brit. Ent.*, **12** : 1-48.

129 Smith's Lane, Windsor, Berks. 10th November 1963.

Notes and Observations

THE SPREAD OF HADENA COMPTA (FABR.) AND CUCULLIA ABSINTHII (LINN.)—In view of recent correspondence on the spread of these two species I thought it might be of interest to record a further extension of their range.

On a visit to Monkswood, Hunts., on the 16th June 1963, I found a specimen of *Hadena compta* sitting on the warden's cottage. Upon reporting this event to The Nature Conservancy I was informed by Mr. J. A. Thompson the Nene Warden Naturalist that it was a new record for the county, although a second specimen was observed there on the 26th July.

On the 11th July 1963, I saw a light coloured moth hovering over Bladder Campion in my garden at Stowmarket. Upon capturing it I discovered that it was a perfect specimen of *Cucullia absinthii.* Although this species has long been known to occur on the Suffolk coast, this is the first time I have heard of it from the interior of the county, but it has been recorded from Cambridgeshire by the Rev. Guy A. Ford.—H. E. CHIPPERFIELD, 27 Chilton Avenue, Stowmarket, Suffolk. 13.iii.64.

A PROLONGED MIGRATION OF BUTTERFLIES IN MALAYA.—From the 15th May until the 20th June 1959, there was a considerable migration of butterflies flying towards the south-west and into the prevailing wind, in the vicinity of Tanah Rata (alt. 4,500 feet), Pahang, Malaya.

At least eight species were involved in this flight. They were *Euploea mulciber* Cram. (Danaidae), *Cirrochroa emalea* Guér-Méné., *C. satellita* Butl. (Nymphalidae) and *Eurema hecabe* L. (Pieridae) with smaller numbers of *C. orissa* C. & R. Felder, *Terinos terpander* Hewitson, *Paduca fasciata* C. & R. Felder (Nymphalidae) and *Jamides bochus* Stoll (Lycaenidae).

The migratory movement was most in evidence on sunny days between 11 a.m. and 2 p.m. and the direction of flight seemed constant day after day throughout the period. If an attempt were made to catch a specimen, it would take abrupt evasive action, and unless captured, would quickly resume its original course.

On one occasion during this period butterflies were observed crossing the summit of Gunong Jasar (alt. 5565 feet). On this day a strong wind was blowing from the west, but despite a sudden and violent check in flight upon reaching the top, they immediately recovered, flew low over the summit and descended directly into the wind, always keeping low and sheltered.

An interesting feature was that while this migration was in progress, *Vanesst cardui* L., so well known as a migrant elsewhere, was common in some gardens where it visited Coreopsis and other flowers, and was content to remain there.—B. K. WEST, 121 Summerhouse Drive, Bexley, Kent.

MYIOLIA CAESIO HARRIS IN SURREY.—This Trypetid fly is apparently quite a rarity, and I should therefore like to record the capture of a specimen near Eashing Bridge, Surrey, on 31st August 1963. At first glance I though it was *Philophylla heraclei* L. (the Celery Fly), but an examination of the specimen at home showed that the wing markings were quite distinct. Mr. R. Uffen kindly offered to examine it and give an opinion as to its identity, and I was pleased later when he told me it was *Myiolia caesio,* a species I had read about and which I hoped to take.

Talking to Mr. L. Parmenter about the species, he kindly offered to send

me a list of localities where it had been taken. He himself had taken single specimens at Limpsfield Common and Oxshott in Surrey, St. Erth in Cornwall, Panshanger in Hertfordshire, and Failand in Somerset, from 1937 to 1955. It has also been recorded from Glamorganshire, Suffolk, Norfolk, Gloucestershire (6 records), Somerset (7 records including the one already mentioned), and Nottinghamshire (2 records).

Myiolia caesio is on the wing from June to August and most if not all the records are of single specimens. The foodplant of the larva is unknown. The earliest record in the list sent me by Mr Parmenter was at King's Lynn, Norfolk, 1902-10, by E. A. Atmore. I should like to record my thanks to Messrs. Parmenter and Uffen for supplying me with the material to write these notes.—S. Wakely, 26 Finsen Road, Camberwell, London, S.E.5.

British Flies VI. Empididae—Amendments.—Mr. J. E. Collin's "Short Table of the British Genera" in this volume runs in couplet 47 (46) on page 19 to genus "18. *Trichina*". On page 279, *Trichina* genus is numbered "19" on Mr. Collin's acceptance of Tuomikoski's genus *Trichinomyia*, with our *flavipes* as generic type, page 277 and the genus numbered "18". Thus couplet 47 (46) should be amended to show that it covers the two genera 18. *Trichinomyia* and 19. *Trichina*.

Mr. Collin has kindly informed me of four small errors he has also noticed in the book and copies should be amended as follows:—

p. 388. Fig. 135a for 'side view' read 'rear view'.

p. 448. Couplet 41 (42) insert 'not' between 'slender' and 'laterally'.

p. 752. Under 'synonomy', in last line of first paragraph for '*nec* Zett'. read '*nec* Fln.'.

p. 766 In the paragraph 'Abdomen', the last line should be deleted. No hairs should have been shown on the 'pygidium' in fig. 317b.

L. Parmenter.

The Flight Period of Hydromya dorsalis Fab. (Dipt., Sciomyzidae).—The biology and immature stages of this snail-killing fly was described in a recent paper, 1963, in *Proc. R. ent. Soc. Lond.* (*A*). **38**, by L. V. Knutson and C. O. Berg. They give an interesting range of flight periods, a short one 16th June to 4th September for central Finland and Lapland, 1st March to 6th November for central Europe and 10th April to 15th October for the more southern area of Tunisia and Algeria. For Great Britain the period is given as from 25th February to 23rd November. At Bookham Common, Surrey, a male was taken on 12th January 1947, when I was sweeping my net over dead bracken in the open area of Eastern Plain. The following year I captured a female in an area of *Juncus* of a pond close to this plain on 8th February. It is possible that the species overwinters as an adult in this country for a female was caught on 10th November 1946, during one of the regular monthly visits, two months before the January capture in 1947. No capture was made on the monthly visit in December 1946 as it coincided with a period of rain preventing collecting by sweeping and the visit was abandoned. The more equable climate of this country may account for the longer flight periods but it must also be borne in mind that records of occurrence also depend on the coincidence of the presence of insect and observer.—L. Parmenter.

Willow Warbler, Phylloscopus trochilus L. fly-catching.—The leafless branches of a sallow, *Salix atrocinerea* Brot. permitted an excellent

close view of a willow warbler that had attracted my attention with its beak snapping. It was watched for several minutes on Hayes Common, Kent, as it made darting flights amongst the twigs capturing two species of diptera--*Dasyphora cyanella* Mg. and *Egle muscaria* F. These flies with a few *Egle parva* R.D., 3 or 4 *Bombus terrestris* L. queens, several honey bees *Apis mellifera* L. and two Peacock butterflies *Nymphalis io* L. were visiting the male catkins of the sallow to-day 17th April.—L. PARMENTER.

THE BRITISH RANGE OF TRICHIUS FASCIATUS L.: A CORRECTION AND A WARNING.—From one or two statements in the pages of the *Record* over the past few years, it seems there are some misconceptions current about the distribution in our Islands of this handsome chafer. To begin with the least serious, Mr. Byerley (1961: 262) appears to regard it as very local and seldom noticed in the Scottish Highlands, remarking "This beetle may be more widespread than we think. Is it the recorders that are rare?" The answer is largely supplied by Commander Harper when he writes of it (1962:57) ". . . always quite common in various parts of the Highlands of Scotland"—a fact of which coleopterists have long been aware. Fowler, the standard authority, wrote as long ago as 1890 (*Col. Brit. Isl.*, **4**: 61) "Scotland, local, Highlands, Tay, Dee and Moray districts". Still, I think there is something in Mr. Byerley's suggestion, inasmuch as it is likely that many collectors have not troubled to give definite localities or even to report it at all; at least it is true that records from outside the favourite collecting areas of Aviemore, Rannoch, etc., are relatively few, and, like Mr. Byerley's, welcome.

Mr. Burton (1961: 222), in taking his cue from Linssen's book, has been unfortuate—having stumbled into one of the pitfalls with which that highly unequal and unreliable work is, alas, so liberally strewn. He is probably far from being the only one to have been thus led astray. I avail myself of this opportunity, therefore, to issue a warning against accepting as 'gospel' any statement made in it—*but above all, any relating to distribution, incidence, etc.*—without an independent check (cf. my review, 1960, *Ent. Rec.*, **72**: 39-40). In the present case the author has perpetrated an extraordinary mish-mash, having for some unaccountable reason jumbled up the distribution of *Trichius* with that of a wholly unrelated species. That this is so emerges clearly from what he writes. Consider the following statements (*Beetles of the British Isles*, **2**: 126):— ". . . occurs especially on *Thymus serpyllum* (Wild Thyme) . . . Its distribution is North Wales and very local . . . It is mostly found on Snowdon. Entomologists should consider it as being a 'protected' species". No coleopterist—asked to guess what species was the subject of this quotation—would think for a moment of *T. fasciatus*, to which not a single item of it will properly apply; but there is one beetle, and one only, that he would instantly recognize as filling the bill, namely *Chrysomela* (or *Chrysolina*) *cerealis* L.! The true distribution of *Trichius* is squeezed, as it were, into a mere afterthought of a concessive clause: "though it has been recorded from the south of Wales and Scotland"! Further comment would, I trust, be superfluous.

The Editorial note following Mr. Burton's has fared somewhat better, but even here there is a statement calling for emendation, viz., that "this species has its main stands *in the extreme south-west of England* and in the Inverness-shire mountains . . ." (my italics). Here the writer may have

been misled by Joy who in his *Handbook* (1932: 255) gives 'Devon', besides Scotland and S. Wales. However, the sole basis for this datum appears to be an old and perhaps questionable record for Exeter by Leach, going back probably something like a century and a half—scarcely a firm foundation, it will be admitted, for a belief that the insect is a settled inhabitant of S. W. England at the present time. In fact there is but one English county for which a few undoubted records (all recent) exist, and that is Herefordshire. Otherwise, apart from Scotland, it seems purely a Welsh species; and the records, though few, suggest that it probably occurs from Monmouth (where I have taken it) and Swansea, to Merioneth. In Wales, its headquarters are, however, decidedly in the south and mid-east. It will very likely be found to occur in Shropshire. This is one of a few species with a characteristic distribution which may be called Caledonian-Cambrian, and is paralleled remarkably closely in its range by the Pyrochroid *Schizotus pectinicornis* L., in Britain found only in the Scottish Highlands, east and perhaps central Wales, and Herefordshire (the Black Mountains). Such species appear to be absent not only from the south-west—unlike many 'northerners'—but also from N. England, S. Scotland, and Ireland. Most of the more recent records of *T. fasciatus* are assembled by M. W. Shaw (1961, *Ent. mon. Mag.*, 97: 209).—A. A. Allen, 63 Blackheath Park, S.E.3. 2.ii.64.

A Postscript on Emus hirtus L.—I thank Mr. Huggins for his additional Essex record of this rare beetle (Southend district—*Ent. Rec.*, **74**: 279) and Mr. Brown for his interesting article on its early history in Britain (*ibid.*, **75**: 87-8). Since I wrote on the subject, a few further data have come to hand which it will be as well to add to those already given.

The easternmost locality in Kent I mentioned previously, from which it had been recorded, was Faversham. At that time I had forgotten—what was later recalled through casual conversation with Mr. Chalmers-Hunt—that a specimen had been taken some years ago in the Canterbury district by Mr. John Parry. I have no further details of this find, but it is notable, being the most easterly to date that I have heard of in the county.

Mr. R. L. E. Ford has been remarkably lucky in coming across chance specimens of *Emus*, and I am obliged to him for telling me of his captures, which, I understand, were picked up at large, rather than in the proper habitat. The most interesting was at Pevensey Bay, Sussex, several years back, as it provides a new county record. The others were at Faversham Creek (I believe the third or fourth from that neighbourhood in fairly recent times), and at Funton, near Cliffe, a few years ago. This locality is on the south bank of the Thames almost opposite Benfleet and Canvey Island, and the curious thing is not that the insect occasionally strays across the river but that it does not seem to establish itself anywhere on the north side, though conditions appear quite suitable. In view of these and other odd captures sometimes vaguely heard of, there is hope that *E. hirtus* may be holding its own in North Kent; but it now has fresh hazards to contend with in the form of chemicals which, I am told, are applied to pastures in spring to improve the new growth, and might be expected to affect adversely the early stages of the beetle and its prey —both living in the soil. So much for 'progress'!

It is just possible that there may have been, or even still be, a permanent colony in the vicinity of Guildford in Surrey, whence J. F. Stephens had specimens (*vide* Brown, *l.c.*: 88). At any rate, it is interesting to note that there was an example from the same district in the collection of the late R. W. Lloyd, now at Manchester; the exact locality is Merrow, but I do not know the date or captor, or whether others occurred there. Perhaps—and one would think more probably—it is mere coincidence. On the other hand it is possible, as I pointed out earlier, for *Emus* to remain very highly localized even during periods of relative abundance, so that, if present in only small numbers, it could presumably pass almost unnoticed in a locality for many years.—A. A. ALLEN, 63 Blackheath Park, S.E. 3. 2.ii.64.

Current Literature

Index Literaturae entomologicae. Series II, by Dr. Walter Derksen and Dr. Ursula Scheiding: Berlin. 1963.

This series follows Series I by Dr. Walther Horn and Dr. Sigmund Schenkling, which covered entomological literature up to 1863, and deals with world literature on entomology from 1864 until 1900.

The present series will contain some 90,000 references classified under the authors' names, which are classified alphabetically, where possible including a short biographical note on the author and references to obituary notices. The titles are as published without any attempt at translation, so present no difficulties; the short introduction and the biographical notes are in the German language.

It is obvious that a very considerable amount of care has gone into the compilation.

The first volume covers A to E, and one would expect the work to be completed in five or six such volumes. The index will be of the greatest assistance to research workers and should find a place in the libraries of all entomological establishments throughout the world. The volumes are bound in grey buckram covered boards.

S. N. A. JACOBS.

Dissection of the Locust. By Joan G. Thomas. 9″ × 7″, 72 pp., 55 diagrams. H. F. & G. Witherby Ltd., London. Price 8/6.

Intended for sixth forms in schools and undergraduate students, this work deals adequately with the dissection of the locust.

Short chapters deal with the life history, breeding, preservation of specimens and the external features. The internal structure is covered in more detail each system or organ being described before the instructions for dissection. Practical instructions are in italics so that they can easily be picked out during the work.

The Appendix gives hints on the preparation of permanent mounts, a number of observations which can be made on living specimens and books recommended for further reading.

A. E. GARDNER.

The Natural History of Flies. Harold Oldroyd. 9½″×6½″. Pp. xiv, 324, 32 half-tone plates (of 55 photos.), 40 line drawings. Weidenfeld & Nicolson. London, 1964. Price £2 10/-.

The author, for many years Editor of the Royal Entomological Society, a systematist of the Entomology Department of the British Museum (Natural History), has a world wide reputation already based on his systematic studies and varied publications. He has taken full advantage of his access to literature and collections in the production of a work dealing with the diptera of the whole world. But the book is no mere compilation for the author contributes items based on field work in several countries as well as from his museum studies. Avoiding duplication of other standard works he has refrained from a systematic account and biological matters except as they illustrate his chosen theme—"an impressionist account of flies in evolution". With species already more than 80,000 to choose from, his task of selection was great. The introductory part is comprised of chapters on "the pattern of flies" and their life history. Then follows Part 2 broken into chapters devoted to the hundred or so families of flies in groups under titles such as water-midges, horse flies, compost- and dung-flies. The great variety of habits of larva and adult found in these families are described and compared, illustrating the several lines of evolution of habit and adapted structure taken by flies, and their future trend. In Part 3 the impact of flies on man and the swarming of flies, are discussed in detail with a chapter in conclusion on "the past, present and future of flies" that contains doubts on the result of insecticides on animals other than diptera, including man. A page or so on "Further Reading about Flies" leads to the bibliography of 331 items and the final comprehensive index of 24 pages.

The book is very readable and with few exceptions reference to further reading is adequately made. Readers may not find their own choice of interesting accounts of habits selected, may wish for more expansion on their own favourite families or topics, but in all it is a very satisfactory, instructive and entertaining product. The line drawings are mostly by Arthur Smith and of his usual excellence and those of Boris Jobling and the author are of the highest quality. The plates suffer in comparison, for the detail is often none too clear and at times the photograph is over magnified. Those taken by the author himself are good. The absence of specific names in some instances is regretted as is the siting of a page devoted to figures of wingless flies, an empid *Apterodromia evansi* and an ephydrid *Anomalopteryx maritima,* and the page is headed "Mosquitoes"! Further, the appearance of "eg" and "ie" without the customary full stops, is surprising.

The volume is the first of a new series edited by R. Carrington entitled "The World Naturalist". It will be widely read and should greatly increase the interest in flies, the insects that have such fascinating habits especially as so many diptera play an important part in human lives. The coloured photograph of the Trypetid *Dacus oleae* on the jacket must attract attention and cause the purchaser to retain this cover. It would have made an excellent frontispiece. L. P.

Current Notes

A New Aberration of Procris Statices L. (the Forester).—In *Opuscula Entomologica,* xxviii: 3 (Lund, 1963) at page 225 J. Landin gives (with illustration) an account of a hitherto unrecorded aberration of this moth, taken in S.E. Scania in 1963.

"In the summer of 1963", he writes, "I succeeded in catching two specimens (♂ and ♀) of a *Procris* species so peculiarly coloured that I failed to identify them at once. The problem was not solved until the examination of the male genitalia could be performed. Then it was verified that the specimens must belong to *P. statices*.

"The main colour appearance is . . . . reddish. As a matter of fact it looks mostly like a *Zygaena*, apart from the hind wings which are entirely greyish. The body is black and red, the underside of the thorax in the female with a greenish tint. The forewings are entirely reddish (♂), or red with basal green spots (♀). The grey hindwings are darker than in the ordinary *statices;* on the whole the aberration is much duller, lacking the bright metallic shine in typical specimens of the species.

"The collecting was made in Löderup in S.E. Scania on 27th July in an arid meadowland. *P. statices* used to be common at this locality, but I have never seen the aberration there before. I got the two specimens in one and the same net-sweep".

Landin goes on to remark that although the scientific names of infrasubspecific categories are excluded from the nomenclatorial provisions governing the species-group names (Art. 45 of the International Code, 1961) it might be justifiable to give this extremely aberrant form a name. "This is particularly important because the *two* specimens, representing the two sexes, indicate the possible existence of an aberrant population in the area". For this reddish aberration he suggests the name *Procris statices* L. ab. *rufescens* (ab. nov.).

Both specimens are now in the Entomological Museum at the Zoological Institute of Lund.

It would be interesting to know if any Zygaenids occur in the same place.

Chazara (Satyrus) Briseis L. in Sweden.—In *Opuscula Entomologica* xxviii: 3 (Lund, 1963) at page 223, H. Andrén records the capture of a specimen of this butterfly at Löderup in S.E. Scania on 13th July 1963. This appears to be the first record of this Satyrid butterfly north of the Baltic. Löderup is about 2 or 3 miles from the coast, opposite the island of Bornholm. *C. Briseis* is not included in Hoffmeyer and Knudsen's *De Danske Storsommerfugle*, 1938, so it seems unlikely this specimen came from Denmark. The shortest sea route from Pomerania to Löderup would be about 75 miles; if viâ Bornholm, about 60 miles. We can find no mention of *C. briseis* in the Baltic coastlands and indeed one usually associates this insect with stony and rocky places at some elevation.

Wild Life Tape Recording Competition.—The B.B.C. and the Council for Nature are sponsoring a competition for recordings of natural sounds of British wild life. There will be five classes:

1, Individual Bird Species; 2, Individual Mammal Species; 3, Individual Insect Species; 4, Individual Amphibian Species; 5, Atmosphere (environmental recordings).

There will be prizes of 25 guineas for the best entry in each class and 10 guineas for the runner-up. Entries must be received by the B.B.C. Natural History Unit by 1st September, 1964.

Full information about the conditions for the competition can be obtained from the B.B.C. Natural History Unit, Whiteladies Road, Bristol 8, or from the Council for Nature.

6a. Darenth Wood (see *First Record*). Cobham, June 10, 1912; Chattenden, June 1, 1925 (F. T. Grant).

7. Wigmore Wood; Fir Grove; very uncommon (Chaney (1884-87)). Westwell (Scott (1950)). Boxley (A. H. Harbottle).

8. Folkestone*, scarce (Knaggs (1870)). Farthingsole Farm, Elham, nine, at sugar, June 7-8, 1924; Fryarne Park Wood, eight, at sugar, June 6, 1924 (W. E. Busbridge, *Diary*). Whinless Down; River (E. & Y. (1949)). Wye Crown, at sugar, June 1-2, 1935, June 1, 1936 (A. J. L. Bowes); 1948 (C.-H.). Canterbury; Crundale (J. A. Parry). Stowting; Brook (C. A. W. Duffield).

9. Margate (Barrett, *Entomologist*, **38**: 214). Ramsgate, numerous, June 22, 1910 (J. W. C. Hunt). Birchington, one, c. 1930 (C.-H.).

11. Yalding; Wateringbury (*V.C.H.* (1908)). Tonbridge (Rattray, *Entomologist*, **45**: 80). Benenden (G. V. Bull). Hoads Wood (Scott (1950)). Aylesford, c. 1953 (G. A. N. Davis).

12. Ham Street, at light, June 17, 1934 (A. J. L. Bowes). Chartham (P. B. Wacher). Ashford Town (P. Cue). Wye, May 26-July 3, 1953 (53), May 20-June 28, 1954 (13), May 27-July 9, 1955 (15), May 15-June 23, 1956 (22); Willesborough, May 11-July 7, 1954 (19), June 8-July 12, 1955 (13), May 25-June 19, 1956 (13) (W. L. Rudland). Willesborough, one, 1959 (M. Singleton). West Ashford, one, 1960 (M. Enfield). Orlestone Woods, 1950, 1956; Brook, 1960 (R. F. Bretherton).

13. Tunbridge Wells (Beeching, *Ent. Rec.*, **2**: 229, **3**: 158). Bedgebury (G. V. Bull). Goudhurst, common (W. V. D. Bolt, *in litt.*, 1961).

14. Hawkhurst, common (B. G. Chatfield). Iden Green, common (H. Boxall).

15. Dungeness, June 2, 1935 (A. J. L. Bowes); one, 1938 (C.-H.); a few, June 6-7, 1950, a few, May 31, 1954 (E. C. Pelham-Clinton); 1956 (R. F. Bretherton); May 30-July 8, 1962 (325), all in m.v. trap, with maximum (72) on June 12 (R. E. Scott). Lydd-on-Sea (Wakely, *Ent. Rec.*, **71**: 273).

16. Folkestone, Town (Morley, *Ent. Rec.*, **64**: 170).

First Record, 1829: "A few at Darent-wood, in different years . . . not very common; but found throughout the metropolitan district" (Stephens, *Haust.*, **2**: 183).

H. suasa Schiff. (**dissimilis** Knoch): Dog's Tooth.

Resident; suspected immigrant. Salt-marshes, waste places, etc.; [on *Chenopodium*.]

Until comparatively recently, the distribution of this species in Kent was that of a local maritime insect, more or less restricted to the salt-marshes of division 2. Since 1944, however, there have been records of its occurrence in many new and unusual localities scattered throughout the county. Most remarkable was the appearance of the moth in unprecedented numbers in East Kent in 1947; and the records, particularly those for 1945 and 1947, indicate at least one large immigration, apparently from some locality where there is a good deal of melanism.

1. Birch Wood, ♀, taken beginning of July 1818 (Stephens, *Haust.*, **2**: 193). Lee, occasionally at light (C. Fenn, in *Wool. Surv.* (1909)). St. Mary Cray, one, 1955 (R. G. Chatelain). Lee, one, June 26, 1955 (C. G. Bruce). Abbey Wood, one, 1957 (A. J. Showler). [West Wickham (de Worms, *Lond. Nat.*, 1954: 85), is unconfirmed (E. Trundell).]

2. Gravesend, July 11, 1865 (Fenn, *Diary*). Near Shorne Mead Fort, June 19, 1912, by H. Huggins, senior (F. T. Grant). Cliffe, one, July 4, 1874

(Fenn, *Diary*) (Chaney (1884-87)). Greenhithe Marshes, taken by A. B. Farn, 1887 (Fenn, *Diary*). Greenwich (*V.C.H.* (1908)). Strood, larvae abundant, 1904 (Ovenden, *Ent. Rec.*, **16**: 294). Rochester, ova on leafless stems of previous years *Chenopodium*, 1906 (Ovenden, *Ent. Rec.*, **19**: 230). Isle of Grain, 1908 (Ovenden, *Ent. Rec.*, **21**: 32). Dartford, one, at ragwort, August 11, 1946; three, at honeydew, July 1950 (B. K. West). Isle of Sheppey, June 23, July 1, 1938, July 27, 1946 (R. C. Edwards); one, near Elmley, June 25, 1955 (C.-H.). Kingsferry Marshes, one, June 25, 1937 (A. H. Lanfear). Faversham (H. C. Huggins); about 30 on Nagden Marshes, June 25, 1952, flying and at rest on vegetation, including several pairs in cop., and two ♀♀ with batches of ova on dead stems (C.-H.). Cliffe Marshes, August 21, 1960 (R. G. Chatelain).

3. Broad Oak, one, at sugar, August 4, 1945; four, at sugar, including two ab. *confluens* Evers., August 2, 1948 (C.-H.). Whitstable, August 10, 1948 (P. F. Harris). Eddington, Herne Bay, three, 1948, including a ♂ at light, May 7; one, 1949 (D. G. Marsh). Blean Wood, July 29, 1949 (G. H. Youden).

4. Deal (Tutt, *Br. Noct.*, **3**: 88). Ebbsfleet, 1937 (A. G. Peyton, *teste* A. J. L. Bowes). Sandwich, five at sugar, August 1, 1948 (C.-H.); three, 1949, one, 1950 (D. G. Marsh); one at sugar, June 28, 1954 (W. D. Bowden); one, 1954 (B. K. West). Worth, 1961 (T. W. Harman). Ickham, not common, 1954-59 (D. G. Marsh).

5. Downe, one, at m.v.l., June 9, 1956 (C.-H.).

6. Pinden, common since 1946 (E. J. Hare, *in litt.*, xii.1949); annually since 1946 (E. J. Hare, *personal communication*, iv.1956).

6a. Darenth (Carrington, *Entomologist*, **12**: 212). Chattenden, a dark specimen at sugar, June 21 (1896) (Tutt, *Ent. Rec.*, **8**: 186).

7. Wigmore Wood, one at sugar (Chaney (1884-87)). Westwell, one, August 14, 1949 (E. Scott). Whitehill, one, July 1958 (P. Cue).

8. Folkestone*, June 1892 (Russell James, *Entomologist*, **26**: 50). Wye, one at sugar, July 7, 1946 (H. King); one, September 2, 1947 (G. V. Bull). Brook, common, September 1947 (C. A. W. Duffield). Shepherdswell, several, 1947 (E. & Y. (1949)). Dover, fairly frequent in m.v. trap in garden in the town (G. H. Youden, *in litt.*, 16.xii.1963).

9. Ramsgate, one, July 1, 1910; Broadstairs, one, July 21, one, July 29, 1948 (J. W. C. Hunt). St. Peters, one, May 20, one, May 28, one, August 10, 1956, one, at m.v.l., September 25, 1959 (W. D. Bowden).

11. Aylesford, c. 1953 (G. A. N. Davis).

12. Chartham, six, 1949 (P. B. Wacher). Willesborough, three, August 2-5, 1954, two, May 31, 1956; Wye, one, August 13, 1955, one, May 31, one, August 15, one, September 10, 1956 (W. L. Rudland). Ashford Town, one, in garden, July 14, 1956 (P. Cue).

14. Knock Wood, Tenterden, c. 1855 (Beale, *Diary*) (Stainton, *Man.*, **1**: 276, refers). Sandhurst, one, at sugar, August 2, 1948 (G. V. Bull).

15. Dungeness, two, August 12, 1932, one, August 5, 1934, several, August 5, 1945, one, September 11, 1947 (A. M. Morley); twenty-four taken, August 1, 1945 (A. Richardson); a few, August 5, 1945 (de Worms, *Entomologist*, **79**: 45); abundant at sugar, August 27-30, 1947 (Richardson, *Entomologist*, **81**: 110); at sugar in variety and profusion, August 30, September 3, 1947 (H. King); September 6, 1947 (R. C. Edwards); June 30-July 3, 1954 (R. F. Bretherton); one, in m.v. trap, June 11, 1962 (R. E. Scott). Newchurch, one, at sugar, August 18, 1947; St. Mary-in-the-Marsh, one, at car lights, July 31, 1948 (P. le Masurier). Appledore, June 25, 1956 (P. Cue).

16. Folkestone Town, ♂, April 27, 1948 (Morley, *Entomologist*, **81**: 178); one, May 17, 1952, five, July 29-August 9, 1953, ten, August 3-23, 1955, one, June 19, four, August 23-September 2, 1956, one, August 4, 1958, one, August 25, 1962, all in m.v. trap (A. M. Morley). West Hythe, three, August 28, three, September 4, 1947, including two ab. *confluens* Evers (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 15); September 2, 5, 1947 (H. King). Sandgate, one, 1961 (N. Reay-Jones).

VARIATION.—Generally speaking, specimens noted since 1944, away from the species' normal habitat, have been comparatively small and with a strong tendency to melanism.

A. Richardson (*in litt.*) briefly classified those taken by him at Dungeness in 1945 and 1947, as "dark" (these conform to fig. 1c in Barrett, *Br. Lep.*, **4**, plt. 157, and approximate to ab. *confluens* Evers.), "medium" (intermediate between figs. 1 and 1a, in Barrett, *loc. cit.*), and "light" (approximating to fig. 2, in South, *Moths Br. Isles* (1907), plt. 121); and gives as follows some indication of their relative frequency:—August 1, 1945: "dark" (8), "medium" (4), "light" (10); August 27-30, 1947: "dark" (58), "medium" (27), "light" (22). He confirms that "on the whole the specimens are small".

Tutt (*Br. Noct.*, **3**: 88) records ab. *w-latinum* Esp., from Deal and Strood; and in R.C.K., is ab. *laeta* Reuter, one, "Sheppey, 26.6.34, B. W. Armstrong".

FIRST RECORD, 1809: "Habitat in Cantio, at valde infrequens; tempore oblito" (Haworth, *Lepidoptera Britannica*, **2**: 190).

H. thalassina Hufn.: Pale-shouldered Brocade.

Native. Mainly woods; foodplant unknown. Of frequent occurrence, but apparently never plentiful. Recorded from all divisions, except 2, 9, 15. Few records for 3-6, 7, 10, 13-14, 16. "Generally common" (*V.C.H.* (1908)).

3. Blean Woods, one, May 31, 1866 (Fenn, *Diary*). Bigbury Wood, one, at sugar, 1895 (S. Wacher MS.). Whitstable, one, June 19, 1938 (P. F. Harris).

4. Deal, one, 1891 (Fenn, *Ent. Rec.*, **2**: 203). Sandwich, one, July 2, 1948 (G. H. Youden). Ickham, one or two only, 1954-59 (D. G. Marsh).

5. Chevening, 1914, 1917 (Gillett, *Diary*). Westerham (R. C. Edwards).

6. Greenhithe (Farn MS.). Gravesend (H. C. Huggins). Eynsford, June 19, 1960 (R. G. Chatelain).

7. Fir Grove; Wigmore Wood (Chaney (1884-87)). Westwell, June 4, 1951; June 23, 1954 (E. Scott).

10. Sevenoaks, June 12, 1922 (Gillett, *Diary*).

13. Tunbridge Wells, 1892 (Beeching, *Ent. Rec.*, **3**: 158); (E. D. Morgan). Goudhurst (W. V. D. Bolt).

14. Sandhurst (G. V. Bull).

16. Folkestone, July 1955 (R. W. Fawthrop, *fide* A. M. Morley).

VARIATION.—Of ab. *humeralis* Haw., Tutt (*Br. Noct.*, **3**: 93) states: "This grey form is not at all uncommon in the various localities in Kent in which I have collected".

FIRST RECORD, 1829: ". . . found throughout the metropolitan district" (Stephens, *Haust.*, **2**: 183).

H. contigua Schiff.: Beautiful Brocade.

Native. Woods, heaths; on birch, oak, "brake-fern", "wild plum", *Solidago virgaurea*. Very scarce nowadays, but apparently less so formerly.

1. Birch Wood (Douglas, *Zoologist*, 3246). West Wickham, bred May 24, 1861, from larva (Huckett, *Ent. week. Int.*, **10**: 117). Blackheath (West, *Ent. Rec.*, **18**: 230). Eltham (Jones, in *Trans. Cy. Lond. ent. Nat. Hist. Soc.*, 1899: 77) (Shooters Hill (Fenn, in *Wool. Surv.* (1909)) may refer). Joydens Wood formerly (Fenn, in *Wool. Surv.* (1909)) (Bexley (Jones, in *Wool. Surv.* (1909)) may refer). Dartford (Farn MS.). Dartford Heath, ♀, on bramble blossom, July 8, 1935† (B. K. West). Bromley, one c. 1949† (W. A. Cope).

3. Thornden Wood, one, at sugar, June 10, 1865 (Fenn, *Diary*). Blean, two, 1902, one, 1903; in J. Platt Barrett coll.† (C.-H.).

6. Greenhithe, in moth trap (Farn MS.) (*V.C.H.*. (1908) probably refers). Pinden, two, June 1956 (Hare, *fide* de Worms, *Lond. Nat.*, 1959: 102).

6a. Darenth Wood, 1844 (Douglas, *Zoologist*, 687); 1859 (Harding, *Ent. week. Int.*, **6**: 75); July 4, 1860 (Fenn, *Ent. week. Int.*, **9**: 59); bred 1861, from larva (Huckett, *Ent. week. Int.*, **10**: 117); five, 1862, two, May 30, 1863 (Fenn, *Diary*); larvae on golden-rod, 1864 (Meek, *Ent. mon. Mag.*, **1**: 191); larva on brake-fern, September 26, 1874 (Fenn, *Diary*); July 10, 1881 (Finzi, *Entomologist*, **14**: 185); a larva, September 23, 1920 (A. R. Kidner, *Diary*); a larva on wild plum, October 10, 1925, imago reared (F. T. Grant).

7. Wigmore Wood, very uncommon (Chaney (1884-87)).

8. Folkestone* (Ullyett (1880)) (*V.C.H.* (1908) probably refers). Wye*, two in R.C.K., presumably taken by F. J. Hanbury, are labelled "F.J.H. Wye 5.93" (C.H.).

11. Yalding (*V.C.H.* (1908)). Wateringbury, one in E. Goodwin coll., undated† (C.-H.). Mereworth Wood, on larch trees in the Lord's Walk (W. A. Cope). Holt Wood, Aylesford, one in m.v. trap, 1953, taken by G. A. N. Davis† (C.-H.).

Note: "East Kent", 1899 (Porritt, *Ent. mon. Mag.*, **35**: 210) cannot be located.

First Record, 1844: Darenth Wood (Douglas, *Zoologist*, 687).

H. dysodea Schiff. (**chrysozona** Borkh.): Small Ranunculus.

Resident, apparently extinct. Gardens, gravel pits, waste places; on *Lactuca virosa*, "*Sonchus*". Formerly rather plentiful locally, with a wide range in Kent, more or less maritime or sub-maritime in character. No known occurrence since 1909.

1. Lewisham, two, July 5, one, July 23, 1845, both at light (Stainton, *Zoologist*, 1194); one at light, July 3, 1846 (Stainton, *Zoologist*, 1790). [Plumstead], 1857, more than thirty specimens captured (Purnell, *Ent. week. Int.*, **2**: 123).

2. Chatham.—"This moth was not uncommon in some years in my garden at New Brompton, flying at dusk over the flowers of candy-tuft, orange lily, etc. I have never seen it in woods or the open country" (Chaney (1884-87)). Near Sheerness, 1871, rare, at rest and flying at dusk (Walker, *Ent. mon. Mag.*, **8**: 185).

4. Deal*, 1858 (Harding, *Ent. week. Int.*, **4**: 141); 1860 (Harding, *Ent. week. Int.*, **8**: 155).

6. Northfleet, June 1848, five at flowers in garden (Hodgekinson,

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

R. N. BAXTER

Supplier of EXOTIC INSECTS to Museums, the research worker, the amateur entomologist, etc.

LEPIDOPTERA and COLEOPTERA a speciality.

16 Bective Road, Forest Gate, London, E.7, England.

Mail Orders Only.

In your Replies please mention "The Entomologist's Record".

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1(14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

W. J. Byford, Broom's Barn Experimental Station, Higham, Bury St. Edmunds, Suffolk, would be grateful for collections of Entomophthorous fungi attacking aphids. He would also be very pleased to attempt to identify these fungi on other insects. If the diseased insect is not identified, uninfected specimens of the same species would be very useful in enabling this to be done. Postage would be refunded if required.

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact : *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jiří Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years :

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

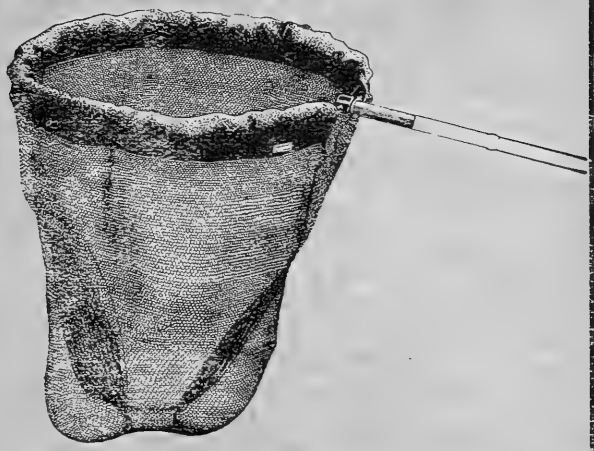
Please contact : Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

MICROPS NETS

NETS AND FRAMES INTERCHANGEABLE

LIGHT BUT RIGID WHEN ERECTED

NETS OF ROT-PROOF TERYLENE



See list NT/E for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD.

309 OXFORD ROAD : MANCHESTER 13

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 6 JUNE 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

CENTIPEDES
OF THE BRITISH ISLES

E. H. EASON

This is the first British work to provide a comprehensive guide to the study of centipedes in this country. A great deal of the information given by the author is the result of his own research, and will stimulate the reader's interest in this much neglected group.

As well as details of structure and life history, the books contain an account of the natural history of the group as a whole, with an explanation of the principles governing distribution and classification. With a comprehensive glossary of terms and full bibliography.

BEETLES
OF THE BRITISH ISLES

E. F. LINSSEN, F.Z.S., F.R.E.S., F.R.P.S.

Provides a full description of all the common species found in this country, as well as most of the rare ones.

Volume I: The Superfamilies Caraboidea, Palpicornia, Staphylinoidea and Diversicornia. 40 illus.

Volume II: The Superfamilies Clavicornia, Heteromera, Lamellicornia, Phytophaga and Rhynachophora, and including the Strepsiptera. 87 illus.

Each volume **30s.** net.

For full details of these and our other natural history books, write to

FREDERICK WARNE & CO. LTD.

1-4 Bedford Court, Strand, London, W.C.2.

Collecting *Zygaena* Fabricius (Lep., Zygaenidae) in Scotland in 1963

By W. G. Tremewan and W. B. L. Manley

For some considerable time we had both wanted to visit Scotland to collect some of the Scottish subspecies of the genus *Zygaena* Fabricius, but it was not until 1963 that the opportunity arose. After reading various collecting accounts and studying maps of Scotland, we decided to visit the Isle of Skye. Due to the near arctic conditions that prevailed while making our plans, we assumed that the season would be a late one. We were particularly anxious to obtain a series of the recently discovered *Z. lonicerae jocelynae* Tremewan. This subspecies was described from a series of specimens bred from cocoons collected by Mr. R. F. Bretherton in 1961 on the Isle of Skye (Tremewan, 1962: 10). We also wanted specimens of *Z. purpuralis caledonensis* Reiss and *Z. filipendulae* Linné from Skye. As these normally appear towards the end of June in Scotland, we decided to try for these species and hoped to obtain *lonicerae jocelynae* by collecting the cocoons as Mr. Bretherton had done. We therefore decided to leave for Skye on 20th June.

Our party consisted of the two authors and the wife and son of W. G. T. We left Byfleet, Surrey, at 5 a.m. on 20th June and, having lunched on arrival in Scotland, arrived at 7 p.m. that evening at Glencoe, where we spent the night. The weather during our journey north was atrocious, with torrential rain and showers, so we feared that any insects that might have emerged would be badly damaged. Leaving Glencoe at 9 a.m. on the morning of the 21st, we arrived early in the afternoon at Kinloch Farm, Isle of Skye, which was to be our headquarters for the next five days. Although the weather was still poor, occasional glimpses of the sun between the showers raised our hopes. However, we were rather worried as to the possibility of our having arrived too early in the season as, during our journey through Glencoe, patches of snow were still to be seen on the north-facing slopes of the mountains. We were somewhat encouraged with the news from our hosts that, although there had been severe and prolonged frost on Skye, no snow had fallen there during the winter. Later that afternoon we explored the coastal area near Kinloch but found no sign of *Zygaena*.

On the morning of the 22nd the weather had improved and, in spite of a cool breeze, the greater part of the day was warm and sunny. Driving to a remote, coastal part of the island where we knew that *lonicerae jocelynae* occurred, we soon came upon *purpuralis caledonensis* in great profusion. This species was so abundant that at times it was difficult to walk without crushing specimens under our feet. Most of them were males, with an occasional female, all in fresh condition and many, mainly females, were still emerging. The cocoons of *purpuralis* were spun low down on the ground amongst the herbage, and many were attached to rocks and stones. We were rather anxious to study the variation, if any, of *purpuralis* and our efforts were soon rewarded. In addition to a good series of typical specimens, several were taken in which the normal, carmine red of the forewing streaks and hindwings is replaced with brownish red. This aberration is more apparent when the insect is alive with folded wings than when set, when the colouration is

more translucent. A female was captured with distinct, red scaling on the underside of the last two abdominal segments. One of us (W. B. L. M.) took a perfect male in which the normal red colouration is replaced with orange-yellow. The specimen was feeding, in company with normal specimens, on a thistle-head and was easily spotted from a distance of several yards. The species was very active in the sunshine, flying and feeding on flowers, including those of *Thymus drucei* Ronn., the foodplant of the larvae. On one thistle-head, nine *purpuralis* were counted, each struggling for a place to feed.

Both sexes of *filipendulae anglicola* Tremewan were found in fresh condition. In the Isle of Skye the species is rather variable compared with populations from the south of England. The cocoons of *filipendulae* were found spun low down near the ground on grass and other stems. They were easily detected and were not concealed like those of *trifolii palustrella* Verity on the chalk downs of southern England. The cocoons of the Skye *filipendulae* are very uniform in size and are rather narrower than those of the English specimens. In colour, the cocoons are very constant and are a bright, shining yellow, showing no variation. An abundance of *Lotus corniculatus* L., the foodplant of the larvae of *filipendulae*, grows in the area.

The colonies are situated on the steep, south-facing slope of a valley and extend from the coast to about a mile inland. Both species occur from the foot of the valley to the top, at an elevation of approximately 300 ft. The area is fairly heavily grazed by sheep and cattle but this does not have any apparent effect on the abundance of either *purpuralis* or *filipendulae*.

It was not until we had actually arrived on the edge of the sea-shore, that we found cocoons of *lonicerae jocelynae*. Here, there is no grazing and the cocoons were spun fairly high up on grass stems, amongst lush herbage at the foot of the cliffs. As the tide was low, we were able to walk along under the undercliffs and, further along on the slope of the undercliff, we found more cocoons and a few larvae of *lonicerae*. Some larvae were just beginning to spin up and many others had not yet pupated within the cocoons. Available foodplants which grow in the area are *Lathyrus pratensis* L., *Trifolium pratense* L. and *Lotus corniculatus* L., but all larvae that we found were resting or feeding on *L. pratensis*.

The 23rd June proved to be a cold and wet day and, driving to another coastal spot, we found only one *filipendulae*, a freshly emerged male.

The morning of the 24th greeted us with subnormal temperatures and heavy rain and showers. However, we decided to revisit our first locality which we reached about mid-day, by which time the rain had stopped. During the afternoon we again worked the north side of the valley, concentrating our efforts in obtaining further aberrations of *purpuralis*. In this we were successful and captured further specimens of the brownish red form. One of us (W. B. L. M.) found a female in which the right forewing streaks are enlarged and suffused so that practically the whole of the forewing is red. Unfortunately, the left forewing is deformed and crippled. The specimen was *in copula* with a normal male.

The weather during the afternoon was cloudy with occasional showers and collecting was made easy by the inactivity of the insects. During dull or wet weather, *purpuralis* rested exposed but low down on flower heads and grass stems. Many were also found sheltering under fronds

of bracken (*Pteridium aquilina* (L.) Kuhn). When for a brief moment the sun appeared, the *Zygaena* species became very active. It is evident that, in such northerly localities where prolonged periods of bad weather are frequent, the insects have to take advantage of every glimpse of sunshine for feeding and pairing.

A new station was discovered for *lonicerae* when we found cocoons of this species in the more inaccessible area above the top of the slope. Here, the vegetation is more luxuriant and grazing by sheep and cattle is less evident. *Z. filipendulae* was conspicuous by its absence, both as imagos and cocoons. However, the ubiquitous *purpuralis* was found here although not so abundantly as lower down on the slope. The cocoons of *lonicerae jocelynae* are readily distinguished from those of *filipendulae*. The cocoons of the latter are situated exposed but low down, and are long and narrow in shape and bright yellow in colour. The cocoons of *lonicerae jocelynae* are situated fairly high up on grass stems but lower than those of *lonicerae transferens* Verity in the south of England. In the latter region the cocoons of *lonicerae transferens* are difficult to separate from those of *filipendulae*. The cocoons of *lonicerae jocelynae* are readily separated from those of *lonicerae transferens* in being larger and broader. Further cocoons of *lonicerae jocelynae* were found along the sea-shore. Even here, a few *purpuralis* were found resting on rocks and pebbles. It is necessary to emphasize that heavy grazing by sheep and cattle has no apparent effect on *purpuralis* or *filipendulae*, whereas the cocoons of *lonicerae* were found only above the top of the slope where grazing was not so heavy or along the sea-shore, which was inaccessible to sheep and cattle.

When we reached the shore it was late afternoon by which time it had started to rain. Rather than return to the car by the laborious route along the slope we decided to walk along the shore to the south side of the valley. However, we were unaware that we had to cross the river, described locally as "the wee burn", which, with the recent heavy rains, was almost a torrent. Our only course was to wade across and we dried out our clothes during the journey back to Kinloch.

The weather of the 25th had improved considerably, with more prolonged periods of sunshine. After visiting Portree, the capital of Skye, we drove to a further locality situated on steep, south-facing slopes above low cliffs on the north side of a loch. Here, the grass- and bracken-covered slopes were heavily grazed by sheep. There was an abundance of *Thymus drucei* and *Lotus corniculatus* which supported colonies of *purpuralis* and *filipendulae* respectively. However, neither species was so abundant here. A short series of both species was taken but very little variation was noted, except in *filipendulae*, in which the forewing spots are frequently confluent in pairs. No cocoons of *lonicerae* were found.

On 26th June, our last day on Skye, we decided to return to the first locality where all three species of *Zygaena* occurred. The weather was still very unsettled and, shortly after we commenced collecting, a heavy shower soaked us. The rest of the day was dull and cool with only occasional glimpses of the sun. We again concentrated on searching for aberrations of *purpuralis* and our efforts were well rewarded. The wife of W. G. T. captured a fairly good male of *purpuralis* in which the forewing streaks and hindwings are clear yellow. Although this aberration has been recorded once from Ireland (ssp. *hibernica* Reiss ab. *flava* Tutt)

it had previously not been taken in Scotland. Almost simultaneously, one of us (W. G. T.) captured an orange-yellow specimen which, unfortuneately, is in very poor condition. A perfect male was captured with the forewing streaks suffused, so that the whole of the forewings are red with the exception of a narrow border of the ground colour around the apex and termen. This aberration is of the same form as the crippled female taken on the 24th. Further specimens of the brownish red form were taken. A not uncommon aberration was captured in which the hatchet-shaped streak (3+5) is reduced in size and constricted in the middle. This aberration was also captured on the 22nd and the 24th. The females were now more abundant and some beautiful specimens were taken with yellowish scaling in the ground colour of the forewings.

The variation of *filipendulae* was of the usual form found in this region, with the spots confluent in pairs, especially spots 5 and 6. Two extreme examples were taken with spots 5 and 6 confluent and extended in a red suffusion towards the termen.

Further cocoons of *lonicerae* were collected above the top of the slope. Here, *Lathyrus pratensis* appears to be absent, but a larger species of pea, *Lathyrus montanus* Bernh., grows abundantly. A larva of *lonicerae* was actually seen feeding on this plant a few weeks earlier by Dr. M. Harper (*in litt.*). In addition to *L. montanus*, *Lotus corniculatus* and *Trifolium repens* L. grow in the area and one larva of *lonicerae* was found feeding on the latter plant (*T. repens*).

We left the Isle of Skye early on the morning of 27th June and made our way to Braemar, via Spean Bridge, Aviemore and Grantown-on-Spey. We had hoped to call on Cmdr. Harper at Newtonmore but, unfortunately, he was collectiing in North Wales at the time. On route to Braemar we were often in the clouds in the Tomintoul area and our hopes of seeing *Erebia epiphron* Knock and *Coenonympha tullia* Müller soon disappeared. The nearer we approached Braemar the more the weather deteriorated and we finally reached our destination in the late afternoon in a thick drizzle.

On the morning of the 28th the weather had worsened but we decided to look for *Z. exulans subochracea* White, the object of our visit to Braemar. We drove up the mountain to about 1500 ft. when we began to enter the cloud layer. A bitterly cold, northerly gale, with rain and drizzle, forced us to abandon our search for *exulans*. In Scotland, the species flies between 2000 ft. and 3000 ft. and at the time of our visit the whole of the area was enveloped in cloud. We had allowed two days for collecting at Braemar but, as the weather showed no signs of improving, we departed on the 29th, reaching Byfleet early in the afternoon of 30th June, having broken our journey overnight at Boroughbridge, Yorkshire. We considered that our complete failure at Braemar had been compensated for by the remarkably good collecting that we had experienced on Skye, in spite of indifferent weather conditions.

A more detailed analysis of the specimens captured or bred is given below.

Z. purpuralis caledonensis Reiss

Z. purpuralis caledonensis Reiss, 1931, Int. ent. Z., **25**: 341.

The specimens of *purpuralis* from the Isle of Skye differ little from those from Oban, Argyllshire, the type locality of ssp. *caledonensis* Reiss. As noted above, the variation is remarkable, but such variation may not

necessarily be confined to Skye and may have been overlooked in other Scottish localities where the species occurs. The orange and the yellow forms have not previously been recorded from Scotland and this also applies to the other aberrations. The brownish red aberration, which was not uncommon, is of great interest. The two aberrations with the forewings suffused with red are probably the result of exposure of the larvae or pupae to extreme temperatures.

Z. filipendulae anglicola Tremewan

Z. filipendulae anglicola Tremewan, 1960, Ent. Gaz., **11**: 189.

The populations from the Isle of Skye are quite distinct but are best referred to ssp. *anglicola* Tremewan. The chief characteristics of the Skye populations, and also of those from the other islands of the Inner and Outer Hebrides excepting the Isle of Berneray, are the rather hairy thorax and abdomen and the frequent confluence of the forewing spots into pairs, especially spots 5 and 6. This variation has already been noted by Heslop-Harrison (1940: 135; 1945: 25). The populations of the Inner and Outer Hebrides may prove to be a subspecies distinct from ssp. *anglicola* but, before separating them, it is necessary to compare them with large series of specimens from the mainland of West Scotland.

Z. lonicerae jocelynae Tremewan

Z. lonicerae jocelynae Tremewan, 1962, Ent. Gaz., **13**: 10.

From the cocoons that were collected, we bred a series of over one hundred specimens of *lonicerae jocelynae* Tremewan. The rather hairy thorax and abdomen, broad forewings with rounded apexes and enlarged forewing spots, separate this subspecies from *lonicerae transferens* Verity from England. Three males and sixteen females show varying degrees of confluence, from examples with spots 2 and 4 confluent, to specimens with all the spots suffused and confluent. In the females, spots 3 and 4 are joined and are rarely separated by the ground colour. These forms are uncommon in ssp. *transferens*. Two females have the base of the hindwings tinged with orange-vermilion.

REFERENCES

Heslop-Harrison, J. W., 1940, The Genus Zygaena in the Western Isles of Scotland. *Ent. Rec.*, **52**: 134-137.

———, 1945, Further Observations on the Genus Zygaena in the Inner and Outer Hebrides. *Ent. Rec.*, **57**: 25-27.

Tremewan, W. G., 1962, A New Subspecies of *Zygaena lonicerae* Scheven (Lep., Zygaenidae) from Scotland. *Ent. Gaz.*, **13**: 10-11.

Butterflies at Gibraltar, March 1964

By Major General Sir George Johnson, K.C.V.O.,

A ten day visit to Gibraltar in March produced some interesting butterflies, both on the Rock itself and in adjacent parts of Andalucia. A crowded and uncomfortable three hour night flight from London brought me to the Rock Hotel about 1 a.m. on 10th March. The following day was overcast with only intermittent sun, and was spent investigating the gardens and walks behind the hotel and in obtaining a permit for the military zones on the Rock from Fortress Headquarters. Three fresh *Zerinthia rumina* L., one *Gonepteryx cleopatra* L., two of the bright Spanish form of *Pararge aegeria* L., and one *Celastrina argiolus* L. were

caught. *Pieris brassicae* L., *Pieris rapae* L., and *Pyrameis atalanta* L. were seen.

On 11th March, Colonel Mackworth Praed showed me a delightful cliff path in the military zone. It faced south above Europa Point, and the cliff was covered with flowers and shrubs, particularly various sweet smelling leguminosae. Barbary partridge and the blue rock thrush were amongst the birds to be seen. Sun was weak and intermittent, but we saw several *Euchloë tagis* Hübn., and caught one. At about 11.30 a.m. we motored into Spain taking the San Roque-Ronda road. About three miles beyond San Roque, we stopped by a railway line in cork oak woodland. Thanks to the railway fence, the herbage was less grazed than usual along the line. Though sun was only fitful, a number of *Z. rumina* were flying, and a fresh series was obtained. Other butterflies noted were *Anthocaris euphenoides* Stgr., *Leptidea sinapis* L., *Colias croceus* Fourc., and *Callophrys rubi* L.

The next three days were overcast and wet, but 15th March was lovely, sun all day, though rather windy in the afternoon. A visit to the cliff path previously described (known as the Mediterranean steps) produced six *E. tagis* and one or two *Z. rumina* and *A. euphenoides*. *E. tagis*, as usual, flew very fast and erratically on the steep ground, and could not be followed. The only procedure possible was to select a likely corner and to stand and wait, taking a wild shot whenever the insect came within range, perhaps about once every ten minutes; as many were missed as caught. In the afternoon we joined Colonel Mackworth Praed, who was staying near San Roque. His hostess allowed us to collect in her almond orchard on a north facing slope. Despite a strong wind, *Thestor ballus* Fab. was flying over the short turf and we obtained a series. A large, white *Astragalus* was growing here in clumps, and round them flew *Tarucus telicanus* Lang. and a few *Cosmolyce boeticus* L., The only *Papilio machaon* L. we saw on our trip was on this ground.

On 16th March I made an expedition to the sandhills west of Tarifa. Here amongst white broom, a few of the small Andalucian form of *Polyommatus icarus* Rott. were flying with a few *T. ballus*.

17th March was a day of rather thin sun but a morning visit to the Mediterranean Steps produced three *E. tagis* and one *Aricia agestis* Schiff.

On 18th March we visited Castellar de la Frontera, a hill top village 27 kilometres from La Linea off the Ronda road. The tiny, winding cobbled streets and outer walls were clearly unchanged since mediaeval days, and many lesser kestrels were breeding in the towers and walls. On the way down, as the road to the north-east entered the cork oak zone, some fast flying "whites" were seen. A stop for one hour produced a nice series of *Euchloë ausonia* Hübn. and a few of the spring brood of *Euchloë belemia* Esp.

So ended a pleasant trip; a list of the butterflies noted follows:— *Papilio machaon* L., *Zerinthia rumina* L., *Pieris brassicae* L., *Pieris rapae* L., *Euchloë ausonia* Hübn., *Euchloë belemia* Esp., *Euchloë tagis* Hübn., *Anthocaris cardamines* L., *Anthocaris euphenoides* Stgr., *Leptidea sinapis* L., *Colias croceus* Fourc., *Gonepteryx rhamni* L., *Gonepteryx cleopatra* L., *Pyrameis atalanta* L., *Pararge megera* L., *Pararge aegeria* L., *Callophrys rubi* L., *Thestor ballus* Fabr., *Cosmolyce boeticus* L., *Taracus telicanus* Lang., *Aricia agestis* Schiff., *Polyommatus icarus* Rott., *Celastrina argiolus* L.

Castlesteads, Brampton, Cumberland. 28.iii.1964.

Melanism in Lepidoptera in the West of Ireland

By H. C. Huggins, F.R.E.S.

It is now fifty years since my first collecting trip to Ireland, which was in late April and May of 1914, and since then I have made in all 24 visits. I should probably have gone more often had it not been for the "troubles" and the second world war.

Not all my time there was devoted to lepidoptera, I put in quite a lot of trout fishing, and my first five trips were mainly concerned with land and freshwater shells, especially the curious races of *Lymnaea pereger* Müll. found in the mountain lakes of west Cork and Kerry. As a result of my collecting *Lymnaea involuta* Thompson was reduced to subspecific rank, and *L. praetenuis* Bowell washed out altogether.

Communications in my first days were either difficult or non-existent. To get to Glengarriff it was necessary to take the now defunct Cork, Bandon and Bantry railway and then wait at Bantry for the boat, which only sailed twice a week. When my wife and I spent our honeymoon at Glengarriff in 1919 we hired a side car and drove the eighteen miles from Bantry. A side-car is what tourists, guides and romantic authors call a "jaunting car". I never heard the word used in Ireland until after the second world war, though it may have been at Killarney, which was early devoted to such rubbish as bog-oak, post cards of angels and the lakes printed in Germany and the Colleen Bawn (invented by Dion Boucicault circa 1850).

On 10th May, 1914, I took the first recorded Irish specimen of *Eupithecia pulchellata* sub-sp., *hebudium* Sheldon, which whetted my interest in the Irish melanics. I have the insect still and it is identical with Sheldon's Scottish type in the B.M. Since then I have kept records and specimens of most of the melanic western forms, and have tried at times to produce theories about them, but have always given up in despair. Nature is rather a sorry jade; just as you seem to have mastered the cause of some phenomenon, she gets behind you and treats you as More of More Hall did the Dragon of Wantley.

My first difficulty is the utter inconsistency of species, several of which are extremely light in the west. *Hadena conspersa* Esp., which has black forms in the Shetlands, and even on the silver sand at Tresco is slightly suffused with buff when fresh, is at Dingle as clear a black and white as on the Kentish downs or at Dungeness.

Eupithecia castigata Hübn. is represented at Dingle by a whitish insect with black bands: I took this to the B.M. to be confirmed, and even Mr. Fletcher was doubtful until he had examined the genitalia. As I have only taken two, so far, I have not sufficient material to tell whether it is a sub-species or an aberration of which I have missed catching the typical form.

Cleora repandata L. is, at Dingle, the lightest I have ever seen. I have taken beautiful dove-grey forms at Glengarriff, but these are there mixed with heavily speckled ones, but at Dingle the majority are whitish grey with a few dark lines. Unfortunately all these forms change from grey to dirty brown after a few years in the cabinet.

Polia nebulosa Hufn. The whitest I have ever seen come from Glengarriff and Dingle.

I will not multiply examples, of which I could give others, but it is

disconcerting when insects much paler than usual turn up with the melanics.

My second difficulty is the utility of melanism in these coastal insects. Apart from cryptic reasons, Dr. Kettlewell has suggeted that in these misty and rainy areas, a black insect can absorb sunlight more readily than a light one. His arguments with painted coins, etc., are quite convincing, but I cannot understand how an insect can be benefited by sunlight to which it is seldom, or never exposed.

I have done little collecting with a light in Ireland and made most of my captures by hard searching yet I have never seen *Hadena lepida* ssp. *capsophila* Dup. or *H. caesia* Borkh., both of which are markedly melanic, at rest on a rock although I have found plenty of *H. nana* Hufn., whilst looking for them. This is the more remarkable as *capsophila* is one of the commonest insects where it occurs, as I have often found the light *lepida* Esp. on fences and posts in Kent. Although I have netted both species at dusk over flowers, I have never heard of anyone finding *capsophila* at rest naturally, and the only *caesia* that I know was so found was one by P. H. Grierson on the cliffs of Moher, Co. Clare. Grierson, who was in the Irish Land Survey, was, like R. A. Phillips, primarily a botanist and conchologist, and was no doubt peering for snails when he found it. It may be remembered that he was the first to find the glass snail *Vitrina pyrenaica* Fér. in the British Isles at Collon, Co. Louth; when first found, it was described as a new species by the late J. W. Taylor as *V. hibernica*.

In 1915 Grierson, Phillips and myself had a discussion on Irish melanics and other subjects at Galway, and these two acute observers both said how seldom you found melanic insects when snail-hunting. I remember the occasion particularly as we did not knock off until 1 a.m. and my boat left for the Arran Islands at 5.30!

I have mentioned these two Hadenas particularly as their coloration is uniformly dark, whereas in most others the darker specimens are mixed with more typical. Even here, however, insects are seldom seen at all unless disturbed, or attracted to M.V. light, and I think are mostly hidden by day.

I will now give a few notes on the dark forms I have seen, in the hope they will help others in forming conclusions.

Cryphia muralis Forster. I have only seen this moth, on which I specialise in Ireland, at Dingle in the far west. It is rare there and runs from pale grey through green, to black (ab. *nigra* Huggins). In thirty days hunting, mostly in company with my wife, who was quite as good as I was, I have seen 70 examples, of which four were ab. *nigra* and five of a greenish black form which might fairly be called melanic. These melanics were sitting on walls in company with the lighter specimens. I have never seen a melanic *muralis* in Cork, where it is locally common, or elsewhere.

Hadena caesia Borkh. The so-called black *caesia*, which is dark iron grey with still darker areas, appears to be the only form found in west Cork and Kerry. I have it from Adrigole, Slea Head and the Blaskets, and I also bred two of this kind amongst a long series of the blue-grey ones from the Burren.

Hadena cucubali Fuessl. Kane mentions a specimen from the Blaskets of a blackish ground colour with only the faintest trace of purple. I have bred a number from Adrigole (my locality there was a large rock, cut off, except at low tide, and covered with spray in every wind) and also

Inishvickilaun in the Blaskets, and all were exactly similar to my Kentish ones, or those found on ragged robin on inland bogs in Ireland.

H. lepida ssp. *capsophila* Dup. The melanic ab. *confusa* Tutt is the only form from Seven Heads in Cork, to Dingle. When fresh it may fairly be called black, but turns brownish black after a few years. I have also bred ab. *obsoleta* Richardson, in which the lighter markings are almost entirely gone, from Adrigole, Slea Head, and the Blaskets. Curiously enough I bred four or five from Adrigole which are as light grey as any Howth ones, but these were a very small percentage as from 1948-50 I bred over 100, as all my friends wanted black ones and the larva was very common at Adrigole.

Eumichtis adusta Esp. All Dingle specimens are deep blackish-brown, the lighter brown and marbled forms which predominate in England are absent.

Apamea monoglypha Hufn. The very dark brown, almost black, forms are found all round the coast of west Cork and Kerry from Glengarriff to Dingle in varying proportions. At Glengarriff I should estimate them at 5%; at Dingle at 25%. The Dingle ones are darker than any I have seen from Scotland or elsewhere.

Caradrina taraxaci Hübn. At Dingle 25% of this moth are deep brownish black. Mr. E. S. A. Baynes has informed me that this form is the commoner one in some parts of the Burren. As the moth is most obscure in habits (I have never seen one in the day time) the value of its melanism in Western Ireland appears somewhat problematical.

Euphyia bilineata L. This is another Irish insect on which I have specialised; it is also the most puzzling. On most of the sea cliffs and beaches of west Cork and Kerry it varies little, yet on a thirty mile range from Dingle to Dursey, occasional cliffs have a profuse range of variation from slightly striped and banded forms to *hibernica* Prout and very rare extremes such as almost uniform blackish brown near to *isolata* Kane and *ethelae* Huggins, the blackish brown form with a few white hair lines on the forewings. My two specimens of this were taken in localities thirty miles apart and at an interval of eight years. In these mainland cliffs, where it does vary 90% of the moths are ordinary yellow, or nearly so; the variations only exist in gullies on the cliff face, and in some gullies a small percentage of *hibernica* and its allied forms is found, whilst in exactly similar ones a few hundred yards away, all specimens are yellow. A peculiarity of these *hibernica* forms is that they in some cases inhabit caves and others live in the rough grass, ragwort, and occasional brambles growing on the rock surface, and that those inhabiting caves are in all cases accompanied by typical ones, whilst the darkest may lurk in a tuft of grass. The original ab. *ethelae* taken by my wife was dislodged by me from a mass of grass and brambles twenty feet below the top of a cliff and flew to the top where she was standing, and was boxed by her from a rock on which it alighted. I have never seen any of these extreme forms except where the cliff is periodically drenched with spray in rough weather. Finally there is the most extreme form *isolata* Kane. This so far has only been found on Tearaght and Inishvickilaun in the Blaskets. Kane's specimens were all taken on Tearaght, and I know nothing further about them except that they were the only kind found on the island and that he took a number of females. They are now, after over sixty years, of a blackish brown colour. On Inishvickilaun I have seen 18 specimens, of which seventeen were males and one a female. Of these I obtained eight,

all males, whilst in 1953 Mr. J. E. Flynn in a week on the island took two males and a female (most of his time was spent bird-ringing). *Isolata*, when fresh, has a remarkable jetty sheen, which goes off in a year or so; I have seen no comparable specimens on the mainland. It is the only *bilineata* found on the island, and quite different in habits from those on the mainland cliffs. It appears to live only in clefts and caves on the sea face, I have never disturbed one from grass, thrift, or sea campion. When Mr. Baynes and I first visited the island in 1960 we worked all over it, beating bracken, stone walls, a nettle bed, and brambles, and saw nothing except the single specimen we dislodged from the cliff face. It would appear that shortly after emergence it makes its way into these caves and clefts, and also that the female is very sluggish and difficult to dislodge by day. The only one I saw went into a narrow cleft and did not come out; she probably flies at dusk as Mr. Flynn caught one during his stay. I imagine Kane, who visited Tearaght in his yacht, worked for the females in the evening. On a day trip to Inishvickilaun it is not safe to stay after mid-afternoon owing to the danger of fog and navigation amongst the rocks and races of the journey. The females on the mainland cliffs are as easy to dislodge as the males. It seems that *isolata* differs not only in being a homogeneous population, but also in habits from all other *bilineata*.

Eupithecia pulchellata ssp. *hebudium* Sheldon. This subspecies, which totally lacks the pale brick-red of typical *pulchellata*, appears to be the only coastal form from Glengarriff to Dingle; I have it from Glengarriff, Adrigole, and Dingle, and Mr. Baynes has it from Valentia. It penetrates at least three miles inland, but as Donovan knew nothing of it until I told him of my original Glengarriff specimen, I infer it is not found in his collecting grounds in east Cork or Killarney. In the long series I bred from Glengarriff, one or two have a slightly brownish suffusion; my Dingle ones are the most extreme, clean black and white.

Eupithecia venosata Fab. All specimens I have bred from Inishvickilaun are the ssp. *plumbea* Huggins, a very deep leaden insect. I recently showed some to Mr. Fletcher at the B.M. and he could find none like them in the collections there. They are far more extreme than any Shetland or Orkney ones. I have a few pupae from the mainland and it will be interesting to see if they are also *plumbea*, or like Donovan's smoky ones from Cork.

Cnephasia conspersana Doug. I bred a few of this moth from sea campion gathered on Inishvickilaun, but as I did not open the bags for several days, all were spoilt except one male and one female. The male is exactly like a small Scottish *octomaculana* Haw., the female plain shining black, quite a different colour from the blackish form of *chrysanthemana* Dup. The ruined insects were the same colour. This is another interesting case as the males on the cliffs opposite at Slea Head are uniform pale grey. The identity of these has been checked at the B.M.

As I intend visiting the west shortly, I had thought of postponing these notes until the Slea Head *venosata* had emerged and until after I had returned, but thought I might celebrate my jubilee with them. Also readers can guess my other reason; anno domini.

Notes on the Microlepidoptera

By H. C. Huggins, F.R.E.S.

Platytes alpinellus Hübn. Mr. Allen's note on this Crambid (antea 116)

is very interesting. On the night of 8-9th July 1957 a perfect male came to my mercury vapour light in the garden here at Westcliff and in recording this (*Entomologist*, **90**: 269) I pointed out that the nearest known localities were Sandwich Bay and Aldebrough and that it was new to Essex and appeared to be a migrant. I have, of course, no knowledge as to the localities where other specimens were captured last year, but, at any rate until 1932, the moth was common on the golf course at Sandwich Bay, so a local migration thence seems to me at least as likely as one from abroad.

Cnephasia conspersana Dougl. The confirmation of my Blasket insects as this moth once more draws my attention to its protean character. In my Blasket specimens, the male was pale grey with almost black markings as in *C. octomaculana* Haw. and the female shining leaden black. On the Kerry coast it is pale grey with a few dots, and in the Scillies the markings are much heavier. On the Dorset coast it is heavily spotted, and at St. Margaret's Bay it was a chalky white insect (see Barrett, **10**: 262). This chalky form, however, was really very scarce; of about thirty specimens submitted to Pierce, only one was *conspersana*, the rest being a white or pale chalky grey form of *octomaculana*. The curious form found on the salt marshes of the Thames estuary (see Tutt's Practical Hints, **1**: 39) which Tutt said had not been reported on, was also sent by me to Pierce, and proved to be *S. pascuana* Hübn.

Lobesia euphorbiana Freyer. I was sorry my friends Chalmers-Hunt and Wakely had no luck with this moth at the Warren. I turned it up commonly there in 1925 and passed on the locality to my friend Ford. It fed on wood spurge and was double brooded; possibly in a late year like 1963 they were between the broods.

Collecting in Elba
Charaxes jasius L. and other Species

By J. A. C. Greenwood, O.B.E., F.R.E.S.

Most islands are attractive, particularly if they are small enough to allow a visitor to see a large proportion in a short stay. If, in addition, the weather is excellent, the scenery superb, and the visitors concentrated in a few resorts, the prospects for a pleasant holiday are promising. Elba also provided the final ingredient, a numerous and interesting population of butterflies and moths.

We arrived on the island on the 27th August 1963 and left on the 16th September. We flew from London to Pisa, paused there for three days to see the Leaning Tower and the other spectacular buildings in this interesting city, and then travelled southwards by train for a couple of hours to the port of Piombino, which is ten miles west of the main Rome-Genoa railway to which it is joined by a branch line.

From Piombino there is a regular service of ferry steamers, modern vessels carrying up to 1,500 passengers and 40 or 50 cars on each trip across the six miles or so of sea dividing Elba from the mainland. We landed at Portoferraio, the capital of the island with a population of 11,000. The hotel car met us at the ferry terminal and took us six miles westwards to the bay of Procchio, where we were to stay.

Elba has a coast-line of 90 miles, but an area of only 62 square miles. Our base was roughly in the middle of the north coast; at this point the island is just three miles wide. This North/South axis through a fertile plain is highly cultivated, largely with vines. On either side the hills rise sharply and from them the islands of Pianosa and Montecristo are visible on a clear day. Almost the whole island is mountainous, the highest point being Monte Capanne, some 3,400 feet, a great mass of granite which, perhaps because of the small scale of this island, seems very much higher than it really is.

The hills are thickly covered with vegetation, including cork oaks, sweet chestnuts, olives, pines; with dense growths of heathers (sometimes six to ten feet high) and arbutus.

It would be difficult to move about on the hillsides through this tough undergrowth if there were not innumerable paths, criss-crossing in every direction and well marked on the local map. Many of these routes seem to have been cleared either as a means of access for the cork cutters to their trees or to provide short cuts from isolated farmhouses to the village or main road. In addition a considerable length of water pipeline has been laid quite recently and these cleared strips also provide a way into and over the hills.

Our hotel was modern, admirably equipped, with a private bathing beach (water temperature 70°+) and a large sea-water pool. From Procchio a large part of the island can be reached on foot and there are also buses (with a somewhat erratic and inconvenient time-table), taxis and cars to be rented.

My collecting was mainly from an area within a four mile radius of the hotel with two expeditions to Monte Capanne, some five miles in a straight line but ten by road.

The rock formation in this area is granite, with porphyry and eurites. The hills near Procchio range from 200 or 300 feet to 1,000 or more and 2,000 foot slopes are reasonably within walking range. To the west they rise to the Monte Capanne massif, the upper parts of which are largely bare rock, in some areas forming a loose scree of gigantic fragments.

The ascent of Monte Capanne on foot is not difficult for there are well marked paths, but a 'bus takes the less energetic to the terminus of a recently completed chair-lift which covers the last 2,000 feet to the sound of piped music; fortunately this is only audible within close range of the actual pylons.

Throughout our stay the weather was hot, with day temperatures up to the high eighties, and blazing sunshine, except for two days of mist and one of strong winds and continuous rain.

Elba with the other islands, such as Corsica and Sardinia, is much older geologically than the mainland of Italy, and may represent the remains of a submerged continent which extended to the Balearic Islands and the Iberian Peninsula.

RHOPALOCERA

In all, 34 species of butterfly were seen and captured, with one additional species seen as larva only.

Papilio machaon L., the swallowtail. Fairly numerous throughout the area, especially near the sea. Abundant on the outskirts of the village of S. Piero in Campo at an altitude of 800 feet near the southern coast.

Papilio podalirius L., the scarce swallowtail. Common on the beach at Procchio; not frequent elsewhere. Several almost full-fed larvae found feeding on cherry.

Papilio (?). One larva on fennel near Procchio. It failed to pupate. Very similar in appearance to *P. machaon* but pale grey ground colour instead of green.

Pieris brassicae L., the large white. Widespread but not abundant. A large well marked race.

Pieris rapae L., the small white. Scarce, some with pronounced grey dusting on the upper side.

Pieris napi L., green-veined white. Very scarce.

Pieris manni Meyer. Very like the small white but with a squarer black spot. Only one taken.

Pieris daplidice L., the bath white. Common on the beach; occasional elsewhere; some very worn, others freshly emerged throughout our stay.

Pieris sinapis L., the wood white. Scarce, single specimens in a number of areas. The local form appears somewhat smaller than the British.

Colias croceus Fourc., the clouded yellow. Common, especially on Monte Capanne up to 2,000 feet. Many more females than males, and 1 in 4 f. *helice* Hübner.

Gonopteryx cleopatra L., the mediterranean brimstone. Occasional fresh specimens, mostly on foothills near Procchio. The orange patch on the males is very conspicuous in flight.

Charaxes jasius L. The aristocrat of the island. In July I had spent three weeks in Uganda, Kenya and Tanganyika and had seen a number of *Charaxes* sp., but this was my first experience of seeing *C. jasius* in flight.

The butterfly is extremely fast on the wing, reminiscent of *A. iris* L. It is pugnacious and frequently appeared to attack *A. pandora* L. and other species. It is also inquisitive and greedy. The first specimens I saw were flying at great speed round a tree of a Pyrus species. They seldom came below fifteen feet but occasionally settled on the branches and on the ripe fruit, always well out of reach.

Jasius is very common on Elba, on several occasions a dozen or more were in sight simultaneously. The twin tails on the hindwings are fragile and, owing to the speed of flight and its habit of roosting at night and during cloudy intervals in the heart of a cork oak or amongst similarly dense foliage, undamaged specimens are not easily found.

Gradually I learnt how to capture this fine butterfly without difficulty. Ripe, growing figs, preferably black and split, have a great attraction for males and females, and they feed so greedily on these that on more than one occasion I was able to select a perfect specimen and remove it between my finger and thumb. Others were netted as they fluttered slowly searching for the choicest (by their standards) fruit.

When my straw hat was well soaked with sweat it too served as bait. The second specimen I caught settled on my hat and I saw its shadow added to my own. Catching it was more difficult, but I finally swung my net straight down over my head and shoulders. Several others were caught as they investigated the hat which I had displayed on a convenient bush.

Along some of the more open paths *jasius* flutters about comparatively slowly and sometimes settles on arbutus and the taller heathers. This habit is much more pronounced between 10.30 and 12.30 when the morning sun is at its hottest. It is reluctant to fly at all unless the sun is shining, and the markings on the underside are an effective camouflage so that it is extremely difficult to see when at rest with the wings closed.

The most successful method of catching a large number of specimens, without the risk of damaging them, was to walk along the paths cut through the heather and shrubs which form a wall on either side about six to eight feet high. *Jasius* loves to fly along these paths just above the level of the bushes, and can be caught quite easily by sweeping the net over one's head from front to rear in the direction of the insect's flight. By this method the fabric of the net is moving with the insect and not against it and, as the butterfly does not see the net, it cannot take the avoiding action which it does so skilfully that a stroke towards the butterfly's head is seldom successful unless it is done so violently that damage is almost inevitable.

I was using a net made of very light, fine mesh nylon with the largest bag that could be handled in the rather confined area.

In all I captured over 200 specimens of *jasius*, including one spell when I caught 22 in half an hour. I was able to select some 30 perfect, or almost perfect, insects. Badly damaged specimens were released at the end of each session to avoid the likelihood of catching the same individual more than once.

Jasius appears to fly over almost the whole of the island from the sea-shore up to at least 1,800 feet on the slopes of Monte Capanne. The largest female has a wing span of just over 4 inches; the males are half or three-quarters of an inch smaller than the females.

Limenitis rivularis Scop. Widespread, but not plentiful. Its flight is very similar to our own white admiral, but this southern European species has a distinctly blue irridescence.

Vanessa atalanta L., the red admiral, only half a dozen seen.

Vanessa cardui L., the painted lady, very few seen and all these on the beach.

Argynnis pandora L. This large fritillary, so like our own silver-washed fritillary, but with imposing red markings on the underside of the forewing, was locally abundant, though mostly past their best. It was to be seen in dozens on a large bed of African Marigolds in the hotel gardens, and was numerous on the slopes of Monte Capanne up to 2,000 feet. One specimen with large, confluent black markings on the underside was taken. The majority of the females were greenish, similar to ab. *valezina*.

Argynnis lathonia L., the queen of spain fritillary. Only seen on Monte Capanne at 1,500 feet where about a dozen were observed, but only five taken owing to the difficulty of movement except on the path.

Neohipparchia statilinus micromaritima Verity. This large well-marked satyrid has almost black ground colour. Although very numerous on all hills, especially Monte Capanne, very little variation was observed.

Hipparchia aristaeus Bonelli. A large and beautifully marked species of the Grayling group. Only found on the hillsides and local. Not many fresh specimens and difficult to catch. The form found on Elba seems the same as that on Corsica and Sardinia.

Pararge megera L., the wall brown. Abundant, usually on hillsides, some females very pale.

Pararge aegeria L., the speckled wood. Locally abundant.

Epinephele jurtina L., the meadow brown. Abundant. Females much more frequent than males. A very brightly and well-marked race. On Elba this butterfly has very secretive habits. It seldom appears at all in the sunshine and prefers dense shade where it flies under bushes only a few inches above the ground.

Epinephele tithonus L., the gatekeeper; females only, sparse and very worn. Probably at the end of its flight period.

Epinephele ida Esp. Very similar to the gatekeeper except on the underside. A few very worn females.

Coenonympha pamphilus L., the small heath. Only one specimen taken.

Coenonympha corinna elbana Staudinger. Rather like the small heath, but this race is found only on Elba and adjacent islands. Attractively marked, particularly on the underside. It was very abundant almost everywhere in all stages of wear. Flies in sun and shade alike.

Zephyrus quercus L., the purple hairstreak. Several seen flying high round trees, but only two captured.

Lampides boeticus L., the long tailed blue. Only two seen, a female at 1,000 feet, a male at sea level.

Calastrina argiolus L., the holly blue. Very common in wooded areas.

Lycaena phlaes var. *eleus*, F., the small copper. Not common, less than thirty seen in all, but widely spread. Ground colour variable but a preponderance of dark specimens with well pronounced tails.

Lycaena telicanus Lang. A few of this little tailed Blue in the hotel grounds and several a mile away on flowers of a vetch. Not seen elsewhere.

Lycaena agestis Hub. Common in restricted localities.

Polyommatus icarus L., the common blue. Abundant at lower levels.

Spilothyrus alceae Esp. An attractive Skipper with lighter build than many. Only seen in the hotel grounds.

Gegenes pumilio Hoffmsgg. A dark brown Skipper, the female with a few light markings, only five taken.

HETEROCERA

I had no equipment for night collecting but quite a large number of species were found flying by day or at rest, were stirred up or were captured at lighted windows in the hotel or village shops. The following are a few of the more interesting species so far identified:—

Sphinx convolvuli L., the convolvulus hawk, one at rest on a tree. A very large female flew into the hotel dining room during dinner and created considerable alarm and chaos before I captured it with the help of a waiter.

Macroglossa stellatarum L., the humming bird hawk moth. Very common at the hotel around bougainvillaea (which was also attractive to *P. machaon* and *P. podalirius*). Very seldom seen elsewhere.

Lasiocampa quercus L., the oak eggar. Males very common flying by day. A well marked race. Several females at lighted windows. Some males of a form without bands taken.

Lasiocampa trifolii Shiff., the grass eggar. Two males and two females taken at lighted shop windows.

Gastropacha quercifolia L., the lappet. Four males at lights. A small, pale form, Also five ova found on the edge of a cherry leaf on which a larva of *P. podalirius* was feeding. One of the resultant larvae fed up rapidly and pupated in November 1963, the other four are hibernating.

Coscinia striata L., the feathered footman. Common in one area of waste ground, flies freely in the sunshine. Two males taken with black hindwings.

Coscinia cribrum L., the speckled footman. A few specimens of a large, pale form taken at light.

Deiopeia pulchella L., the crimson speckled footman. Only one, found in a field of stubble.

Phragmatobia fuliginosa L., the ruby tiger. Occasional at light, large and rather pale.

Plusia gamma L., the silver y. Frequent by day and at night.

Plusia ni Hübn., the scarce silver y. A few seen.

Catocala dilecta Hübn., a large crimson underwing larger than *C. sponsa*. One found at rest on a tree.

Catocala conjuncta Esp., a considerably smaller red underwing. Several disturbed during the day and these caught. Very lively and take to the wing easily.

Pseudophia tirrhaca Cram., a large moth with pale greenish yellow forewings and yellow hindwings marked with brown. Three disturbed. A very fast and erratic flier and only one captured. I also caught this species in Nairobi in July 1963. It is related to *P. lunaris*, the Lunar Double Stripe.

Acontia luctuosa Schiff., the four-spotted. Several taken in a patch of waste ground.

Sterrha sacraria L., the vestal. Common but local. In some specimens the red diagonal streak is replaced by very pale brown, in some the whole forewing is pinkish.

Although our visit was made comparatively late in the season, insects were very numerous. An expedition in June or July would probably prove very rewarding.

A car is not necessary, but it would be a useful aid to hire one, at least for part of a visit, so that the south-east and western corners of the island, which are poorly served by buses, could be more easily reached from a centre such as Procchio.

The standard of hotel is good, the people friendly and helpful and, if a holiday without elaborate night clubs (which will probably soon appear) and large shops is acceptable, I would recommend a visit; with or without entomology as an objective.

My thanks are due to Dr. de Worms for his help in identification.

Woodcote, Horsell Park, Woking, Surrey.

Entomologists will note with pleasure the appointment of Professor O. W. Richards, D.Sc., F.R.S., to the Scientific Policy committee of the Nature Conservancy; they thus have one of their own fraternity on this important committee.

Some Notes and Observations on the Life History and Habits of the parasite *Psychophagus omnivorus* (Wlk.) and its attacks on the pupae of Lepidoptera

By A. T. Postans

The parasitical insect enemies of the lepidoptera are as varied as they are numerous. Almost every lepidopterist becomes acquainted with this fact quite early in his career. But while the perfect insects themselves are often well known and conspicuous enough yet of their earlier lives and habits many of us know but very little.

When we consider, for a moment, how closely associated with the lives of the lepidoptera these parasites are this fact seems all the more surprising. It is a subject that seems to attract but little attention even from our leading entomologists; for we seldom hear of it being discussed at any of the meetings, and articles or notes on the subject are few and far between in the various entomological magazines. Why this should be it is difficult to imagine, for in the whole world of insects there are few more interesting creatures to watch, and the problems they sometimes present are a joy to the observant naturalist and an entertainment to the curious.

I propose, in the course of this paper, to give an account of a few personal observations concerning the life history and habits of one of the chief insect enemies of the lepidoptera; but, before proceeding with this subject, a few details about lepidopterous parasites in general and the position they occupy in scientific nomenclature may be of interest. In the first place, then, the numerous species may be grouped into three distinct orders, viz.:—Hymenoptera, Diptera, and Synaptera—or wingless parasites. To the latter order belong the various species of mites which infest the bodies and wings of some butterflies and moths—sometimes in considerable numbers. It would be interesting to know what influence these particular parasites have on the lives of their victims. It is possible that they only cause inconvenience. It is equally possible—nay, much more probable—that the sustenance which they derive at the expense of their hosts must inevitably tend to make those brief lives still shorter. But upon these problems, interesting though they may be, we will not linger at the present moment.

Larval parasites are usually either Hymenopterous or Dipterous, but some species of noctua larvae frequently fall victims to the Synaptera as well. The embryos of this order do not live within the bodies of their victims but sap their vitality while attached to the outer surface of the skin. The ultimate result however is the same in all cases for feeding is continued until nothing but the shriveled skin of the host remains.

Pupal parasites are very few, only about four or five being known to occur in this country. All are Chalcids; and at least one species, *Psychophagus omnivorus* (Wlk.), is common everywhere. It is this species which so frequently attacks the pupae in our breeding cages—although not many of us are perhaps aware of the fact; for, so insidious are its attacks that its depredations may be carried on for years under the very nose of the collector without him being any the wiser as to the real cause of the mischief among his stock even in the breeding cages. My attention was first attracted to this parasite some years ago when I discovered unmistakable evidence of its work upon the cocoons and

pupae of *Cerura bifida* which I happened to be breeding in some numbers at that time. The knowledge gained of its habits then imbued me with a desire to know still more about it, and it was not long before I discovered that its activities were not confined to the pupae of *C. bifida* alone but included also the pupae of almost any fair sized moth as well as those of some butterflies.

To give some idea of the wide range of choice open to this parasite in its selection of a victim I will here give a short list of species from which I have, on more than one occasion, actually bred it.

From the pupae of *Smerinthus populi*, and *S. ocellatus*; *Endromis versicolor*, and *Saturnia carpini*; *Arctia caja*, *A. villicae*, *Spilosoma menthastri*; *S. lubricepeda*; *S. fuliginosa*; and *S. mendica*. Of the "prominents"—*Stauropus fagi*; *Cerura bifida*; *C. furcula*: *Dicranura vinula*: *Notodonta dictaea*; *N. ziczac*; *N. dromedarius*; *N. trepida*; *N. chaonia*; *Pterostoma palpina*: *Lophopteryx camelina*; and *L. carmelita*: many species of noctuae, including *Acronycta psi*; *A. tridens*; *A. aceris*; *Hadena glauca*; *H. pisi*; *H. oleracea*; *H. thalassina*: *Nonagria typhae*; etc., etc. Also from the pupae of *Boarmia gemmaria*; *B. abietaria*; *Tephrosia biundularia*; *T. consonaria*; *Biston hirtaria*; and *Selenia tetralunaria*—especially the spring brood—these of course having been attacked in the autumn. But the geometrae, as a whole, seem fairly immune; and the same may be said of the butterflies.

Pupae of the *Vanessids* are, however, an exceptional attraction, and are sometimes attacked wholesale. Entire broods of *V. io* and *V. urticae* will often produce this particular parasite in vast numbers.

The wonderful instinct and almost human intelligence displayed by this species, when seeking a victim, is something to marvel at. I will take the case of *C. bifida* for example. Here the objective—the pupa of course—is completely hidden from view, cleverly concealed, and protected on all sides by hardened walls of gum and wood chips closely amalgamated together to form an apparently impregnable casket. That a lilliputian insect, which is smaller even that a grain of teazel, should be capable of detecting that hidden morsel and of piercing those tough walls to get at it seems almost incredible. Yet, to the female *omnivorus*, the problem presents no difficulties. Without hesitation it flies straight to its hidden prey, and with deadly sureness settles down to the task of patiently biting a hole in the wall of the cocoon. The operation may take several hours to accomplish, but eventually the hole is large enough for the parasite to squeeze through—it enters and is lost to view, to complete its mission on the helpless pupa within. It never makes a mistake; even before it has pierced that outer barrier it knows what lies beyond, for it will make no attempt to enter a cocoon if it does not contain a healthy pupa.

Another interesting fact concerning this species is, that although it never attacks larvae, yet it will linger in the vicinity of some species for days, patiently waiting for them to change to pupae.

I once had in my possession some half grown larvae of *V. polychloros* from the New Forest. These were sleeved on a bush of *Salix caprea* in my garden and within a few hours I observed several female *omnivorus* crawling about over the foliage and examining the larvae, having obviously made their entrance through the leno sides of the bag. I at once removed the larvae and resleeved them in another part of the garden, but the parasites were not long in marking them down and again made their appearance inside the sleeve. This time I allowed them

to remain undisturbed, as it occurred to me that it would be a good opportunity to observe more of their work and to see what they would do on this occasion. Right up to the time when the larvae were full fed there was always parasites moving about in the sleeve; sometimes more, sometimes less, but they never deserted it altogether. Eventually the larvae slung for pupation—some to the undersides of leaves and others to the top of the leno bag. I noticed that as soon as this happened the parasites immediately ceased their restless roving and took up positions on the suspended larvae—but not more than one on each. When I touched one with a grass stalk it made no attempt to fly off but moved sluggishly about over and around the larva, but never leaving it unless absolutely forced to.

I repeated this experiment on several others, but the result was always the same; the flies were obviously there with some special object in view and from which they were not easily to be turned aside.

At times the larva would make frantic efforts on its own account to get rid of its unwelcome attendant—contorting itself and lashing round in all directions but all to no purpose—the fly always maintaining its hold and seeming but little disturbed.

Just before pupation took place I carefully removed the larvae that were suspended from leaves to a safe place indoors—having first picked off and killed the flies attached. The larvae suspended from the top of the leno bag were allowed to remain undisturbed.

All pupated shortly afterwards and by noon of the next day the parasites in the sleeve had disappeared and were seen no more.

No further incident occurred until a couple of weeks later when the pupae in the indoor cage commenced to develop rapidly and in due course produced butterflies—perfect in every way.

Meanwhile there was no apparent change taking place in the pupae of the sleeve. They were, in appearance, perfectly healthy; but they failed to respond to a gentle touch, and a few days later became marked with uneven crimson stains. At this stage I removed them for closer examination and in every case found the well developed grubs of a parasite which I had no difficulty in recognising as those of *P. omnivorus*.

I will now explain how and when the eggs of the parasite were deposited. The way in which this important operation is carried out, as well as the events leading up to it, may well deceive all but the most observant.

In the case just dealt with, for example, all the facts would seem to indicate that the larvae were the victims of attack and not the pupae.

I have shown what an irresistible attraction they seem to possess for the female parasites—for days all were closely associated together. But as soon as the larvae had pupated the attraction was gone and the parasites no longer remained. What more conclusive evidence could there be than this?

And yet, for all that, there is one important thing which could not be overlooked. For why did some pupae produce butterflies and others only parasites?

There was a significance about this fact which could not be ignored, and therefore I was forced to accept the only other logical alternative, which is, that the pupae *were* the victims after all; and the following explanation will prove that this was actually the case. First of all, the

female *omnivorus* intent on egg laying has but one concern—the welfare of her future progeny. When she finds a possible pupa victim it matters not at all whether that pupa is soft and but newly formed or weeks old, its skin toughened from exposure and by the passing of time—so long as it can provide sufficiently for a brood of grubs until they are full fed.

Also the eggs must be deposited in such a way that the tiny grubs when they hatch out shall have no difficulty in reaching the nourishing juices so vital to their existence and development. There must be no obstacles in the way or they must inevitably perish as soon as they are born—for the sucking mouths are useless for any other purpose but the sole one of taking in liquid nourishment.

For this reason, then, it is plain that the eggs cannot be laid at random on the pupa skin—nor are they. But there are vulnerable parts which the parasite does not overlook—the mouths of the breathing tubes—the spiracles, and it is in these that the eggs are deposited. Now, in the case of the *polychloros* larvae, the victims chosen for attack belonged to a group of butterflies which only remain for a short period in the pupal stage and it was essential for the parasites to be close at hand in order to deposit their eggs the moment a favourable opportunity presented itself —no time had to be lost if their project was to meet with success. For this reason the prospective victims once found were always kept in sight and never left. Yet, while they remained as larvae, they were not molested; or at any rate no real harm was done them. But it was obvious that their actions were being closely watched all the time, for as soon as the larvae slung for pupation it was the signal for the parasites to draw closer—the opportunity for which they had been so patiently waiting was close at hand. As soon as the larval skins were cast off and the pupae were exposed the moment for action had arrived—eggs were quickly secreted and the parasites disappeared for good, their object achieved. The eggs are so minute that only with the aid of a strong lens would it be possible to ascertain the exact number deposited in any particular case; but I have obtained fairly correct estimates by carefully noting the number of parasites bred from various pupae on different occasions. The number certainly varies according to the size of the species. Thus from a pupa of *Hadena glauca* I have bred 89 flies—58 males and 31 females, but a pupa of *D. vinula* or *E. versicolor* will produce nearly twice that number although I am convinced that but one female is responsible in every case. So tightly packed are the grubs when full fed that they occupy the whole space of the interior of their victims from which the last vestige of liquid has been drained. Development is so rapid that the entire transition from ovum to imago occupies less than a month.

The perfect insect is continuously brooded from April to the end of October; the last brood hibernating as full fed grubs in the empty shell of the host.

The remarkable difference in the two sexes, both as regards size and in colour, is very striking and might easily lead one to suppose that they represented two distinct species. The head and thorax of the male is glittering metalic green; body black with a yellow longitudinal stripe beneath. The female entirely black with an almost imperceptible coppery sheen and is fully twice the size of the male.

A peculiar characteristic of both sexes, but more especially of the male, is the strong perfume which is discharged when one is touched or crushed between the fingers. The life story of this insignificant looking little

creature is not without interest as I have shown: but as a lepidopterist I have come to recognise it as an enemy with an evil reputation, and one not lightly to be despised, and lepidopterists in general will do well to be on their guard against it.

Common as it is yet it is all too frequently overlooked, or ignored, as I know well and it is for this reason that I have selected *Psychophagus omnivorus* as the speciel subject of my paper to-day in the hope that the few details concerning it which I have been able to supply may prove not only interesting but helpful to fellow readers of the "Record" and lepidopterists in particular.

'Broadmayne', 13 Stanfield Road, Winton, Bournemouth.

Conservation of Insect Life in the New Forest

NOTE OF MEETING HELD AT LYNDHURST IN THE VERDERERS' HALL ON MONDAY, 23rd MARCH 1964, AT 2.30 p.m.

Present:—

Mr. W. A. Cadman Mr. D. Bevan Mr. E. G. Parker	Forestry Commission
Dr. J. F. D. Frazer Mr. M. J. Woodman Mr. C. R. Tubbs	Nature Conservancy
Mr. R. B. Benson	British Museum
Dr. T. R. E. Southwood Mr. C. Mackworth-Praed	Royal Entomological Society
Dr. A. M. Massee, O.B.E., D.Sc.	South London Entomological and Natural History Society
Mr. R. W. Watson	Hampshire and Isle of Wight Naturalists' Trust
Dr. H. B. D. Kettlewell	Oxford University
Mr. H. D. Bessemer	
Mr. R. Mere	
Mr. H. Symes	

Apologies for absence were received from Captain R. A. Jackson and Mr. I. R. P. Heslop.

I. *Introduction*

Mr. Cadman welcomed the company and thanked them for giving up their time and coming so far in order to be present. He then read the attached prepared statement outlining the object of the Meeting.

Meeting 23/3/64—Conservation of Insect Life in the New Forest

Opening Statement by Mr. W. A. Cadman

Object of the Meeting

I have called this meeting because I am perturbed by the many changes in the abundance, and in some cases distribution too, of many species within the New Forest.

Now we all know that the prime reasons for the sudden change in the status of any one species may be quite outside our control: I refer, of

course, to the climatic factors of warm or wet summers, and mild or cold winters.

We all know that since the Second World War man has developed devastating means to control pests both on the broad acres of the farm lands and on the small plots of the allotments. No-one knows where the side effects of these sprays will end, nor how many innocent species will become victims. But here in the forest we have a greater measure of freedom from these sprays than many other areas in Britain.

The argument has been put forward that because sprays do ten times more harm than anything else, everything else should be permitted: and because motor car head lamps kill thousands of insects, mercury vapour lamps are harmless. There is no logic in this argument. It is because of all these additional losses which are occurring that we must consider how we can best make up for their adverse effects.

Now the other causes of change are:—

Land Use: I am using that term to cover the major activities within the forest; broadly three things are included, in ascending order of intensity of impact these are:—

(1) The ever increasing numbers of the public who spill out onto the forest for recreation.
(2) The grazing activities of the Commoners' animals.
(3) The work of the Forestry Commission.

This last, we all know, can have nearly as great an effect as climatic conditions. At this stage, all I want to say about this is that our work has to go on: we've got a very definite job to do (not an easy one, either!). But, when we know what the effects of any course of action will be, then we can often 'bend' our activities so as to favour a particular ecological set-up. Sometimes we can alter our work completely in order to assist some species—not necessarily insects—in need of help. We are anxious to do these things where it is a practical proposition: we haven't always got the knowledge, or the advice to know what is needed.

Lastly, I come to the question of collecting. Here I must say that I have been dumbfounded at the number of letters I have received:
"Dear Sir,

I hear there is a move afoot to ban collecting . . . . ".

Then follows a long list of the writer's prowess, and the letter ends with a strong plea that he, at any rate, should be allowed to collect.

These letters have left me with the impression that a large number of collectors must have very bad consciences!

Let me put this question of collecting into proper perspective. A very great deal of the collecting which is carried out does no harm at all. But, human nature being what it is, there are greedy collectors; there are collectors who do it for financial gain; and therefore there are certain insects which are particularly vulnerable by one or other of the many means available to collectors. On the other side there are many species which can be collected, bred up by carefully controlled conditions in parasite-free environment, and released to help build up a weak colony. Obviously, gentlemen, all these aspects must be considered, but collecting is only one of the many considerations which we must examine in order to arrive at a course of agreed action which will, we hope, promote conservation of Insect Life in the New Forest. I know no-one who has suggested a total ban on collecting!

Now the object of calling this meeting is to set up a *small* working committee who will advise me on desirable conservation measures to be adopted in the future in the New Forest. I cannot commit myself to accept this advice. But I will undertake to give it very close and sympathetic consideration.

But before we appoint this committee, which I now think should be the last and not the first item of the agenda, I think we should consider the main lines on which we should work.

What, I think, we must do, falls into three headings:—

(i) We must know, and record, what is happening, so far as we can.
(ii) We must decide what species are in the greatest need.
(iii) We must formulate a positive policy in order to help these species in particular, and others in general. There may well be two broad courses of action required—long term and short term.

I have talked for a long time. I only want to make three more points:—

(1) I am not prepared to open a discussion on fees for insect collecting permits. But there are three amendments which I want to announce: Day permits at 2s. 6d. will be available, schoolboy permits will be 5s. 0d. a season or 1s. 0d. a day, and bona fide scientific collectors are given a free permit.
(2) Please don't take up the time of this meeting by making an impassioned plea on behalf of collectors. That can be taken as read. We are not here to ban collecting (unless the panel recommends that, which is unlikely). Whether or not we shall need to control the collecting of certain species, or the means by which collecting is done, must be considered, the main emphasis being on those insects which may be in danger—and not on which collectors may be endangered!
(3) My last plea I make with all due humility. It is truly said that "a little learning is a dangerous thing". Unfortunately my personal knowledge of the latin names of lepidoptera is limited. I would ask that the learned company I am with to-day should first use the English names (which I do know for all butterflies, but not, I regret to say, for all moths) for my special benefit.

II. *Agenda*

It was agreed that Item 1 be deferred till last. Discussion then followed in general terms:—

2. *Species to be given Protection*

Mr. Bessemer felt that all butterfly species were in need of protection.

Dr. Kettlewell mentioned the extremely rare New Forest Burnet.

Dr. Massee mentioned various colonies of beetle species unique in this country and quoted instances where such colonies had been destroyed in the past.

3. *Measures to achieve Protection*

It was unanimously agreed that habitat was by far the largest single factor in conservation.

Mr. Bessemer referred to the spread of bracken in the Forest. Bracken kills off violets and consequently fritillary populations are reduced. It was agreed that a reduction of bracken growth would aid butterflies, moths and beetles. On the other hand bracken (and no burning) was essential for cicadas.

Mr. Bessemer also referred to the general disappearance of brambles from the Forest. He understood the cause to be a virus attack. It was agreed that the Committee would look into this, and should it be decided that research was desirable this would seem to be a matter for the Nature Conservancy.

The question of leaving sallow bushes for the eggs and larvae of the Purple Emperor (Iris), and for many other species, was mentioned. Mr. Cadman confirmed that there was a long-standing instruction to all foresters to do just this.

Mr. Watson mentioned a patch of nettles on the Forest about half a mile from the Hampshire County Council dump at Setley. These had been killed last year, apparently by a toxic spray. Mr. Cadman remarked that the use of toxic sprays on the Forest was not permitted.

4. *Methods of Collecting*

Mr. Cadman said that he was considering the long standing ban on sugaring. He had looked into its origin and as long ago as 1935 it was said to be responsible for serious losses amongst certain species.

Dr. Kettlewell commented that the current ban on *Sugaring* had been imposed probably 50 years ago because of the unsightly mess on trees.

Mr. Cadman stressed that Keepers should be informed when lights were going to be used at night. He agreed to permit sugaring experimentally.

It was agreed that the *Mercury Vapour Lamp* if properly used need not be a serious threat to conservation, but it should not be left as an unattended trap overnight.

It was pointed out that the use of Mercury Vapour Lamp for several nights in succession could wipe out a single local colony.

5. *Records*

Mr. Cadman stated that detailed records, including localities, of all species in need of protection were essential.

It was agreed that records be kept jointly by the Nature Conservancy and Forestry Commission and it is hoped that societies and individuals will co-operate by supplying information.

1. *Advisory Committee on Insect Conservation*

A Committee was appointed as follows:—

Mr. C. R. Tubbs (Chairman)
Dr. H. B. D. Kettlewell
Dr. A. M. Massee
Mr. C. Mackworth-Praed
Mr. R. W. Watson

Dr. Massee suggested that Mr. Gardner be co-opted.

It was agreed that the Committee should have the power to co-opt as desired.

Mr. Cadman undertook to make the Verderers' Hall available for Committee meetings.

Mr. Watson placed his house and office facilities at the Committee's disposal, free of charge.

It was decided that the first meeting of the Committee would be held in the Verderers' Hall, Lyndhurst, on Monday, 6th April 1964, at 2.30 p.m.

Mr. Mere, on behalf of those present, thanked Mr. Cadman for arranging this initial Meeting.

The Meeting closed at 3.45 p.m.

GOWAN C. G. CLARK

Obituary

GOWAN C. C. CLARK

Although the entomological work of the subject of this short notice was confined almost to South African insects, it is felt that some account of his great achievements in this field could fittingly be placed on record in the United Kingdom.

Gowan Creswell Coningsby Clark was born at Port Elizabeth, Cape Colony, on 19th April, 1888, and was by profession a civil engineer on the South African Railways. From an early age he had shown a keen interest in natural history, particularly butterflies, and even as a schoolboy, in the Western Cape, made discoveries relating to the early stages which would have been considered noteworthy had they been made to-day. In later years his Railway work enabled him to visit a wide range of localities and procure a very large number of interesting butterfly specimens, most of which, in order to save space, were retained as scale-impressions only, with the bodies and antennae meticulously painted in between the impressions of the wings.

In the early thirties he turned his attention to the painting of the immature stages (at that time, those of both moths and butterflies). These were at first drawn to the size of the originals, but on acquiring Frohawk's magnificently illustrated book on the British Butterflies he realised the necessity of including the more important details under magnification, and from then onwards produced most beautiful sets of paintings of the life-histories of South African butterflies, very many of which had not been previously known. It should be mentioned too that some helpful advice was given by Dr. A. J. T. Janse at about this time.

In all, about 260 life-history paintings of butterflies, each set on a single sheet, were completed before ill-health compelled him to lay aside his brushes towards the end of 1963. Numerous other species were represented by partially completed records, while the complete life-histories of several moths had also been done, as well as other paintings which represented Lepidopterous parasites, depicted under high magnification in most cases. The full life-history of one British butterfly, *Colias croceus* (Fourcroy) (the Clouded Yellow), was painted by him, from living material. All essential data accompanied each painting and very many original observations were made on the subjects covered, especially in connection with the honey-gland and retractile tubercles in the larvae of the Lycaenidae. Some of his publications were based entirely on such observations, amongst them a comprehensive paper on the proposed classification of the South African Lycaenidae from the early stages. This close study of the early stages threw fresh light on relationships and indicated specific differences till then not appreciated, examples of the latter being present in the Lycaenid genus *Heodes* and in the *thyra*-group of the genus *Aloeides*, of the same family. Besides many individual papers published elsewhere, a great deal of his work has been and is being reproduced in Dr. G. van Son's volumes of "The Butterflies of Southern Africa". Some twenty years ago he was awarded the Senior Captain Scott medal for his butterfly life-history work.

He was also a talented woodcarver, and his collection of models of fish, accurately carved in every detail and coloured as in living specimens, numbering over one hundred and housed in the Port Elizabeth Museum

and Snake Park, is unique.

As an entomological draughtsman, he possessed, to a very marked extent, the ability to retain in his mind's eye what he had seen under the microscope and accurately transfer this to paper, without referring frequently to the object itself; and this was probably the secret of his high output of work and his being able to record six or more life-histories, on occasion, all at the same time. He was a man of restless activity and retained his full vigour until very late in life. In spite of his remarkable gifts, he was always modest about his accomplishments and, with his kindly nature, always ready to assist, and help in any way, others who had a similar interest in Lepidoptera.

After a prolonged illness he passed away, at Port Elizabeth, on 26th January, 1964. His death has been a severe loss to South African entomology and he has been sadly missed by all who were associated with him.

C. G. C. D., Cape Town.

Notes and Observations

THE FOODPLANT OF IDAEA LINEATA (SCOP.).—With reference to Mr. Craufurd's note (antea: 115) I do not think that this moth feeds on *Genista tinctoria*. I have in the past found it in four places in Kent, and I know that in two of these no *Genista tinctoria* grew, and in one, even the common broom was absent.

Dr. Cockayne asked me in 1954 whether I knew on what the caterpillar fed, and I told him I did not know; it was popularly supposed to feed on grass, and indeed, some collectors thought that it fed on a grass that only grows on the chalk. In a criticism of Dr. Ford's "Moths" I pointed out (*Entomologist*, **88**: 194) that *lineata* was not confined to chalk, as it was formerly found on Leigh cliffs, Essex (London clay) and on heavy wet clay at Chattenden, both localities being too near to London for such an easily caught insect to survive. I saw it at Chattenden in 1901 and 1903, but it was then very rare; in Essex it was exterminated between 1850 and 1860.—H. C. HUGGINS, F.R.E.S., 65 Eastwood Boulevard, Westcliff-on-Sea.

POCOTA PERSONATA HARRIS AND CRIORRHINA SPP. (DIPTERA, SYRPHIDAE) IN THE LONDON AREA.—Some of my captures of Syrphidae were recently identified by Mr. L. Parmenter and these included a ♀ *Pocota personata* Harris taken in a woodland clearing on Wimbledon Common, Surrey, 2.vi.1951. Previously this species seems to have been noted only three times in the London area viz:—Palewell Common, East Sheen, Surrey, 20.v.1939, A. M. Low; Bexley Woods, Kent, 16.v.1945, H. Aducent; and Epping Forest, Essex, pupae, 11.iv.1947, emerging 23.iv.1947 and 1.v.1947, and 26.iv.1947 emerging 9.v.1947, J. F. Shillito.

Species in the closely allied genus *Criorrhina* were: 2 ♂♂ *C. ranunculi* Panz. hovering round birch in a wood on Wimbledon Common, 18.iv.1949, ♂ *C. floccosa* Mg. woodland ride, Wimbledon Common, 13.v.1950; ♀ *C. berberina* F. woodland clearing, Epping Lower Forest, Essex, 2.vii.1951; 2 ♂♂ *C. berberina* F. var. *oxyacanthae* Mg., hazel copse, Marden Park, Surrey, 19.v.1963, and ♀ near Four-Wents Pond, The Holmwood, Surrey, 26.vi.1959.

These specimens were recently exhibited at meetings of the London Natural History Society and of the Croydon Natural History and Scientific Society.—A. W. Jones, 15 Suffolk Road, South Norwood, London, S.E. 25. 20.iv.1964.

Dates of Appearance of the Parts of British Flies, 6: Empididae by J. E. Collin.—As the Cambridge University Press omitted to give the dates of the publication of the Parts of this volume which also appeared in a single bound volume, Mr. Collin has asked us to state that the relative dates were as follows:—

Part I, June 30th, 1961.
Part II, August 25th, 1961
Part III, October 27th, 1961

L. Parmenter

Current Literature

Recent papers on Conopidae.

An interest in this family has been encouraged in Gt. Britain by the publications of Mr. J. E. Collin and Mr. K. G. V. Smith. As illustrations are useful when named specimens are not available it is worth mentioning that papers have been received recently that are in English, by Dr. Milan Chvála on "Czechoslovak species of the subfamily *Conopinae*" and "A Review of the Conopid Flies of the genus *Sicus* Scop." published in *Acta Universitatis Carolinae–Biologica*, vol. **1961** and **1963**, respectively. The papers contain keys, descriptions and figures of many species that occur in Gt. Britain. The first mentioned also has distributional maps Another paper with figures of Conopidae that include some of the genera *Myopa* and *Zodion* is by Leif Lyneborg entitled "Danske acalyptrate fluer. 1. Conopidae, Micropezidae, Calobatidae, Megamerinidae og Tanypezidae (Diptera)", appeared in *Entomologiske Meddeleiser*, **31**. 1962. The keys are in Danish but the English summary gives the known distribution and flight periods for Denmark.

L. P

Ecology of some Asilid species (Asilidae, Diptera) and their relation to honey bee (Apis mellifica L.). Zivko R. Adamovic. Museum d' histoire naturelle de Beograd. 1963. 1-104.

This has 31 figures mostly showing the diurnal rhythm and proportions of the types of prey of the Asilidae of Yugoslavia. These include the species *Philonicus albiceps* Mg., *Asilus crabroniformis* L. and *Leptogaster cylindrica* Deg. that occur in Gt. Britain. There is an English summary which deals with the hunting and feeding habits, pairing, mating and egglaying behaviour, daily rhythm, population and territorial matters The natural enemies which include several species of dragonfly are discussed as is the ecological niches of each species of Asilid. Detailed lists of prey appear in a second paper of the author published in *Archives des sciences biologiques*, **XV.** 1963.

L. P.

A Synonymic List of the Nearctic Rhopalocera. By Cyril F. dos Passos. Published by the Lepidopterist's Society. Memoir No. 1, 1964, pp. 145.

The author, one of N. America's leading lepidopterists, in his introduction draws attention to the fact that it is just over a quarter of a century since the last check-list of the lepidoptera of Canada and the United States by McDunnough was published, which is reason enough for the present publication. In this list, 682 species are enumerated together with their subspecies, forms and aberrations making in all approximately 3,850 names and it is pleasing to say that no errors are apparent amongst this vast assemblage. However, it is felt that the author should have defined the southern limits of the area dealt with in order to clarify the status of approximately 15% of the species as they are of doubtful occurence in North America. Coupled with this it is a great pity that the author did not include the type locality where known for in the introduction he mentions that nearly all the names were checked with the original references and this extra information would have much enhanced the value of this list and would have been well worth the small amount of extra work involved.

As the title suggests, the author has included the synonymy and has given the type citations for the genera. The date of publication for each name is given but in many cases there are two, the first in parenthesis, the second in square brackets. It is assumed that the former is the published date and the latter the actual date of publication. It would have helped the reader to have had a simple key to the abbreviations, signs etc. and general set-up regarding the treatment of the synonyms, both objective and subjective, which would have saved time searching, sometimes vainly, through the introduction. This could easily have appeared on page 'vi' which at the moment is blank, together with a list of Families and their pagination.

The index is slightly confusing as the numbers given refer to both the pagination of the genera and the individual species numbers and though in different columns the significance of the dashes after each generic name is not at first apparent. At the beginning of the index on p. 107 this is clarified by the word 'page' appearing above the appropriate column but not on the other pages thereafter.

The review copy when received was very badly damaged about the spine so that many of the pages were loose which would indicate that the Lepidopterist's Society would do well to consider having their Memoirs, this being their first, more strongly bound, particularly in this and similar cases as it should receive a great deal of use by the student of North American *Rhopalocera* and it should be able to stand up to years of hard wear before re-binding is needed.

Apart from these few rather minor criticisms, both the author and the society are to be congratulated, the latter for beginning this new enterprise, and the former for the painstaking and industrious manner in which this long-awaited list has been compiled.

T. G. HOWARTH.

Zoologist, 2328). Dartford.—Fenn (*Diary*) had a locality for *dysodea* between Dartford and Darenth which he described in 1890 as "the gravel-pit on the Darenth road close to the Brent cricket ground"; on July 25, 1874, he took over thirty very young larvae there on "wild lettuce" (*L. virosa*), and writes that on August 7, 1875, with A. H. Jones, he carefully searched every plant of this: "I found nothing but Albert got *four* all on one plant and clinging to the stems just under the flowers". Fenn's subsequent visits to the locality failed to produce any more. "Dartford, bred 1894", six so labelled in R.C.K.; "Dartford, 1909", one so labelled in S. Lond. Ent. Nat. Hist. Soc. coll. (C.-H.).

6a. Darenth Wood.—"I have taken many specimens at Darenth-wood" (Stephens, *Haust.*, **3**: 32). "On post, Darenth Wood, 12.7.73", one so labelled in Meldola coll. (Woodforde, *Entomologist*, **54**: 93). Darenth Wood, two, 1896; in Hope Dept., Oxford (R. F. Bretherton, *in litt.*).

8. Folkestone*.—"Flying at dusk, larva feeds on *Sonchus*" (Knaggs (1870)).

9. Margate.—At meeting of S. London Ent. Nat. Hist. Soc., on November 4, 1875, Messrs. Moor and Gibbs exhibited *dysodea* "Margate, 1875" (*Ent. mon. Mag.*, **12**: 167).

First Record, 1829: Darenth Wood (Stephens, *Haust.*, **3**: 32).

H. bicolorata Hufn. (**serena** Schiff.) ssp. **leuconota** Ev.: Broad-barred White.

Native. Downs, railway banks, shingle beach, etc.; on "Hawkweed". Found in all divisions, but chiefly on chalk soils, and shingle (in 15). "Generally common" (*V.C.H.*, 1908).

The moth is mostly found at rest on fences and tree-trunks; is occasionally noted at light and at flowers; but is seldom seen at sugar. It normally appears from about mid-June to early August, but in 1948, one occurred at light at Eddington (division 3), on May 7 (D. G. Marsh, *Diary*). At Dungeness in 1962, R. E. Scott noted it in his m.v. trap from June 16-August 1, with maximum (20) on July 13.

The larva has been noted as follows:—Sidcup (on railway bank), August 12, 1917 (2), August 25, 1922 (4), August 26, 1923 (several), plentiful from end September 1924, September 1925, September 1927 (several), September 25, 1931 (2, half-grown) (A. R. Kidner); Dartford Marshes, one, September 23, 1951 (J. F. Burton). None of the aforementioned records specify foodplant; Fenn (*Diary*) wrote, however, that on the railway bank at Grove Park in 1886, "the larva of *H. serena* was very common on various hawkweeds", on August 3; and at this same locality, "a few larvae of *serena* were still noticed on the Hawkweed", on August 30.

Variation.—British specimens are referable to ssp. *leuconota* Ev., which is diagnosed as having the base and outer area of forewing and the head and thorax whiter. Certainly many Kentish specimens have the ground pure white, contrasting sharply with the dark central band, and are quite different from the greyish, more unicolorous examples that I have seen in North France and Belgium (C.-H.).

In R.C.K. is ab. *albicans* Spul., one, "N. Kent, July 1923, L. W. New-

man".

First Record, 1829: Dartford, June 1819, on a pollard and rotten ash trunk, several dozens of the insect reposing thereon (Stephens, *Haust.*, **3**: 33).

H. albimacula Borkh.: White Spot.

Native. Shingle beach, chalky places; on *Silene nutans*. Now mainly in 15, though formerly plentiful in 8. Probably casual in 1, 6a, 12.

An imago taken at Dungeness by A. G. Riddell, September 1, 1933 (A. M. Morley), appears to have been a partial second generation specimen.

1. Birch Wood (see *First Record*). [(Birch Wood, larvae found in 1873 (1907, South, *Moths Br. Isles*, **1**: 249; and repeated in subsequent editions). South gives no authority for this statement, but I strongly suspect it is based upon his having mis-read Barrett, *Br. Lep.*, **4**: 247-248 (C.-H.).)]

6a. Shorne Ridgeway, one at light, July 30, 1958 (E. E. J. Trundell).

8. Dover-Folkestone.—Two taken near Folkestone, 1874, by W. Purdey (Meek, *Entomologist*, **7**: 165); six, taken one evening by Mr. Blackall (Ullyett, *Ent. mon. Mag.*, **12**: 157); larvae common, 1881, scarce 1882 (Tugwell, *Entomologist*, **15**: 205); W. H. Tugwell said that one season he found over 300 larvae at Lydden Spout (Fenn. *Lep. Data* MS); Shakespeare Cliff, one, June 11; two, June 12, 1899; one, June 14; one, June 16, 1900 (Stockwell, *Diary*); St. Margaret's Bay (Barrett, *Lep. Br. Isles*, **4**: 248); 1922; larvae common, 1927 (H. C. Huggins); Folkestone Warren, common (*V.C.H.* (1908)); Folkestone, 1912 (F. A. Small coll.); Langdon Hole, pre. 1914 (E. & Y. (1949)); Dover Cliffs, larvae common, 1932 (J. H. B. Lowe); Dover Town, one, June 21; one, June 22, 1951; both in m.v. trap in garden (G. H. Youden).

12. Willesborough, one worn specimen in m.v. trap, July 4, 1955 (W. L. Rudland).

15. Dungeness.—1927 (H. C. Huggins); sixty-four sitting on posts, June 26, 1930 (Morley (1931)); sits on posts by day, at night flies around *S. nutans* and sometimes comes to light, but apparently not to sugar; the larvae are usually found in fair numbers in July; have never failed to find the moth when there at the right time, i.e. about June 12; it was particularly numerous on June 18, 1938, when about forty were noted by A. M. Morley and myself, including many at light (C.-H.); abundant, June 30-July 3, 1954 (R. F. Bretherton); 1962, in m.v. trap, June 10-July 17, maximum numbers on June 28 (56) and July 2 (57), with six on July 17 (R. E. Scott).

Note.—The moth appears to be confined to the areas about the old lighthouse, the Long Pond, the old level-crossing (now destroyed), and extending to Lydd-on-Sea Halt. I have no knowledge of its having been taken at Greatstone, Lydd Town, or the Hope and Anchor (C.-H.).

16. Folkestone.—One on the Lower Road, June 23, 1874 (Poulton, *Entomologist*, **7**: 177); one, 1951 (Morley, *Ent. Rec.*, **64**: 171); one, in the town, 1955, by R. W. Fawthrop; also, some half dozen altogether in m.v. trap in garden in the town, by A.M.M., 1951-58 (A. M. Morley, *in litt.*, 16.xii. 1959).

Variation.—Barrett (*op. cit.*, **4**: 245) records "a slight difference in general colour between specimens found on the Kentish coast and those from Portsmouth district (Hants), the latter being of a rather lighter purple-brown".

A ♂ taken by me, Dungeness, May 31, 1952, has the reniform and orbicular joined under one encirclement (C.-H.).

First Record, 1829: A unique specimen in the British Museum, "taken by Mr. Bydder, on a gate near Birch-wood, I believe, in June 1816" (Stephens, *Haust.*, **3**: 27).

H. conspersa Schiff. (**nana** Rott.): Marbled Coronet.

Native. Downs, rough fields, shingle beach, etc.; on *Silene cucubalus, S. maritima.* Mainly distributed on the chalk; and locally fairly numerous in 15.

1. Dartford Heath (Fenn, in *Wool. Surv.* (1909)). Bexley (Newman, in *Wool. Surv.* (1909)). West Wickham, twelve larvae on *S. cucubalus,* 1947, imagines reared (C.-H.). Dartford (B. K. West). Petts Wood (A. M. Swain). Orpington, 1953 (L. W. Siggs). Blackheath, one, in m.v. trap (A. A. Allen). Lee, 1956-62, one or two annually at m.v.l. (C. G. Bruce). Orpington, in m.v. trap, May 26, July 3, 1963 (2) (R. G. Chatelain).

2. Dartford (B. K. West).

4. Sandwich Bay, one, May 27, 1954 (W. D. Bowden). Ickham (D. G. Marsh).

5. Knockholt (G. V. Bull). Polhill, larvae common on *S. cucubalus* (S. F. P. Blyth). Westerham (R. C. Edwards). Chelsfield, 1950 (A. M. Swain). High Elms, one, July 23, 1963 (R. G. Chatelain).

6. Near Northfleet*, three, 1848 (Hodgkinson, *Zoologist,* 2328), Greenhithe* (Farn MS.). Clay Lane Wood, June 13, 1912; Birling, June 15, 1912; Gravesend, June 19, 1916 (F. T. Grant). Ryarsh, one, 1936 (J. Fremlin). Pinden (E. J. Hare). Eynsford, one, June 21, 1959; June 19, 1960 (R. G. Chatelain).

6a. Darenth Wood (Curtis, *Br. Ent.,* 177); many taken (Stephens, *Haust.,* **3**: 26); one, June 7, 1865; July 13, 1883 (Fenn, *Lep. Data* MS.); (L. T. Ford). Cobham, May 8, 1912 (F. T. Grant).

7. Darland Hill; Wigmore Wood; Burham (Chaney (1884-87)). West well (Scott (1936)).

8. Deal* (Harding, *Ent. week. Int.,* **6**: 124); bred from larvae (Sheldon, *Proc. S. London ent. nat. Hist. Soc.,* 1886: 44). Dover (Stonestreet, *Ent. week. Int.,* **10**: 186). Folkestone* (Ullyett (1880)). Kingsdown (Carr, *Entomologist,* **35**: 246). Petham (H. C. Huggins). Crundale (J. A. Parry). Bridge (R. Gorer). Adisham, larva on *S. cucubalus,* 1949 (C.-H.). Ewell Minnis, June 4, 6, 15, 1935; Dover Cliffs, June 29, 1935 (J. H. B. Lowe). Elham (W. E. Busbridge). Wye; Brook (Scott (1936)).

9. Margate, one, June 3, 1923 (H. G. Gomm. *Diary*). St. Peter's, June 27, 1957, at m.v.l. (W. D. Bowden, *Diary*).

11. Wateringbury (*V.C.H.* (1908)). Aylesford (G. A. N. Davis). Great Chart, c. 1953 (P. Cue).

12. Chartham (P. B. Wacher). Ashford, c. 1953 (P. Cue). Wye, singletons, May 31, June 23, July 10, 1956; Willesborough, singletons, June 2, July 20, 30, 1956 (W. L. Rudland).

15. Dungeness, larvae on *S. maritima* (A. J. Wightman); July 26, 1935 (A. J. L. Bowes); (G. V. Bull); several, June 6-7, 1950 (E. C. Pelham-Clinton); June 3, 1950; June 30-July 3, 1954; ten, July 27, 1956 (R. F. Bretherton); one, August 3, 1951; several, May 31, 1952, all at m.v.l. (C.-H.); August 5, 1955 (de Worms, *Entomologist,* **89**: 93); many in m.v. trap, June 1-August 30, 1962, with maximum of 44 on June 28 (R. E. Scott).

16. Folkestone Town (A. M. Morley).

First Record, 1827: Darenth Wood (Curtis, *Br. Ent.,* 177).

H. compta Schiff.: Varied Coronet.

Resident. Gardens, chalk downs; on *Dianthus barbatus, Silene cucubalus.*

The species was found in numbers in 1948 in the town of Dover, since when it has gradually extended its range throughout much of the eastern half of the county, but although apparently still spreading, has not yet reached West Kent (v.-c. 16) so far as is known. There are very few authenticated records of the occurrence of *compta* in Britain prior to 1948, and it is noteworthy that the earliest of these should also be for the Dover district.

Normally single brooded, but in 1956, G. H. Youden took one in his m.v. trap in Dover in perfect condition, on October 14.

3. Herne Hill, three pupae dug up in garden by John Knowler in 1957, from which a moth was reared, the others dried up (F. Bickerstaff, *in litt.*).

4. Ickham, larvae on Sweet William (*D. barbatus*), 1954 (G. H. Youden); numerous at m.v.l., July 1956 (Marsh *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956: 36) (Canterbury, 1956 (Scott, *Trans. Folkestone nat. Hist. Soc.*, 1956: 6) refers); imagines "in fair numbers, sometimes several on the sheet at one time"; larvae taken annually in garden since 1955 (D. G. Marsh, *in litt.*, 20.i.1960).

7. Tunstall, one, at light, 1963, and exhibited by J. C. Felton at annual exhibition of Kent Field Club, November 16, 1963† (C.-H.).

8. Lydden Spout, a ♀, labelled "W. Purdey. Leaden Spout, Folkestone, June 1877" (Cockayne, *Ent. Rec.*, **59**: 58), is in R.C.K. Dover Town.—1948: eleven imagines taken in June; seed heads of *D. barbatus* collected containing larvae (Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1948-49: 52, 1949-50: 49; idem, *Entomologist*, **83**: 121-122); 1949 (Cockayne, *Ent. Gaz.*, **2**: 76-79; C.-H., *Ent. Rec.*, **61**: 93); 1949, "upwards of fifty were taken on the wing, and a further thirty were bred from larvae taken in 1948" (Morley, *Trans. Folkestone nat. Hist. Soc.*, 1949-50: 17); noted in numbers annually 1949-63 (G. H. Youden, *in litt.*, 16.xii. 1963). Shepherdswell, larvae, 1950 (G. H. Youden). Whitfield, 1953 (Wakely, *Ent. Rec.*, **66**: 109). Folkestone, larvae in seed heads of *S. cucubalus* on Creteway Down, July 1949, from which two imagines were reared in 1950 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1950-51: 56). Brook, 1957 (P. Cue).

[At meeting of Northern Entomological Soc., December 21, 1861, a "*Dianthaecia*" received from H. J. Harding of Deal and which exactly resembled *H. compta*, was exhibited by Mr. Sidebotham (*Zoologist*, 7903), It seems probable that this specimen originated from Kent, since so far as is known Harding seldom if ever collected outside the county, and he was also a man whose integrity has never been questioned. The *compta* referred to by Tutt (in *Ent. Rec.* **4**: 299, **8**: 8-9), however, would appear to be much less creditable (C.-H.).]

9. St. Peters, one, at m.v.l., in garden, August 19, 1959 (W. D. Bowden).

12. Chartham, one, July 16, 1953; imagines noted annually since (P. B. Wacher, *in litt.*, viii.1958). Wye, one, July 4, 1955 (W. L. Rudland). Willesborough, one, June 30, 1954, one, June 25, 1956 (W. L. Rudland; one at light, 1958, two, at m.v.l., 1961 (M. Singleton). Sandy Lane, West Ashford, one, 1961 (M. Enfield). Ashfield Town, in garden, June 14, July 3, 1960, June 21, 1961 (P. Cue). Ham Street, one, July 2, 1963 (R. G. Chatelain).

13. Goudhurst, one, at m.v.l., July 4, 1963 (W. V. D. Bolt).

15. Dungeness, one, at m.v.l., June 28, 1955 (Haxby, *Ent. Rec.*, **72**: 73).

16. Folkestone Town, one, July 18, 1951 (Morley, *Ent. Rec.*, **64**: 170); one, 1952, by A. Riddell (Morley, *Trans. Folkestone nat. Hist. Soc.*, 1950-52: 12); one, by A. M. Morley, six, by R. W. Fawthrop, 1955; larvae in garden, 1956 (A. M. Morley); 1957 (de Worms, *Entomologist*, **91**: 149). Sandgate, one, June 17, three, June 20, 1961 (N. Reay-Jones). Hythe, August 13, 1962, "batch of Sweet William seedheads produced about sixty larvae, the majority of them *D. compta*" (R. G. Chatelain, *in litt.*, 3.xii.1962); from these a large number of *compta* emerged, June 1963 (idem, *in litt.*, 22.x.1963).

Variation.—Cockayne (*Ent. Gaz.*, **2**: 79) recorded the following interesting observations, based on nearly 500 Dover *compta*, most of them bred:—"The variation is considerable when the lightest and darkest are compared, but there is a gradation from one to the other and no definite forms can be separated. In some the subterminal markings are pale ochreous instead of white and in two the median band is cream coloured with a white orbicular. In some there is a broad pure white median band and in others it is narrow with the costa darkened, and it is crossed by two black lines, one immediately below the margin; the usual white space on the inner margin is broken by transverse black lines. One specimen has the white band so filled with dark markings that I think it can be assigned to ab. *defasciata* Hannemann. One was an example of homoeosis with a narrow streak of forewing colour and pattern on the left hind wing".

The series in R.C.K. includes the following abs. from Dover bred by E. A. Cockayne in 1950:—ab. *defasciata* Hannemann (1) (Cockayne, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1950-51: 27); ab. having "ochreous subterminal" (18); ab. having "cream coloured median area" (3).

First Record, 1877: Lydden Spout (W. Purdey).

H. bicruris Hufn. (**capsincola** Hübn.): Lychnis.

Native. Downs, woods, chalky places, gardens, shingle beach, etc.; on *Melandrium rubrum, M. album, Dianthus barbatus.* Frequent and found in all divisions. "Generally common" (*V.C.H.* (1908)).

The moth normally appears from about the end of May to July, with what seems to be a partial second generation some years from August to September.

I have found the larva on *M. rubrum*, Haddling Wood, near Waldershare, 1950; on *M. album*, West Wickham, 1947; on *D. barbatus*, Dover, 1953, Westenhanger, 1953; and on each occasion reared them (C.-H.). Hammond (*Ent. Gaz.*, **8**: 185) records the parasite *Microplitis tristis* Nees, bred from a larva of *H. bicruris* found on *M. rubrum*, Dover.

Variation.—Cockayne (*Ent. Rec.*, **64**: 35) described ab. *ochreofusca*, holotype ♀, Bexley, bred 1914.

First Record, 1829: Stephens, *Haust.*, **2**: 188. The earliest record, however, that it has been possible to trace that actually *mentions* Kent, dates from 1862: Lee (Fenn, *Diary*, 25.vi.1862).

H. rivularis F. (**cucubali** Schiff.): Campion.

Native. Downs, rough fields, waysides, etc.; on *Silene cucubalus, Saponaria officinalis.* Locally plentiful on chalk soils. Recorded from all divisions; apparently rather scarce in 1-4, 10-16.

Note: At Westwell (div. 7), twelve fresh specimens at m.v.l., August 8, 1955 (C.-H.). Folkestone, larvae common in capsules of *S. cucubalus*

(Knaggs (1870)); Cuxton, larvae in seed capsules of *S. cucubalus* (Ash, *Ent. Rec.*, **14**: 341); Whitehill, nine larvae, September 11, 1915, three larvae, September 23, 1915, all on *S. cucubalus* (F. T. Grant); Ash (div. 4), several larvae in seed heads of *S. officinalis*, August 28, 1960, from which an imago emerged May 1961 (C.-H.).

1. Recorded from many localities in this division. Recent occurrences are:—Sidcup, one, at light, June 27, 1936 (A. R. Kidner). Dartford, "much scarcer than H. bicruris" (B. K. West). West Wickham, 1951 (E. J. Trundell); one, August 20, 1958 (C.-H.). Plumstead, 1953 (J. Green). Bexley, one, July 29, 1952 (A. Heselden). Abbey Wood, 1954 (A. J. Showler). Orpington (R. G. Chatelain). Lee, several (C. G. Bruce). Blackheath, at m.v.l., one, June 2, one, July 21, 1960 (A. A. Allen). Bromley, one, 1960, two, 1963 (D. R. M. Long).

2. Dartford (B. K. West).

3. Blean, one, 1939 (P. F. Harris).

4. Sandwich, one, 1902 (J. P. Barrett coll.). Ham Fen, one, July 2, 1955 (C.-H.). Ash, larvae in *S. officinalis*, 1960 (C.-H.). Worth, 1961 (T. W. Harman).

10. Dunton Green, May 13, 1912 (Gillett, *Diary*).

11. Yalding; Wateringbury (*V.C.H.* (1908)). Aylesford (G. A. N. Davis).

12. Willesborough, seven, May 26-June 23, 1954, five, June 5-July 16, two, August 5-13, 1955, five, May 31-June 24, three, July 31-August 10, 1956 (W. L. Rudland). Ashford Town, one in garden, July 27, 1956 (P. Cue). West Ashford, one, in m.v. trap, 1961 (M. Enfield).

13. Tunbridge Wells, commoner than *H. bicruris* (Knipe (1916)). Goudhurst, three, 1952 (W. V. D. Bolt).

14. Sandhurst (G. V. Bull).

15. Dungeness, one, August 3, 1951 (C.-H.); one, at light, July 27, 1956 (R. F. Bretherton); one, June 13, two, June 14, 1962, in m.v. trap (R. E. Scott).

16. Folkestone Town (A. M. Morley). Sandgate, one, 1960, one, 1961 (N. Reay-Jones).

VARIATION.—Of the twelve examples taken by me at Westwell, two conform to ab. *disjuncta* Lempke (C.-H.).

FIRST RECORD, 1829: Darenth Wood (Stephens, *Haust.*, **2**: 188).

H. lepida Esp. (**carophaga** Borkh.): Tawny Shears.

Native. Chalky places, shingle beach, etc.; on *Silene nutans, S. cucubalus, S. maritima.* Recorded from all divisions except 10. Apparently rather scarce in 1-4, 6a, 11-14, 16.

Note:—Dungeness, first brood often abundant at light, June; second brood less numerous, August (C.-H.); larvae on *S. maritima* (de Worms, *Entomologist*, **64**: 108); on both *S. maritima* and *S. nutans*, but *preferring nutans* (A. J. Wightman, *in litt.*). Adisham, larvae in seed heads of *S. cucubalus*, 1946 (C.-H.).

1. Erith, one, June 7, 1884 (Fenn, *Diary*). Greenwich; Farnborough (*Wool. Surv.* (1909)). Chislehurst (S. F. P. Blyth). Swanley, three larvae, July 18, 1933 (A. R. Kidner). Bexley (L. T. Ford); one, May 15, 1952 (A. H. Heselden). West Wickham, ♂, flying in sunshine, August 13, 1950 (C.-H.). Dartford (B. K. West). Petts Wood, one, 1950 (E. Evans). Orpington, 1953 (L. W. Siggs). Plumstead, 1953 (J. Green). Hayes (de Worms, *Lond. Nat.*, 1954: 88). Lee, one, June 16, 1962 (C. G. Bruce). Bromley, one, August 16, 1962 (D. R. M. Long).

2. Dartford (B. K. West).

3. Den Grove, one, May 13, 1944 (C.-H.). Whitstable (P. F. Harris). Herne Bay, scarce at light (D. G. Marsh).

4. Sandwich, August 16, 1939 (A. J. L. Bowes). Ickham, occasionally at light, 1954-59 (D. G. Marsh).

6a. Cobham, June 10, 1912 (F. T. Grant).

11. Aylesford (G. A. N. Davis). Hoads Wood (P. Cue).

12. Ham Street, one, 1948 (C.-H.). Chartham (P. B. Wacher). Ashford (P. Cue). Willesborough, one, May 11, one, July 14, 1954, two, July 10-11, 1955, two, May 31-June 19, 1956; Wye, one, August 10, 1953, five, May 12-30, 1954, two, May 17-June 10, 1956 (W. L. Rudland). West Ashford, one, at light, August 1959 (M. Enfield).

13. Tunbridge Wells, one, c. 1955 (L. R. Tesch).

14. Hawkhurst (B. G. Chatfield).

16. Folkestone Town (Morley, *Ent. Rec.*, **64**: 171; idem, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 41).

Variation.—Adisham (div. 8) series bred from larvae found on *S. cucubalus* all produced a much variegated form with sandy-coloured ground, quite unlike the Dungeness specimens, which have predominantly whitish ground with a marked tendency to obsolescence; one that I have from Dungeness is pure white with the markings almost entirely suppressed (C.-H.). Wightman (*Ent. Rec.*, **52**: 128) describes at length the differences between Dungeness and Sussex specimens; Dungeness examples being chiefly characterised by "ground colour much peppered with the finest possible atoms in grey, greenish-grey, or metallic-bronze". "Central area is never darker than the rest of the wing, and is often the palest area". Morley (1931) notes Folkestone area [Dungeness] specimens frequently ab. *pallida* Tutt; and the same observer records (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 41) the "Dungeness form" from Folkestone. Colthrup (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1910-11: 148) exhibited one from Folkestone having the "ground colour white, markings intense black".

Tutt (*Br. Noct.*, **3**: 28-31) records the following abs. from Kent: *fusco-pallida* Tutt; *ochrea-pallida* Tutt. Also, *carpophaga* Borkh., two only; and *lepida* Esp.

The following abs. are in R.C.K.: *pallida* Tutt, Folkestone, bred, 1906 (1), E. Kent, bred, 1915 (1); *pallida* Tutt, with "white plain fringes, no marginal dots", Dungeness (several); *virgata-pallida* Wightman E. Kent, bred, 1914 (1); *pallida* Tutt, with "plain fringes, marginal dots present", E. Kent, bred 1914 (1); *pallida* Tutt, "white, chequered fringes", Dungeness (several); *ochrea-pallida* Tutt, Otford, 1902 (1); *ochracea* Haw., N. Kent, vi.1910 (1), "Sevenoaks, C. May, 17.vii.96" (1); *ochracea* Haw., with "plain fringes, no marginal dots", Lydd, bred 1934; *virgata-ochracea* Tutt, Kent, bred 1900; *fusco-pallida* Tutt, Dungeness (many); *ochracea* Haw., with "plain fringes, marginal dots present", S. W. Kent, bred 1929.

First Record, 1849: Dover (Grant, *Zoologist*, 2583).

[**H. capsophila** Dup.: Pod-lover.

Questionably Kentish.

The moth has a western and north-western distribution in Britain, and is considered by most authors to be a sub-species of *H. lepida* Esp., but is treated here as specifically distinct in accordance with Heslop's classification. It has been suggested that the records relating to *capsophila*

from Kent referred to dark aberrations of *H. lepida*; with regard to the Webb and Newman records, however, the possibility of casual introduction would seem to be a more likely explanation. Unfortunately, nothing is known of the present whereabouts of any of these specimens, so that it has not been possible even to check the determinations.

6. Otford, June 21, 1902 (Adkin, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1902: 50). North Kent [Eynsford?] L. W. Newman exhibited "a pair of a *Dianthœcia* bred from North Kent larvae in 1912, identical with specimens of *D. capsophila* from the Isle of Man" (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1912-13: 99; *Entomologist*, **45**: 345).

8. Dover, 1890, "I bred specimens identical with the darkest Manx *capsophila* from sweet-william heads out of my garden last year" (Webb, *Ent. Rec.*, **2**: 37.]

Heliophobus albicolon Hübn.: White Colon.

Native. Coastal sandhills; foodplant unknown. Probably casual in 1, 7, 8, 12, 16.

1. Lee, one, June 19, 1954, in m.v. trap† (C. G. Bruce). [(Orpington (Chatelain, in de Worms, *Lond. Nat.*, 1959, 103), is based on erroneous determination (C.-H.).)]

4. Kentish Coast [Deal] (see *First Record*). Deal- Sandwich sandhills. —1856 (Harding, *Ent. week. Int.*, **1**: 99); very common at sugar, July 4-24, 1891 (Fenn, *Diary*); June 9-10, 1934; June 22, 1935; June 22, 1936 (A. J. L. Bowes); of regular occurrence and often numerous at sugar, marram, and occasionally light (C.-H.); twelve, May 27, 1954 (W. D. Bowden). Ham Fen, one at sugar, June 17, 1950, probably a stray (C.-H.). Worth, June 9, 10, 1962 (T. W. Harman).

7. Boxley, one, June 25, 1953 (A. H. Harbottle).

8. Folkestone Warren, at Haggerston Entomological Soc., September 2, 1886, E. Anderson exhibited "one *M. albicolon* from the Warren, Folkestone" (Anderson, *Young Nat.*, **7**: 206).

12. Willesborough, one, June 16, 1954; one, July 20, 1956; both in m.v. trap (W. L. Rudland).

15. Romney Marsh, June 15, 1911 (Colthrup, *Ent. Rec.*, **24**: 93). Littlestone, one, 1934 (R. C. Crewdson, *fide* A. M. Morley); two, 1953 (P. Cue). Lydd Town, one at light, June 13, 1953 (C.-H.). Lydd-on-Sea, 1958 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958: 42). Greatstone, six in m.v. trap on the shingle, July 15-22, 1963 (C.-H.). Dungeness, one, June 6, 1950 (E. C. Pelham-Clinton); seven singletons in m.v. trap, June 15-July 10, and one, August 5, 1962 (R. E. Scott).

16. Folkestone Town, one at m.v.l., 1957, by R. W. Fawthrop (A. M. Morley).

Variation.—Tutt (*Br. Noct.*, **1**: 114-115) considered English specimens much greyer than continental examples and referable to ab. *cinerascens* Tutt, but added that he had taken the "dark type" at Deal.

At Sandwich I have noted a fair proportion of dark examples that I judge to be referable to nymotypical *albicolon* Hübn., but the majority there would appear to conform to *cinerascens* Tutt (C.-H.).

An apparently un-named ab. in R.C.K., labelled "Sandwich E. S. A. Baynes vi. 1913" (one), has the forewings blackish--grey, the subterminal dots present, but the stigmata, basal and antemedial lines only faintly visible (C.-H.).

First Record, 1853: Kentish coast, exhibited by H. J. Harding at Soc. British Entomologists, September 6, 1853 (*Zoologist*, 4071).

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

W. J. Byford, Broom's Barn Experimental Station, Higham, Bury St. Edmunds, Suffolk, would be grateful for collections of Entomophthorous fungi attacking aphids. He would also be very pleased to attempt to identify these fungi on other insects. If the diseased insect is not identified, uninfected specimens of the same species would be very useful in enabling this to be done. Postage would be refunded if required.

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 10 14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4: Fauna palaearctica. Vol. 5 16: Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

ENTOMOLOGIST'S GAZETTE

A QUARTERLY JOURNAL OF BRITISH ENTOMOLOGY

Well illustrated

Subscription: 42/- per year

Free Sample Copy sent on request

353 Hanworth Road, Hampton, Middlesex

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact: *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jirí Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

Barograph For Sale.—Handsome brass barograph, on mahogany stand, in glass and mahogany showcase, together with charts. Used as an aid to successful sugaring (cf. Allen, *A Moth-Hunter's Gossip*, pp. 110-114). In excellent condition throughout, £8.—*J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.*

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years :

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact : Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

Facilities are offered to Entomologists at a Butterfly Paradise at the Rhine, with the additional advantage of Light-Trap collecting.

Good Kitchen : : Garage : : English Spoken.

HOTEL BONSTETTEN

5421 OSTERSPAI/LORELYKREIS, GERMANY.

Telephone Braubach 422.

JUST PUBLISHED

The Natural History of Flies

HAROLD OLDROYD, M.A.

"This volume is the first of a new series edited by Richard Carrington entitled 'The World Naturalist'. It will be widely read and should greatly increase interest in flies . . . . The author, for many years Editor of the Royal Entomological Society, a systematist of the Entomology Department of the British Museum (Natural History), has a world-wide reputation already based on his systematic studies and varied publications. He has taken full advantage of his access to literature and collections in the production of a work dealing with the diptera of the whole world".—*The Entomologist's Record.*

With 32 half-tone plates and 40 line drawings, 50/-.

READY THIS MONTH

The Life of Insects

V. B. WIGGLESWORTH, C.B.E., M.D., F.R.S.

The first title in the Weidenfeld & Nicolson Natural History, by the Quick Professor of Biology in the University of Cambridge.

With 12 pages of colour photographs, 24 pages of half-tone illustrations and over 150 line drawings, 55/-.

Available from all good bookshops and published by

WEIDENFELD & NICOLSON, 20 New Bond Street, London, W.1.

ULSTER MUSEUM

has now published

CATALOGUE OF MACRO-LEPIDOPTERA IN NORTHERN IRELAND

by W. Stuart Wright, B.Sc., F.R.E.S.

Price **5/-**

From

SECRETARY, Ulster Museum, BELFAST 9

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 Nos. 7 & 8 JULY/AUGUST 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35s. POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 7/6 NET

FREDERICK WARNE

publishers of superb Natural History books which, because they are constantly being revised, maintain their high reputation for accuracy and attractive presentation.

•

FLIES OF THE BRITISH ISLES

C N COLYER, FRES and **C O Hammond,** FRES

This, the only work of its kind, provides a comprehensive survey of the structure and metamorphoses of flies, their life-histories and habitats; with information on collecting, rearing and preservation. With 100 superb illustrations, depicting 286 species. 384 pp **35s**

WAYSIDE AND WOODLAND TREES

HERBERT EDLIN, BSc, Dip For, FSF

The author, Information Officer at the Forestry Commission, has brought Edward Step's famous work up to date with superb tact. There are now nearly 250 illustrations; and, for quick reference, there is an identification chart of all trees described in the book. 224 pp **30s**

Full details of our other titles available on request

FREDERICK WARNE

Chandos House, Bedford Court, Strand.

London WC2

Some Wayside Collecting in Andalusia, April 1964

By R. F. Bretherton, C.B., M.A., F.R.E.S.

I spent a fortnight's holiday with my wife and daughter in Andalusia from 6th to 20th April, 1964. Collecting was only one object among several, but I hoped to meet with a number of the spring butterflies, some of which are found in Europe only in southern Spain. This hope was only partly fulfilled, as it turned out to be a very late season there, and most of my *desiderata* had clearly not yet emerged. We were told that, after a good February, March had been cold and sunless; and, though we had three really good hot days ourselves, the weather was mostly unsettled right to the end of our stay, with cool winds, cloud, and much hesitant sunshine. Besides the total absence of many kinds of butterflies which we had hoped to see, we were struck by the great scarcity of hibernated species and of the early Whites, Green Hairstreaks, etc. One could go for miles, both along the coast and in the mountains, without seeing anything at all; and, even in water-courses and fallow fields, which were the best localities, it was unusual to have more than half-a-dozen butterflies in sight at once. This made collecting very hard work. I only recorded 33 species, and set about 100 specimens, besides about 20 moths. Some, nonetheless, were of interest.

We flew to Gibraltar by an evening 'plane on 6th April, and picked up our hired car there the next morning: a stout Morris Oxford which served us without a hitch over Spanish roads which often deteriorated without warning from a first-class surface to no surface at all for several miles on end. We spent the rest of the morning exploring the upper part of the Rock. There was a fine display of flowers, and one of the apes kindly presented himself for a photograph, sliding down a steep wall on his very bare behind. These beasts share the top of the Rock with the garrison and the tourists, and seem to have developed a commendably detached attitude to both, showing neither fear nor excessive interest. The only lepidoptera seen were two or three *Zerynthia rumina* L., of which one fine example was caught. We saw this butterfly in almost every locality we tried in the coastal zone of Andalusia, though it was never numerous. It varies greatly in size, in the extent of the red markings, and in the shade of the ground colour, which ranges from pale primrose to rich chocolate. Some of the females have a wing-span of $2\frac{1}{2}''$, and are really magnificent creatures; but all are larger and brighter than the ssp. *medesicaste* Illiger which I had found two years earlier on the French Riviera.

After lunch we crossed into Spain and drove along the coast road eastwards to Estepona. We saw no butterflies, and the only incident was provided by two cocked-hatted Guardias Civiles, who stepped out into the road with their hands raised to stop the car. I reviewed mentally all the driving offences which we might be committing, but they only wanted a lift, and made themselves agreeable company. We were told that asking for lifts is a custom of the country for Guardias Civiles!

We spent four nights at the Hotel Santa Marta, a little beyond Estepona. The rooms here are formed by a number of separate bungalows, attractively arranged in the garden. Though the nights were decidedly cool, there was a fair assembly of moths at our bungalow lights: an *Arctia villica* L., several "Wainscot" Noctuae, and many Geometers, mostly "Waves" and "Pugs" but including the familiar immigrants to Britain,

Nycterosea obstipata F. and *Rhodometra sacraria* L. The coastal strip is at this point fairly wide and intensively cultivated, and there were few butterflies immediately round the hotel except for *Z. rumina* and the very rich brown southern form of *Pararge egeria* L., though a nearby scrub-covered hill yielded me single specimens of *Euchloe ausonia* Hb., *Pyronia pasiphae* Esp. and *Chrysophanus rubi fervida* Stdgr. On the morning after our arrival we drove some twenty miles further along the coast, beyond Marbella, to Calahonde. There are fine pinewoods here with good shelter, and we know that Mr. J. A. C. Greenwood and Baron de Worms had found these productive at the same season in earlier years. But now there was the familiar scarcity of butterflies: a couple of *Z. rumina,* a torn *Papilio machaon sphyrus* Hb., and four male *Anthocaris euphenoides andalusica* Ribbe being the only captures. The next morning we did rather better when, in stronger sunshine, we visited a limestone outcrop, rich in flowers, on the west side of Estepona. *A. euphenoides* was quite common, and I caught one female—always difficult to get with this species; there were plenty of *P. megera* L. and *P. egeria*; and I secured a newly emerged male of the pretty Lycaenid *Tomares ballus* F., whose European distribution is, apart from a very limited colony on the French Riviera, confined to Spain. But the following day, 10th April, was again disappointing. We drove over the beautiful but rather hair-raising mountain road to Ronda, a town which is neatly divided into two by a sheer gorge several hundred feet deep. But the sky was grey and the wind cold, and we found some Spanish friends on whom we called huddled round an electric brazier. In the one gleam of sunshine we could only record *Pieris rapae* L. and *P. brassicae* L. and a number of very worn and presumably immigrant *Vanessa cardui* L.

We left Santa Marta early on 11th April to drive to Granada, going along the coast through Malaga and on to Motril before turning inland across the edge of the Sierra Nevada. The weather, poor at first, improved steadily. We made a stop at Calahonde, and this time succeeded in catching single specimens, just emerged, of *Agapetes ines* Hffmsg. and *Maniola jurtina hispulla* Hb., neither of which we saw elsewhere. After another stop at Malaga, to look at the fascinating Alcazaba (Moorish castle), we settled to eat our picnic lunch on a sunny bank near the sea some miles further on. Our attention was first caught by a number of *Colias crocea* Fourc., mostly worn but including several f. *helice* Hb. But there were also fast flying Whites careering over a fallow field full of *Biscutella,* and when, after much exertion, one was caught, it proved to be the much desired *Euchloë belemia* Esp., which is only found (in Europe) in south Spain and Portugal. It took an hour's hard work to get five more, as the insects hardly ever settle, fly faster than one can run, and dodge like a Rugby half-back. Seeing my activities, a Spaniard in a nearby garden took his cap to the chase in the hope, presumably, of earning a few easy pesetas; but he soon gave up in heat and anger. These *E. belemia* were all of the first (usually February) brood, but still in fair condition. Four days later I came on another colony inland, near Jaen: of five taken there, three were of the first brood, and two, obviously newly emerged, were of the very different second brood form. Finally, on our last day, 20th April, I secured two more near Algeciras which were also of the second brood form. It would be interesting to know if this overlapping of the broods (or forms) is normal, or was perhaps the result of unusual weather conditions this spring.

After this interlude we had to press on to reach Granada, and had all too little time to enjoy the magnificent stretch of mountainous coast between Torre del Mar and Motril, or the fine scenery on the mountain road beyond it. Given time and season, both should give good collecting. We stayed four nights in Granada. Most of the first day was devoted to studying the Alhambra, which must not be rushed; but in the late afternoon, and also on the two succeeding afternoons, I explored the slopes beyond it, which are the classical ground for *Zegris eupheme* Esp. But I did not find it, perhaps because it was not yet out, perhaps because most of the *Biscutella* which it is supposed to haunt almost exclusively, has now disappeared as a result of close grazing by sheep and donkeys and the planting of large areas with conifers. There were, however, a few welcome *Euchloë tagis* Hb. and *E. ausonia*, many *Pontia daplidice* L., a few *Coenonympha pamphilus lyllus* Esp., *Polyommatus icarus* Rott., *Lycaena phloeas* L., and a single *Syntarucus pirithous* L.; and I collected a short series of a Skipper which I hoped might be *Reverdinus marrubii* Rambur but which turned out to be only *Carcharodus alcaea* Esp., in poor condition. The migrants, *C. croceus*, *V. cardui* and *V. atalanta* were also in evidence, and I saw, but could not reach, a couple of *Iphiclides feisthameli* Dup.

On the morning of 13th April we drove up the beautifully engineered road to the snows of the Sierra Nevada, reaching the lower ski hut, at about 7,000 feet, in 50 minutes. The weather was brilliant and the views magnificent; and several worn *Aglais urticae* L. and *Inachis io* L. were circling over the snow, with some *P. megera* at its lower edge. But on the descent, though we stopped at several apparently suitable spots, we saw hardly a butterfly. The next morning we were more fortunate when we drove east through the Sierra Harana to see the cave-dwellings and fantastically wind-eroded rocks near Guadix. Pausing on return by a mountain stream near the Puerto de la Mora we found butterflies more numerous than anywhere else on our journey. *T. ballus* and *P. daplidice* were quite common, and we added to our list a *Pieris* which is probably the spring brood of *P. dubiosa* Rober, *Colias australis alfacariensis* Ribbé, *Gonepteryx cleopatra* L., *Nymphalis polychloros erythromelas* Aust., and *Lycaenopsis argiolus* L. Unfortunately we had too little time to do full justice to this admirable locality.

We left Granada for Cordoba on 15th April, travelling by Jaen through pleasant hilly country; but, apart from the *E. belemia* already mentioned and a few *E. ausonia* and *E. tagis*, we saw no butterflies of note. We devoted the 16th April wholly to the Great Mosque and other glories of Cordoba, and did no collecting: incidentally, there were showers and much wind. On 17th April we set off early in cloudy weather for Jerez-de-la-Frontera. We saw no butterflies, but it was definitely our bird day. In order to avoid traffic jams in Sevillia, where the *fiesta* was just due to begin, we took a cross road which passed through very marshy land near Marchena. First, we saw several Hoopoes (*Upupa epops*), one of which politely raised its crest for us as we passed. Next, we had a fine view of a flock of Little Egrets (*Egretta garzetta*) standing and feeding in a swamp, as well as of various kinds of duck and moor-hens. A little further on we saw many White Storks (*Ciconia ciconia*), some of them sitting in enormous untidy nests balanced on the tops of poles and chimney stacks. Shortly after that a great Imperial Eagle (*Aquila heliaca*) rose off the road immediately in front of the car carrying a mouse or some other small

creature in its talons. Finally, after a late lunch at our hotel in Jerez, we went out to the nearby hill-town of Arcos. The town is built on the edge of a high, rugged cliff, which proved to be inhabited by at least three pairs of Griffon Vultures (*Gyps fulvus*), about twenty Lesser Kestrels (*Falco naumanni*), and a number of Jackdaws (*Corvus monedula*), co-existing in apparent amity. We watched—and photographed—this assemblage from a small tower above the town hall, soaring and circling in the void in front of us. The vultures are prodigious birds: "muy grande: dos metres", as the door-keeper put it. They have apparently been there for time immemorial. The local legend is that, when the mediaeval lords of Arcos went forth to war, the vultures always went too. Later, they had a claim on the bodies of the horses killed in the local bull-fights, which used to be thrown over the cliff for their benefit. How they get their living at the present time we did not discover.

The next day we first of all visited a "bodega" in Jerez and sampled several kinds of excellent sherry, and later drove round the marshes of the Guadalete to Cadiz, coming back through another interesting hill-town, Medina Sidonia, from which the commander of the Armada took his title. But the weather was cool and windy, and my hopes of finding the little Blue, *Zizera lysimon* Hb., in the marshy ditches were disappointed: nor did we see many birds. Next morning we set off southwards for Algeciras in improving weather. After a short detour to the interesting Moorish hilltown of Verjer-la-Frontera, we explored some flowery ground among pinewoods just across the Rio Barbate, but without notable success. We were disappointed to find that the large Laguna de la Janda, where we had hoped to see more marsh birds, had recently been totally drained and converted to cattle pastures; and we had to content ourselves with the sight of a number of Cattle Egrets (*Ardeola ibis*), standing almost between the legs of the new bovine colonists, one or two to each beast. We lunched beside the fine beach at Tarifa, the southernmost point of Spain, and then devoted some time to exploring a romantic-looking glen in the Sierra de la Luna. This produced several *Z. rumina*, *T. ballus*, *C. rubi* and *P. egeria*, but nothing that we had not seen elsewhere; so we pushed on to spend our last night at the beautifully situated Hotel Reina Cristina on the outskirts of Algeciras.

Our last day, 20th April, was the sunniest and hottest we had. While my wife and daughter sun-bathed in the garden of the hotel, I spent a long morning by the railway line which goes from Algeciras toward Los Barrios. I was looking primarily for a reputed locality for the very local Fritillary *Melitaea aetherie* Hb., though I realised that in this late season it was unlikely to be yet on the wing. If I found the right place, it did not look very suitable for that insect; but there were fair numbers of butterflies on flowery banks by the railway, and I took some *P. machaon* and female *A. euphenoides* as well as two *E. belemia*, and completed my series of *Z. rumina* and *T. ballus*: a bag of eighteen insects in all. In the late afternoon we drove round the semi-circular Bay of Algeciras to Gibraltar, thus completing a round trip of about 900 miles. After watching a magnificent sunset and having dinner, we caught the midnight 'plane for London, and drove home from the airport in the small hours through a deluge of chilly English rain. This ended a most interesting and enjoyable expedition, though for good collecting we were clearly, this year, something like three weeks too early.

Folly Hill, Birtley Green, Bramley, Surrey. 26.iv.64.

Pelosia obtusa Herrich-Shäffer and *P. muscerda* Hufnagel (× 3·3).
Norfolk specimens.

Pelosia obtusa Herrich-Schäffer (Lep. Arctiidas), a species overlooked in Britain?

By C. J. Cadbury,
Department of Zoology, University Museum, Oxford.

The first British specimen of this Lithosiid was netted at dusk on 31st July 1961, by A. L. Goodson at Barton Broad, East Norfolk (Goodson, 1961). At the time he and J. Read were working the reed beds for *Pelosia muscerda* Huf., the Dotted Footman. The moth (a male) was taken some 40 yards from their light. It was not until later, however, that it was recognised by C. G. M. de Worms as *P. obtusa*, a species which was already known to be very local in scattered localities on the Continent (de Worms, 1963).

In spite of a search, no further specimens were obtained at Barton the following year. In 1963 I therefore tried another Norfolk locality several miles away, and, on the calm and overcast night of 3rd-4th August, I captured the second British example of *P. obtusa* (another male). This footman was taken in a mercury vapour light trap together with a large number of other moths, including four *P. muscerda*, *Comacla senex* Hübn., the round-winged muslin footman, the wainscots *Arenostola phragmitidis* Hübn. and *A. brevilinea* Fenn, and unexpectedly a specimen of *Enargia paleacea* Esp., the angle-barred sallow, a local species usually associated with more northern counties. The trap was situated in an open marsh amongst reed, *Phragmites communis* Trin., and the sedge *Cladium mariscus* (L.) Pohl. There were several small bushes of sallow, *Salix cinerea* L., scattered about the swamp. Nearby there was a denser growth of sallows, great water dock, *Rumex hydrolapathum* Huds. and comfrey, *Symphytum officinale* L. Beneath the bushes I noticed rotten logs covered with the moss *Acrocladium cuspidatum* (Hedw.) Lindb. and a considerable accumulation of dead sallow leaves. This may be where *obtusa* is breeding as the reed and sedge bed in which I captured the specimen is frequently flooded. The type of marsh in which I was working was, however, much less wooded than that round Barton Broad, where there are large areas of alder and birch carr. The locality is isolated from Barton by several miles of well-drained land, quite unsuitable for this fen species.

P. obtusa differs from *P. muscerda*, found in similar habitats, by its shorter and relatively broader fore-wings, which are more rounded at the apex. Furthermore, the ground colour is browner and the wings lack the silvery costal stripe that is characteristic of fresh specimens of the larger species. The best distinguishing feature, however, is the arrangement of dark spots on the fore-wings (see plate). A. Seitz's work (1913) has a good illustration of *obtusa*, and there are excellent photographs of both species in Goodson's 1961 paper.

The genitalia of *P. obtusa* and related species are beautifully illustrated by E. Urbahn (1932, plate 2). Compared with those of *P. muscerda* the claspers of *obtusa* are considerably shorter and more spade-like. The uncus is also shorter and strongly recurved to form a hook. Furthermore, the antennal segments, which Urbahn figures in the same plate, differ in the two species, those of *obtusa* having smaller tubercles.

According to Urbahn (1932) *P. obtusa* was first described from a specimen taken in 1840 near Pratovecchio in Toscana, Central Italy. In 1870

F. Schmidt obtained a female that hatched from a pupa found in a reed stem near Wismar in Mecklenburg, North Germany . This specimen was, however, passed over as *P. muscerda* until 1894.

In addition to these areas, O. Staudinger and H. Rebel (1901) give the distribution of *obtusa* as East Hungary, Galicia (part of which is now Poland and the rest in the Ukraine), Sarepta in the vicinity of Volgagrad (until recently Stalingrad) in South Russia, and Armenia. Staudinger described *P. sutschana* from three males taken by the Ussuri River on the U.S.S.R.-Mongolia border (Romanoff, 1892). However, as Urbahn points out, this is in fact a small race of *P. obtusa* with genitalia differing but slightly from those of European specimens.

Between 1870 and 1931 no further specimens of *obtusa* were taken in North Germany. In 1931 Pfau and Schmidt rediscovered the species in the Peene Valley, Mecklenburg. These two collectors returned to the locality with the Urbahns and Dunkel the following July. They took a series of males and also a single female that were attracted to a powerful light in the dense reed beds (Urbahn, 1932). In 1933 *obtusa* was not only taken in some numbers in the original marsh, but also lower down the Peene River, and in what is now North-west Poland, where six males were captured by Haeger and Rathje (Urbahn, 1933). Bishop A. S. Hoffmeyer (1937) mentions that *obtusa* occurs in Brandenburg (now in East Germany) on Urbahn's authority. Furthermore, he adds the Danish island of Lolland in the Baltic to the known distribution of this species.

Since 1950 *P. obtusa* has been discovered in at least 14 localities in Holland, from Friesland (3 places) in the north to Noord Brabant (5 places) and Lemburg in the south. A number of specimens have been captured at Kotenhoef (between Amsterdam and Hilversum) in Noord Holland (Lempke, 1961).

In France *P. obtusa* was first taken in 1932. Vicomte H. de Toulgöet (1945) states that this species had been found in 7 departments of France:— l'Aisne and l'Oise in the north; les Deux-Sèvres, la Charente-Maritime and la Vendée in the west; and les Bouches du Rhône on the south coast; as well as his own locality in Loir-et-Cher in the centre. Between 15th July and 5th August he captured 20 specimens at light in a room overlooking a lake over-grown with reed and lesser reedmace, *Typha angustifolia* L., near Millançay. He indicates that the species must be local as it was apparently absent from two suitable areas nearby which had previously been well worked by entomologists.

At the time of writing, the British Museum (Natural History) in London has only 16 specimens of *obtusa*. A number of these were taken in 1911 close to the present eastern border of Hungary. There are also specimens captured in 1950 by Dr. Kaszeb in the vicinity of Lake Balaton, West Hungary, as well as a few from France. I suspect it will be found in the extensive marshes of the Neusiedler See on the East Austrian-Hungarian border, and in the Danube and Volga deltas.

It is possible that a melanic polymorphism exists in *P. obtusa* as in *P. noctis* Butler, a related species known from Japan and the U.S.S.R.-Mongolian border. The two British specimens of *obtusa* and all those from Hungary and France in the British Museum have tawny-brown fore-wings. two of the four imagines from North Germany that are figured by Urbahn (1932: plate 1, figs. 1*a* and 1*d*) appear to have dark wings with the spots somewhat obscured. In fact, he mentions that *obtusa* can be recognised

by its chocolate-brown colour from moths like *Comacla senex*, *Chilodes maritima* Tausch., the silky wainscot, and *Chilo phragmitellus* Hübn., a Pyralid, that may also be attracted to the light at the same time. Melanic forms of several fenland wainscots including *Nonagria typhae* Thunb. and *N. dissoluta* Treit, are well-known in certain parts of England. These melanics may well be more cryptic than the light form when at rest on the dark stems of plants like the great water dock, *Rumex hydrolapathum* or on old reeds, which, in some areas, such as East Anglia, become blackened with industrial pollution (Kettlewell, 1958).

As practically nothing has been published in English on the habits and life history of *P. obtusa*, I propose to quote fairly extensively from Urbahn (1932 and 1933). This species was bred for the first time in 1932 by a Berlin collector, H. Meinicke, who obtained eggs from les Deux-Sèvres in France. Eight larvae hatched on 10th August and were fed on dandelion, *Taraxacum* spp. Six of them died in the first instar; the seventh grew rapidly and pupated in late September. The remaining larva had reached the third instar by mid-October when it came into the hands of Dr. Urbahn, who both described and illustrated it (Urbahn, 1932: plate 1, fig. 7). He noticed that it was very sensitive to changes in humidity. In the later stages of its development the larva hid in a dry reed stem, feeding only on the lettuce and dandelion leaves that it could reach from there. On attaining full growth (when it was 1·5 cm. long) the larva spun a light cocoon in a fragment of reed and formed a reddish-brown pupa with the larval skin adhering to it. The imago emerged in mid-December, 16 days after pupation. It is of interest to note that the first German *obtusa* was reared from a pupa discovered in a reed stem in the wild. Urbahn was unable to describe the earlier stages in the life cycle until he had obtained eggs from the female taken in 1933.

According to Urbahn, the eggs of *obtusa* are at first pale yellow and become darker brown, while those of *P. muscerda* are greenish-grey. Furthermore, young *obtusa* larvae have yellowish-brown heads, while those of *muscerda* are black and shiny. In *obtusa* the integument of the third instar larva is glossy and generally sand-coloured or greenish with various dark longitudinal stripes. The dorsal stripe is narrow and interrupted. The broader sub-dorsal stripes are lilac-brown in colour. The dark spiracle openings are picked out by a line of arcuate (curved) spots. Along the dorsal surface of each abdominal segment there are two pairs of wart-like protuberances which bear tufts of light-brown hairs. There are additional hairs in the vicinity of the spiracles and below them where they are longer and darker. Though the head remains pale, the integument of the last instar larva becomes blackish-brown so that the stripes are no longer conspicuous, and the hairs become darker.

Vicomte de Toulgoët (personal communication) has two specimens of *obtusa* in his collection which (from information on the data labels) were reared in 1937 and 1940 from eggs of Hungarian origin by Pinker in Vienna. This may be the only other occasion when *P. obtusa* has been bred in captivity. Larvae have never been discovered in the wild, neither indeed have those of *P. muscerda* as far as I can ascertain from the records.

W. Buckler (1889) describes the life-history of *muscerda* and figures last instar larvae. His *muscerda* fed on the mosses *Camptothecium sericeum* Kindb. and *Dicranoweisia cirrata* Lindb., the lichen *Diploicia canescens* (Dicks) Massal, as well as on decayed sallow and bramble leaves. Dr. H.

B. D. Kettlewell (personal communication) has reared larvae of this species on dandelion in a screw-top jar. No fresh food was added when he noticed that the larvae thrived on the decaying leaves.

The emergence of *P. obtusa* imagines appears to begin in the second or third week in July, but the species can be found until the first week of August. Extreme dates given by Lempke (1961) from Holland are 23rd June and 14th August. Goodson took his male specimen at Barton Broad while it was flying at dusk. According to Urbahn (1932) the one female that he took in 1932 came to light at 22.30 hrs. while the males did not appear until an hour later and continued to fly until 01.00 hrs. This suggests that the female may have a precopulatory flight on occasions. The males did not appear to be attracted from any distance but they "buzzed" actively round the lamp. The female taken in 1933 was captured at 02.00 hrs. (when perhaps it was on an oviposting flight). De Toulgoët (personal communication) also claims that both sexes of *obtusa* are attracted to light. Barrett (1895) states that in the case of *P. muscerda* there may be three periods of flight on favourable nights—at dusk, at midnight, and again at dawn. Though *muscerda* may be attracted freely to traps, more frequently it is the habit of this species to remain resting on the illuminated vegetation outside.

In spite of its fairly wide-spread distribution on the Continent, *P. obtusa* is represented in comparatively few collections. Is *obtusa* really so local and rare, or is it overlooked because of its retiring habits? Barton and Sutton Broads, and the marshes round Ranworth and Horning have been well worked by entomologists for a century, and many *muscerda* have been taken in these localities. There is no doubt, in my opinion, that *P. obtusa* is indigenous in Norfolk, and may possibly be found elsewhere in Britain (e.g. Suffolk and Kent). I believe that it has been overlooked because it is sluggish in its behaviour and does not fly far. Its short, rather rounded wings give the impression that *obtusa* is, like *Comacla senex*, a weak flyer. *P. obtusa* apparently rarely leaves the shelter of dense reed beds.

With the evidence provided in this paper that an extremely local species exists in the fens of Britain (not necessarily associated with its relative *P. muscerda*), it is hoped that new localities for *Pelosia obtusa* will be recorded. It is also hoped that further dates on the ecology and life history of this species will be forthcoming in the near future.

It is my intention that the second Norfolk specimen of *obtusa* will be preserved in the National (Rothschild, Cockayne, and Kettlewell) Collection of British Lepidoptera in the British Museum (Natural History) at Tring.

SUMMARY

1. Details of the first two British records (1961 and 1963) of *Pelosia obtusa* H.S. (Lithosiidae) are given. Both specimens were taken in the Norfolk Broads.
2. The distinguishing features between *P. obtusa* and *P. muscerda* Huf. are described briefly, together with some details of the genitalia which are quoted from E. Urbahn (1932).
3. *P. obtusa* was first described from an Italian specimen taken in 1840. This species is now known to occur on the Continent in France, Holland, on a Danish island in the Baltic, North Germany and Poland, and from Hungary into South Russia. A small race is found in East Asia.

4. It is possible that a melanic form occurs in North Germany.
5. The moth has been bred successfully only three or four times in captivity. Details of the life history, including a description of the larva, are taken from Urbahn (1932 and 1933). The larva has not been found in the wild.
6. The imagines usually first emerge in the second and third weeks of July, but they are still to be found in the first week of August. Some details of times of flight are given. Both sexes are attracted to light, but the majority of specimens taken in such a way are males.
7. It is suggested that *P. obtusa* is indigenous in the Norfolk Broads, but has been overlooked because of its sluggish habits and the fact that it rarely leaves the dense reed beds.

ACKNOWLEDGMENTS

It was Dr. H. B. D. Kettlewell who encouraged me in the first place to search for *P. obtusa*. I am therefore most grateful to him and to Professor E. B. Ford for reading this paper and making valuable comments.

REFERENCES.

Barrett, C. G. (1895). *The Lepidoptera of the British Isles*, Vol. 2 : 210-213. London.
Buckler, W. (1889). *The larvae of British butterflies and moths*, Vol. 3 : 26-28 and plate 41. London. Edited by H. T. Stainton.
De Toulgoët. H. (1945). *Pelosia obtusa* H.S. en Sologne. *Revue française de Lepidopterologie*, **10** : 88-89.
de Worms, C. G. M. (1963). Recent additions to the British Macrolepidoptera. *Entomologist's Gazette*, **14** : 110 and plate 3.
Goodson, A. L. (1961). *Pelosia obtusa* Herrich-Schaeffer (Lepidoptera), a species of Lithosid new to Britain. *Entomologist*, **94** : 285 and plate 8.
Hoffmeyer, A. S. (1937). Ny dansk storsommerfugl, *Pelosia obtusa* H.S. *Flora og Fauna* : 122-123.
Kettlewell, H. B. D. (1958). The importance of the microenvironment to evolutionary trends in the Lepidoptera. *Entomologist*, **91** : 214-224.
Lempke, B. J. (1961). Catalogus der Nederlandse Macrolepidoptera. *Tijdschrift voor Entomologie*, **104** : 124.
Romanoff, N. M. (1892). *Mémoires sur les lepidoptères rédigés*, Vol. 6 : 260. St. Petersburg.
Seitz, A. (1913). *The Macrolepidoptera of the World*, Vol. 2 : 70 and plate 13. Stuttgart.
Staudinger, O. & Rebel, H. (1901). *Catalog der Lepidopteran das Palaearctischen Faunengebiets* : 379. Berlin.
Urbahn, E. (1932). *Pelosia obtusa* H.S. und verwandte Arten. (Lep. Lithos.). *Stettiner Entomologische Zeitung*, **93** : 309-317 and plates 1 and 2.
———. (1933). Zur Lepensweise von *Sedina buttneri* Hering und *Pelosia obtusa* H.S. (Lep.). *Stettiner Entomologische Zeitung*, **94** : 325-326.

Thoughts on Rearing *Stauropus fagi* L. (The Lobster Moth)

By H. Symes

A great deal has been written about the remarkable larva (which, of course, alone bears some fanciful resemblance to a lobster) of this species, and there is a long and fascinating account of it in Buckler (Larvae, II., 63/72). Moults at every stage nearly always take place at night, and I once sat up until nearly 2 a.m. watching a final one. In its earliest stages the larva resembles an ant, and later a spider. Dr. E. B. Ford

(Moths, p. 110), after remarking that it may often be saved by this deception, goes on to point out that it can eject formic acid from a gland in its thorax, and that this acid may be a protection against ichneumons. If this is so, I must say that it is not very effective, for of all the larvae that I have beaten or found, something like 25% had already been "stung". I remember once cutting a larva in half with my beating stick, and my initial chagrin was soon ended when I saw a parasitic grub inside the body.

The best year I have known for the larvae (and not of this species only) in the New Forest was 1934. I beat fourteen of them, nearly all from oak, and found a very dark one on a hawthorn as I was walking along a path: so closely did it resemble a couple of withered brown leaves that I walked past it and then turned back for a second look. Unfortunately it turned out to have been "stung". The late Mr. Rippon, who wanted two or three larvae, motored down from Newbury for a day with me, and soon beat four or five from oak.

About twenty-five years ago, I went down to east Kent with a friend for a week, mainly to get *Melitaea athalia* Rott. One day we were invited to join a party of local entomologists on a visit to a beech wood where *fagi* was regularly to be found on the tree trunks. It was pouring with rain and we wandered through the wood under the partial shelter of the trees for a long time without seeing anything. Then someone found a *fagi*. It was an extremely worn specimen. One by one, the members of the party came up and inspected it. "What a pity it is a male", they said, "you can tell that by the antennae". When they had all rejected it and passed on their way, I came back and had another look at it. Was it really a male, I wondered, and the possibility of eggs began to form at the back of my mind. I boxed the insect and took it back to my quarters, where I put it in a large pill box and covered the top with a piece of gauze. Next morning, I found that twelve eggs had been laid. What had been assumed to be male antennae were really, as I had suspected, the hairy forelegs extended in front of the moth on the tree trunk. I believe that when resting, *fagi* keeps its antennae tucked back over its shoulders, where they can hardly be seen. Forty eggs in all were laid, of which a dozen did not hatch, and eventually I bred twelve moths.

For success in rearing *fagi* from the egg, certain precautions are advisable. If the eggs are laid on a suitable foundation, such as gauze or paper, the material should be cut up into small pieces, with not more than two or three eggs on each, and placed separately in small boxes. Then, when the larvae hatch and each stands guard over its own egg, there will be no danger of the larva being driven away from its egg in a free fight. All through their life, they should be kept in very small numbers in separate boxes, for they are restless, quarrelsome beasts, and when two meet, they seem to be spoiling for a fight, in the course of which they bite off one another's legs, or bits of them, and tail filaments. Such injuries very often lead in the end to the wounded larva's death, but this is not necessarily the case. One morning after a very stormy night, I found a larva at the foot of a large beech tree near Wantage. It was in its last instar and was just starting on the long climb back to a leafy branch. I doubt if it would have succeeded, as several bits of leg were missing. However, it survived to complete its growth and pupate, and next year a very nice moth emerged.

To illustrate the disastrous effects of overcrowding, I must cite the case of an acquaintance who found himself with about two hundred eggs. When these hatched, he tried to rear the whole lot of the larvae. I heard afterwards that five had pupated.

During the eight months or so of its existence, the pupa must be exposed to plenty of moisture, or its contents will dry up. In 1934, after one or two deaths and losses from parasites, ten of my larvae pupated. I kept the pupae through the winter just inside the open window of a very cool room facing north, but when the time came, only three moths (and two ichneumons) emerged. I was disappointed, but the remaining five pupae looked perfectly healthy, and thinking that they might perhaps, like other Notodontidae, go over for a second year, I put them aside in a cool place, but when I eventually opened them a year later, I found that each pupa contained a dried-up moth. I mentioned this to the late F. W. Andrews, and he said: "You must keep *fagi* pupae in a place exposed to the rain". How right he was. The cocoon, usually enclosed between two leaves, is made of a transparent material that looks like thin polythene, and is presumably waterproof. When my East Kent larvae pupated, I put the leaves containing the cocoons in a flower pot and covered the top with wire gauze as a protection against mice and birds, but not against the rain, and kept the pot out of doors, exposed to all weathers. Twelve moths emerged from, I think, fourteen cocoons. This year I kept four pupae through the winter under similar conditions, and four moths have emerged. They came out about 11 p.m. B.S.T., an inconvenient habit, since they must be allowed enough time to dry their wings before being killed. Females will generally remain quiet until morning, but males are apt to damage themselves. Other members of the prominent family, notably *Pheosia tremula* Clerck, also emerge at this time of night. The first time I bred a swallow prominent, I found in my breeding cage one morning a battered and almost unrecognisable male.

Fagi is one of those species that have been taken in much larger numbers since the introduction of the mercury vapour light. But I think that a dozen specimens taken in this way would be the source of much less satisfaction to a real entomologist than three or four that he had bred from the egg and had the pleasure of observing through all the stages of their life history.

52 Lowther Road, Bournemouth, Hants. 3.vi.1964.

Greece, April 1964

By Major General Sir George Johnson, K.C.V.O., C.B., C.B.E., D.S.O., D.L.

After reading Baron de Worms's account of spring butterflies in Greece (*Ent. Rec.*, **75**: 233) I decided to visit that country on the first opportunity. I took the plane to Athens on 6th April. The following day I went to Crete and stayed a week in Heraklion. The weather was mixed; four days overcast and a little rain on one of them. I investigated the country within about 50 miles of Heraklion by car so far as the rather limited roads permitted. Butterflies were a little disappointing. Twelve species common in England were observed. Of others, *Papilio machaon* L. and *Iphiclides podalirius* L. were common. *Pieris ausonia* Hübn. was common

in a form with a much yellower green on underside of hindwing and a considerably larger expanse of white generally on this wing than in Greek mainland or in Spanish forms. *Gonepteryx cleopatra* L. was common but worn (hibernated). *Turamana vicrama* Moore (a small form) was common on some strong scrubby ground adjoining Heraklion airport. One *Polyommatus thersites* L. with very small underside spots was obtained, and several skippers, apparently all *Spilothymus alceae* Esp.

There were fine flowers in the hills, in particular a very large dark purple *Arum*, a most spectacular improvement on our own "lords and ladies".

Of birds, Cetti's warbler was not uncommon and very noisy with its loud and distinctive song. Collared flycatchers were seen at Knossos, perhaps on migration.

On 14th April I returned to Athens, and next day motored the hundred odd miles to Delphi where I stayed until 26th April. The weather throughout my stay, except for one overcast cool day, was perfect, brilliant sun, temperatures 65°-75° by day with cooler nights. The village of Delphi and the famous ruins lie at about 1700 feet above sea level on steeply sloping ground between two enormous precipices, one above and one below, each over 1000 feet in height. I stayed in a hotel where I had the rather unusual experience of taking the lift *down* to the bedroom, the hotel being built down from the road on to the brink of the lower precipice. The view from my balcony was spectacular—over an enormous gorge, its bottom a valley covered with olives, which extended in a gradually widening plain to Itea on the Gulf of Corinth, five miles as the raven flies, but perhaps fifteen miles by road. Numbers of ravens soared past my window, playing in the thermals rising from the precipice. A pair of Egyptian vultures often came sailing past, and griffons, which were breeding in the second tier of precipices above the hotel, were usually in evidence. Once I had the wonderful sight of a lammergeier (one of the rarest birds in Europe) soaring past at quite close range.

Flowers round the ruins were abundant in quantity but rather disappointing in quality. Crucifers, scabious, Papilionaceae, etc., were predominant. Higher up on the plateau above the higher tier of cliffs (3500 feet) there were species of delightful small irises, blue anemones and a scarlet Adonis.

My experiences with the butterflies were similar to de Worms's, to whom I am most grateful for his lucid article and personal advice. There were a few points of difference worth recording. *Papilio alexanor* L., first seen 20th April, subsequently common, particularly on a slope below the village of Hrisos on the road to Itea at about 300 feet. Here, where the vegetation was obviously earlier than at Delphi, I found a patch of big purple thistles on which *alexanor* frequently settled and was easily caught. It is less wary than *machaon* or *podalirius*, which flew with it. *Pieris krueperi* Staud., first seen 15th April (on arrival), later common about half a mile of the Castalia Spring on the higher precipice. I never saw it more than a few feet from the sheer cliff and its capture was a question of standing on the undercliff at a suitable corner within net range of the cliff itself. At one point, half the whites that came past were *krueperi* and more could be seen flying up and down the rock faces above. No doubt the foodplant (of which I am ignorant) grows in clefts on the precipice.

Pieris ergone Geyer. I found this most commonly above Delphi on the way up to the higher plateau above the highier tier of cliff.

Polyommatus thristes L. de Worms records this as the predominant blue on the undercliff. I found it very scarce, whereas *P. icarus* L. and *Aricia agestis* Schiff. swarmed.

I saw all the butterflies recorded by de Worms except for *Aglais urticae* L. and I add the following:—*Aporia crataegi* L. (one ♂ at 3400 ft.); *Pieris napi* L. (one ♂ on 18th April); *Leptidia sinapis* L. (one ♂ on 17th April at the Castalia Spring); *Pararge egeria* L. (one ♂ at the Castalia Spring); *Thestor ballus* F. seen near St Luke's Monastry above Gulf of Corinth; *Spiolio orbifer* Hübn., one fresh specimen on the ruins, 18th April.

Apart from birds already mentioned, the following species, unfamiliar in north-west Europe, were observed:—Red-footed falcon, roller, pratincole, lesser ringed plover (all from Itea), black-throated wheatear, blue rock thrush, subalpine warbler, Rappell's warbler, Orpheim warbler, rock nuthatch, sombre tit, red-rumped swallow, crag martin, alpine swift and Cretschmar's bunting.

15.v.1964.

A Note on *Leto venus* Stoll. (Lepidoptera: Hepialidae)

By A. J. Duke and J. S. Taylor

Popularly known as the silver moth or the silver-spotted ghost moth, this magnificent hepialid is described and illustrated by Janse (1942-48) while the same author has also described the larva (1939) and the pupa 1940). In 1945 Dr. Janse gave an account of the occurrence of the species and what was then known of its life-history based upon notes made by members of the Newdigate family of Forest Hall, near Plettenberg Bay, C.P.

For many years this family held the monopoly (so to speak) of *Leto venus* and maintained a strict secrecy about its occurrence and whereabouts, as they feared if these became widely known the species might become in danger of extinction through over-collection. However, they supplied collectors with specimens for a small fee, all the monies received being devoted entirely to charitable purposes, and it has been recorded that a mission church was erected with some of the funds thus raised. As Janse (1945) mentions, most of the specimens now in museums were obtained from the Newdigate family.

Both the present writers have at different times (1956 and 1964) and independently carried out investigations on *L. venus* and this paper is the result of their combined efforts.

No precise locality was given when the species was first described by Stoll in 1780 except that it was from the Cape of Good Hope. Neither did Walker mention any particular locality when he produced a further description in 1856. However, from correspondence between Mr. W. N. Newdigate of Forest Hall and Mr. Roland Trimen, Curator of the South African Museum, Cape Town, it seems that an adult specimen was sent from Forest Hall to the Museum in 1869, while in 1878 the insect was first found in association with its larval host, the keurboom (Janse, 1945).

Leto venus is apparently confined to the Tzitzikama Forest area, and, as stated in the Newdigate notes (Janse, *op. cit.*), is found from Witelsbos in the east to George in the west. More recently it has also been recorded from the Longkloof.

The larval host, keurboom or *Virgilia oroboides*, formerly *capensis*, is found from van Stadens westwards right down into the Western Province of the Cape although some botanists state that the species of *Virgilia* occurring from George eastwards is another species *divaricata* and that *oroboides* is the more western species. However, opinions seem to be divided as to whether they are one or two species, and because of this technical botanical problem we have assumed that the keurboom of the area in which *L. venus* occurs is *Virgilia oroboides*.

That *Leto venus* is not found west of George is not surprising as the nature of the country is vastly different, the continuous indigenous forest belt ceases, while keurboom is found in only isolated patches here and there. It may also be mentioned in this connection that the adult insect, especially the female, is not particularly mobile and is therefore unlikely to travel far.

It has been found that this hepialid is of much commoner occurrence than was at one time thought. Almost every sizeable keurboom is infested by the larva and practically all ultimately die as a result of its depredations. It is said that the early settlers in the area described it as "the tree that blocks the path", indicating that fallen trees were then as now, often met with. There seems to be little doubt that *L. venus* was responsible for the fallen trees. Indeed, if the keurboom was a cultivated species, this hepialid might well be regarded as a serious pest. Fortunately the seed germinates easily and the young trees spring up everywhere. So long as the keurboom remains as common as it is today, there seems to be little likelihood of there being any scarcity of *L. venus*.

Although the adult itself is apparently seldom seen, signs of larval feeding such as frass and mucilage on the trunks of affected trees, with empty pupal cases protruding during the emergence season, can be found throughout the area, and, as stated previously, there is hardly a sizeable tree which does not exhibit such signs or indications.

The exact duration of the immature stages of *L. venus* has not been determined but the estimates for the larval and pupal periods as "several years" and "at least a year" as given in the Newdigate notes and quoted by Janse (*op. cit.*) are probably at least approximately correct.

The adult, like other hepialids, has vestigial mouth-parts and is incapable of feeding; hence its period of life is short. At Wilderness, a male lived for two days in captivity and a female for five days.

From a keurboom stump obtained at Knysna on 5th February 1964, and removed to Wilderness, adults emerged from 10th February until 31st March (the second emergence did not take place until 3rd March). Twenty individuals in all, of which nine were males, were obtained from the same stump. Three stumps obtained near Plettenberg Bay in 1956 and taken to Cape Town, produced four adults, of which two were males, from 21st to 29th March between 7.30 and 10.15 p.m. At Wilderness, the moths usually emerged early in the evening from about 6.45 p.m., but sometimes considerably later. It was noticed that as the days shortened emergences tended to occur earlier in the evening, indicating that dusk or nightfall has some influence upon the time of emergence. It was

likewise observed that emergences were more liable to take place when the weather conditions were damp.

At Wilderness, attempts at breeding from the adult were unsuccessful; also attempts at "assembling" with the female; this possibly because of the distance from the forests where the host tree is normally found.

Eggs were obtained from the female kept in captivity: all proved to be infertile. The egg is round and seed-like, dull black with a matt surface and measures some 1·5 mm. in diameter.

The period of emergence, according to the Newdigate notes, is from February to March, as was the case with the more recent collected material already referred to. Under natural conditions, however, the emergence period probably extends well into April, as apparently fresh pupal cases have been found on growing keurboom as late as 24th April. It has been found that the empty pupal cases do not normally remain for more than a day or two *in situ* as they are very soon removed by ants or disappear through some other cause. Possibly emergence was accelerated by the cutting down of the trees and the removal of the stumps indoors. It is understood that the Newdigate material was also obtained in this manner.

As described in the Newdigate notes, the larva pushes its frass out through a hole in the upper end of its tunnel and, on reaching maturity and preparatory to pupation, it seals this hole with a cap of gummy sawdust. These caps are visible and denote the presence of the pupae within. Immediately prior to the emergence of the adult the cap cracks open and the pupa forces its way through. An account of this as observed in one of the stumps removed to Cape Town follows.

The first indication of an emergence appeared on the evening of 21st March when a slight crack was noticed at the top of one of the sawdust caps. This was at 7.30 p.m. An hour later the crack had widened sufficiently to enable the head of the pupa to be seen. The method employed was that the pupa exerted a steady pressure until the crack had widened slightly. It then moved back down the tunnel to rest there for several minutes before moving up to resume the pressure on the cap once more. These operations continued until 9 p.m., by which time the cap was split wide open at the top, and then, with a crackling noise, the pupa worked itself out of the tunnel until the wing-cases were free, and it was held only by the abdominal segments. It remained still for a minute or two and then broke open, the moth (a male) pulling itself free and, half-turning, it clutched at the trunk and walked rapidly to the top. It then walked round and round the top of the stump obviously desiring to proceed higher, but it eventually settled down and hung quietly while its wings commenced to expand. The drying process occupied only twenty minutes and then the moth folded its wings into the normal resting position. The moth was not interfered with and it eventually flew around the room at 10.15 p.m. The flight is peculiar as it beats its wings very rapidly like a locust, and with its abdomen trailing out behind.

In one instance the pupal tube was opened in order to observe the pupa moving up and down within it. It was found that the pupa can move very rapidly by wriggling the abdominal segments which are provided with ridges and protuberances for the purpose. As Dr. Janse (1940) has pointed out in his description of the pupa the abdominal segments are also provided with spines and setae which are designed to

hold the pupa firmly in the tunnel while the adult pulls itself free. To this end it is also assisted by the silk at the top of the tube. When the pupa first moves up the tube to exert pressure on the cap it forces the silk to the sides. The setae and spines cling firmly to the silk lining when the pupal case is forced half-way out of the tube preparatory to the moth's emergence.

In the case of the keurboom stump kept at Wilderness and from which twenty adults were obtained, the majority on emergence climbed rapidly to the top of the stump and considerably higher if and when provision was made for this. One or two, however, were content to climb only a few inches.

In 1956, before the three stumps, already referred to, were removed to Cape Town, some time was spent by one of the present writers (A.J.D.) on the farm Longridge, near Plettenberg Bay, then belonging to Mr. J. Newdigate, a grandson of the owner of Forest Hall, who supplied Trimen with his specimens, and whose daughters obtained most of the material now to be found in museums. Nearly all the larger trees on and around the property were found to be infested by *L. venus*, and many showed signs that more than one larva was at work within, while a considerable number also had galleries sealed with the saw-dust cap indicating that pupae were present.

Searches were made in the evenings and at night in the hope of obtaining adults but were hampered by rain which fell constantly and the results were completely negative. Inspection of the trees in the mornings, however, revealed that moths had emerged during the night as fresh pupal cases were found protruding from the trunks. From this, as well as from the fact that moths ex stumps apparently prefer to climb to a considerable height after emergence it would seem reasonable to conclude that under natural conditions they climb high up the trees where in the semi-darkness they would be most inconspicuous, their silver spots assisting them to merge into the background of keurboom leaves.

Unfortunately, no proof of this has been obtained as no specimens were taken on trees (in fact the moth is rarely seen, hence its apparent rarity), although a female came to a 300 c.p. paraffin pressure lamp between 8 and 8.30 p.m. one evening, indicating that like some other species of hepialid, *L. venus* is also attracted to light. If this is the case, however, it seems strange that no other specimens have been attracted in this way.

The locust-like flight of the male moth has already been mentioned. The female, as described in the Newdigate notes, is probably too heavy and clumsy for sustained flight and just flops about. As suggested earlier this may at least partially account for the restricted distribution of the species.

Both larva and pupa have been described by Janse (1939 and 1940); all that can be added about the larva here is that when the stumps removed to Cape Town in 1956 were eventually opened one living half-grown specimen was found. It had a strong and most unpleasant smell which the writer concerned (A.J.D.) is at a loss to describe, as he knows of no other odour with which it can be compared.

According to the Newdigate notes the chief enemies of *L. venus* are bats and ants, while the practice of cutting down keur trees for fencing poles and firewood destroys many in the developmental stages. That the larval frass is attractive to ants soon became evident in Cape Town where,

when the stumps were left unattended for a short period, they were soon swarming with Argentine ants.

Birds, such as woodpeckers, owls and nightjars also probably prey upon the insect.

The stump obtained at Knysna and kept at Wilderness as well as producing twenty adults of *L. venus* also brought forth, but before the emergence of the hepialid commenced, many hundreds of alates of *Porotermes planiceps* Sjostedt. This termite nests within dead and decaying wood in or in contact with the soil, and its infestation of the keurboom stump was doubtless secondary to that of *L. venus* and was not in any way competitive with the latter.

Summary

An account, supplementary to that based upon data obtained by the Newdigate family (Janse, 1945) is given of the occurrence, life-history and habits, so far as they are known, of *Leto venus* Stoll. (Hepialidae). The insect, although not rare, is seldom seen, except for the empty pupal cases, and it has a restricted distribution, being apparently confined to the Tzitzikama forest area from Witelsbos to George. The larval host is *Virgilia oroboides*, popularly known as keurboom, and almost all the older and sizeable specimens are infested by the larva. The adult or moth emerges from February to April.

Acknowledgments

The writers are much indebted to Mr. J. Newdigate and Major C. H. F. Woolley for their ready and enthusiastic assistance in obtaining material; to Dr. W. G. H. Coaton for the determination of the termite as well as for information thereon; and to Mr. C. G. C. Dickson for helpful criticism and advice in the preparation of this paper.

REFERENCES.

Janse, A. J. T. 1939. On the structure of lepidopterous larvae, with special reference to the mature larva of *Leto venus* Stoll. *Jl. ent. Soc. S.A.*, ii, 165-175.

———. 1940. On the pupa of *Leto venus* Stoll. (Lepidoptera). *Ibidem*, iii, 124-127.

———. 1945. On the history and life-history of *Leto venus* Stoll. *Ibidem*, viii, 154-156.

———. 1942-48. The Moths of South Africa, iv. *Transvaal Museum, Pretoria.*

Early Migrant Lepidoptera in 1964.—A male *Heliothis peltigera* and two *Nomophila noctuella* came to my light trap at Arundel, Sussex, on 9th May. The *peltigera* was of the palest yellow form (not worn) and had evidently developed quickly under warm conditions in its country of origin. There were two *Plusia gamma* L. and a female *Agrotis ipsilon* in the trap on 15th May and the same species again on 17th May. A female *Nycterosea obstipata* came on 16th May. On 12th May I watched *Nymphalis atalanta* L., the red admiral butterfly, at Lyndhurst, Hampshire.—G. Haggett, 1 Torton Hill, Arundel, Sussex. 18.v.1964.

Meliana flammea Curtis at Arundel Sussex.—A very fresh male of this species came to my light trap at Arundel on the night of 17th May 1964. This is apparently the first record for this species in Sussex.—G. Haggett, 1 Torton Hill, Arundel, Sussex. 18.v.1964.

The Larval Taxonomy of the British Trichoptera

By Allan Brindle

4. The Sericostomatidae

Although in general the identification of caddis larvae presents some difficulties, certain families are relatively easily distinguished. The Sericostomatidae are one such family for many of the larval cases are distinctive and unlike those of any other family. The kind of case is even more useful, for in the Sericostomatidae, which is a small but rather heterogeneous family, there are four subfamilies, each of which has a different kind of larval case. The cases of this family can be summarised as follows:—

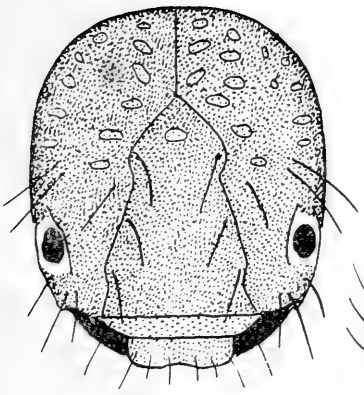
1. Case tubular, smooth, of mineral material (fig. 10) .. Sericostomatinae
2. Case tubular, of silk only, without added material .. Brachycentrinae
3. Case quadrangular, of vegetable or mineral material (fig. 11) ..... Lepidostomatinae
4. Case elliptical, of mineral material and with larger stones arranged along the side (fig. 9) ..... Goerinae

Since the number of species in each subfamily range only from one to four, the type of case used by the larvae is most useful. This summary would serve for both the larvae and the pupae since the pupal stage is spent within the larval case. The only exception to the above is *Lasiocephala*, which belongs to the Lepidostomatinae but makes a tubular case (fig. 12).

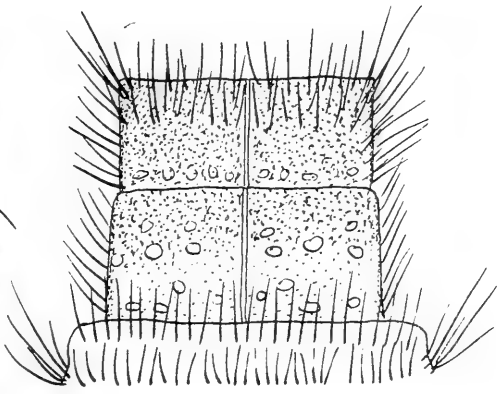
Of these four kinds of cases, the first kind is the one most liable to be confused with other caddis cases, certain Limnephilid larvae, for example, making a similar case, but these can be distinguished by features of the thorax. The case of the Brachycentrinae is distinctive, but Lestage (1921) reports that occasionally the case may be partly of vegetable material, and may be quadrangular in young larvae. This illustrates the caution which should be used when identifying caddis larvae from their cases, but these are most useful provided their limitations are recognised and other characters used as well. The quadrangular cases of the Lepidostomatinae are distinctive, no other caddis larvae making such a case, though the young larvae sometimes make a tubular one. When this occurs the later constructed parts of the case are quadrangular, i.e. the posterior part is tubular and the anterior part is quadrangular. No reservations are needed for the cases of the Goerinae; this type is easily recognised and appears to be constant and restricted to this subfamily.

The key to the larvae of this family given in Lestage (l.c.) has been partly superseded by more recent descriptions of British larvae. Hanna (1956) when describing the larva of *Notidobia*, included some distinguishing features between this larva and that of *Sericostoma*. Baker (1963) has revised the larvae of the Goerinae and has given a key. Both these publications have been referred to in the compilation of the present keys, as well as Hickin (1943) on the larva of *Brachycentrus*. The pupal keys are based on those in Lestage (l.c.). The spines mentioned in the key are those at the apex of the tibiae of the pupae; they are conspicuous and large, and the numbers are given in order for the first, second, and third pairs of legs.

The four subfamilies of this family have previously been separated in the larval and pupal stages in earlier papers (Brindle, 1961a, 1961b) but a modified key is given below.



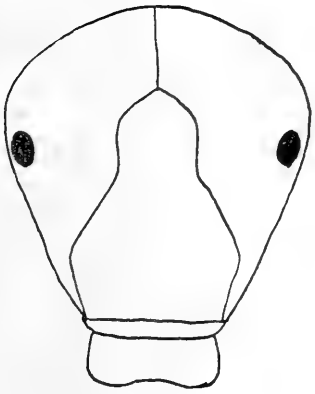
1



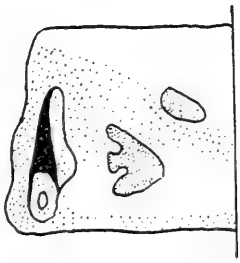
2

3

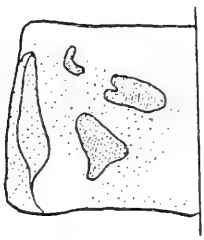
4



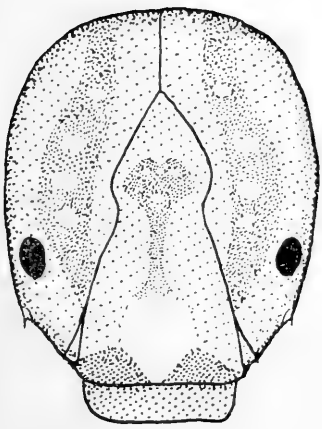
5



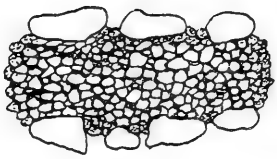
6



7

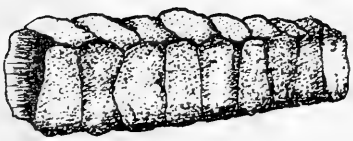


8



9

10



11

12

S. personatum : 1, head; 3, pupal labrum; 10, larval case. *N. ciliaris* : 2, thorax (after Hanna); 4, pupal labrum. *Silo* : 5, head; 7, left half of metanotum; 9, larval case. *Goera* : 6, left half of metanotum. *B. subnubilus* : 8, head (after Hickin). *C. irrorata* : 11, larval case. *L. basalis* :

Key to subfamilies (larvae)

1. Cases characteristic (fig. 9); head triangular in front view (fig. 5) .... Goerinae
— Cases otherwise; head elliptical in front view (figs. 1, 8) 2
2. Cases tubular, smooth, of mineral material, slightly curved (fig. 10); head dark brown, almost blackish (fig. 1) ..... Sericostomatinae
— Cases otherwise; head lighter in colour 3
3. Cases usually of silk only, without added material; head with longitudinal darker bands (fig. 8) ..... Brachycentrinae
— Cases quadrangular (except *Lasiocephala*), of vegetable or mineral material; head without darker bands ..... Lepidostomatinae

Key to subfamilies (pupae)

1. Anal appendages short and blunt, consisting of rounded lobes; spines 2. 4. 4 ..... Lepidostomatinae
— Anal appendages long and slender 2
2. Pupal mandibles with apical half narrow and tapered, basal half very broad; spines 2. 3. 3. ..... Brachycentrinae
— Pupal mandibles not so shaped; spines otherwise 3
3. Anal appendages widely divergent; pupal mandibles triangular in shape; spines 2. 4. 4. ..... Goerinae
— Anal appendages not diverging; pupal mandibles almost parallel-sided; spines 2. 2. 4. ..... Sericostomatinae

SERICOSTOMATINAE

Two species in two genera; cases as fig. 10; head very dark brown with pale spots, which are sometimes indistinct (fig. 1); pronotum and mesonotum dark brown, the former with numerous black setae on anterior half; mesonotum with lateral black setae; metanotum whitish with two rows of black setae (fig. 2).

From Limnephilid larvae, which make similar cases, those of this subfamily can be distinguished by the thorax; in Limnephilid larvae the metanotum has always about three pairs of small dark sclerotised plates and is never entirely whitish. The numerous dark setae also are not found in Limnephilid larvae.

Larvae

1. Mesonotum more heavily sclerotised, with a prominent longitudinal suture (fig. 2). Length 15 mm., case 17-18 mm. Local, in slow running water or in canals ..... *Notidobia ciliaris* (L.)
— Mesonotum less heavily sclerotised and without a longitudinal suture. Length 13-14 mm., case 15-16 mm. Widely distributed, typical of fast running rivers, but also occurs in slower water ..... *Sericostoma personatum* (Sp.)

Pupae

1 Anal appendages longer, without a complete fringe of hairs on dorsal edges; labrum shaped like a blunt equilateral triangle (fig. 4). Length 11-14 mm. ..... *N. ciliaris* (L.)
— Anal appendages shorter and with a complete fringe of hairs on dorsal edges; labrum wider and transverse with a median projection (fig. 3). Length 12 mm. ..... *S. personatum* (Sp.)

GOERINAE

Three species in two genera; cases characteristic (fig. 9); head yellowish to dark brown or almost blackish; the separation of the two species of *Silo* is based on features of the thorax: Baker (l.c.) uses the term "clear areas" but in the present paper this is modified to "light patches". The pronotum is dark brown with these areas or patches yellowish in colour, contrasting with the dark colouring.

Larvae

1. Metathorax with six small sclerotised plates (fig. 6); Length 13-14 mm., case 14-16 mm. In slower running water, e.g. where the bed of the river or stream is sandy. Common and widely distributed ..... *Goera pilosa* (F.)
— Metathorax with eight such plates (fig. 7); Length 8-10 mm., case 10-12 mm. In faster running rivers and streams, e.g. where the bed is stony ..... (*Silo*) 2
2. Pronotum with three large elliptical lighter patches, one median, the others lateral. Common and widely distributed .... *Silo pallipes* (F.)
— Pronotum without large lighter patches, but with very small ones near posterior edges. Local ..... *Silo nigricornis* (Pict.)

Pupae

1. Cases larger, 14-16 mm.; anal appendages longer than the last two segments of abdomen. Length 10-12 mm. ..... *G. pilosa* (F.)
— Cases smaller, 10-12 mm.; anal appendages only about as long as last abdominal segment. Length 8-9 mm. (*Silo*) 2
2. Anal appendages entire at apex ..... *S. nigricornis* (Pict.)
— Anal appendages divided at apex ..... *S. pallipes* (F.)

BRACHYCENTRINAE

One species only; head yellowish-brown with darker bands (fig. 8); widely distributed in slow rivers. Length 10-12 mm.; case 12-13 mm.; pupae 8-9 mm. ..... *Brachycentrus subnubilus* Curt.

LEPIDOSTOMATINAE

Four species in three genera, of which one species, *Lepidostoma fimbriatum* (Pict.) is unknown as larva or pupa. Usually easily recognised by their quadrangular cases. That of *Lepidostoma* is apparently always made of vegetable material but that of *Crunoecia* may be mixed, of vegetable and mineral material. The case of *Lasiocephala* is always of mineral material and is tubular with a prominent curve towards the end (fig. 12) which Lestage describes as typical. Head more or less unicolorous except for a light patch around the eyes, but marked with spots in *Lasiocephala*. The colour of the head varies from reddish to brown.

Larvae

1. Mesonotum completely sclerotised; metanotum with three pairs of small sclerotised plates. Length 11 mm., case 16 mm. ..... *Lepidostoma hirtum* (F.)
— Mesonotum only partially sclerotised; metanotum with less than three pairs of plates 2
2. Case tubular; head dark brown or brown, with lighter spots. Length

11 mm., case 15 mm. Local in fast running rivers ..... *Lasiocephala basalis* (Kol.)

— Case quadrangular (fig. 11); head unicolorous, reddish. Length 6-7 mm., case 7-9 mm. In rivers; but in the north it is more typical of small rivulets in woodland or streams on higher ground; often in marshes where a current of water passing. Common ..... *Crunoecia irrorata* (Curt.)

Pupae

1. Anal appendages with four long setae; smaller, 6 mm. ..... *C. irrorata* (Curt.)
— Anal appendages densely hairy; larger, 8 mm. 2
2. Cases quadrangular ..... *L. hirtum* (F.)
— Cases tubular ..... *L. basalis* (Kol.)

REFERENCES

Baker, W. V. 1963. Some Notes on the taxonomy of the last instar larvae of the British species of the subfamily Goerinae (Trichoptera : Sericostomatidae). *Proc. R. ent. Soc. Lond.* (B), **32** : 171-4.

Brindle, A. 1961a. The Larval Taxonomy of the British Trichoptera, Part 1. *Ent. Rec.*, **73** : 114-125.

———. 1961b. A Family Key to the Pupae of the British Trichoptera. *Ibid.*, **73** : 156-162.

Hanna, H. M. 1956. The larva of *Notidobia ciliaris* (L.) (Trichoptera : Sericostomatidae). *Ent. Gaz.*, **7** : 77-81.

Hickin, N. E. 1943. Larvae of the British Trichoptera, 17. *Proc. R. ent. Soc. Lond.* (A), **18** : 81-3.

Lestage, J. A. 1921. *In* Rouseau, E. *Les larves et nymphes aquatiques des Insects d'Europe.* Brussels.

Chlorops (Cetema) myopina Loew [Dipt., Chloropidae], deletion from "British List" and the addition of *neglecta* Tonn.

By L. Parmenter

In G. H. Verrall's *List of British Diptera* of 1888, *myopinus* was included with *cereris* Fln. in the genus Centor. In the 2nd edition of 1901 *nudipes* Lw. was added and in 1911 Mr. J. E. Collin in *Ent. Mon. Mag.*, **57**: 146 drew attention to the new name *Cetema* given by Hendel in 1907 to the genus as *Centor* was preoccupied in the Coleoptera by Schoenherr, 1947. O. Duda reduced *Cetema* to subgeneric rank in 1932-3. *Chloropidae* in Lindner. *Die Fliegen der Palearktischen Region.*

In W. J. Wingate's *Durham Diptera* of 1906 *myopina* was keyed out as having a dark arista, and long haired mid tibiae in the male. The name *myopina* has appeared in various lists since then:—by J. Murray (Dumfriesshire), H. Audcent (Bristol), J. W. Carr (Nottinghamshire) etc., and in my own first list for Bookham Common, Surrey, (*London Naturalist for 1949*). In 1921 A. Tonnoir described a new species *neglectus* in *Bull. Soc Ent. Belg.*, **3**: 131-3 contrasting it with *myopina* in the male, as the females could not be distinguished, with the 6th abdominal segment shorter than the 4th whilst *myopina* has these segments equal and the genital forceps strongly bent in *myopina* but only slightly bent in *neglecta*. Figure drawings of the genitalia of both species were given by

Tonnoir and E. Séguy has line drawings of the same genitalia from a different viewpoint, in his *Muscidae Acalypterae et Scatophagidae*, 1934. The slightly curved end of the forceps of *neglecta* are omitted in Tonnoir's figure as printed in the copy of the *Bull. Soc. Ent. Belg.* in the library of the Royal Entomological Society of London.

Recently when going through my undetermined specimens of Chloropidae, I found that I had males from Surrey, Herts., Hants, Kent and Suffolk that agreed with Tonnoir's description of *neglecta* as repeated in O. Duda's work, but had no specimens of *myopina*. Mr. J. E. Collin has kindly confirmed that he has "entirely failed to find any British specimens referable to *myopina* as described by Loew".

Notes and Observations

Additional Records of Prodenia litura Fab.: The Mediterranean Brocade (Lepidoptera: Noctuidae).—Further to the note on the occurrence of this species in 1963 (*Ent. Rec.*, **76**: 59-60), Mr. P. Aikenhead (Plant Pathology Laboratory, Harpenden) has written (*in litt.*) that there have been two definite records in Scotland, one near Glasgow and the other in Lanarkshire, both on the authority of Dr. Cameron (Dept. Agriculture & Fisheries for Scotland). It is also necessary to correct an error that appeared in the above published note, wherein it is stated that the species is not mentioned in South (Moths Br. Isles (1907)), and Barrett (Lep. Br. Isles), because in fact both authorities do include it under *Prodenia littoralis* Boisduval. Thus Barrett (*op. cit.*, **5**: 45) refers to a specimen in S. Webb collection, " taken by Mr. C. S. Gregson in a fruit warehouse in Liverpool", and adds that others have been reported in this country from larvae found in tomatoes.

Three specimens, in the R.C.K. collection at Tring, are labelled as follows:—(1) "Found in Boldes [illegible, perhaps "Brothers"] Jones fruit warehouse 1871. Gregson Liverpool" (this is presumably the specimen referred to by Barrett (*loc. cit.*); (2) "From larva found in Boscombe district by Major R. B. Robertson. Moth emerged July 16, 1905"; (3) "Cromer, 17.ix.1960. G. Todd". Finally, there is an early capture (though evidently not the first British occurrence as stated) recorded in A. H. Turner's *Lepidoptera of Somerset*, p. 18, on the authority of Chas. Bartlett, for Brockley, Somerset: "a female larva taken June 1897; moth emerged August 1897. First occurrence in Britain".—J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.

Melanism in Bournemouth.—From two larvae of *Biston betularia* L. that I found here last September, I bred a typical male and a *carbonaria* female. Soon after these had emerged, a *carbonaria* male was found in this road.—H. Symes, 52 Lowther Road, Bournemouth. 2.vii.1964.

Delayed Emergence of Apatele tridens Schiff.—On page 21 of the January "Record", Mr. M. J. Leech reports the emergence of one of Mr. Carr's dark daggers on 18th October, noting that the emergence period extended over 37 weeks. But the last word rests with me, for on 8th June I found a small *tridens* which had emerged from the touchwood in which it had pupated, and where it had spent two winters. Presumably this is really the last of the brood.—H. Symes, 52 Lowther Road, Bournemouth. 2.vii.1964.

VANESSA CARDUI L. IN SOUTH-EAST KENT.—In view of the relative scarcity of immigrant Vanessids in recent years, it is, I think, worth while to record my having seen two worn and tattered painted lady butterflies near Little Cheyne Court, Walland Marsh, Kent, between 5 and 6 p.m. on 12th May 1964.—J. F. BURTON, B.B.C. Natural History Unit, Broadcasting House, Bristol, 8. 22.v.1964.

VANESSA ATALANTA L. IN CENTRAL LONDON.—It might be worth recording that yesterday morning, 22nd June, 1964, I saw a female *Vanessa atalanta* L. (red admiral) flying across Piccadilly into Green Park. It settled for a moment on the gravel path just in front of me, and then flew off rapidly in a southerly direction.

During last September, several were seen in gardens around Wandsworth Common for the first time for several years.—F. R. SUTTON, 20 Lyford Road, Wandsworth Common, London, S.W.18.

UTETHEISA PULCHELLA L. IN THE NEW FOREST.—On 4-5th June, 1964, a fresh male *Utetheisa pulchella* L. came to my mercury vapour trap here. It is the first bit of excitement I have had this year, but it makes up for the drab spell.

I was at Hod Hill on the 5th and there was not a *bellargus* to be seen. There were still a number of fresh *minimus*, some *cardamines*, some fresh *agestis* and only two or three *icarus*. So it may be that the season there is is very late; I hope the *bellargus* colony has not disappeared. *Aurinia* was well out, many worn, but still some fresh females.—L. W. SIGGS, "Sungate", Football Green, Minstead, Lyndhurst, Hants. 6.vi.1964.

MIGRANT LEPIDOPTERA IN HAMPSHIRE.—On the night of 13-14th June, 1964, a male *Laphygma exigua* Hübn. came to my mercury vapour light trap at Minstead. On 14th June I saw *Vanessa cardui* L. and *Colias croceus* Fourc. (one of each), come in from the south at Keyhaven Marshes. —L. W. SIGGS, "Sungate", Football Green, Minstead, Lyndhurst, Hants. 15.vi.1964.

Current Literature

Lepidoptera Palaearctica. I have received from Mr. Hans Reisser of Vienna a proof copy of the preface to this major work, which I print herewith. This project should open up world study to the Micro-Lepidopterist as Seitz did for the Macrolepidopterist. I have also seen proofs of Dr. Gregor's plates, and Dr. Amsel's praise of these is in no degree overstated. The first volume should be appearing towards the end of the summer, and those interested in the work at subscription rates should contact Dr. H. G. Amsel, Landessammlungen für Naturkunde, Ernprinzenstrasse 13, (75) Karlsruhe, Germany; Dr. F. Gregor, Zemedelska 1, Brno, Czechoslovakia, or Mr. Hans Reisser, Rathausstrasse 11, Vienna I, Austria, or Mr. E. W. Classey.

Preface

The death of EDWARD MEYRICK in 1938 was a turning point in the study of Microlepidoptera, signifying more than the passing of a famous and respected author. In 420 publications MEYRICK had described some 16,000 species of Microlepidoptera, thereby putting in the shade, from a purely numerical point of view, the descriptive work of any other single personality in the biological sciences. His breadth of scope was as amazing

as the volume of his work: he alone envisaged the Microlepidoptera Fauna of the entire world, of which he formed a single collection numbering about 100,000 specimens and in most cases his sure eye pointed the right way. But already during his lifetime it had become clear that the science of Microlepidoptera would enter a blind alley sooner or later unless new methods of study were found. The volume of new descriptions increased to such a degree that gradually the comprehensive mastery failed, which at the beginning of our century still resided in a few such brains as MEYRICK, WALSINGHAM or REBEL, and it became clear that, ever more exact, and indeed, in some groups, extremely refined methods of investigation were already in use, so in Lepidoptera too a completely new way must be trodden.

Although at the turn of the century authors were still to some extent able to work generally and independently, the volume of the literature and material made obligatory a strong specialisation, which naturally led to co-operation. The methods which are now scientifically requisite intensified this process, if only because of the time involved. But the decisive step forward was made when the value of the genital morphology was appreciated as being of fundamental importance. From year to year it became more generally recognised that the current method of taxonomic work was not merely inadequate but must inevitably lead to incomprehensible chaos. MEYRICK's view that a species could be so clearly described that it could be recognised from the description proved to be a serious error. Numerous species can indeed only be distinguished in the morphology of their genitalia, and indeed the depiction of the genitalia almost always provides the truly unambiguous method of recognising a species. In particular the works of many authors, which have appeared since World War II, have shown that revisions of systematic groups furnished a quite new picture of the situation. For instance, PETERSEN established, in the relatively small Palearctic Tineidae group, the existence of sixty synonyms, and made such generic changes that hardly one stone of the old system remained on another. In the Crambinae, a comparatively small subfamily of the Pyralidae, BLESZYNSKI proved that sixty-seven species, from various regions, belonged to quite different subfamilies or even families, and also established countless synonymies.

In view of this situation, the present author was forced more and more to contemplate a new and fundamental work on the Palearctic Microlepidoptera, and his decision to publish "Microlepidoptera Palaearctica" was reached nine years ago. After protracted negotiations with authors, publishers, and scientific institutes, it was finally possible to overcome the almost insuperable difficulties in the path of this undertaking. Not least among the reasons for this final success was a particularly favourable combination of circumstances such as have rarely occurred in literary history. Never before was so large a number of internationally outstanding specialists of East and West available simultaneously to undertake such a task: never before had there been such a Microlepidoptera-specialist such as Dr. GREGOR, combining the highest scientific and artistic qualifications: seldom, too, had a publishing firm been prepared to issue so comprehensive a work, at the same time so specialised and so wide in scope, and with the barest prospects of profit: never before, too, had the happy circumstance occurred, of one of the leading personalities of a great and capable printing works being an experienced lepidopterist and

delighted to give his personal and unremitting attention to such a project. Finally, both the German Exploration Corporation and the Baden-Württemberg Ministry of Culture evinced an extraordinary comprehension for our efforts and enabled the almost insuperable financial difficulties to be overcome. In this many personalities played a valuable rôle, but it would take too long to mention them all by name.

At the XIth International Congress of Entomology at Vienna the meeting of a large number of contributors to "Microlepidoptera Palaearctica" was first possible, and the plotting of the general scheme which the enterprise was to follow. This scheme was the subject of further prolonged correspondence, with the following results:

1. All scientific work on the Palaearctic Microlepidoptera will be co-ordinated into the framework of "Microlepidoptera Palaearctica"; such co-ordination has hitherto been lacking, and this lack was one of the main causes of the present impossible situation in the systematic field. In the course of this co-ordination, individual authors will be enabled to work through respective groups as represented in the greatest Museums and also the principal European private collections.

2. The study of each species will begin with an examination of the type specimen or series*). Specific determinations, hitherto made on the sole basis of literary studies have often led to the most grotesque mistakes. An investigation of types will provide an indisputable proof of what is really meant by a described species. The lot of synonyms and uncertain species can thus be compared and their identity resolved, thus providing a sober foundation for all future scientific work. All purely compilatory work is to be avoided; instead all conclusions will rest on material that has been investigated.

3. In order to achieve the indisputable identification of all the species, the study of each one will begin with the establishment of the genitalia-morphology of both sexes, with due regard to all the characters of systemic value. Black and white drawings of the genitalia, coloured reproductions of water-colour drawings of the right side, made from the actual specimens, with pictorial representation of systematically important details (e.g. neuration, antenna, frons, or palp-formation) should provide a maximum of comprehensibility through the eye. Vague uncertain statements about the palp-form antenna-ciliation, or cornutus-length, such as "end segment of palpus long" will be replaced by unambiguous statements, e.g. the length of the third segment will be related to that of the second, and the length of the entire palp to the diameter of the eye, thus: "3 palp-segment, $\frac{1}{3}$" means that the last segment is one-third the length of the second; and "palp 3" means that the palp is three times as long as the diameter of the eye. Likewise for the antenna-ciliation, "antenna ciliation 2" means that the cilia are twice as long as the breadth of the antenna shaft, relating the longest cilia to the broadest part of the shaft. Similarly, "cornutus 1" means that the cornutus is as long as the aedeagus. Thus even a beginner will be enabled to work in a new field of study: and Institutes of Applied Entomology will be provided with a rapid means of orientation.

*) As far as ascertainable, the data of the labels of the types will be quoted *verbatim* with a special indication at the relevant place of the work.

4. The clearing up of synonymies and systematic errors will result in the final termination of nomenclatorial chaos. We urgently need durable names, names that will remain valid for all time. By applying paragraph 23b of the International Rules of 1961 for Nomenclature, the preservation of established names can be achieved, and the principles of Priority and Continuity can be intelligently combined. Such a result is of great importance for Applied Entomology.

5. The specific description will be as brief as possible, and preferably should give what the illustrations leave out, e.g. variability, comparison with neighbouring forms, and stressing of the diagnostically important characters. Data regarding larvae and imagines' phenology and ecology, foodplants, and biological peculiarities, are part of the description of the species. On the other hand, the larva will not be described, as such descriptions are only of use if scientifically exact, that is if they not only give the chaetotaxy but illustrate it too. As the larvae of 90% of all Palaearctic Microlepidoptera are still unknown, only a reference to the literary sources for the chaetotaxy of such larvae as are known, need be given. An exception, however, may occasionally be made to this rule, e.g. economically important species.

6. Neuration indications should follow the COMSTOCK system, with a subdivision into Costa, Subcosta, Radius, Media, Cubitus, Analis and Axillaris. This division combines what belong together and separates what do not, while the HERRICH-SCHÄFFER principle of enumeration is purely mechanical in nature and scientifically unsatisfactory. The technical terms for genitalia-parts are so different from group to group, and the question of homologies, etc., so disputed, that a special explanation should be given for each systematic group.

7. Distribution data will be given after the specific description, all countries and districts being named from which the author has seen material, and special value being accorded to the limits of the distribution, and also, in disjunct ranges, to the accurate definition of the localities inhabited. These data will thus definitely be reliable. The author may then add the names of the countries in which he knows of the occurrence of these species from literature only, and only in these cases need the references be cited. Doubtful literary records can be marked with a "?", or a critical remark. Localities will be rendered as given in the literature and specimen-labels, for instance the name Sarepta will be given rather than Krassnoarmejsk. Political conceptions, of which the boundaries vary more or less according to the political developments, should as far as possible be avoided and replaced by geographical conceptions. The general zoogeographical heading will, in principle, contain only verified facts about the distribution of the species, genera, or groups; as a consequence of this principle, there should be no reference to faunistic elements, and similarly the probable origin of the species should not be discussed as most publications about such are more or less speculative. The aim of "Microlepidoptera Palaearctica" is to provide only indisputable scientific facts.

8. The principles mentioned under 1 & 7 above will greatly simplify the problems of literary citations. It is evident that the method hitherto often used, of mentioning the entire literature on any one species, is superfluous, as it occupies much too much of the author's time and takes up too much space. It is now sufficient to give the original citation, fol-

lowed by the synonyms, and thereafter only such references *as provide more information than will be found in the text or the illustrations of "Microlepidoptera Palaearctica".* For instance, such additions might be the illustration of the species in its resting position, biological data, chaetotaxy, illustrations of mines, pattern of eating, etc. On the other hand, if an imago is somewhere illustrated or described in the usual way, it is superfluous to cite the reference, as the "Microlepidoptera Palaearctica" illustrations are at least as good as any previous figure. Superfluous too are all references to the distribution of a species, if the author, on the basis of his own studies, is able to give the same information. For individual species, only a minimum of prior literature need be cited to supplement any gap in the data provided. The alphabetical general literary index at the end of every volume, on the other hand, should in addition give the reader a view of previous literature and at the same time indicate what the author has found especially valuable as a source.

9. In order to avoid the possibility that any author might write something in conflict with what appears in literature, the editor is pleased to put his own card-index at the disposal of all collaborators. This covers all literature since 1901, i.e. since the appearance of REBEL's Catalogue of the Lepidoptera of the Palaearctic Region. The possibility will thus be virtually ruled out that any important literary source will be overlooked.

10. Determination keys for the genera and species will guide the enquirer downward to the species, but in certain cases, when it has been proved that a systematic unit cannot intelligently be forced into any key, may be omitted.

11. In accordance with the recommendations of the International Commission for Nomenclature, all abbreviations of authors' names will be avoided. Abbreviations will only be used as a distinctive mark in the Indices and Tables. In the course of the current systematic text authors' names will be entirely omitted, except where this would cause obscurity.

12. Every specimen painted by Dr. GREGOR will be distinguished with a label "Painted by Dr. GREGOR for Microlepidoptera Palaearctica", as in future it will be useful to know which specimen served as a model for the published picture. The data of all such examples will be given in the explanation of the Plate, and particularly the place of custody. In principle, the typical series will provide the specimens used as models for the painter. In cases, however, where, owing to poor preparation or preservation, the type by itself does not suffice for the satisfactory reproduction of the appearance of the species, the painting may be adjusted for aesthetic reasons, as long as this does not involve scientific inaccuracy. Here particularly, in cases where an abdomen is missing, the artist may add the missing part, observing the correct proportions by reference to the holotype and other typical material. In all cases where such a procedure was necessary, the fact will be mentioned in the explanation of the figures.

13. In order to show as exactly as possible all the individual characters, the coloured illustrations of the moths are reproduced, in principle, on a scale larger than life-size. However, in order to show the relative size of congeners, species belonging to the same genus will be, as far as possible, shown on the same scale. The actual scale will be indicated in the explanations of the plates. Deviation from this rule, however, could not be avoided in a few cases for various reasons, and where this occurs the figure in question is always marked with an indication of the variant

scale of magnification. The scale mainly used for the genitalia illustrations, being that suitable for most of the drawings, is stated on the intermediate titles before the genitalia plates. If a few figures deviate particularly from the general scale of enlargement, this is indicated beside the figure in question.

It is well-known that the scale of enlargement is fairly unimportant in genitalia illustrations because the preparations are usually examined at different powers of magnification under the binocular.

14. Limits of the Region. The following districts will be the Regional frontiers: Canary Is., Madeira, Iceland, Sahara and Arabia as far as latitude 20 N. about, West Pakistan as far as and including Karachi, the High Himalayas down to about 3000 m., the Yangtse-Kiang and Japan. Disputed frontiers such as Sikkim, Bhutan, or the further Chinese frontier, will be entirely included or excluded. For instance, if a tropical genus is only represented by one species in Sikkim, it may be omitted, but all species in Sikkim belonging to Palaearctic genera will be included. In many cases the inclusion or exclusion will be at the author's discretion. In districts with distinctly more than 50% Palaearctic species, all species occurring should be included, even including the tropical species. Where, on the other hand, a transitional area has distinctly less than 50% Palaearctic species, all tropical species will be omitted. The south border of the Sahara appears to be partly inhabitated by Palaearctic species, and parts of Arabia far south of the tropic seem likewise to be Palaearctic. The boundary is for that reason fixed at 20 N. latitude, while in the East Asiatic region the boundary will be distinctly further north, being far less distinct and more complicated than in the African-Arabian region.

15. The work will consider all Monotrysian lepidoptera as Microlepidoptera, with the sole exception of the Hepialidae, which have been already studied in the works dealing with the Palaearctic Macrolepidoptera. In addition all Ditrysian families usually considered the Microlepidoptera, and so treated in the Rebel 1901 Catalogue, will be included, with the addition of the Psychidae. This addition is made because in this family particularly the division between Macro- and Microlepidoptera has had the most unfortunate results. Furthermore, a new work dealing with the Microlepidoptera will doubtless lead to general changes of views on systematic definitions. But as the new picture of the systematic definitions will only emerge after a decade or two, it is best to continue for the present with the usual division into Macro- and Microlepidoptera, despite its being scientifically unsatisfactory.

16. Numbering and other references will be made on a system that will reduce the need to refer to indexes considerably, and so greatly lighten the task of any reader using the work.

17. As the work will appear in German, each part will be preceded by a table giving the most important recurrent technical expressions with their meanings in English, French and Russian. We are convinced that this will enhance the international usefulness of the work.

18. An alphabetical list of the less-known localities and geographical terms, and a general map of Central and Eastern Asia, will be given to assist geographical orientation.

With the above aims, we hope to give a new impulse to microlepidopterology; we believe that not only will "Microlepidoptera Palaearctica" be a revision of all that exists in this field of science,

whether in literature or collections, but we are convinced above all that a sure foundation will be laid down for all future work in this field. We anticipate further through this work and the application of its principles, microlepidopterology will achieve a new power of attraction which will lead to a deepening and widening of our fair science. To this the water-colour drawing of Dr. GREGOR especially will contribute, constituting a unique event in entomological history. Not only might one say of them what was said of the great models of Ter Meer, that each drawing is at one and the same time both type and individual, but the drawings are, in most cases a first documentation of an unprecedented kind. Text and illustration merge to form an organic unity, serving to open to a wider public what threatened to become an obscure and specialised corner of the entomological field. At present it is virtually necessary for one specialist to concentrate on one taxonomic group, and we find but one worker qualified to determine the species of that group, with the result that there is but one person to whom to entrust all material of that group for determination. Hereafter, however, this state of affairs will undergo a radical improvement, at least as far as concerns the Palaearctic Microlepidoptera. Every entomologist capable of scientific work will be able relatively quickly to determine his own material. The separate volumes of "Microlepidoptera Palaearctica" will enable him to find his way with speed and accuracy, and will also be of particular assistance to all branches of applied entomology. The works in this field have hitherto been grievously hampered by the want of a simultaneously organised systematic reference work; by the constant changes of nomenclature, and the impossibility, without reference to specialists, of determining the pests with which they are dealing. But this will cease to be so, owing to the remarkable clarity of "Microlepidoptera Palaearctica" with its combination of coloured figure of imago, black and white drawings of all important morphological details, and textual summary of the facts. The publication of the first volume of this work marks the completion of the first step towards this scientific goal, and I feel a particular need to thank all those who have served in this enterprise. First and foremost I thank all my colleagues who joined me in launching the project and provided the prerequisite conditions for the co-ordination which the work will evince. The decision to proceed with this enterprise fell lightly on none of us, as in most cases it amounted to an obligation extending over many years, indeed in many cases for a whole decade, or in the case of Dr. GREGOR, for a whole life-time. To him therefore are due the greatest and deepest thanks; without him "Microlepidoptera Palaearctica" would have been unthinkable. Further I thank Herr HANS REISSER of Vienna, whose great and many-sided initiative and practical counsel on many matters helped the work forward, and who, for his part, obtained the consent of publishers GEORGE FROMME & CO. to publish it. I thank the publishers for their great understanding and also for the care devoted to the printing and setting up of the work; in such an enterprise this is of the utmost importance. In particular I wish to express my gratitude to Professor CARL WURSTER of Ludwigshafen, who devoted his constant efforts towards the success of the project. Without him, it must be duly said, it would not have been possible to overcome all the difficulties involved in the planning of so great and unusual a work. "Microlepidoptera Palaearctica" can consequently be said to be his work too. Mr. KURT SCHÄFER of Ludwigshafen, Professor

MARTIN E. HERING of Berlin, Dr. WALTER FORSTER of Munich, Dr. OBRAZTSOV of New York, Messrs. CHARLES BOURSIN of Paris, and E. P. WILTSHIRE of Geneva, and my friend Dr. E. OBERDORFER, Director of the Museum of Natural History at Karlsruhe, have all stood by my side and assisted me.

Dr. B. ROSSICKY of Prague was also of great assistance to our enterprise; and lastly, the German Institute of Exploration and the Baden-Württemberg Ministry of Culture gave from the outset such support to all our efforts that finally the foundations of the work were successfully laid with the issue of the present Volume I. My greatest thanks to all!

H. G. AMSEL.

Pests of Field Crops. F. G. W. Jones, M.A., and Margaret Jones, M.A. Edward Arnold (Publishers) Ltd. viii + 406. Buckram Boards, 50/-.

This book is primarily intended for the use of students, but it should be of great interest to all those interested in agriculture and horticulture who are willing to approach the subject in an intelligently scientific manner.

The authors open with a most interesting chapter whose title is "Origin and Nature of Pest Problems". This is followed by one dealing with insect structure and classification, which subjects are dealt with adequately for the purpose, but detail unnecessary to the subject is cut to a minimum. Thereafter come nine chapters dealing with "Orders of minor Importance (Collembola, Orthoptera, Dermaptera and Thysanoptera)", Hemiptera, Lepidoptera, Coleoptera, Hymenoptera, Diptera. Arthropoda other than Insects, Mollusca, and Vertebrata.

In addition to these are chapters on Pests of Stored Grain, Crops and their Pests, Control Measures, and Pesticides. There is a list of references to books and papers approaching 600 entries and, finally, a comprehensive index.

The book is adequately illustrated by a double coloured plate of slugs, many photographs of pests and typical damage, and good line drawings of various species and their anatomical details, and also conventional drawings showing such things as wing pattern in the moths and other anatomical details. There are also some distribution maps, graphs and charts.

The quality of the paper and print is good, and the binding is strong as is required for a reference book. Unnecessary detail is avoided throughout without any apparent curtailment of necessities. S.N.A.J.

The Principles of Agricultural Entomology. C. A. Edwards and G. W. Heath. iv + 418 pp. + 36 plates. Chapman & Hall Ltd., London. 80/-.

The foreword by Professor Wigglesworth stresses the need for putting the differences between pest control experts and the agricultural entomologist on to a logical footing, and expresses the opinion that this book is an efficient instrument to that end.

The book, like other recent publications, shows a pleasant tendency to treat the reader as neither an expert entomologist nor as a complete ignoramus, but as an intelligent person interested in the question of agricultural and horticultural damage by invertebrate pests, and its treat-

ment. Following the line that a knowledge of the particular pest, its life history and habits will show the stage at which it is most vulnerable, the reader is enabled to keep the expense of treatment and the damage to innocent and beneficial life as low as possible.

The authors have divided the book into three parts, Part I being General Principles, Part II deals with the identification of the pest and is entitled Descriptions, Bionomics and Control of Pests, and remedial Measures. Part III consists of six keys for the identification of pests.

Part I consists of eight chapters; chapter I gives adequate coverage, without going into unnecessary detail, of general entomology, including anatomy, physiology and life cycle, and finishes with systematics and a list of the 29 insect orders with a short description of each. Finally the non-entomological pests are outlined, including Nematodes, slugs and snails, Myriapods and mites, ticks and spiders. It is stated in the preface that Nematodes will not be included in this work as they have been dealt with adequately in another work recently published. Chapter 2 deals with the ways in which insects are important to the farmer, and after general remarks, deals with the effect of pests on crops and animals, while Chapter 3 gives a short account of how pests arise. Chapter 4 deals with the economics of pest attacks; Chapter 5, pest assessment and forecasting; Chapter 6, methods and principles of pest control; Chapter 7, practical chemical pest control, and Chapter 8 is on insects and viruses in agricultural crops, with a table of some known viruses with their insect vectors.

Chapters 9 to 14 deal with the individual species of pests. These six chapters each cover an insect order or group of orders, and the accounts of each species are divided into general remarks, distribution, damage done, description and life cycle, with recommendations for control.

The six chapters of Part III consist of keys, one per chapter, to pests attacking farm animals, stored grain, cereals, grasses and flax, common fodder crops, root crops, and farm-grown vegetable crops. Finally there is a useful table for dilution of liquids and solids. There follows a comprehensive index.

The paper, print and binding are good and durable as is required for standing up to the handling accorded to a reference book; illustrations include many good line drawings to illustrate species, and the 36 plates each show from two to four subjects. It is a book which may usefully find its place on the bookshelf of all farmers and horticulturists, and, it is hoped, will tend to rationalise the presently indiscriminate use of pesticides which is causing so much concern to so many of us at the present time. S. N. A. J.

Centipedes, Frederick Warne: We regret that the price of 63/- was omitted from the publisher's advertisement of the book.

CORRECTION.—I much regret having misnamed *Melolontha melolontha* L. (*vulgaris* L.) in my note (*antea* 102) on the use of vernacular names. I hasten to correct this and apologize for my lapse. The insect is the common cockchafer or buck buzzard, or May bug and probably many more local names.—S. N. A. J.

H. reticulata Vill. (**saponariae** Borkh.) ssp. **marginosa** Haw.: Bordered Gothic.

Native. Rough fields, downs, etc., with seemingly a preference for chalk soils; foodplant unknown.

1. Dartford*, June 24, 1897 (James, *Entomologist,* **31**: 57). Joydens Wood (C. Fenn, in *Wool. Surv.* (1909)). Farnborough, two, 1898 (H. Alderson, in *Wool. Surv.* (1909)). Bexley (L. W. Newman, in *Wool. Surv.* (1909)); one, at light, 1950 (L. T. Ford). Lee (W. West, in *Wool, Surv.* (1909)). Wilmington (L. T. Ford). West Wickham, 1951 (E. J. Trundell). Orpington, one, 1956 (R. G. Chatelain). Farningham*, one, at m.v.l., July 13, 1962 (B. F. Skinner).

2. Dartford (B. K. West).

3. Herne Bay, ♂, at valerian, June 20, 1936 (A. J. L. Bowes); occasionally at light (D. G. Marsh). Great Hall Wood, ♂, June 26, 1946, at sugar (C.-H.).

4. Deal* (Tutt, *Entomologist,* **20**: 213). Sandwich, one, 1902 (Carr, *Entomologist,* **35**: 246); one, July 16, 1938 (B. Embry, *teste* G. H. Youden). Ickham, several seen each year, 1954-59, "sometimes 2 or 3 in one night" (D. G. Marsh, *in litt.,* 20.i.1960); one, July 11, 1957, two, June 19, 1959 (G. H. Youden).

5. Green Street Green, one (Hewitt, in *Wool. Surv.* (1909)). Chevening, twelve, June 2-18, 1914 (Gillett, *teste* Prideaux, *Entomologist,* **47**: 253). Biggin Hill, one, July 3, 1954 (C.-H.).

6. Gravesend (Button, *Entomologist,* **4**: 129); (H. G. Huggins). Greenhithe (Farn MS.). Pinden (E. J. Hare). Fawkham, June 1, 1952 (G. G. E. Scudder). Otford, fairly numerous at m.v.l., 1955-56 (W. B. L. Manley).

6a. Darenth Wood (Stephens, *Haust.,* **2**: 189); (Standish, *Entomologist,* **5**: 147); two, June 16, 1862 (Bouchard, *teste* Fenn, *Diary*); (E. J. Hare). Mark Oak Wood (Chaney (1884-87)).

7. Wigmore Wood (Chaney, *loc. cit.*). Westwell (Scott (1936)); one, May 24, 1952, one, May 27, two June 21, 1953 (G. H. Youden); a few annually since 1945, common in 1953 (E. Scott, *personal communication,* 19.xii.1954). Boxley, 1953 (A. H. Harbottle).

8. Dover.—Near Dover (Stephens, *loc. cit.*); Poulton Slopes, at sugar, one, July 2, one, July 7, 1898, two, June 23, 1903; Coombe Walk, at sugar, twelve, June 4, six, June 7, three, June 8, 1901; one, June 3, 1902; one, June 16, 1903 (H. D. Stockwell, *Diary*); Dover, ♀, June 21, 1909; Maxton, one, June 4, 1909 (P. A. Cardew, *Diary*); Langdon Hole (E. & Y. (1949)); Dover Town, in m.v. trap, one, July 11, 1951, one, June 6, 1953 (G. H. Youden). Folkestone (Knaggs (1870)); 1882 (Salwey, *Entomologist,* **15**: 198). Wye* (Scott (1936)). Brook, fairly common annually (C. A. W. Duffield, *fide* E. Scott, *personal communication,* 19.xii.1954).

9. Margate, 1905 (Barrett, *Entomologist,* **38**: 214); 1913 (Spiller, *Entomologist,* **46**: 318); 1914 (H. G. Gomm). Birchington, one, c. 1930 (C.-H.). Ramsgate (J. W. C. Hunt); (A. J. L. Bowes). St. Peter's, four, May 20-28, 1956 (W. D. Bowden).

10. Brasted, at light (R. M. Prideaux). Sevenoaks, June 9, 1922 (Gillett, *Diary*).

11. Wateringbury (*V.C.H.* (1908)).

12. Chartham (P. B. Wacher). Wye, three, June 9-July 3, 1953, five, June 4-July 10, 1954, three, June 19-July 19, 1955, four, June 11-July 21, 1956; Willesborough, one, July 12, 1956 (W. L. Rudland).

13. Southborough district (Knipe (1916)). Goudhurst, one at light, 1954 (W. V. D. Bolt).

15. St. Mary's Bay, one, August 3, 1936 (A. M. Morley).

16. Folkestone Town, one, at light, June 21, 1953 (A. M. Morley).

VARIATION.—Kentish examples are referable to ssp. *marginosa* Haw. Cockayne (*Ent. Rec.*, **57**: 54) observes that in specimens of *marginosa* from England, "the ground colour of both forewings and hindwings is straw-coloured and the markings have a yellowish tint. They are easily distinguishable from other European or from Asiatic specimens, all of which are fuscous with white or pinkish ground colour".

FIRST RECORD, 1829: Stephens, *loc. cit.*

Tholera popularis F.: Feathered Gothic.

Native. Rough grassy places; foodplant unknown. Frequent and found in all divisions.

The moth is sometimes found at rest on grass stems, but is most often observed at light, to which both sexes are attracted in numbers. Very rarely, however, has it been noted at sugar, the only known instance being that recorded in E. & Y. (1949) of a ♀ at Dover in 1934.

VARIATION.—Morley (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1934-35: 50) exhibited a dwarf example from S.E. Kent measuring only 29 mm.

FIRST RECORD, 1829: Stephens, *Haust.*, **2**: 190. The earliest record to actually mention Kent, however, dates from 1857: Tenterden (Stainton, *Man.*, **1**: 204).

T. cespitis Schiff.: Hedge Rustic.

Native. Rough grassy places, commons, etc.; on *Aira caespitosa*. "Not uncommon at light" (*V.C.H.* (1908)). "Rare in Kent" (Barrett, *Br. Lep.*, **4**: 140).

1. Near Bexley; Dartford Common (Stephens, *Haust.*, **2**: 109). Eltham, one, 1870 (Jones, *Ent. mon. Mag.*, **7**: 158). Paul's Cray Common, September 18, 1875 (Fenn, *Lepidoptera Data* MS.). Chislehurst, two (W. A. Cope); one (S. F. P. Blyth); one, September 1924 (A. R. Kidner). Keston; Bexley; Farnborough (*Wool. Surv.* (1909)). West Wickham (*V.C.H.* (1908)); (de Worms, *Lond. Nat.*, 1954: 91). Farningham, larvae, June 28, 1924 (A. R. Kidner). Petts Wood, 1949, common (A. M. Swain). Dartford Heath, larvae plentiful but highly parasitised (L. T. Ford); not common (B. K. West). Bexley, two, August 28-29, 1952 (A. Heselden). Plumstead, 1953 (J. Green). Lee, August 15, 1959, at m.v.l. (C. G. Bruce). Orpington, September 6, 1962 (R. G. Chatelain). Bromley, in m.v. trap, 1959 (2), 1960 (6), 1962 (16), 1963 (7), (D. R. M. Long).

2. Greenhithe*, 1893 (A. B. Farn, *teste* Fenn, *Diary*). Rochester*, larvae on *A. caespitosa*, 1907 (Ovenden, *Ent. Rec.*, **19**: 230).

3. Whitstable; Chestfield (P. F. Harris). Herne Bay, one or two annually (D. G. Marsh). Broad Oak, two, at electric light, September 9, 1945 (C.-H.).

4. Deal (Harding, *Entomologist*, **2**: 194). Plucksgutter, one, September 8, 1957 (W. D. Bowden). Ickham, one or two only, 1954-59 (D. G. Marsh).

5. Chevening, September 5, 16, 17, 18, 20, 1912, August 25, 26, September 3, 1914 (Gillett, *Diary*). Westerham, one, 1936 (R. C. Edwards).

6. Gravesend (H. C. Huggins). Pinden, one, 1939 (E. J. Hare). Otford,

one, 1955 (W. B. L. Manley).

7. Darland Hill, one, 1873 (Chaney (1884-87)). Westwell (Scott (1936)); 1946 (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 169).

8. Deal*, 1856 (Harding, *Ent. week. Int.*, **1**: 187). Folkestone* (Ullyett (1880)). Brook (C. A. W. Duffield). Wye, ♂, at light, August 28, 1935 (A. J. Bowes); one, September 9, 1937 (A. H. Lanfear). Dover, few (B. O. C. Gardiner).

9. Ramsgate, one, 1910 (J. W. C. Hunt). St. Peter's, two, September 17, 1957 (W. D. Bowden).

10. Sevenoaks, 1919 (Gillett, *Entomologist*, **53**: 23); at light, 1950 (F. D. Greenwood).

11. Yalding (*V.C.H.* (1908)). Hoads Wood (G. V. Bull); one, September 12, 1954 (W. L. Rudland); one, August 31, 1957 (W. D. Bowden). Aylesford (G. A. N. Davis). Sevenoaks Weald, one, August 22, 1959 (E. A. Sadler).

12. Ashford (Scott (1936)); c. 1953 (P. Cue). Orlestone Woods, one, 1949 (E. J. Hare); several ♂♂, at light, 1949-51 (C.-H.); one, at m.v.l., September 1, 1961 (B. F. Skinner). Wye, 1953 (2), 1954 (2), 1955 (2); Willesborough, 1953 (2), 1955 (2), 1956 (3) (W. L. Rudland). Willesborough, one, 1960 (M. Singleton).

13. Tunbridge Wells (E. D. Morgan). Iden Green (H. Boxall). Goudhurst (W. V. D. Bolt).

14. Sandhurst (G. V. Bull). Gills Green (B. G. Chatfield).

15. Dungeness, one, at sugar, September 11, 1938 (Bowes, *Ent. Rec.*, **51**: 109); one, September 22, 1955 (E. C. Pelham-Clinton); 1961 (2) (N. Reay-Jones); in m.v. trap, August 31-September 24, 1963 (78) (R. E. Scott).

16. Folkestone, one, 1951 (Morley, *Ent. Rec.*, **64**: 171).

First Record, 1829: "Occasionally in lanes near Bexley, and on Dartford-common" (Stephens, *Haust.*, **2**: 109).

Cerapteryx graminis L.: Antler.

Native. Golf courses, commons, marshes, chalk downs; foodplant unknown. Plentiful very locally; odd examples (possibly strays) have occurred in many different types of habitat.

1. Chislehurst, 1883 (Cockerell, *Entomologist*, **18**: 20). Bexley district (L. W. Newman, in *Wool. Surv.* (1909)). Farnborough (H. Alderson, in *Wool. Surv.* (1909)). Keston (W. A. Cope). Sidcup, one, at light, July 17, 1910 (A. R. Kidner). Chislehurst (S. F. P. Blyth). Petts Wood, one, at light, 1947 (E. Evans). West Wickham, one, September 4, 1950 (E. J. Trundell); about 20 at rest on grass stems, at night, on the golf course, September 1, 1962 (C.-H.). St. Paul's Cray; Dartford Heath (C. Fenn, in *Wool. Surv.* (1909)). Dartford Heath, several, 1951 (B. K. West). Shooter's Hill (D. F. Owen). Welling, 1952 (R. G. Rigden, *teste* A. J. Showler). Orpington, 1955 (2), 1957 (5) (R. G. Chatelain). Hayes (R. Birchenough, in de Worms, *Lond. Nat.*, 1954: 91). Holwood Park, Keston, one, July 29, 1946 (J. F. Burton). Lee, scarce (C. G. Bruce). Bromley, 1960 (2), 1962 (1), 1963 (4) (D. R. M. Long).

2. Faversham, on the marshes near Graveney (H. C. Huggins). Sheppey, 1936 (E. H. Wild). Rochester district*, 1905 (Ovenden, *Ent. Rec.*, **18**: 19). Greenhithe* (Farn MS.). Aylesford (G. A. N. Davis). Cliffe Marshes, August 20, 1960 (R. G. Chatelain).

3. Broad Oak, one, August 5, 1951 (C.-H.).

4. Ham Ponds, August 23, 1891 (Fenn, *Diary*) (Deal (*V.C.H.* (1908)),

may refer). Reculver, one, July 24, 1935 (A. J. L. Bowes). Westbere, in marshy fields by the Stour, three, August 22, 1944, nine, July 23-24, 1946 (C.-H.); plentiful, 1953 (G. H. Youden). Sandwich, one, August 3, 1954 (W. D. Bowden). Ickham, 1954-59, "some years quite plentiful" (D. G. Marsh).

5. Chevening, August 20, 1914, July 23, 1917 (Gillett, *Diary*).

6. Culverstone, two (F. T. Grant). Pinden, one, 1949 (E. J. Hare). Otford, 1955 (2) (W. B. L. Manley).

7. Westwell (Scott (1936)); one, August 4, 1945 (G. V. Bull); one, at m.v.l., August 8, 1955 (C.-H.). Boxley, c. 1954 (J. F. D. Fraser).

8. Stowting (C. A. W. Duffield). Hawkinge, common, 1937 (B. K. West). Dover, found annually on the cliffs and downs; Shepherdswell (E. & Y. (1949)). Dover, in m.v. trap, July 21, 1952 (G. H. Youden).

9. St. Peter's, one, at m.v.l., August 20, 1957 (W. D. Bowden).

10. Brasted, August 8, 1913 (Gillett, *Diary*). Sevenoaks, August 24, 1919 (Gillett, *Diary*); 1946 (F. D. Greenwood).

11. Hothfield, one, "Hothfield August 5 1905 H. Elgar", in Maidstone Mus. (C.-H.); (Scott (1936)). Wateringbury (*V.C.H.* (1908)). Edenbridge, 1930 (F. D. Greenwood).

12. Wye* (Scott (1936)). Wye, nine in m.v. trap, 1953-56; Willesborough, in m.v. trap, August 22-28, 1954 (3), August 3-21, 1955 (3), July 20-August 11, 1956 (5) (W. L. Rudland). Brook* (C. A. W. Duffield). Chartham (P. B. Wacher). Orlestone Woods, one, July 31, 1951 (C.-H.). Ashford Town (P. Cue). Willesborough, one (1960); Brook, one (1960); W. Ashford, one (1960) (M. Singleton).

13. Tunbridge Wells (E. D. Morgan). Goudhurst, numerous at m.v.l. (W. V. D. Bolt, *personal communication*).

14. Sandhurst, one, 1936, one, 1945 (G. V. Bull).

15. Dungeness, ♀, at sugar, September 8, 1934 (A. M. Morley); one, August 12, 1939 (G. V. Bull); July 1957 (E. Philp); seven in m.v. trap, August 4-23, 1963 (R. E. Scott). Littlestone, one, August 3, 1948 (P. le Masurier).

16. Hythe (Morley (1931)). Folkestone Town, ♀, July 29, 1929, ♂, July 28, 1946, singletons at m.v.l., 1955-56, two, 1957 (A. M. Morley).

FIRST RECORD, 1883: Chislehurst (Cockerell, *loc. cit.*).

Xylomyges conspicillaris L.: Silver Cloud.

Resident, probably extinct. Woods and their vicinity; foodplant unknown. No known occurrence since 1881.

1. Between Birch Wood and Bexley (Stephens, *Haust.*, **2**: 170). "A. B. Farn gave me a very bad specimen labelled 'Birch Wood' and told me it was quite genuine" (H. C. Huggins, *in litt.*). [Lessness Woods, between 1927 and 1930 (Newall, *Trans. Plumstead nat. Hist. Soc.*, 1931-32: 12); I wrote to W. J. Newall, but in his reply he was unable to confirm its occurrence (C.-H.).]

6. Dartford*, ♀, taken by Mr. Packman, May 10, 1875 (Farn, *Entomologist*, **8**: 135); two, taken by E. G. Meek, April 27, 1878, one on a post, the other on a fence, close to Gore Farm, between Dartford and Darenth Wood (Meek, *Entomologist*, **11**: 142); ♂, taken on a fence by E. R. Sheppard, April 23, and one by H. Packman on April 27, 1878 (Sheppard, *Entomologist*, **11**: 142); two, taken May 1881, by H. Packman (Sabine, *Entomologist*, **14**: 210). Greenhithe* (*V.C.H.* (1908)).

6a. Darenth Wood.—"Rarely, flying; May" (Douglas, *Zoologist*, 3218);

a pair taken in 1854 were exhibited by H. J. Harding at Society of British Entomologists (*Zoologist*, 4387); taken May 1855 (Harding, *Zoologist*, 4820); May 1856 (Harding, *Ent. week. Int.*, **1**: 51, 76); one, taken 1859 (Harding, *Ent. week. Int.*, **6**: 67); two, "from old Benj. Standish, Darenth Wood captures" (Hodgkinson, *Ent. Rec.*, **6**: 67). H. J. Harding records that on one occasion at Darenth Wood he took seven *conspicillaris* at dusk (cf. Harding, *Entomologist*, **16**: 132).

First Record, 1829: "A rare species; two or three specimens have been taken between Birch-wood and Bexley" (Stephens, *Haust.*, **2**: 170).

Orthosiinae

Orthosia gothica L.: Hebrew Character.

Native. Woods, gardens, bushy places; on dock, maple, rose. Recorded from all divisions; few records for 9, 15. "Generally common" (*V.C.H.* (1908)).

The moth appears to show a preference for wooded areas, and in such situations is often abundant at light and at sallow catkins. In 1962, D. R. M. Long recorded a total of 684 *gothica* in his m.v. trap at Bromley, with maximum (79) on April 28; it first appeared on March 12, and was last seen by him on June 16—a remarkably late date.

The larva has been taken on dock at Bromley, and on maple at Eynsford and Lullingstone, by D. R. M. Long. A. R. Kidner (*Diary*) records having taken a larva at Sidcup, June 25, 1924, on flowers of rose.

Variation.—Abs. *variegata* Tutt and *rufescens* Tutt, each with considerable variation *inter se*, appear to constitute the bulk of Kentish *gothica;* the nymotype is uncommon, at least in my experience; one, that I saw in W. V. D. Bolt coll., taken by him, Goudhurst, 1952, is pale with central mark broken, and which I judge to be referable to ab. *separata* Fremont. I have a good example of this ab. from Chatteris, Cambridgeshire, but the aforementioned is the only one known to me from Kent, where it must be rare (C.-H.).

Another rare ab. is *circumsignata* Hasebroek, one of which was taken by E. Philp, at Broad Street (div. 7), April 30, 1955†. A ♂ taken by A. M. Morley, at sallow, Ham Street, April 2, 1939, is also referable to *circumsignata* Hasebroek†.

One taken by C. Fenn, Lee, May 18, 1888, is assigned to ab. *gothicina* H.-S. in his *Diary* (Fenn, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1889: 155 refers); and another "closely approaching" *gothicina*, is recorded by Croker (*Entomologist*, **22**: 264) from West Wickham. An example from Sandhurst, stated to be ab. *taeniata* Lenz, was exhibited by Bull (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 7).

First Record, 1829: Darenth (Stephens, *Haust.*, **2**: 139).

O. miniosa Schiff.: Blossom Underwing.

Native. Woods, scrub; on oak. "Abundant in some places" (*V.C.H.* (1908)). This species has from time to time shown a marked increase or spread into new areas, this having been particularly noticeable about 1948.

1. Halfway Street, Eltham, one, April 8, 1866 (A. H. Jones, *teste* Fenn, *Diary*). Bexley; Dartford; Farnborough (*Wool. Surv.* (1909)). Petts Wood, larvae on oak, 1947 (A. M. Swain); one, 1950 (E. Evans). Joydens Wood, c. 1947; Hayes Common, c. 1947; Shooters Hill, c. 1947 (D. F. Owen). Near

Bromley, half-grown larvae were rather numerous along the northern edge of a wood, c. 1948, and "were principally distributed from almost ground-level up to four feet from the ground on young oak shoots" (D. Lanktree, *in litt.*). Elmstead Wood, a larva on oak, May 15, 1948; Shooters Hill, imago occasionally at sallow (J. F. Burton). Farnborough, several, 1949, 1951, at sallow (C.-H.). West Wickham (Birchenough, in de Worms, *Lond. Nat.*, 1955: 48). Lee, one, 1955 (C. G. Bruce).

3. Blean, two, 1901, in J. Platt Barrett coll. (C.-H.). Broad Oak.—I assiduously worked the sallows in the woods in this area from 1937-40 without seeing it once; Trenley Park, two, at sallow, April 12, 1947; Little Hall Wood, larvae plentiful on young oak bushes in a field adjoining, May 26, 1947 (C.-H.). Eddington, two, at sallow, March 24, 1948; one, at m.v.l., April 25, 1951 (D. G. Marsh). Whitstable (P. F. Harris).

4. Ickham, occasionally, 1954-59 (D. G. Marsh).

6. Greenhithe* (Farn MS.).

6a. Darenth Wood (Stephens, *Haust.*, **2**: 144); numerous at sallow, 1866 (E. G. Meek and B. Gill, in *Ent. Ann.*, 1867: 152); 1867 (E. G. Meek, in *Ent. Ann.*, 1868: 115); imagines at blackthorn blossom; larvae fairly numerous (B. K. West); c. 1947 (D. F. Owen); (E. J. Hare). Chattenden, larvae (Chaney (1884-87)); larvae, May 26-28, 1923 (F. T. Grant); c. 1947 (D. F. Owen). Mark Oak Wood (Chaney (1884-87)).

7. Wigmore Wood, not uncommon (Chaney (1884-87)). Wardwell Wood, Sittingbourne, larva (H. C. Huggins).

8. Folkestone* (Ullyett (1880)). Elham Park Wood, two, at sallow, April 2, 1926 (W. E. Busbridge, *Diary*) (near Barham (E. & Y. 1949)), probably refers). Cooting downs, four, March 31, 1926 (W. E. Busbridge, *Diary*).

11. Yalding (*V.C.H.* (1908)). Bethersden, 1929, 1930 (G. V. Bull, *Diary*). Tonbridge, larvae common, 1950 (H. E. Hammond). Hoads Wood, c. 1953 (P. Cue).

12. Ham Street.—1932, 1934, 1935 (G. V. Bull, *Diary*); plentiful 1936, 1938, few 1935, 1937 (A. J. L. Bowes); Long Rope, 1938, 1939 (C.-H.); larva, 1959 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1959: 77); fairly common at sallow bloom in Orlestone Woods, 1961 (M. Singleton). Brook*, April 25, 1946, April 12, 1947, April 18, 1952 (E. Scott). Ashford Town, April 20, 1953 (P. Cue). Wye, one, April 28, 1955, three, April 30-May 4, 1956 (W. L. Rudland).

13. Southborough district (M. M. Phipps, in Knipe (1916)). Goudhurst, two, at m.v.l., 1950 (W. V. D. Bolt).

14. Sandhurst, 1943, 1948, 1949; Appledore Heath, 1939 (G. V. Bull, *Diary*).

15. Dungeness, four, April 3-4, 1946. (A. M. Morley).

16. Folkestone, one, 1946 (A. M. Morley).

First Record, 1829: Stephens, *loc. cit.*

O. cruda Schiff. (**pulverulenta** Esp.): Small Quaker.

Native. Woods, copses; on sallow, aspen, sloe, oak. Found in all divisions, but appreciably less plentiful in 2, 4, 9, 15. "Generally abundant" (*V.C.H.* (1908)).

The moth is usually plentiful, particularly in well wooded areas; on one occasion, however, it was observed in swarms. Thus, C. Fenn (*Diary*) wrote that at Browns Woods, near Eltham (div. 1), on April 5, 1875,

"we must have seen at least 10,000 *cruda* at sallows".

I have occasionally seen *cruda* flying naturally by day, and imbibing at sallow catkins in bright sunshine (C.-H.).

The larva has been taken by F. T. Grant on aspen at Darenth Wood; and A. A. Allen bred the moth, March 1958, from a larva found in Farningham Wood on sallow. D. R. M. Long has taken the larva on sloe at Crofton (div. 1), and on oak at Ham Street.

2. Sheerness, ♂, April 9, 1868 (J. J. Walker MS.). Dartford (B. K. West).

4. Ickham, not common, 1954-59 (D. G. Marsh).

9. Margate, ♂, April 12, 1915 (H. G. Gomm, *Diary*).

15. Dungeness, one, April 4, 1946 (A. M. Morley); one, April 25, one, April 28, 1963 (R. E. Scott).

VARIATION.—In Kent, what I judge to be ab. *nanus* Haw., and typical *pulverulenta* Esp., are both numerous; ab. *pallida* Tutt is frequent; and I have several that approximate to ab. *pusillus* Haw.; ab. *haggarti* Tutt is rare: Smith (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1909-10: 76) records one from Dover, and I have a ♂ taken Farnborough, April 2, 1949 (C.-H., *Entomologist*, **94**: 282).

The following abs. are in R.C.K.: *pulverulenta* Esp., Herne Bay, 1933 (1); *nigropunctata* Wehrli, Herne Bay, 1934 (1). Also, typical *cruda* Schiff., one, near Canterbury, 1933.

FIRST RECORD, 1842: West Wickham Wood (Douglas, *Entomologist*, **1**: 309).

O. stabilis Schiff.: Common Quaker.

Native. Woods, bushy places, parks, etc.; on hornbeam, oak, sallow, hawthorn, birch, maple, aspen. Found in all divisions; markedly less numerous in 2, 4, 9, 15. "Generally abundant" (*V.C.H.* (1908)).

This species, which is rather more plentiful than *O. cruda*, and the most numerous *Orthosia*, normally appears about mid March, but has been noted as early as November 5: one, at ivy bloom, Wateringbury, 1908 (Goodwin, *Entomologist*, **41**: 311); and as late as June 12: Bromley, 1962 (D. R. M. Long).

It is recorded that *stabilis* has been observed in Kent in the wild on four occasions *in cop.* with other species. Thus, with *O. gothoca*, sex not specified, Halfway Street, near Eltham, 1866 (A. H. Jones, *teste* C. Fenn, *Diary*); with *O. gothica* ♀, Darenth Wood (Lowrey, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1888: 52); with *O. gothica* ♀, Halling, 1923 (Newell, *Entomologist*, **56**: 15); with *O. cruda* ♀, Wye (Cockayne, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1934-35: 87).

The larva has been found by D. R. M. Long, on hornbeam, oak, sallow, hawthorn, at Crofton; on aspen, at Bromley; on maple, at Lullingstone; and on birch, at Shoreham.

2. Sheppey, three, March 21, 1868 (J. J. Walker MS.). Faversham; Gravesend (H. C. Huggins). Dartford (B. K. West).

4. Minster, two, March 14, 1951 (W. D. Bowden).

9. Lower Hale, near Birchington, one, April 2, 1946 (W. D. Bowden).

15. Dungeness, April 3, 1946 (A. M. Morley).

VARIATION.—In R.C.K. are ab. *fasciata* Lenz, Ham Street, one, 1935; ab. *flavilinea* Heinr, Bexley, one.

FIRST RECORD, 1842: West Wickham Wood (Douglas, *Entomologist*, **1**: 309).

O. populeti F.: Lead-coloured Drab.

Native. Woods; on aspen.

1. Erith, March 29, 1884 (Fenn, *Lep. Data* MS.). Lee district (Fenn, *Ent. Rec.*, **1**: 39). West Wickham (Wells, *Ent. Rec.*, **2**: 87); 1930 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1930-31: 75). [Bexley district], 1893 (Lathy, *Entomologist*, **26**: 160). Sidcup, June 1902, "took about 5 doz. larvae between united leaves of aspen" (H. E. Page MS.). Woolwich; Plumstead; Eltham (Buckell & Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1899: 73). Sydenham, 1892 (Sellon, *Ent. Rec.*, **3**: 292). Orpington; Bexley; Paul's Cray; Halfway Street; Farnborough (*Wool. Surv.* (1909)). Dartford (West, *Ent. Rec.*, **18**: 201). Chislehurst (S. F. P. Blyth). Abbey Wood, larva, June 21, 1930 (*Lond. Nat.*, 1930: 15). Petts Wood, 1947 (A. M. Swain). Farnborough, several, at sallow catkins, 1949-51 (C.-H.). Orpington, 1953 (L. W. Siggs).

3. Barton Wood, Broad Oak, ♂, at sallow, March 28, 1938 (C.-H.). Pine Wood, two, c. 1946 (J. A. Parry).

6. Greenhithe* (Farn MS.). Clay Lane Wood (H. C. Huggins). Otford, one, 1956 (W. B. L. Manley).

6a. Swanscombe, ♀, April 2, 1947 (B. K. West).

7. Long Beech Wood, Challock, one, April 15, 1939 (C.-H.). Westwell, March 29, 1946 (E. Scott).

8. Dover.—One, April 8, 1898, one, March 24, 1903, both in Coombe Wood (H. D. Stockwell, *Diary*); April 27, two, April 29, 1908, two, April 13, 1909 (P. A. Cardew, *Diary*); one, 1949 (B. O. C. Gardiner). Woolwich Wood (E. & Y. (1949)). Reinden Wood, one, April 12, 1947 (G. H. Youden).

10. Westerham (Auld, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1894: 35). Brasted, 1919 (Gillett, *Diary*).

11. Tonbridge, two, at light (Raynor, *Entomologist*, **6**: 79); 1911 (Rattray, *Entomologist*, **45**: 80). Edenbridge, 1930, 1933 (F. D. Greenwood). Bethersden, April 13, 1931 (G. V. Bull, *Diary*). Hoads Wood, five, 1955 (W. L. Rudland); one, 1961 (M. Enfield).

12. Ham Street.—not common, 1935-36, abundant, 1937-38 (A. J. L. Bowes); about 20, April 8, 1938, numerous, March 31, fairly numerous, April 24, one, worn, May 6, 1939; all in Long Rope; abundant, but many worn, Faggs Wood, April 15, 1949 (C.-H.); about twelve, April 11, 1963 (R. G. Chatelain). Brook* (Scott 1936)); one, April 14, 1952 (E. Scott). Willesborough, two, 1956; Wye, six, 1954-56 (W. L. Rudland). Willesborough, one, in m.v. trap, 1961 (M. Singleton).

13. Tunbridge Wells, two or three, 1957-58 (L. R. Tesch, *per* C. A. Stace).

14. Sandhurst, April 4, 1950, April 10, 1951 (G. V. Bull, *Diary*).

Variation.—I have what appear to be several of each of the following abs. from both Farnborough and Ham Street: *obsoleta* Tutt; *ocularis* Frr.; *donasa* Esp.; *intermedia* Steph.; *rufomaculata* Lempke (C.-H.). Barrett (*Br. Lep.*, **5**: 204) notes "a tendency toward paler grey-brown colouring" in Kent specimens.

The following abs. are in R.C.K.: *ocularis* Frr., one, Bexley; *atropunctata* Geest, one, Ashford, 1937; *atropurpurea* Geest, one, Ashford, 1937; *intermedia* Steph., Ashford, 1938; *populi* Strom, three, Ashford.

First Record, 1872: Tonbridge (Raynor, *Entomologist*, **6**: 79).

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact: *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jiří Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

Barograph For Sale.—Handsome brass barograph, on mahogany stand, in glass and mahogany showcase, together with charts. Used as an aid to successful sugaring (cf. Allan, *A Moth-Hunter's Gossip*, pp. 110-114). In excellent condition throughout, £8.—*J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.*

Subscription prices will be paid for clean, unbound copies of the following years:

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

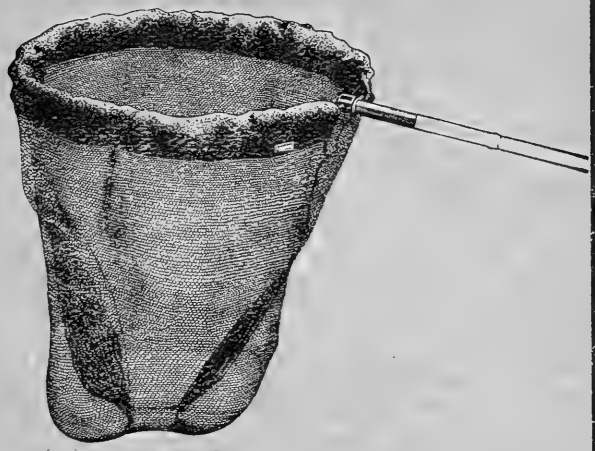
Please contact: Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

MICROPS NETS

NETS AND FRAMES INTERCHANGEABLE

LIGHT BUT RIGID WHEN ERECTED

NETS OF ROT-PROOF TERYLENE



See list NT/E for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD.

309 OXFORD ROAD : MANCHESTER 13

R. N. BAXTER

Supplier of EXOTIC INSECTS to
Museums, the research worker, the amateur entomologist, etc.

LEPIDOPTERA and COLEOPTERA a speciality.

16 Bective Road, Forest Gate, London, E.7, England.

Mail Orders Only.

In your Replies please mention "The Entomologist's Record".

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1(14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 9 SEPTEMBER 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35/- POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 5/- NET

WARNE

All entomologists will be interested in our wide range of natural history books which are periodically revised and kept up-to-date. A book which will be of assistance to both beginners and professionals is **Practical Entomology** by R L E Ford, FRES. It gives up-to-the-minute information on new techniques and methods of collecting and breeding insects, including butterflies and moths. It has 12 half-tones and 36 line illustrations and costs **17s 6d net**

The only work of its kind—**Flies of the British Isles** by Charles N Colyer, FRES—gives a profusely illustrated, comprehensive survey of all the families of British Diptera. The illustrations consist of 51 half-tone plates, 50 text figures and diagrams depicting 286 representative species from original enlarged microscope drawings by C O Hammond, FRES. The book costs **35s net**

If you would like to have a fuller list of other titles in the Wayside and Woodland Series write to: —

FREDERICK WARNE
1-4 Bedford Court
London WC2

Solenobia triquetrella Hübn.

By A. G. Carolsfeld-Krause

I have read Lempke's article on "Looking for Micro-psychids (*antea*, p. 31) with some interest, for years ago I worked a little with the common *Solenobia triquetrella* Hübn., which in Denmark is a parthenogenetic species as males are not present.

As far as I can make out from Lempke's article, there is still some confusion regarding the food of these species, which most often are said to feed on lichens. Now I only know *triquetrella* in detail as regards its biology, but this species is unfortunately only mentioned in a side note. It does not, however, feed on plants, but is necrophagous; I have reared many on a diet of small dead insects. The confusion as regards the food may be due to the fact that the case of the larva is found on trunks of trees in the spring for pupation, while the larval state in reality is spent among moss on the forest-floor mostly at the foot of the trunk.

The female leaves the extruded pupa in a way very normal to a lepidopteron, but after this the normal ceases. Due to the curved shape of the adult female, it is only able to move on a cylindrical surface, and only sideways on that, as this is the only way in which it is able to use its prolegs. It moves thus up the extruded pupal skin to the hind end of the case (the case is placed with the ventral side towards the trunk and with the head of the larva upwards). It now inserts its very long ovipositor, which is just as long as the rest of the female. The ova are placed in the case, about sixty of them; they are nearly ovoid in shape, nearly colourless and transparent with a very slight yellowish tinge, and they are partly enveloped in thin colourless silk. I do not know the origin of this silk for certain, but there is not much doubt that it follows the ova during oviposition from some source in the female abdomen.

Unfortunately, I have no exact data of this part of the female's life, but it is very short, and must be reckoned in minutes. As soon as she has left the pupal skin, she moves sideways up to the case and oviposition starts immediately; it only lasts a few minutes during which time the plump female looks like a balloon losing its gas. As soon as the last ovum is laid she loses her foothold and drops to the ground dead as a door-nail. She is now laterally as thin as a sheet of thin paper and cannot be pinned normally, but must be mounted laterally.

When one now opens the case, one is met with an amazing sight. The case is entirely filled with the ova, which in the few minutes have expanded very considerably, like the eggs of a frog, so that they take up more room than the total volume of the living pregnant female herself. I do not know the reason for this, and the most obvious explanation that they should have absorbed water seems to be impossible due to the shortness of time.

The life of the adult is the shortest I have ever met, and I think it may be the shortest in the world, at least to-day.

An Unusual Flight of *Aporophila luneburgensis* Frr.

By A. J. WIGHTMAN, F.R.E.S.

In late August 1963, I made a short visit to Aviemore with Messrs. D. Odd and A. A. Myres. The weather on arrival was not too good, and although we braved the elements, trying both sugar and mercury vapour lights, little was seen.

On the 27th of the month we tried a spot to the north of Aviemore, where in previous years I had taken a few *Aporophila luneburgensis* Frr., never more than eight or ten in a single night, even when conditions seemed right, and on this occasion, as conditions did not seem to be anything like right, a chilly wind of good strength and a full moon, which, however was rather misty and red in tone, we expected little.

Sugar produced nothing at all and little came to the light until after 11 p.m., and we were almost ready to go home when a few of the desired species, *A. luneburgensis*, appeared at the sheet in fairly quick succession, and this continued without a break until after 1 a.m., by which time we had taken about a hundred moths, seventy-five per cent. of them being this species. They were nearly all males and for the most part fresh, but as is ever the case, a good number were chipped and damaged, and as only perfect insects were required, these were released the following day in Aviemore proper, and cannot have been recounted when that night, at a similar spot in the same area, we met with an exactly similar flight on an exactly similar night as regards weather conditions.

The ground conditions of both these spots were similar, and we felt sure that they were right for a ground-feeding species like this, and that we were at the place where the larvae had actuaaly fed up, but although I carefully examined the ground around the lamp in ever widening circles, neither I, nor either of my companions could find a pair in copula, nor were any examples found that appeared not to have flown; all those we found were centainly on their way in to the light.

It was obvious that this species flies freely in weather conditions that keep most species of lepidoptera grounded, and that it on occasion breeds in colonies where the conditions suit it, as does the allied *Aporophila australis*, and like that species, is likely to be common for a few years in any given area where the conditions are favourable and then, as conditions alter, disappear from the area, possibly for years. This June (1964), we again visited the area and on several nights worked in these same spots near Aviemore, and as we had anticipated, the larvae of *A. luneburgensis* were about in all sizes, not thickly in any given spot, but spread over a wide area where the conditions were the same, but becoming rare and few and far between where the special conditions merged into normal heather moorland.

These larvae were no more heavily parasited than is usual with this species in all the places where I have found it in the past in small numbers. These larvae were green for the most part, when small, but most of those we found that were approaching full growth had some reddish marking, and some were brilliant with red.

67, The Spinny, Pulborough, Sussex.

A Trip Through France and Northern Italy in June 1964

By S. N. A. Jacobs

This being the season of the year when only the professional entomologists find time to write, the amateurs being too fully occupied in collecting, I might as well fill space with an account of our holiday through France and northern Italy to the Mediterranean, between 10th and 25th June.

We set out in perfect weather from Lydd, landing about mid-day at Le Touquet airfield and setting out by the familiar road round the northern side of Paris and on to Montmirail where we spent the night. So far, Pierids had been the major part of the lepidoptera seen, and on an after dinner walk round the town, the customary evening species were flitting about the available herbage patches. After taking leave of the very charming "Old School" Madame of "Le Vert Gallant" hotel we pushed on towards Geneva via Dijon. On the way down, we took a course which we had for many years intended to take, and turned off at the notice board indicating the road to the source of the Seine, and made the detour through leafy lanes to the site of the spring giving rise to the main stream of the river, and we were also rewarded by the sight of *Limenitis populi* L. flying in the sunny spots. We reached La Foucille, just inside France, overlooking Geneva, with the peak of Mont Blanc showing in the distance over the rather heavy clouds shrouding the lower levels. Here again, an evening walk showed a pleasing flight of moths flying over the rough herbage of the hillside, but nothing out of the way was netted.

The following day saw us through the corner of Switzerland and back into France, via Chamonix and the Forclaz and up the Grand St. Bernard pass with a halt at the summit to look at the monastry, though we did not stop to see the famous dogs. We then descended the pass into Aosta, and, after collecting Italian petrol coupons at the Italian Automobile Club, took the road up to Courmayeur, our first objective. The evening was spent in settling in and a short walk round the town, which was suffering from the all too familiar manifestations of "Progress", including the building of many hotels and the diversion of the main street, and next morning we revisited places first encountered on our visit in 1962. On the whole, the country was rather disappointing, for the dust from the Mont Blanc tunnel and the new road was on everything, and although we were almost a week earlier than on our 1962 visit, the bank which then was a magnificent display of gentian and a sulphur coloured Orchis had little to show other than a few gentians well past their best. Exploring the narrow leaved willows growing amongst the rocks of the wide river bed, we found larvae and pupae of *Stilpnotia salicis* L. and spun shoots were collected in the hope that they might produce micros. Nearly all of these, however, proved to be macros, a noctuid species and a geometrid, probably *Hydriomena furcata* Thunb. which were released when they left the spinnings and their identities were disclosed. Here too, many butterflies were seen, including both *Iphiclides podalirius* L. and *Papilio machaon* L., and *Parnassius apollo* L., which had been seen in fair numbers all along the higher parts of our travels. To these may be added a few *Colias*

and a *Pieris* approaching *P. bryoniae* O. was seen beside the more usual *P. napi* L.

Beating spruce produced a series of *Borkhausenia nubilosella* H.-S., and a large patch of *Epilobium* had spun shoots infested by colonies of a white-spotted black larva, reminiscent of an *Ethmia* species. Some of these were taken, but as our journey took us through dry country when fresh food was required, there was no Epilobium to be found, and when, a week too late, I was able to find suitable food the few larvae left alive had lost the will to feed, and soon joined their brothers. A sharp thunder storm put further collecting of larvae out of the question, but it did wash away the all-pervading dust for a little while, and it was pleasant to find oneself once again in a green world.

On Monday we left for the south by way of the Petit St. Bernard pass, and here, at the pass, we did see some of the famous dogs displayed by the roadside. We proceeded by way of the Iserian pass, the highest in Europe, we are reminded by a notice at the crest, which we passed in a snow shower, to the Galibier pass, through the tunnel and out to the Lautaret. Here, on joining the main road south, we were delighted to be able once more to pick the pheasant-eye narcissus by the roadside and enjoy their scent, which brought memories of our first experience of this beautiful road some years earlier.

We spent the night at Gap and set out again via Digne, Castellane and Grasse to Nice and then along the coast (after we had disentangled ourselves from the motor road on to which we had been trapped by misreading a notice) through the end of Cannes, St. Maxime, and on to Cavalaire, beloved of the late William Fassnidge. Digne was the disappointment of this journey; on our last visit it had been a pleasant, typical southern French country town, but we found it built up out of all recognition. Possibly we would have found some of our old spots had we stayed, but our impulse was to shake the dust from our feet. On further thought one can understand that after the leaving of Algeria the country has been faced with a suddenly increased population to be accommodated both as regards housing and work, but it was sad to see Digne sacrificed to Progress with a capital P. The Durance had also been dammed to form an immense lake and reservoir, together with a canal system.

On our way across the arid stony hills with their random plantations of lavender, I had a short look round during our lunch halt, and found a solitary *Nepticula* mine on wild rose which encouraged me by spinning up in the usual position on the leaf stalk, and then, after being cosseted and cared for on the way home, rewarded the care by eventually producing an unmentionable Chalcid fly. I also found an example of the helical case of a Psychid and a single *Thiodia citrana* Hübn. At another halt nearer to Grasse, several *Aporia crataegi* L. were noticed slowly flying round and settling on the twigs of a dead oak bush.

We stayed at Cavalaire for a week, and though we spent most of the mornings in idleness on the beach and swimming, we made several expeditions in the afternoons. One to the forest behind Bormes, mostly cork scrub with a few *Quercus pubescens* interspersed with the odd fir tree was exceedingly interesting as we saw many of the creatures about which Henri Fabre wrote so understandingly; the black-winged *Anthrax* fly, and many species of crickets, from the respectable green tree cricket to

bloated creatures which would probably weigh a full ounce. The green European locust was also seen, also stick insects such as my children bred in hundreds many years ago, and one or two small mantis. I searched the *Q. suber* for mines, full or empty, of *Nepticula suberivora* Stt. but found no trace of any Nepticulid. The main moth on this ground was *Tortrix viridana* L. with *Archips xylosteana* L. a close second. I took one *Caloptilia sulphurella* Haw. and one *Acrobasis fallouella* Rag., and two Pterophorids, probably *Oxyptilus distans* Zell. and *Stenoptilia zophodactyla* Dup. while green larvae were beaten from *Cistus*, one of which finally produced a blackish Gelechiid which is so far undetermined. I also beat an immense Geometrid larva from a spiny *Cytisus* bush: this was best part of three inches long and almost as thick as a lead pencil, finely striped longituninally with pale snuff brown and pale yellow, these colour areas being finely bordered by a darker sooty brown. I could not find a suitably matching figure in Spuler.

Another expedition was made to the salterns near Hyeres and here, on the high point at the seaward end of the road, many *Nymphalis cardui* L. were noted feeding on the flowers growing in the ruins of a wartime strong point. The open hillsides which were a feature of Hyeres is now either built up or under cultivation.

Several visits were made to the scrub land inland from St. Tropez, and empty Nepticula mines were found in the leaves of *Quercus pubescens* which Mr. Carolsfeld-Krause has kindly identified as *Stigmella ruficapitella* Haw., *St. atricapitella* Haw. and St. Hering No. 4244 (*samiatella*) and some still undetermined as they do not fit in with anything known from *Q. pubescens*. Young Nepticulid mines were also found in *Alnus* leaves, but these had died too young to be determined. *Lithocolletis* mines on *Q. pubescens* produced *L. quercifoliella* Zell., *L. cramerella* Fabr. and *L. parisella* Wck. This last named species has a distinctive mine which is considerably more extensive than the mines of the other species, and the leaf is strongly contorted towards the under side. A Tischeria mine was also found on the *pubescens* leaves and these produced moths, probably *T. complanella* Hübn. Both *Lithocolletis* and Tischeria have an annoying habit of rocketing vertically when the box is opened instead of flying towards the window light, and I regret that several specimens were missed through a combination of this habit, a granular ceiling, and ageing eyesight.

The more open slopes produced *Ematheudes punctella* Treits. in some numbers, together with *Crambus cespitellus* Hübn., *C. culmellus* L. and two specimens of the *C. craterellus* complex, also singles of *Bucculatrix crataegi* Zell., *Euchromius superbella* Zell. and *Selagia spadicella* Hübn.

A large *Satyrus* species (? *circe* Fabr.) was a frequent visitor to the hotel outdoor dining space, and was not above investigating open wine bottles when these were not too closely attended.

We left Cavalaire on 23rd and worked northwards via Aix en Provence through the hills to Chambery where we spent the night. The road was brightened by butterflies in fair numbers; both swallowtails were in good supply and *Gonepteryx cleopatra* L. added flashes of brilliant colour, while large Satyrids and Argunnids tended to draw the driver's eye from full concentration on the road, fortunately without ill results. At one roadside halt, a slightly damp place was patronized by about twenty *Aporia crataegi* L. After Chambery, we pressed on to Chatillon sur Seine by way

of Geneva, La Foucille and Douelle, and from thence we reached Le Touquet in the evening of the following day. We had the pleasure of a close view of a female *Apatura iris* L. which, after the habit of its kind, was attracted to the sun-warmed roof of our car during a halt in the Compeigne forest. Here we also gathered a few *Lithocolletis* mines in the hope that they might produce *roboris* Zell., though in fact I did not get more than I had really expected, *L. meessaniella* Zell.

Leaving Le Touquet about 9.30 the following morning, we were leaving Lydd before 10.30, and we stopped to look at Dungeness before making our way home.

Notes and Observations

LITHACODIA DECEPTORIA SCOP. IN GLOUCESTERSHIRE.—On 26th May of this year, a fresh male specimen of *Lithacodia deceptoria* Scop. came to my mercury vapour trap in my garden at Tetbury, Gloucestershire. The species has not previously been reported from this county, and I believe that only about eight examples have so far been recorded as being taken in Britain. These were from Kent, Surrey and Sussex. Photographs of the one taken by Mr. M. V. F. Tweedie, near Rye in 1956, appeared in *The Entomologist's Gazette*, **8**: 29 (1957).—J. NEWTON, 11 Oxlease Close, Tetbury, Glos.

THESTOR BALLUS FAB.—In his article in the June *Record* (antea 154) on butterflies at Gibraltar, General Johnson refers to *Thestor ballus* Fab., thus suggesting that the generic name of *Thestor* is now recognized as applying correctly to a south European butterfly.

Kirby, in *A Handbook to the Order Lepidoptera*, **2**: 127 states, under the genus *Tomares*: "This genus is generally called *Thestor*, but Dr. Scudder has shown that *Papilio protumnus* Linn., a South African species, is the true type of the genus *Thestor*". Van Son, in *Jour. Ent. Soc. S. Afr.*, **IV**: 185 (1941) also agreed that the name applied to our South African group of Lycaenid butterflies which must represent an entirely distinct genus from the one which includes *ballus* and allied species) and for many years now we have been placing our species under *Thestor*.

It would therefore be very interesting to know whether more recent investigation has shown that *Thestor* is, in fact, the correct generic name for the *ballus* group—in which case it could no longer be used for the South African complex, of which *protumnus* is the type.—C. G. DICKSON, Blencathra, Cambridge Ave., St. Michael's Estate, Cape Town.

EUCOSMA PUPILLANA CLERCK IN KENT.—Towards the end of August 1963, I noticed a number of worn imagines of this very local moth on Dartford Marshes. Visiting the spot again on 2nd August 1964, I counted some thirty examples between 8.30 and 9 p.m., mostly in fresh condition. Many were disturbed from the foodplant, *Artemisia absinthium*, but towards 9 p.m., a number were seen flying naturally as dusk set in. So far as I am aware, the only other record of *pupillana* in Kent is in the Victoria County History (1908), in which Folkestone is given as the locality.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent. 23.viii.1964.

NEPHOPTERYX HOSTILIS STEPH. AND BRACHMIS INORNATELLA DOUGL. NEW TO SUFFOLK.—A single male *N. hostilis* was taken by me at light at Thorpeness on 16th July 1964, and considering the late date it is in remarkably good condition. During the period 5th/14th July 1964, several *B. inornatella* were taken in marshes at Thorpeness and Walberswick by Mr. S. Wakely and myself. Mr. H. E. Chipperfield has confirmed that both species are new to the county.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent. 23.viii.1964.

NOLA TRITUBERCULANA BOSE (CENTONALIS HÜBN.): SCARCE ARCHES, IN SUFFOLK.—Five examples of *N. trituberculana* were taken at light at Thorpness by Mr. S. Wakely and myself in July 1964; three on the 14th, one on the 15th, and finally one whitish example conforming to ab. *atomosa Brem.* on the 16th. Always rare or extremely local, this is the first time in Britain for over seventy years that this species has been taken in such numbers.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham, Kent. 23.viii.1964.

WHICH DAGGER ARE YOU.—It was the note by the Rev. F. M. B. Carr (*Ent. Rec.*, **74**: 267) under the above title which led me to decide that it was time I had a series of authentic "daggers". Early this season I promised myself that I would obtain eggs from every female dagger I could find and at least raise a series of *Apatele psi* L.

I found four daggers in all, three of which were females, all at rest on tree boles. Only one dagger appeared at my light trap. The first female was found on 28th May. It laid about fifty eggs and the resulting larvae proved to be *psi*. A portion of them were reared to the pupal state without difficulty. The second female was obtained on 30th May; it laid a similar number of eggs which again produced *psi* larvae. The third female was found on 5th June, resting on the same tree as the second female. This one laid only fifteen eggs, but these in due course produced fifteen larvae of *A. tridens* L! The larvae seemed very weakly at first, four of them dying in the first stage, but the remaining eleven began to make rapid progress and eventually all pupated. All the dagger larvae were fed throughout on apple leaves, and I now have a batch of *psi* and a batch of *tridens* pupae, well labelled and confined in separate rooms of the house. After all, it would be pretty awful if they got mixed up now.—T. D. FEARNEHOUGH, 26 Green Lane, Shanklin, Isle of Wight.

MACROGLOSSA STELLATARUM L. in Sussex and Kent. While collecting with Mr. J. L. Messenger on Duncton Down on 27th June 1964, a very fine day, I was pleased to see the humming-bird hawk again. I saw another over flowers on the downs near Maidstone three days later on 30th.—C. G. M. DE WORMS, Three Oaks, Woking, Surrey. 18.vii.1964.

APATELE ALNI L. AT WOKING.—1964 seems to have been a record year for the alder moth, with as many as fifty being noted in a single night. It may not therefore be surprising that one graced my mercury vapour light here on the night of 10th June. I had previously taken one on the edge of Chobham Common on 30th May, another remarkable night. This insect seems to be very scarce in this area since Mr. R. F. Bretherton obtained it once in his trap at Ottershaw during his seventeen years, 1946 to 1963.—C. G. M. DE WORMS, Three Oaks, Woking, Surrey. 18.vii.1964.

HAMPSHIRE MIGRANTS.—A male *Heliothis peltigera* Schiff. came to my light trap here on 13th June; it was a pale form in good condition. On 15th August one male and one female *Enargia paleacea* Esp. were in my trap, and a further male on 18th August. Mr. C. J. Cadbury mentions the capture of one specimen of this moth in "an open marsh amongst reed" in Norfolk (antea 181). Mr. Ian Lorimer has recorded this species twice at Chandler's Ford in Hampshire. Can it be that *paleacea* is an occasional immigrant from the continent?

On 16th August one female *Herse convolvuli* Linn. and one *Eurois occulta* L. both in fair condition, were in the trap.

On 26th May I saw in my garden a fresh but small *Nymphalis atalanta* L. and have seen a considerable number lately. I have also recorded six *Vanessa cardui* L., one in early June and the remainder since 26th July.

Although my postal address is Berkshire, my house is situated in Hampshire; I mention this fact to eliminate misunderstanding.—SIR ROBERT SAUNDBY, Oxleas, Burghclere, Nr. Newbury, Berks. 23.viii.1964.

MELANISM IN THE NEW FOREST.—With reference to Mr. Symes's note (antea 199) regarding *Biston betularia* L. in Bournemouth, the following figures of the numbers of *B. betularia* taken in my mercury vapour trap at Minstead may be of interest.

Year	Typical	*insularia*	*carbonaria*	Total
1962	243	6	18	267
1963	250	29	14	293
1964	197	18	10	225

—L. W. SIGGS, "Sungate", Football Green, Minstead, Lyndhurst, Hants. 24.viii.1964.

MIGRANTS IN THE NEW FOREST.—The following have appeared in my mercury vapour trap at Minstead this year:—

22.vii.1964, a male *Rhodometra sacraria* L.
25.vii.1964, a male *Nycterosea obstipata* Fabr.
30.vii.1964, another male *N. obstipata.*
4.viii.1964, a female *N. obstipata* which laid a number of eggs. The larvae are at the point of pupating.
6.viii.64, 138 *Plusia gamma* L., 134 *Agrotis ipsilon* Rott., and one *Herse convolvuli* L.
19.viii.1964, another *H. convolvuli.*

—L. W. SIGGS, "Sungate", Football Green, Minstead, Lyndhurst, Hants. 24.viii.1964.

APATURA IRIS L. IN HAMPSHIRE.—On 12th July a purple emperor butterfly was found in this village by a relation of mine. Not being sure just how rare this butterfly is, nor to whom the matter should be reported, I wrote to the Natural History Unit of the B.B.C. and Mr. Burton of that unit advised me to write to the *Record.*

Unfortunately, the specimen was not kept. It remained in the same spot in my sister-in-law's garden for two days, showing no desire to move. At the end of that time it died and subsequently disappeared, presumably taken by a bird. However, it was seen and identified by our local naturalist, Mr. Cooper of Greywell, Nr. Odiham, who is usually called in on such occasions, and I hope that the report will be of some interest.—P. SHORT (Miss), The Cottage, Strip, Up Nately, Nr. Basingstoke, Hants. 9.viii.1964.

COLIAS CROCEUS FOURC. IN SOUTH DEVON.—My colleague, Mr. Richard Brock informs me that he saw a clouded yellow butterfly on the cliff top at Prawle Point, South Devon, on 3rd August 1964, and another there on 16th August.—J. F. BURTON, B.B.C. Natural History Unit, Broadcasting House, Bristol, 8. 23.viii.1964.

Current Literature

Biological Control of Insect Pests and Weeds. Chapman & Hall Ltd. Pp. xxiv + 844, 8 plates, 120/-.

This book is written by sixteen authors, each a specialist in his subject, and is edited by Paul de Bach, professor of biological control in the University of California, and it brings before the public work commenced by the late Professor C. P. Clausen in the Department of Biological Control, University of California some thirty years ago.

The book is organised in eight sections, and Section I, by the editor, is entitled the Scope of Biological Control, and explains natural and biological control and their place in the balance of nature. The author goes on to explain the field of biological control with suggestions for basic study and the importation of natural enemies of the various pests and their augmentation and preservation. He mentions certain control enterprises and sets out the financial gain resulting from them. Chapter 2, by Richard L. Doutt gives the historical aspect with accounts of some of the early experimenters and their projects, and the development of biological control.

Section II covers the ecological basis of biological control, and Chapter 3 covers population ecology and historical development. Chapter 4, The Concept and Significance of Biological Control deals with the physical factors; population balance, host and parasite relations and reactions, and opposing views on natural control are carefully set out and explained. The kinds of balance and the mechanics of natural control are discussed with illustrative charts, and genetic factors are also taken into account. Chapter 5 discusses control concepts and questions requiring investigation, and covers natural enemies including parasites, predators and hyperparasites and the importation of these from outside areas. Attention is drawn to the fact that the more spectacular results have occurred on islands, and that one meets with more difficult circumstances when dealing with continental areas, which contain a large number of different biotopes whose populations can overlap.

Section III is on biology and systematics and Chapter 6 discusses biological characteristics and mentions interesting examples where parasites have been "educated" in captivity to turn their attention to other hosts than their natural host, and to take this new habit into the open. Chapter 7 discusses the early stages of parasites with many line drawings of these and various means of parasitisation are mentioned. Chapter 8 covers the place of systematics in the study of biological control and gives keys to the entomophagous species in the various natural orders of insects.

Section IV (Chapters 9 to 17) deals with the finding of foreign entomophagous species of parasites and predators, the necessity for a quarantine

period so that one may be assured that no ill consequences will follow their importation, the culture of these insects and their hosts and natural and artificial diets for both hosts and predators. Apparatus and equipment found necessary for breeding predators prior to their release, and methods of putting them out and the recovery of specimens after release are discussed together with the evaluation of their success.

Section V is entitled the Conservation and Augmentation of Natural Enemies and discusses the problems encountered and means for overcoming these. The modification of environments and the relations of agricultural changes with field conditions and the various relations between chemical and biological control are discussed from the aspect of selectivity so that predators will not be killed with the pests, as is so often the case nowadays.

Section VI is devoted to the subject of insect pathology, covering bacterial, fungoid, and virus diseases and also protozoan and nematode infections together with the diagnosis of these conditions, with photographs and line drawings to illustrate the subject. Epizootiography (the corelation of host population, pathogen population and environment) is dealt with in chapter 19 dealing with the infectious agent, the host, and methods of transmission, and the interrelation between pathogens, parasites and predators. Chapter 20 is on the mass production of insect pathogens and 21 the use of micro-organisms in pest control.

Section VII (Chapters 22 and 23) deals with the biological control of weeds and discusses the problems and risks encountered. Many projects on biological control of weeds in many parts of the world are set out.

Section VIII concludes the work with Chapter 24 which sets out the successes, trends and possibilities of biological control with a long table of insects and their uses.

The bibliography covers 100 pages, and is followed by an index of scientific names.

The print and paper are excellent and the book is strongly bound in buckram boards. The photographic plates give good illustrations, but these are definitely subservient to the letterpress and not, as has so often been the case in recent times, the main purpose of the book.

As is to be expected of a text book written by people concerned with teaching, the language is clear and concise and should be easily understood by the reader, be he student or amateur. A very pleasing feature is that the authors do not hesitate to explain unusual technical terms, a thing so often omitted for fear lest the reader should be offended. This is a really excellent text book on a subject which has been held back for too long behind chemical control (extermination) of insects and it is to be hoped that this intelligent use of natural controls by man will have the desired effect of preserving crops vital to man's existence without upsetting the balance of nature as has so often been the case when chemical control has been invoked by ignorant and uneducated hands. Let us hope that this may serve to check the destruction of useful insects in the destroying of destructive ones; that the useful ones may continue to pollinate our crops and flowers, and that the many neutral species may be left to give pleasure to the eye and stimulate intelligent study.

It may be presumptuous on my part as a mere amateur, but I would like to congratulate the editors and authors on having done an excellent job and to thank them for this book. S. N. A. J.

The Life of Insects. Profesor V. B. Wigglesworth. Pp. xii + 360, 12 coloured and 24 black and white plates. Weidenfeld & Nicholson, 55/-.

In this book Professor Wigglesworth sets out to give an account of insect physiology as understood from the many revolutionary discoveries of the past fifty years. In his introduction he points out that Charles Darwin's theory of Natural Selection and Survival of the Fittest is still the most widely accepted by biologists, but that the phylogenetic tree is given less credence in view of the fact that during the past 350 million years, so many forms of insect must have flourished and disappeared, of which fossil remains of a pitiful few have been found by us, that we cannot imagine that we have anything like enough data to allow us to dogmatise on the subject; the missing links are far too many.

We can, of course, see similarities between certain natural orders of insects which prompt us to credit them with a common ancestor, but we cannot have enough evidence to describe this ancestor. A brief description of the natural orders of the insect world with line drawings of representatives of most of them is given as an appendix which may be compared with the phylogenetic tree, modern version, on page 5.

Insect physiology is the basis of the book and each chapter treats an aspect of the physiological development of insects. There are seventeen such chapters, to quote from the index, dealing with such subjects as movement on land, in the air and in water, eggs of insects, growth and metamorphosis, mating and reproduction, luminous insects, and the chapters on insect senses give evidence of much skilful and painstaking research as also do such abstract subjects as the wisdom and the organisation of insects, which form the subject of two other chapters.

The book should be of the greatest interest to the student and to the advanced entomologist alike, but it should also provide interesting reading for the amateur as well. S. N. A. J.

Centipedes of the British Isles. E. H. Eason. Pp. x + 294, coloured frontispiece and 4 half-tone plates. Frederick Warne & Co. Ltd. 63/-.

This book sets out to fill a gap in our literature by bringing under one cover an account of the British centipedes. Much of the information contained may be found in the many papers contained in periodicals and other general publications if the student has the time and means to make the search, but the author has added much original observation to this account.

The introduction is certainly not a part to be skipped, as it will bring the descriptions of species which follow, into the understanding of the interested reader as well as that of the student. It is divided into History, structure, reproduction, biology, distribution and habitat, classification and nomenclature, finishing with a systematic table of the species to be found in this country.

This list is then described in the following chapters with a full description of the genus and a key to the species contained, with good camera lucida drawings accompanying the specific descriptions, which will be of far greater assistance than an illustration of the complete centipede. A minor criticism here is that I would have thought it better to name the insect in bold type, and the sections of the description in italics, instead

of which the reverse order has been adopted, but a very good point in this portion of the book is that each species is described under the same list of headings in the same order throughout.

The appendix is divided under the headings: collection, preservation and examination; this is followed by a glossary, a bibliography and an index.

The book, which is a full octavo, fills a great want for the centipede specialist, but it is also a welcome addition to the library of the general naturalist who likes to be able to place anything he sees, and to the ecologist, for all of whom it is intended. S. N. A. J.

The Naturalist's Riviera. By A. N. Brangham. Pp. xi + 339, 45 half-tone illustrations; Phoenix House Ltd., 42/-.

Mr. Brangham has produced a book which should be both interesting and stimulating to the ever-increasing numbers of naturalists and nature lovers who find their way down to the delectable departments along the French Mediterranean coast which go together to form the Riviera.

After giving a general description of the whole area, the author gives a short account of the many British naturalists who have, from the sixteenth century onwards, made the journey southwards and have written accounts of the flora, fauna and general life of the district. He then gives a chapter entitled Anatomy of the Riviera Climate, which speaks for itself, and is finished with charts comparing temperature, rainfall and sunshine throughout the year with the corresponding figures for Venice. The following chapter gives an account of how this area has adapted itself to survive the arid period during the summer months.

The next chapter gives an account of the products of the district from vines and olives to silkworms, and the following chapter deals with the butterflies and moths. This chapter gives many interesting details of the probable origin of the important species, which seem to have come in by several routes which species may be described as "Specialite de la Maison"!

By way of variety, the next chapter deals with the intriguing little tree frog, and then on to the beasts with which this district literally abounds, grasshoppers and crickets, followed by a chapter on the cave dwellers from aestivating and hibernating insects to the bats and insect inhabitants of this dark world. A Mediterranean account would certainly be incomplete without the praying mantis and its place in local superstition and medicine.

Termites are next given consideration, and these are followed by an account of the ants, of which the area can boast a very different fauna from the more northerly parts of France, and also the economic effects of various species, some beneficial, some deleterious, and mention is also made of that pest of the lepidopterist, the Argentine ant.

The larger inhabitants have attention in the next chapter, which is on snakes, lizards and geckos, and after that a chapter on land snails and parasites, another on ant-lions and the last one is on the French naturalists of the district. There follows an interesting appendix listing the museums and exhibitions of interest to naturalists available at the various towns, a bibliography, and finally an index. On the back cover is a folding map showing the country from the Rhone to the Italian frontier.

Beside its interest to the visiting naturalist, this book offers material on which one may browse in idle moments to recapture the sights and creatures that made one's visits so delightful and unexpected.

S. N. A. J.

Current Notes

BRAUNTON BURROWS NATIONAL NATURE RESERVE, DEVON.

Braunton Burrows, which extends northwards for three and a half miles from the estuary of the rivers Taw and Torridge to Saunton Down, is one of the largest sand-dune systems in Great Britain. It is internationally famous for its rich plant and animal life, and since the seventeenth century, when the botanist John Ray collected and recorded there, the area has continually attracted scientists and naturalists.

The importance of Braunton Burrows was noted by the Society for the Promotion of Nature Reserves in 1915 when they included it in their original list of potential Nature Reserves, and in 1947 it was officially recommended as such by the Wild Life Conservation Special Committee.

During and since the last war Braunton Burrows has been used for military training. This will continue in certain areas under a lease to the Service Departments by the Trustees of the Christie Estate, who are the owners. A sub-lease from the Service Departments has enabled the Nature Conservancy to declare about 560 acres in the southern third of the dune system as a National Nature Reserve which will be managed entirely for nature conservation purposes. Facilities for scientific research have also been arranged, subject to training needs, in a further 932 acres. These form the main training zone which includes Crow Point and Broad Sands.

On the seaward side of the Burrows the fore-dunes are about fifty feet high and other ridges behind them rise to more than one hundred feet in places. The dune structure is most fully developed in the central part of the training area, where three main ridges are separated by wet "slacks" (known locally as "pans") lying parallel to the shore.

Some of the outstanding plants for which Braunton is famous include the Club-rush which John Ray first recorded there, probably in 1662. Elsewhere in Britain a few specimens are known to exist only in one small area in North Somerset. Other note-worthy plants are the Water Germander (for which Braunton is the best locality), Sea-knotgrass, Sharp Rush, Shore-dock and Sand Toadflax.

Free access to the Reserve by foot will continue. The land was searched before it was released but owing to the intensive war-time use of this area for military training with live ammunition the public are asked not to touch any unidentified objects which may be lying on the ground but to report their presence to the local police.

By agreement with the Service Departments and the Devon County Council access by foot will also be allowed to the central training zone and to Broad Sands except when exercises with live ammunition, or demolitions, are being carried out. Notification of closure at Broad Sands and in the central training zone will be given in the local press and also indicated on the ground by red flags.

The Annual Exhibition of the Amateur Entomologists' Society will be held on Saturday, 24th October 1964, at the Hugh Myddleton Secondary School, Corporation Row, London, E.C.1 (near Farringdon station). All interested in entomology will be welcome.—H. D. HILLIARD, 42 Normandy Avenue, Barnet, Herts. 11.viii.1964.

We much regret to announce the death of Colonel SIDNEY HARDINGE KERSHAW, D.S.O., late Fifth Fusiliers, who died at his home, Alderman's Lodge, Apsley Heath, Buckinghamshire, on 12th July 1964, after a long illness. A lepidopterist who had a host of friends and correspondents, and a contributor to the *Record*, he will be sadly missed by the older ones among us.

It is regretted that this issue is of smaller size than usual, but it must be borne in mind that the editor relies mainly on the readers for the material published. Copy is always short at this time of year when readers are out in the field, and have no time for writing, but I trust that they will not lose the opportunity for setting down notes that may later on be worked into an article on any points of particular interest that have come before them in the field or elsewhere. It is also to be hoped that they will not sit too long on these notes, but will write them up while the events are still reasonably fresh in the memory.

The copy goes to the printer on 23rd of each month, and matter for early publication should reach me by that date, if it is to be included in the next issue.

S. N. A. J.

O. incerta Hufn. (**instabilis** Schiff.): Clouded Drab.

Native. Woods, parks, gardens, hop-yards, etc.; on poplar, apple, hop, rose, oak, hazel, sallow. Found in all divisions. "Generally common" (*V.C.H.* (1908)).

In 1962, D. R. M. Long noted the moth at Bromley, as late as June 15.

D. F. Owen (*in litt.*) noted having found the pupae in abundance beneath elms in Greenwich Park, in February 1946.

The larva has been found on poplar, Birchington, 1921, and reared (H. G. Gomm, *Diary*); on hop, in hop-gardens at Wye and elsewhere in Kent (Theobald, *Entomologist*, **63**: 7); on oak, Knockholt, imago reared 1918 (Gillett, *Diary*); two, on flowers of rose, Sidcup, June 25, 1924 (A. R. Kidner, *Diary*); on hazel and sallow at Crofton, on oak at Ham Street (D. R. M. Long); on apple foliage, in Kent (Theobald, *Insect and Other Allied Pests of Orchard, Bush and Hothouse Fruits*, 66).

Variation.—In R.C.K. is ab. *subsetaceus* Haw., Ashford, May 6, 1896; ab. *contacta* Esp., N. Kent.

Dawson (*Young Nat.*, **10**: 184) exhibited at S. Lond. ent. nat. Hist. Soc., August 8, 1889, "a melanic form", taken at Plumstead; and Tutt (*Br. Noct.*, **2**: 139) records a series of ab. *caerulescens* Tutt, bred by Fenn, from Lee, in 1891.

First Record, 1842: West Wickham Wood (Douglas, *Entomologist*, **1**: 309).

O. munda Schiff.: Twin-spot Quaker.

Native. Woods, copses; on oak, maple. Recorded from all divisions, except 4. Perhaps casual in 2, 9, 15. Apparently rather scarce in 3. "Generally distributed and common" (*V.C.H.* (1908)).

The larva has been found on maple, by D. R. M. Long, at Eynsford; and on oak, by Fenn (*Diary*), in the Lee district.

2. Gravesend (H. C. Huggins).

3. Broad Oak.—It may be of interest to record that I assiduously worked the sallows in the woods in this area from 1937-40 without seeing it once; Barton Wood, one, March 25, 1943 (C.-H.). Whitstable (P. F. Harris). Eddington, one, at sallow, March 18, 1948 (D. G. Marsh).

9. Broadstairs, one, at sugar, c. 1947 (J. W. C. Hunt).

15. Dungeness, two, April 4, 1946 (A. M. Morley).

Variation.—The following abs. are in R.C.K.: *pallida* Tutt, Bexley; *fasciata* Lenz, West Wickham; *cruda* Foltin, Bexley; *rufomaculata* Lempke, Chatham district, 1909, Bexley; *immaculata* Stdgr., Chatham district, 1909; *cruda* Foltin + *rufomaculata* Lempke, Bexley; *albescens* Cockayne, holotype, Chislehurst, 1902.

Ab. *immaculata* Stgr. has been recorded from West Wickham (Auld, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1894: 35), and Aylesford (Davis, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 23).

First Record, 1842: West Wickham Wood (Douglas, *Entomologist*, **1**: 309).

O. advena Schiff. (**opima** Hübn.): Northern Drab.

Resident, perhaps native. Salt marshes, waste places, etc.; on *Limonium vulgare, Artemisia vulgaris*, Loganberry. The moth has much increased within recent years.

1. Between Bexley and Crayford, larvae found in 1934 by L. T. Ford, in shoots of *A. vulgaris*, growing on some waste ground, from which five

imagines were bred† (L. T. Ford). Lee, one, 1949 (D. Lanktree); in m.v. trap, one, April 17, 1953, one, May 7, 1954, one, April 26, 1957, one, April 23, 1962†, none, 1963-64 (C. G. Bruce). West Wickham, one, at m.v.l., April 25, 1952† (E. E. J. Trundell). Bromley, in m.v. trap, two, 1960 (the second example on May 23), two, 1961 (the first example on April 1), thirteen, 1962† (with maximum of five, on May 7), none in 1963-64 (D. R. M. Long).

2. Medway Marshes, Strood, two ♀♀, May 16, 1910 (Ovenden, *Ent. Rec.*, **22**: 146). Nagden Marshes, near Faversham, "when looking on Sea Lavender I noticed the outside edges of some leaves were turned over and contained small larvae, from these I reared three *opima* in April 1941"† (P. F. Harris, *in litt.*); ♂, taken flying, April 25, 1952 (C.-H.).

5. Chevening, six, taken at light, April 20-29, 1914 (Gillett, *Entomologist*, **47**: 227-228). Westerham, at light, one, April 20, 1939, one, May 5, 1951, one, 1961† (R. C. Edwards).

6. Pinden, one, April 18, one, April 30, 1952† (E. J. Hare).

10. Sevenoaks, April 18, 1920 (Gillett, *Diary*).

11. Tonbridge, three at light, 1871 (Raynor, *Entomologist*, **6**: 79). East Malling, 1942, 20-30 imagines reared from larvae collected from loganberry, imagines det. by H. M. Edelsten (Massey, *Rep. E. Malling Res. Stn.*, 1942: 65).

15. Dungeness, in m.v. trap, three, May 3, 1962, six, April 27-May 4, 1963†, four, April 25-27, 1964 (R. E. Scott).

VARIATION.—Most of the Kentish *advena* that I have seen are slate-grey with the central band fairly clearly marked; three of L. T. Ford's specimens are blackish-brown, and perhaps referable to ab. *fuscus* Gregson. My only Kentish example, from Nagden, has the f.w. of a peppery-yellow with an indistinct median band, and is unlike any other *advena* that I have seen (C.-H.).

FIRST RECORD, 1872: Tonbridge (Raynor, *Entomologist*, **6**: 79).

O. gracilis Schiff: Powdered Quaker.

Native. Woods, carr, marshes, etc.; on sallow, bramble, *Filipendula ulmaria*, *Potentilla erecta*, *Hippophae rhamnoides*. Frequent, and recorded from all divisions. "Generally distributed and not scarce" (*V.C.H.* (1908)).

Though seldom noted plentifully in Kent, on two occasions the moth was recorded as having occurred in comparative abundance at Dungeness. Thus, on April 12, 1963, B. F. Skinner saw about fifty at m.v.l., adding that it was by far the commonest moth there that night; and Morley (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1946-47: 36) noted forty specimens at sallow, April 4, 1946[1], some of which he exhibited.

[1]A remarkable night at this locality, not only for the appearance of certain species in unusually large numbers, but also for the first and only records for the area of *Orthosia miniosa* Schiff., *Triphosa dubitata* L. (several of both), and the occurrence of the very rare *Lithophane furcifera* Hufn.

Jones (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1899: 73) records the larva as having been very common one season at Eltham in terminal shoots of sallow; and at Greatstone, S. Wakely found one on *H. rhamnoides* (S. Wakely). D. R. M. Long has found the larva at Crofton (div. 1) on sallow, bramble, and *F. ulmaria*; on July 3, 1960, I found several larvae on *F. ulmaria*, at Ham Fen; and at Faggs Wood, Ham Street, June 12, 1960, a

few on *P. erecta* (C.-H., *Proc. S. Lond. ent. nat. Hist. Soc.*, 1960: 84).

VARIATION.—The majority of Kentish *gracilis* that I have seen have the f.w. ranging from pale greyish-white to pale greyish-cream, dusted with grey atoms, subterminal line pale ochreous, the stigmata fairly clearly outlined; a ♀, West Wickham, 1963, has the f.w. pinkish-ochreous; occasionally there occurs a very pretty ab. tinged throughout with rose-pink, one such ♂, Chilham, 1937, and I have seen others (C.-H.). A. M. Morley states that of the forty *gracilis* noted at Dungeness, April 4, 1946, many were pink.

Deep reddish-brown forms approximating to ab. *rufescens* Ckll. used to occur in the "North Kent Marshes", but the location(s), dates, and circumstances of capture are no longer known, and none of these forms has been seen in Kent now for some fifty years or more. Tutt (1896, *Br. Moths*, 189) mentions that these dark forms also occurred in the "Sevenoaks district"; and Barrett (1899, *Br. Lep.*, **5**: 220) states that "rich liver-coloured and purple-grey specimens have been obtained by B. A. Bower in N. Kent". For further information on these forms in Kent, which together with the foregoing amounts to everything that it has been possible so far to discover regarding them, cf. *Entomologist*, **85**: 261.

FIRST RECORD, 1829: Darenth Wood (Stephens, *Haust.*, **2**: 142).

Panolis flammea Schiff. (**piniperda** Panz.): Pine Beauty.

Native. Woods; on *Pinus sylvestris*.

1. Birch Wood (Curtis, *Br. Ent.*, 117); larvae abundant (Stephens, *Haust.*, **3**: 20). Dartford* (Allchin, *Ent. week. Int.*, **7**: 204). West Wickham, many records (cf. *Entomologist*, **1**: 309, **43**: 204; *Ent. week. Int.*, **10**: 117, 196; *Ent. mon. Mag.*, **1**: 190; *Young Nat.*, **7**: 116; *Ent. Rec.*, **2**: 87; *Lond. Nat.*, 1955: 47); March 13, 1961 (C. G. Bruce). Plumstead (Courtney, *Entomologist*, **1**: 227). Bostall Wood; Halfway Street; Dartford Heath; Bexley; Paul's Cray (*Wool. Surv.* (1909)). Keston (*Wool. Surv.* (1909)); larvae, July 5, 1928 (A. R. Kidner); one, at sugar, April 1949, beat 17 larvae in 2 hours, June 23, 1950 (W. A. Cope). Chistlehurst, larvae (S. F. P. Blyth). Orpington, 1954 (L. W. Siggs). Sundridge Park, one, June 5, 1946; Hayes and Keston Common, 1946-48 (J. F. Burton).

3. Church Wood, ♀, at sallow, March 21, 1933 (A. J. L. Bowes). Oldridge Wood, c. 1946 (J. A. Parry). Littlebourne, one, April 19, 1947 (G. H. Youden). Thornden Wood, one on trunk (P. F. Harris). Blean Woods, several (D. G. Marsh). Nackington, one, 1953 (P. B. Wacher). Eddington, ♀, at m.v.l., May 22, 1951 (D. G. Marsh, *Diary*).

4. Ickham, one, c. 1956 (D. G. Marsh).

5. Farnborough; Downe (*Wool. Surv.* (1909)).

6. Shoreham, 27 larvae beaten out from two expeditions (W. A. Cope); larva on *P. sylvestris*, 1949 (F. D. Greenwood). Pinden, one, April 1952 (E. J. Hare). Otford, one, 1955 (W. B. L. Manley).

6a. Darenth (Huckett, *Ent. week. Int.*, **10**: 117).

7. Wigmore Wood (Chaney (1884-87)). Detling, one, April 18, 1929 (Bull, *Diary*). Westwell, March 28, 1935 (A. J. L. Bowes); May 10, 1952 (E. Scott). Boxley, 1953 (A. H. Harbottle).

8. Folkestone* (Ullyett (1880)). Kearsney, bred, ♂♀, March 11, 1895, ex larvae (Stockwell, *Diary*). Shepherdswell, larvae on pines, 1946 (G. H. Youden). Brook, one, April 14, 1952 (E. Scott). Lyminge Forest, larvae, May 22, 1953 (P. Cue). Dover, one, 1954 (B. O. C. Gardiner).

10. Seal Chart (Carrington, *Entomologist*, **13**: 79). Sevenoaks (Hill, *Entomologist*, **19**: 185). Westerham (Turner, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1892-93: 111); larva (Leston, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1951-52: 72). Brasted, May 17, 1913, larva 1916 (Gillett, *Diary*).

11. Wateringbury (*V.C.H.* (1908)). Mereworth (H. C. Huggins); two, at sallow, 1934 (J. Fremlin). Benenden, one, April 22, 1928 (G. V. Bull, *Diary*). Hoads Wood, April 9, 1955 (P. Cue). Aylesford (G. A. N. Davis).

12. Willesborough Lees; Ashford Warren (Scott (1936)). Ham Street Woods.—(Scott (1936)); two, April 1, 1938 (A. H. Lanfear); one, at m.v.l., Long Rope Wood, May 25, 1951 (C.-H.); one, June 10, 1960 (R. G. Chatelain); common at sallow bloom, Orlestone Woods, April 19, 1963 (M. Singleton). Chartham (P. B. Wacher). Wye, two, May 19-20, 1953, eight, March 26-May 16, 1954, four, March 26-May 13, 1955, four March 27-April 10, 1956 (W. L. Rudland). West Ashford, one, at light, 1960; two, 1961 (M. Enfield). Ashford Town, 1958 (P. Cue).

13. Tunbridge Wells (E. D. Morgan); common (H. E. Hammond). Groombridge, larvae (Bull, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 59). Goudhurst, numbers at m.v.l. (W. V. D. Bolt, *personal communication*, 1961).

14. Tenterden, 1960 (C. G. Orpin).

16. Folkestone, one, May 18, 1952 (A. G. Riddell, *teste* A. M. Morley). Sandgate, two, 1961 (N. Reay-Jones).

VARIATION.—Turner (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1892-93: 111) exhibited a specimen from Westerham, "in which green was the prevailing colour".

FIRST RECORD, 1826: Birch Wood (Curtis, *Br. Ent.*, 117).

LEUCANIINAE

Meliana flammea Curt.: Flame Wainscot.

Probable immigrant. Three only.

The first reference to this species is by Curtis (*Br. Ent.*, 201) who says: "The only specimen I have seen of this insect was purchased of a collector by Mr. Dale. It is understood to have been taken at Lewisham near London". Stephens (*Haust.*, **4**: 298) has: "Said to have been taken near Lewisham, towards Lee, in July".

In 1964, a ♂ taken in Ashford (div. 12) in m.v. trap on May 24, by P. Cue (P. Cue, *in litt.*); and another on the same date was taken at m.v.l., at Pinden (div. 6) by E. J. Hare (C. G. M. de Worms),

FIRST RECORD, 1828: Curtis, *Br. Ent.*, 201. This is also the original type reference.

Leucania pallens L.: Common Wainscot.

Native. Rough grassy places; foodplant unknown. Plentiful in all divisions. Regularly double brooded, those of the second generation smaller in size. "Generally abundant" (*V.C.H.* (1908)).

It is noteworthy that there appears to be no record of the discovery of any of the early stages in nature of this very common moth.

VARIATION.—The nymotype and ab. *ochracea* Steph., appear to constitute the bulk of Kentish specimens; ab. *rufescens* Haw. is of fairly frequent occurrence, and I have examples of this from many different localities; on the other hand I have only one that I judge to be ab. *ectypa* Hübn., the ground of the f.w. being of a deep red, a ♂, taken at

West Wickham, September 9, 1950; ab. *suffusa* Steph. is recorded by Tutt (*Br. Noct.*, **1**: 42) from Deal, and I have a ♂ that may be this, taken Sandwich, August 26, 1950 (C.-H.).

In R.C.K. are ab. *rufescens* Haw., three, from Kent; ab. *arcuata* Steph., one, Wilmington, June 19, 1904; also, numerous examples from Kent referable to nymotypical *pallens* L.

Stephens (Haust., **3**: 77) described ab. *ochracea* on the basis of two specimens, one of which was taken at Darenth Wood (see *First Record*).

First (Published) Record, 1829: *Leucania ochracea* Steph., one, taken at Darenth Wood, c. 1819 (Stephens, *loc. cit.*).

L. favicolor Barr.: Mathew's Wainscot.

Native. Salt-marshes, casually elsewhere; on "grass".

2. Strood district, bred early summer, 1903, from larva taken off grass early spring (Ovenden, *Ent. Rec.*, **16**: 269). Isle of Grain, June 29-July 8, 1908 (Ovenden, *Ent. Rec.*, **21**: 32). Near Queenborough, six, including both red and yellow forms, early July 1906 (Jacobs, *Entomologist*, **39**: 210; idem, *Ent. mon. Mag.*, **42**: 211; idem, *Ent. Rec.*, **18**: 240). Queensferry Bridge (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 91, 1932-33: 111); few, July 1937 (A. J. L. Bowes); a few on both banks of the Swale, 1949, 1955 (C.-H.). Chetney and Funton Marshes (H. C. Huggins); at sugar, 1935 (de Worms, *Entomologist*, **69**: 133). Aylesford, one, 1950, two, 1954 (G. A. N. Davis). Nagden Marshes, plentiful, flying and at rest on grass stems, June 25, 1952; numerous, July 17, 1953, Stoke Saltings, one, worn, August I, 1962 (C.-H.).

7. Westwell, one, ab. *rufa-typica* Tutt, July 3, 1953 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1953-54: 43, where it is recorded as *L. straminea* Treits. in error; C.-H. coll.).

11. Tunbridge Wells district (R. H. Rattray, in Knipe (1916)).

Variation.—At Nagden, about one in four is *ab. rufa* Tutt; and what I judge to be the following abs. have occured to me there: *lutea* Tutt, *pallida* Math., nymotypical *favicolor* Barr., *aenea* Math. (one), *obscura* Math., *intermedia* Tutt, *rufa-typica* Tutt. It should be noted that the nymotype, which has a series of dashes (see Barrett, *Br. Lep.*, **5**: plt. 201, fig. 3.) on honey-buff ground is not common, but that the ab. with this ground without the dashes and only the discal dot and two dots representing elbowed line, is perhaps the most numerous form (C.-H.).

The following abs. from Kent, are in R.C.K.:—*rufa* Tutt, numerous; *obscura*, two; *fusco-rosea* Math., one; *lutea* Tutt, three; *aenea* Math., four; nymotypical *favicolor* Barr., two; *obsoleta* Tutt.

First Record, 1904: Strood district (Ovenden, *Ent. Rec.*, **16**: 269).

L. impura Hübn.: Smoky Wainscot.

Native. Rough grassy places, marshes; foodplant unrecorded. In all divisions. "Generally abundant" (*V.C.H.* (1908)).

It is interesting to note that this species is normally far more numerous than *L. comma* (*q.v.*), but that at Dungeness the reverse is very much the case.

Occasionally there appears to be a partial second generation. Thus, at Wye, in 1953, W. L. Rudland recorded a total of 61, June 28-August 19, with one on October 2, and in 1955, a total of 46, June 28-August 11, with one on October 7.

A. R. Kidner (*Diary*) records taking the larva at Sidcup on the following dates but fails to specify foodplant: June 26, 1926, May 13, 1928, two, April 30, 1936.

VARIATION.—Of ab. *punctilinea* Tutt, (*Br. Noct.*, **1**: 40) says "I have a few specimens of this variety, showing the extreme variation in the development of these dots, captured on Greenwich Marshes in 1883; but such forms are rare".

FIRST RECORD, 1859: Deal (Harding, *Ent. week. Int.*, **6**: 196).

L. straminea Treits.: Southern Wainscot.

Native. Marshes, mainly coastal; on *Phragmites communis*. Probably casual in 3, 9, 16.

1. Lee Swamp, one, July 3, 1863 (Fenn, *Diary*).

2. Widespread, locally numerous, and recorded from many localities in this division. Greenwich Marshes (Jones, *Ent. week. Int.*, **10**: 187); formerly "a hundred *Leucania straminea* could easly be netted in a single evening, and hundreds of others seen" (Tutt, *Ent. Rec.*, **18**: 141); locality now destroyed (West, *Ent. Rec.*, **18**: 200). Near Sheerness, 1871 (Walker, *Ent. mon. Mag.*, **8**: 185). Rochester, larvae (Ovenden, *Ent. Rec.*, **19**: 230). Shorne Mead, larvae common on Reed (H. C. Huggins).

More recent records are:—Northfleet, 1922 (L. T. Ford). Shorne Mead, larvae, July 1, July 3 (6), July 10, 1926 (F. T. Grant). Near Rochester (de Worms, *Entomologist*, **69**: 133). Sittingbourne (H. C. Huggins). Aylesford, numerous, c. 1953 (G. A. N. Davis). Cliffe Marshes, August 21, 1960; Higham (B. K. West). Faversham, June 25, 1952 (C.-H.).

3. Whitstable, one, June 24, 1936 (B. Embry, *teste* G. H. Youden).

4. Deal, 1906 (Brown, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1906-07: 86). Minster Marshes, one, August 10, 1927 (H. G. Gomm, *Diary*). Reculver, July 20, 23, 1934, July 23, 1935, July 22, 1936 (A. J. L. Bowes); August 5, 1946 (C.-H.). Sandwich, August 8, 1938, at sugar (A. J. L. Bowes); several at sugar, August 5, 1946, July 28, 1951, at marram (C.-H.). Ham Fen, June 17, 1950, fairly numerous on rush flowers, July 2, 31, 1955 (C.-H.).

[(7. Westwell (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1953-54: 43), refers to *L. favicolor* (*q.v.*).)]

9. Margate, two, 1920, one, September 30, 1921† (H. G. Gomm. coll).

11. Great Chart, one, 1934 (Scott (1936)).

12. Willesborough, one, taken at light, 1956† (M. Singleton).

15. Romney Marsh (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 91). Dungeness, August 14, 1934, August 6, 1938 (A. J. L. Bowes); one, August 28, 1954 (P. Cue); one, September 27, 1946, one, August 8, 1955 (G. H. Youden); three, 1935-37 (B. Embry, *teste* G. H. Youden); one, August 18, 1958 (E. C. Pelham-Clinton); two, at sugar, June 30, 1962 (R. Birchenough); two, in m.v. trap, July 3-24, 1963 (R. E. Scott). Dymchurch, 1947 or 1948 (P. le Masurier); (Wakely, *Ent. Rec.*, **65**: 44). Appledore, over a dozen at light, August 11, 1956; Hythe, by the canal, July 13, 1957 (P. Cue).

16. Folkestone*, 1858 (H. Tompkins, *Diary*); (Ullyett (1880)). Folkestone Town, July 17, 1955 (A. M. Morley).

VARIATION.—I have ab. *rufolinea* Tutt, Ham Fen, 2 ♂♂, Sandwich, ♂; ab. *punctilinea* Lempke, singletons from Ham Fen, Faversham, Reculver, Sandwich (C.-H.). In R.C.K., are the following abs. from Kent: *punctilinea* Lempke, two; *rufolinea* Tutt, three; *intermedia* Tutt, four.

FIRST RECORD, 1858: Folkestone, between July 24 and August 1, 1858 (H. Tompkins, *Diary*).

L. pudorina Schiff. (**impudens** Hübn.): Striped Wainscot.

Native. Marshes, heaths; foodplant unknown.

1. Paul's Cray Common, five, July 21, 1888 (Fenn, *Diary*); two, 1898 (W. A. Cope). Eltham (Tutt, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1898: 11), and Chislehurst (*V.C.H.* (1908)), may both refer to the preceding locality. Lee district, 1900 (Bower, *Ent. Rec.*, **12**: 340). Bromley, one, June 18, 1964 (D. R. M. Long).

2. Greenhithe* (Farn MS.); (*V.C.H.* (1908)).

4. Deal, July 9, 1891 (Fenn, *Ent. Rec.*, **2**: 203); one, July 2, 1948 (G. H. Youden). Sandwich (*V.C.H.* (1908)), may refer to the preceding locality. Sandwich, one, June 20, 1933, one, July 2, 1948, one, June 22, 1952 (G. H. Youden); Sandwich Bay, not uncommon (E. & Y. (1949)). Ebbsfleet (A. G. Peyton, *teste* A. J. L. Bowes); five, June 16, 1952 (C.-H.). Westbere, two, June 24, three, June 27, one, June 30, 1946 (C.-H.); June 24, 1950 (G. H. Youden). Ham Fen, four, June 17, 1950, one, July 2, 1955 (C.-H.).

5. Westerham, one, pre. 1950 (R. C. Edwards).

7. Westwell, one, June 21, 1953 (G. H. Youden).

8. Brook, eight, 1952-53 (C. A. W. Duffield, *teste* E. Scott); at light on the downs, June 3, 1961 (de Worms, *Entomologist*, **95**: 101).

11. Hoads Wood, about nine, including three pairs *in cop.*, June 14, 1961 (B. K. West).

12. Ashford, one, c. 1953 (P. Cue); 1958 (Manley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1958: 33). Wye, one, July 16, 1955, one, July 24, 1956 (W. L. Rudland). Hothfield, two, June 27, 1962 (G. H. Youden).

13. Ramslye district, several (Knipe (1916)).

15. Dungeness, 1959 (C. R. Haxby); one, at floodlights of new lighthouse, July 5, 1962 (R. E. Scott).

First Record, 1888: St. Paul's Cray Common (Fenn, *Diary*).

L. obsoleta Hübn.: Obscure Wainscot.

Native. Reed beds of estuarine marshes; foodplant unknown. Apparently very scarce.

1. Brockley (West, *Ent. Rec.*, **18**: 200).

2. Thames side [Gravesend], 1868, at sugar (Button, *Entomologist*, **4**: 115). Gravesend, a fine series at sugar (in 1868) (Button, *Entomologist*, **4**: 129); July 10, 1869, a few (Miller and Jones, *Ent. mon. Mag.*, **6**: 114). Faversham (Morris, *Br. Moths*, **2**: 82). Higham, two, July 4, 1874 (Fenn, *Diary*). Greenhithe, one, 1894, in moth trap (Farn MS.) (*V.C.H.* (1908) probably refers). Rochester district, one, 1904 (Ovenden, *Ent. Rec.*, **16**: 239). Fleet near Cliffe, 1906-09, always uncommon (H. C. Huggins). Cliffe (*V.C.H.* (1908)). Sittingbourne, one, 1922 (L. T. Ford). Eastchurch Marshes, several, 1936 (E. H. Wild). Dartford, ♂, July 16, 1950 (B. K. West). Aylesford, one, 1954 (G. A. N. Davis).

4. Between Sandwich and St. Margaret's Bay, occasionally in August (1883) (Shepherd, *Entomologist*, **17**: 138). Deal, two, August 1902 (Browne, *Entomologist*, **35**: 269). Minster, two, 1903, two, 1904, two, 1905, in J. Platt Barrett coll. (C.-H.). Ham Fen, ♂, at flowers of rush, July 2, 1955 (C.-H.). Sandwich, two, at sugar, July 6, 1962 (B. K. West). Ickham, one, July 9, 1964 (D. G. Marsh).

12. Ashford, one, July 9, 1963 (P. Cue).

15. "Romney Marsh", one so-labelled, ex G. V. Bull coll. (C.-H. coll);

"Romney Marsh", one so-labelled in same handwriting as preceding, ex "Willoughby-Ellis coll.", is in R.C.K. (C.-H.).

First Record, 1868: Button, *Entomologist*, **4**: 115.

L. litoralis Curt.: Shore Wainscot.

Native. Coastal sandhills; on *Ammophila arenaria*.

4. Kent Coast [Deal] (see *First Record*). Deal-Sandwich sandhills.—"best obtained by beating out the dead herbage on the sand-drifts near the sea" (1856) (Harding, *Ent. week. Int.*, **1**: 99); July 1888 (Tutt, *Young Nat.*, **9**: 164); one, at sugar, August 18, 1888, one, July 12, 1889, July 4, 1891 (Fenn, *Diary*); "common" *V.C.H.* (1908); two, at sugar, June 22, four, July 13, still fresh, July 19, 1936 (A. J. L. Bowes); at Sandwich Bay, one, June 30, 1939, two, June 30, 1950 (C.-H.).

15. Littlestone-Greatstone sandhills.—1930 (Morley (1931)); about twenty at sugar, c. 1950 (R. Birchenough); at Greatstone, about 30 larvae after dark on marram (*A. arenaria*), many of them full-grown, May 25, 1963; five, at m.v.l., July 16-21, 1963 (C.-H.). Dungeness, one, at light, July 27, 1956 (R. F. Bretherton).

First Record, 1854: Kent Coast, exhibited by H. J. Harding, at *Society of British Entomologists*, September 6, 1854 (*Zoologist*, 4484).

L. comma L.: Shoulder-striped Wainscot.

Native. Marshes, meadows, wood-borders, etc.; foodplant unknown. Fairly numerous and found in all divisions.

The moth has been recorded as being particularly plentiful at Dungeness. Thus, in 1962, a total of 521 were counted there by R. E. Scott in his m.v. trap between June 8 and July 26, and in 1963, 401 between June 9 and July 26. In 1963, R. E. Scott's records for Dungeness show that at m.v.l., *comma* was over four times as numerous as *L. impura*, and more than 20 times as numerous as *L. pallens*.

In 1924, Bull (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1928-29: 85) took one at Sandhurst on October 24, presumably a representative of a partial second generation.

Hammond and Smith (*Ent. Gaz.*, **8**: 184) record that in 1955, many *Apanteles fulvipes* Hal. were bred from [a larva of] *L. comma* from Dungeness.

Variation.—Tutt (*Br. Noct.*, **1**: 37) records ab. *suffusa* Tutt from Deal, and says: "It is worthy of remark that my Deal series includes the darkest, and at the same time the palest British specimens I have ever seen".

First Record, 1829: Near Dartford (Stephens, *Haust.*, **3**: 74).

L. unipuncta Haw.: White-speck Wainscot.

Immigrant. Coastally in 4, 15. Three examples only in 85 years.

The first Kentish *unipuncta* was taken by Professor Meldola at Walmer on September 1, 1878 (Meldola, *Ent. mon. Mag.*, **15**: 107). 1938: Dungeness, September 30, ♂, taken at sugar by A. M. Morley (Morley, *Entomologist*, **71**: 261; idem, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1938-39: 27). 1963: Dungeness, September 21, ♂, taken at m.v.l., by R. Hayward (R. Hayward, *personal communication*, 26.x.1963).

[At B. W. Adkin coll. sale (4th portion, lot 170, 26.x.1949), a hitherto unrecorded specimen stated to have been taken at Margate by Ramsay

Cox, is considered of doubtful origin, in view of the fact that Cox had a series of *unipuncta* which he took in Australia (cf. *Entomologist*, **8**: 134).]

First Record, 1878: Walmer (Meldola, *Ent. mon. Mag.*, **15**: 107).

L. album L.: L-album Wainscot.

Immigrant. Only one authentic capture.

15. Dungeness, September 9, 1934, one, taken at sugar by S. Pooles (Pooles, *Entomologist*, **67**: 237; W. T. Mellows, *in litt.*).

[Near Tunbridge Wells, 1869 (Shepheard-Walwyn, *Ent. Rec.*, **13**: 376). Pine Wood, near Canterbury, 1869, 1872 (Parry, *Insect Hunter's Year Book*, 1869: 6; idem, *Entomologist*, **6**: 241; *Ent. Ann.*, 1873: 36; *Proc. ent. Soc. Lond.*, 1873: xxvii; *Ent. mon. Mag.*, **45**: 178). Preston, near Canterbury (Parry, *Entomologist*, **80**: 22); the specimen is labelled "Rev. Hurst, Preston, 1884"† (C.-H.).]

First (Confirmed) Record, 1934: Dungeness (Pooles, *Entomologist*, **67**: 237).

L. vitellina Hübn.: Delicate.

Immigrant. Shingle beach, etc.; on "grass".

Although nearly 200 *vitellina* have been recorded for Kent, it is remarkable that altogether only about four individuals are known to have occurred prior to 1900. The majority have been noted since 1930, and in 1935, 1938 and 1962, it was in considerable numbers. The moth has chiefly been taken at sugar, mostly on the east and south-east coast, especially in div. 15, and is seldom seen inland. Almost all have appeared in the autumn, and only one case is known of a first generation (June) example. There is no evidence of winter survival, but in September 1934, several imagines were taken that had just emerged, thus showing that in a favourable year the species can breed here resulting from primary immigration.

1869-1882.—1869: Canterbury, one, October 7 (Parry, *Entomologist*, **5**: 58; Knaggs, *Ent. Ann.*, 1870: 124). N.d.: Deal (Harbour, *Entomologist*, **14**: 18); Folkestone, "very rare" (Ullyett (1880)). 1882: Near Herne Bay, ♂, September 30, taken by Downing, in Dale coll. (Walker, *Ent. mon. Mag.*, **45**: 178).

1900-1930.—Margate district, five, September 21 (Barrett, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1900: 101; idem, *Entomologist*, **34**: 23). 1901: St. Margaret's Bay, one, taken by E. D. Green (Dannatt, *Ent. Rec.*, **13**: 373). 1902: Bridge, two, October (Green, *Ent. mon. Mag.*, **39**: 15). 1905: Sandwich, one, September 27, in J. Platt Barrett coll. (C.-H.). 1907: Dover, nine, October (Dannatt, *Entomologist*, **40**: 256, **57**: 186); Dover, October 1, at sugar (P. A. Cardew, *Diary*). 1908: Dover, four, October (Dannatt, *Entomologist*, **57**: 186; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1909-10: 79). Near Sheerness, two, late September, taken by R. S. Gwatkin-Williams (Mathew, *Entomologist*, **43**: 351). 1920: Kingsgate, one, October 5 (Parris, *Entomologist*, **53**: 286). 1923: Bexley, one, October 5, to window light (Ford, *Entomologist*, **57**: 139). 1930: Sandhurst, one, September 23 (G. V. Bull).

1932-1938.—1932: Dungeness, three (A. M. Morley, *per* Rothamsted). 1934: Dungeness, September 8 (G. W. Wynn, *fide* A. J. L. Bowes); five, September 17, one, September 21 (Beckwith Whitehouse MS.). 1935: Most of the records are for Dungeness, and A. M. Morley has a note that altogether he had heard of 22 taken there in 1935, this includes one taken

by himself, fifteen by friends, and six more about which he had been told (C.-H.). Dungeness, ♀, September 13, ♀, "laying on grass", September 17, four, September 21, four reported taken, September 28 (Beckwith Whitehouse MS.); 2 ♂♂, 1 ♀, taken, at least six seen (C. N. Hawkins, *per* Rothamsted). Romney Marshes [Dungeness] "several just emerging", September 21, three, September 22 (de Worms, *Entomologist,* **69**: 158). East Kent [Dungeness] 1 ♂, 3 ♀♀, September 23 (G. A. Cole and W. Pooles, *per* Rothamsted). Sandwich, one, September 14 (Hughes, *Entomologist,* **68**: 273). Reculver, ♂, September 15 (A. J. L. Bowes). Ramsgate, ♀, October 4 (Peyton, *Entomologist,* **68**: 257). 1936: Dungeness, ♂, September 8, ♀, September 13 (Embry, *Entomologist,* **69**: 259). 1937: Dungeness, ♂, September 27 (Embry, *Entomologist,* **70**: 254). 1938: The records appear to be all for the Dungeness area, and according to de Worms (*Entomologist,* **72**: 263), a total of about sixty were recorded for there in the autumn, of which Morley (*per* Dannreuther, *Entomologist,* **72**: 120) states that about fifty occurred between September 19 and 24. ♂, September 11 (Bowes, *Ent. Rec.,* **51**: 109); about six, September (G. V. Bull, *per* Dannreuther, *Entomologist,* **72**: 15); one, September 7, and others, September 12, 14 (de Worms, *Entomologist,* **72**: 262-263); two, September 28 (C.-H.).

1945-1962.—1945: Sandwich, one (E. & Y. (1949)); Goodnestone, ♂, September 3 (Parfitt, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1945-46: 28). 1948: Ham Street, one, September (A. Richardson, in Scott (1950)). 1950: Dover, one, at light, September 10 (Youden, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1950-51: 50); Deal, ♀♂, taken by C. M. Gummer, September 28, 30 (Rothamsted). 1951: Folkestone Town, one, September 29, by A. G. Riddell (Morley, *Ent. Rec.,* **64**: 171); Westerham (div. 5), one, October (Edwards, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1951-52: 27). 1953: Folkestone Town, one, at light, September 21 (A. M. Morley). 1954: Sandwich, one, September 20 (B. J. MacNulty); one, September 26 (B. K. West); Dover, one, October 7 (G. H. Youden, *per* Duffield, *Trans. Folkestone nat. Hist. Soc.,* 1954: 24); Wye (div. 12), ♂, October 8 (W. L. Rudland); Romney Marsh, two, September 28-October 3 (Kettlewell, *Entomologist,* **88**: 45); Folkestone Town, ♀, October 15, by R. W. Fawthrop (A. M. Morley). 1956: Dover, one, June 11 (G. H. Youden); Dungeness, ♀, September 30 (Messenger, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1956: 37, *Ent. Rec.,* **68**: 269). 1960: Sandgate, one (N. Reay-Jones). 1961: Dover, one, September 30, one, October 6, both at m.v.l. (G. H. Youden); Ickham, ♂, August 29 (Marsh, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1961: 43); Tenterden, one, August 27, one, September 9; Pinden, one, September 1; Dungeness, one, September 17, one, September 29 (*per* Rothamsted). 1962: Dover, three, in m.v. trap, October 4-6 (G. H. Youden); Bromley, one, in m.v. trap, October 3 (D. R. M. Long); Folkestone Town, ♀♂, October 2-3 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1962: 42); Dungeness, October 1-4, twenty-five (Wightman, *Ent. Rec.,* **74**: 237); Ickham, five, October 1 and 4 (D. G. Marsh, *per* Rothamsted). Brook, one (Duffield teste E. Scott).

VARIATION.—Cockayne (*Proc. S. Lond. ent. nat. Hist. Soc.,* 1937-38: 19) states that Dungeness specimens are less red than those from S. Devon. Wightman (*Ent. Rec.,* **74**: 237) however, records that of the 25 noted by him at Dungeness in 1962, although mostly ab. *pallida* Warr., "a few were very large and dark, a form between typical *vitellina* Hübn. and the highly red ab. *saturatior* Dnhl.". Embry (*Proc. S. Lond. ent. nat. Hist. Soc.,*

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

M.V. GENERATORS AND BULBS.

Ex W.D. Air-borne, Hand-portable Petrol Generators. Weight 37 lbs. To run 80w. M.V. Bulb ..... **£25 0s. 0d.**

Ditto. COMPLETE with Choke/Transformer and TWO 80w. Bulbs (1 spare). Ready to Run ..... **£32 10s. 0d.**

SPARE 80w. M.V. BULBS for above. *NEW* Ex U.S.A.F. (Retail price, 48s.) 30s. each or 4 for £5 0s. 0d. (Can also be run extra-bright with 125 watt choke from mains.) A few 125 watt are available at same price.

P. J. M. ROBINSON

The Homestead, Sandy Down, Lymington, Hants.

NOTE: As I shall be overseas for a long period, please write c/o E. W. Classey, 353 Hanworth Road, Hampton, Middlesex.

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

R. N. BAXTER

Supplier of EXOTIC INSECTS to
Museums, the research worker, the amateur entomologist, etc.

LEPIDOPTERA and COLEOPTERA a speciality.

16 Bective Road, Forest Gate, London, E.7, England.

Mail Orders Only.

In your Replies please mention "The Entomologist's Record".

HOTEL ACCOMMODATION

Mrs. H. TULLY

Craigellachie Guest House, Aviemore, Inverness-shire

An Entomologist's Mecca, highly recommended by collectors, 12½ acres of woodland in which to use light traps. Adequate power points.

Transport arranged to the famous Burma Road, etc.

Write for Brochure. *Telephone Aviemore 236.*

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by
Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1-14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4: Fauna palaearctica. Vol. 5-16: Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact: *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jiří Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

Barograph For Sale.—Handsome brass barograph, on mahogany stand, in glass and mahogany showcase, together with charts. Used as an aid to successful sugaring (cf. Allan, *A Moth-Hunter's Gossip*, pp. 110-114). In excellent condition throughout, £8.—*J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.*

Stud. Lars Axelsson, Järnvägen, Kungsängen, Sweden, aged 17, interested in Lepidoptera desires to contact any English boy of similar age willing to correspond and exchange specimens.

Subscription prices will be paid for clean, unbound copies of the following years:

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact: Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

The Principles of Agricultural Entomology

C. A. EDWARDS and G. W. HEATH

This book is planned for use by agricultural students, advisory officers, well informed farmers and all who are concerned with pests that attack field crops and stock. The excessive use of technical language has been avoided as far as possible; where it is unavoidable it has been explained.

416 pages Illustrated 80s.

Biological Control of Insect Pests and Weeds

Edited by PAUL DeBACH

Assistant Editor EVERT I. SCHLINGER

A thorough coverage of all phases of biological control of insect pests and weeds. It has been planned for cohesiveness and continuity much as a single author would plan his work. The book is divided into sections whose chapters form a related group of subject matter. The contributing authors are all specialists in their fields and between them have accumulated more than 200 years of research and teaching in biological control work.

800 pages Illustrated 120s.

An Introduction to Comparative Entomology

RICHARD M. FOX and JEAN WALKER FOX

This concise book offers a comparative and equal treatment of insects, myriapods and arachnoids—their morphology, physiology, embryology and life histories, plus a review of fossil histories and evolution. The authors include up-to-date facts on embryology, the cytology of sex determination and parthenogenesis, evolution, comparative morphology and physiology.

464 pages Illustrated A Reinhold Book 76s.

CHAPMAN & HALL

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 10 OCTOBER 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35/- POST FREE.

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 5/- NET

WARNE

THE MOTHS OF THE BRITISH ISLES

Volume I: Comprising families Sphingidae, Endromidae, Saturniidae, Notodontidae, Thyatiridae, Drepanidae, Lymantriidae, and Noctuidae.

Volume II: Comprising families Lasiocampidae, Arctiidae, Geometridae, Cossidae, Limacodidae, Zygaenidae, Sesiidae and Hepialidae.

H M Edelsten has taken into account all the latest knowledge in structure, habit, distribution and nomenclature of the species in this completely revised edition, both in text and illustrations, of **Richard South's** great standard work.

A major portion of the value of a work of this type is the quality of the illustrations. All the coloured plates have been re-drawn by the late **H D Swain.** There have been full revisions made to the many half-tones and text drawings. A completely new General Index and a Specific Index has been provided. Technicalities have been avoided as far as possible, the main object being to provide a guide to the identification of our moths, together with a simple account of the whole or a part of their earlier stages.

35s net per volume

Vol. I: 98 colour, 58 black-and-white plates

Vol. II: 69 colour, 72 black-and-white plates

FREDERICK WARNE
1/4 Bedford Court
London WC2

Ireland 1964

by H. C. Huggins, F.R.E.S.

I decided this year to make a longer trip to Ireland than usual and arranged to spend from 3rd June to 25th July at Dingle, and from 25th July to 19th August at Ballynalacken Castle, Co. Clare. As usual, I took my favourite Fishguard Cork route. The outward journey on 2nd June was not propitious, the Paddington train was over two hours late at Fishguard. However, the "Innisfallen" waited for us and although we did not sail until 2,15 instead of 12 midnight, the catering staff provided a good cold dinner at that hour. As a contrast I may mention that on 20th August I caught the 4.40 a.m. at Fishguard, reaching Paddington between 10 and 11, the restaurant car was unattended and the buffet locked on the whole journey, leaving us to subsist like bears by licking our paws.

On the whole, the long trip was not so productive as I had hoped, the weather was the worst I have encountered in Ireland since 1948, when my wife and I stayed five weeks at Glengarriff and did not have a day without rain.

We had an abnormal amount of the fine rain from the sea, locally called "fog", at both Dingle and Ballynalacken, and also a great amount of wind. I made three attempts to cross to Inishvickilaun in the Blaskets, besides a fourth that never left the harbour; twice we had to turn back and on the occasion when we succeeded in landing we had to depart prematurely as the wind was rising, and we had some difficulty in getting back to the motor launch in the dinghy.

The first trip on which we had to turn back was, however, not wasted except from the entomological point of view. We saw a great northern diver, doubtless a non-breeding bird, in full summer plumage, and also passed through a large raft of Manx shearwaters.

I am glad to say that the stonechats have completely recovered from the disastrous winter of 1962/3; I saw more this time than in any previous year. I had several opportunities for looking at these at close range, and decided that the opinion expressed by some ornithologists that the Kerry ones approximate to the Hebridean race is erroneous, and I am glad to say Mr. Frank King agrees with me.

The feature of the year was the abundance at both localities of *Arctia caja* L. I have never seen so many before anywhere as in the mercury vapour light trap on this trip. At Dingle I caught a fresh ab. *schulzei*, the only one I have seen alive; unhappily it was a male.

Immigrants were very scarce, except *Pyrausta martialis* Guen. which occurred in ones or twos on a good many nights at both localities, but on 15th August at Ballynalacken I took a very large pale grey *Eurois occulta* L. Only two other Irish specimens are recorded in Donovan, but in 1960 Mr. E. S. A. Baynes got four at Glenageary. He referred three of these to Mr. French at Rothamsted, who replied that they were the immigrant continental form. Mine was undoubtedly also of this form, as I have several times taken it in Essex. As the *occulta* was a female I kept her for eggs and she ruined herself though she laid a few which have not yet hatched (1st September) and I am rather sorry now that I did not kill and set her, as previously I have found *occulta* eggs to hatch in under a fortnight.

Cryphia muralis Först. was out at Dingle on 14th July, as usual it was rare, and I did not see a typical specimen, which I am satisfied does not

occur there. I took no ab. *nigra* Huggins this year, but five of the greenish black form that so closely approaches it. Some little while ago I mentioned the dates in Ireland for *muralis*. On 19th August I had a couple of hours to wait at Cork, so decided to go to one of my favourite *muralis* walls, the one on which I found 17 in three-quarters of an hour on 16th July 1952. I did not find a single specimen, even in worn condition, so the moth was evidently finished for the year. This matter of Irish dates is puzzling. I have pointed out on more than one occasion Dr. Ford's error in blaming the late discovery of *Argynnis euphrosyne* L. in Ireland to the supposition that collectors went to the Burren too late, as they were concentrating on Zygaena purpuralis Brün. Not only does *purpuralis* emerge at least as early as *euphrosyne*, I have seen it in May, but this year I saw two *euphrosyne* on 26th July, and did not see a single purpuralis during my stay, so it was over before the butterfly.

On 25th July I moved to Ballynalacken, where Mr. Baynes joined me for the first week. On the 26th we ascended what Mrs. O'Callaghan calls the "Khyber Pass" and found plenty of larvae of *Thera juniperata* L. on the prostrate juniper. As the day was hot, we went out again in the afternoon and succeeded in catching several quite good *Phothedes captiuncula* Treits. Mr. Baynes also found, and kindly gave me, a rather remarkable *Abraxas grossulariata* L. in which the upper wings from the central band to the base are almost entirely black. This aberration is not uncommon, but whereas in those I have taken here and elsewhere the cilial spots have been rather larger than usual, in this Burren one they are much diminished in number and size on all wings, giving these a very white appearance in striking contrast to the basal part of the forewings. Although *grossulariata* is commoner on the coastal road two miles below Ballynalacken than I have ever seen it elsewhere, this is the only aberration I have seen there. The caterpillar in this locality feeds almost entirely on hazel.

My mercury vapour trap gave queer results at Ballynalacken, on 8th August, when there was a strong, cold wind, it did not contain a single insect, an experience I have happily never had before in eleven years. From 11th August to 14th, when it was hot and warm, there were over 1000 moths every night, too many to please me as they bashed each other about in some cases.

On my return journey on 19th August I saw a most beautiful female *Gonepteryx rhamni* ss. *gravesi* Huggins fluttering on the other side of the railway line whilst I was waiting at Limerick Junction. It looked nearly as yellow as *Colias hyale* L., and had not my nets been packed in my trunk, I would have chanced it and crossed the line as no train was due, particularly as Irish officials sympathize with the erratic more than the English do.

I now append notes on such insects as seem worth a comment.

Dingle

Atolmis rubricollis L. Two on the Connor Pass road, new to me at Dingle

Eilema complana L. There were several larvae on the rocks at Slea Head; I reared a couple on *Anthyllis vulneraria*.

Ammogrotis lucernea L. A jet black male, the darkest I have ever seen, in the trap at Dingle, and a very light female, quite like the Portland light form, at Ballynalacken. There were also a number of dark grey ones at Dingle.

Mamestra brassicae L. Once again there were a number of the little insect I recorded last year; I should put these at about one in twenty. Apart from Dingle, I have only seen one as small in my life.

Caradrina taraxaci Hübn. In addition to the nearly black form I have already recorded, I took several intermediate ones this year.

Plusia bractea Fab. Very common, I must have seen 100. One of these in dreadful condition, unfortunately, had the spangle reduced to a thin sliver: I released it. The spangle, of course, varies considerably in size, but in this insect the marking was almost linear. Bad *bractea* were still coming to the trap in Clare in mid August.

Orthonoma lignata Hübn. Two in the trap, rather dark.

Euphyia bilineata L. On the only occasion I succeeded in landing on Inishvickilaun I saw two ssp. *isolata* Kane and caught one, the only female I have ever taken. Unhappily she was very small, no bigger than a large male, and as the one taken by Mr. J. E. Flynn in 1953 and the one I saw in 1962 were both big insects, and I was pretty tired after a roughish journey, I mistook her for a male and killed her. However, she was perfect and Mr. Baynes has pointed out that it was probably a blessing in disguise, as we both have several times failed to get eggs from *ab. hibernica* Prout.

Eupithecia venosata Fab. All the pupae that Mr. Baynes and myself obtained from Slea Head larvae in 1963, as well as those I have from Inishvickilaun. proved to be ssp. *plumbea* Huggins, and Mr. Haggett tells me that two moths he bred from the Burren were the same. Mr. Baynes bred, amongst his Slea Head ones, a startling aberration in which the ground colour was dark sepia instead of leaden black.

E. distinctaria H.-S. I found a very dark specimen of this on a rock face, which in rough weather would be covered in spray, near Slea Head.

E. jasioneata Crewe. Not uncommon in the bohireens north of Dingle. I also took two on the beach near Slea Head, one on a rock face and one in a deep cave, both subject to showers of spray in rough weather. On the cliff face at Inishvickilaun I found the biggest female I have ever seen, and got her into a box, but bungled putting on the lid and she escaped.

Chloroclystis rectangulata L. All Dingle specimens are a brilliant green, a refreshing change after the black ones which are all I see at Westcliff. In the Burren the same green form is the only one, but there it feeds on sloe.

Schoenobius forficellus Thunb. Not uncommon in the trap, most were smaller and more heavily marked than Kent or Essex ones, but oddly enough, nothing like the peat form found in the New Forest.

Platyptilia calodactyla Hübn. I wished to obtain a few more for friends, but the weather was so cold and wretched when the moth was out that I only took two in nine visits. Last year, Mr. Baynes and I took over 30 in two visits, and could have trebled the number had we wished. This shows the danger of theorising about a moth by those unacquainted with the weather and climate.

Oidaematophorus tephradactylus Treits. One in a bohireen off the Connor Pass road, a very light specimen.

Hepialus lupulina L. Common in the trap, perfectly ordinary in appearance.

H. fusconebulosa Deg. Not uncommon, very large and well marked, ab. *gallicus* equally common.

Burren

Diarsia rubi View. Very dark smoke coloured ones were not uncommon at Ballynalacken. All second brood *rubi* were rather larger than our first brood ones in Essex, although the reverse is the case here, possibly the Burren first brood is larger still.

Triphaena comes Hübn. A much larger proportion than usual had reddish forewings. I saw no heavily marked ones as in the Isles of Scilly.

T. interjecta Hübn. Two in the trap: usually rare in Ireland.

Calamia tridens Hufn. A wasted male came to the Ballynalacken trap on 15th August. This moth, I think, wanders a great deal; the first one I ever saw was sitting at the base of the high rocks on the coastal road about three miles from the castle drive. This was on 27th July 1953; it was in very bad condition, but as it was a male and I wanted one of my own taking, I kept it. It is still in my curiosity box. I do not know of any colony near, but of course all the Burren around may contain pockets of the moth, as most of it is far too dangerous to work at night. 1953 was a very early year, four nights later I saw a hundred or so near Ballyvaughan. I believe this 1953 insect is the only one ever found by day searching, excepting Captain Wright's original specimen.

Procus literosa Haw. Not uncommon, smaller and not so rosy as in Eastern England. Usually rather local in Ireland.

Celaena leucostigma Hübn. One, of the *fibrosa* form, it was obviously only just emerging when I left. It was rather small and dark, appearing to me midway between the English and Scottish forms.

Hydraecia sp. In almost endless variety and beauty on the four hot nights, unfortunately, a large number were scratched in the trap. They are certainly not *oculea* L. and *paludis* Tutt is non-Irish. I should say the majority, great burly insects, are *lucens* Frey, but some may be *crinanensis* Burrows, they must await further examination.

Arenostola pygmina Haw. Common in all colours from red to white.

Perizoma minorata Treits. This year, the commonest I have ever seen it, literally in hundreds in mid-August.

Eupithecia icterata Vill. I netted a most curious variant of the *oxydata* subspecies at Clooncoose, and subsequently several more turned up in the trap at Ballynalacken. The ground colour in these was chalky, instead of dull grey. Unhappily, only one of the Ballynalacken ones was worth keeping.

E. palustraria Dbld. On the side of the road just past the drive to the castle.

Gnophos myrtillata Thbg. One was sitting on the wall outside my bedroom window at the Castle, it is usually confined to the bare rocks.

Pempelia dilutella Hübn. Several of the large west of Ireland race with the heavy white markings. In the Burren the ground colour is brown, giving the moth a close resemblance to *P. ornatella* Schiff., which it equals in size, at Dingle it is deep crimson. I have never flushed this moth by day in either locality, whereas on the Kentish downs it rises freely in the late afternoon.

Tortrix paleana Hübn. On the first night the trap was set I took three males, almost certainly of this species, but I set them in the hope they may be the newly differentiated *unitana* Hübn. The weather then turned so cold I saw no more.

Cnephasia chrysanthemama Dup. Two lovely aberrations came to

the trap, pale chalk grey with nearly black markings. These were the only two I saw.

Endothenia antiquana Hübn. Common, but all ordinary; at Dingle a number of melanics are interspersed with the normal.

Olethreutes schulziana Fabr. Three in the trap, rather small but brightly coloured crimson and silver, quite unlike the Mayo specimen given me by Mr. Baynes. This was captured by Captain C. Q. Parsons, it is small, but the ground colour very dull greyish silver, and the markings chocolate.

Notocelia incarnatana Hübn. I think this is found throughout the Burren, but it is difficult to disturb by day. Burren specimens are smaller and darker than those found in the South Wales sandhills by Sheldon and Metcalfe. I believe this moth at times feeds on garden roses as well as the burnet rose, I took half-a-dozen in my Ballynalacken trap, and I do not think it likely that all flew the one-and-a-half to two miles from the nearest burnet roses. It seems much more probable, especially as they were dead fresh and spread over several nights, that they were infesting some domestic rose in the shrubbery.

The pleasure of my stay was greatly enhanced by the company of Mr. E. S. A. Baynes, Mr. Frank King, Mr. Sylvester Nolan, Mr. G. Haggett and Mr. A. J. Wightman; unfortunately, the last named only arrived a couple of days before I left.

In the Record (76: 156) the Aran Islands are, by a printer's error, spelt Arran. This is the Scottish name. As I was travelling, I did not correct the proof, so it is my own fault.

Hibernation and Pupation of *Cossus cossus* Linn. (Lep., Cossidae)

By Commander G. W. Harper, R.N. (Retd.), F.R.E.S.

I have recently been reading Dr. H. B D. Kettlewell's excellent and stimulating little book "Your book of Butterflies and Moths" published by Faber and Faber in 1963. One short paragraph in this book has stimulated me to write this paper. As an illustration of the rewards awaiting the keen and observant entomologist in the field, Dr. Kettlewell cites the recent and important observation that *Cossus cossus* Linn. pupates in the tops of molehills. Apart from a comment that perhaps the reason for this is the avoidance of excessive moisture, he has understandably in a short book, not been able to amplify this statement with details of records, quantitatively and qualitatively sufficient to justify such a generalization on the pupation habits of this species. I am sure we need all the information we can get; for a start will Dr. Kettlewell give us the records, which I do not personally remember having seen? I have tried unsuccessfully to trace them.

My own experience with this interesting Moth is certainly not statistically significant, but is, I think, illuminating. It quite definitely confirms the oft-repeated observations and records of our respected predecessors of the last century that the full-fed larvae of *C. cossus* leave the tree in the Autumn, make cocoons in the earth where they hibernate *as larvae.* These observations were all made in early numbers of our own highly

respected and reliable *Ent. Rec.*, and summarised by the late Editor, J. W. Tutt in his useful compendium "Practical hints for the Field Lepidopterist", 1901. My own small contribution to this experience is that, when enclosed in a large biscuit tin with a few inches of earth *and* one or two billets of soft wood in the Autumn, they invariably make their hibernating cocoons in the earth, and in April they leave these and enter the wood, where they bore a vertical gallery, make a "window" like a Nonagria or any other self-respecting internal feeder, and make another cocoon therein where they pupate.

While therefore there is no doubt at all that the fully-fed larvae leaving the trees in the Autumn hibernate in cocoons made in a suitable site in the soil and rotten wood etc., we need some more evidence of the pupation sites and habits of this insect in the wild state. I venture to prophesy that my opinion that the larvae prefer solid wood for this highly important function, and that molehills, soil, or other sites are only used under compulsion of local circumstances, will stand the test of time.

I think that probably the greatest British expert on *C. cossus* at present is Mr. P. B. M. Allan. As well as the delightful hilarity with which he writes of the Apocryphal exploits of this species, there is a wealth of practical observation and deep scholarship in his books. Particularly noteworthy is his full quotation of Harris (1766) on the life history of *C. cossus*. This is on Page 196 of Allan's "A Moth-hunter's Gossip". As Allan says, this is a marvel of accuracy, but the interesting point to me is that Harris fails to mention that some at least of the full-fed larvae leave the tree in the Autumn and, as I believe without any true evidence, return to it or to another one, in April. Why do they leave the tree? That is my question, for I am not aware that any other internal feeders do so. Mr. Allan (*in litt.*) agrees with me that in captivity, securely confined in a large biscuit tin with both earth and wood, they do indeed hibernate in the soil and enter the wood in April where they pupate as would be expected of them. This brings me to my last point. The pupa of *C. cossus* has adapted its structure over countless aeons of time to the nature of the habitat inside solid wood. Its abdominal somites are strongly ridged, and armed with stout spines to enable it to propel itself out of its pupal cocoon and to protrude from the "window" firmly held for emergence. I have watched eclosion in captivity with great interest on more than one occasion. This structure *C. cossus* shares with most other internal feeders. Surely such a pupa will not normally pupate therefore in such a site as a molehill?

Neadaich, Newtonmore, Inverness-shire. 2/9/64.

PHLYCTAENIA CILIALIS HÜBN. (LEPIDOPTERA: PYRAUSTIDAE) NEW TO KENT.—My friend Percy Cue to-day showed me a fine female of this moth that he took in his garden at Ashford, Kent, on 18th August 1964. It had evidently been attracted to light for when he took it, it was at rest on some grass beside his mercury vapour light trap. This is the first record of *cilialis* for Kent to my knowledge. It is noteworthy that the date is very late, the normal time of appearance being June-July. A worn example was taken by S. Wakely and myself at Thorpness, Suffolk, about 10th July this year.—J. M. CHALMERS-HUNT, St. Teresa, Hardcourts Close, West Wickham. 18.ix.1964.

The Isle of Arran, 1964

By M. J. Leech

Islands have, for me, a strange fascination, and if they happen to be those lying off the Scottish coast then this is all to the good as Scotland itself, no matter which part, is a place to visit at least annually if at all possible.

Tentative plans were made towards the end of last year with my friend Mr. Stuart Coxey to spend a week, in August, on Arran. Mr. Austin Richardson's interesting article on the Island (Ent. Rec., **72**: 112-5) gave us a very good insight into what we could expect provided the weather was favourable. In correspondence Mr. Richardson gave us the address at which he stayed and naturally we wrote with a view to obtaining accommodation. Unfortunately the good lady had left the Island and now resides on the Mainland. We were, however, put in touch with her sister. She and her husband manage a farm and take in guests during the summer months. Arrangements were therefore made for us to stay at their farm from the 8th to 15th August. The next step was to book the car ferry. Arran is a popular resort with the Glasgow people and on most days in the summer months it would appear as if the s.s. Glen Sannox sets out from Ardrossan with a full complement of cars and passengers.

With everything arranged well in advance therefore we left Lancashire early on the morning of the 8th and arrived in Arran in the afternoon after a very smooth crossing. Having made a few purchases in Brodick we headed inland for our farm. The farm house occupied quite an imposing position with high land at the back covered in bracken and heather. On this area we placed our plug in trap which was to operate each night of our stay.

Setting out on our first evening we headed for the Ross Road which, from the Ordnance Survey map, we saw in parts rose to over the necessary altitude for one of our main *desiderata—Dysstroma truncata* Hufn. ssp. *concinnata* Steph. Within ten minutes of getting the car into a suitably placed spot off the road we had netted our first *concinnata*.

Moths were everywhere and before dusk was over we had each taken a nice series. At light, in the same spot, there was an abundance of *Diarsia festiva* Schiff. ssp. *conflua* Triets. and a few of the dark purplish form of *Lygris populata* L. We found that the best method of obtaining this species was to wander amongst the herbage and box the freshly emerged specimens as they sat on the heather stems. A single specimen of *Xanthorhöe munitata* Hübn. also came to light; apparently a scarce insect on Arran as we only saw two specimens all week and it will be noted that Mr. Richardson did not record it during his visit.

With the exception of rain one morning the weather was ideal from an ordinary holiday point of view. Some of the nights were clear and rather windy which, as we all know, are not conducive to good flying conditions.

In the main, our after-dark operations were concentrated on the coast; the areas were varied however, sometimes in rocky areas on other occasions, on the sand. Sugar was unproductive, due no doubt, to the heather being in full bloom. Searching the heather flowers in the area of our lights produced certain insects and, in particular, we took *Rhyacia simulans* Hufn. by this method.

Larvae beating and searching after dark was not without reward as we obtained several fully grown *Orthosia gracilis* Schiff. which were feed-

ing on Bog Myrtle. It is hoped that they will produce interesting specimens next spring.

It would be pointless listing all the species we took as this would, in the main, simply be a repetition of the list recorded by Mr. Richardson. Those not recorded by him appear below. We recorded 112 species; one of these, a member of the *Geometridae*, was in larval form, beaten off sallow. The larva was a distinctive creature being green above with a pinkish flush along the sides. It has since pupated. The pupa is also distinctive as it possesses a bloom similar to that found on *Cosmia trapezina* L. I am unable to put a name to the species, so will wait until such time as it emerges.

Clostera pigra Hufn.
Achlya flavicornis L.
Saturnia pavonia L.
Rhyacia simulans Hufn.
Paradiarsia glareosa Esp.
Eurois occulta L.
Euschesis comes Hübn. (ab. *curtisii* Newman)
Orthosia incerta Hufn.
O. gracilis Schiff.
Xylena vetusta Hübn.
Procus furuncula Schiff.
Caradrina blanda Schiff.
Plusia iota L.
Geometra papilionaria L.
Xanthorhoe munitata Hübn.
X. designata Hufn.
X. montanata Schiff.
Perizoma alchemillata L.
Venusia cambrica Curt.
Abraxas grossulariata L.
Biston betularia L.
Alcis rhomboidaria Schiff.
Hepialus fusconebulosa de Geer.

*Larval stage only.

The Cottage, Hallgates, Cropston, Leicestershire.
September 1964.

Notes on the Microlepidoptera

by H. C. Huggins, F.R.E.S.

Tortrix viburniana Fab. In June Mr. E. S. A. Baynes, O.B.E., sent me some larvae, pupae and imagines for checking, which had been submitted to him by Mr. de Brit of the Irish Forestry Division, 22 Upper Merrion Street, Dublin. They had been found feeding on Sitka spruce and on *Pinus contorta* at Guresalia property, Glenamoy forest, Co. Mayo, in an experimental area which was planted last spring. I at once saw that the larvae did not belong to the *Evetria* genus, whose larvae burrow in pine buds and shoots, and belonged to the *Tortrix* group, and at first I thought that they might prove to be *Pandemis cinnamomeana* Treits., whose larva is known to feed, amongst other trees, on larch. The larvae were spun externally on the bud and were boring into it.

When, however, the pupae and moths arrived, I saw that although they were rather small, they appeared to be a form of *T. viburniana.* They were like the race of this insect which feeds on the edge of bogs on dwarf sallow, bog myrtle, and various low plants, the males being pale olive brown with a darker costal spot and a confused band towards the cilia, and the females bright red-brown with, in most cases, a darker median bar. As at this time I had never heard of viburniana as a pine feeder, I sent specimens to Mr. J. D. Bradley for dissection, who confirmed my

identification and said that he also had no knowledge of the moth as a pine feeder.

Through the kindness of Mr. Baynes, I have now seen a letter from Mr. de Brit from which it appeared that *viburniana* has in the past twenty years been found feeding in Ireland on Scots pine, European and Japanese larch, and occasionally on Pinus contorta, Corsican Pine and Douglas fir, and further that Mr. Neil Chrystal in his book, Insects of the British Woodlands (F. Warne, 1937) states that it occasionally changes from its normal food plants to spruce, Douglas fir and Scots pine.

In 1960 a plantation of Sitka spruce at Cahirciveen Forest, Co. Kerry was attacked by *viburniana*. The trees were then about five feet high and the attack apparently only lasted for a year, but in 1961 a further infestation took place in a different part of the same forest.

Finally, Mr. G. Haggett informed me that *viburniana* had been reported ocasionally on young spruce plantations in England.

Mr. de Brit thinks it may be said that there is no indication of pest proportions being reached at present, and I incline to the opinion that it will not attain to this status. *Viburniana* as I have seen it, seems to stick to low bushes and herbage and I should say that once the trees begin to run up to a fair height it will forsake them.

It may be of interest to run over the various known forms of the moth in these Isles:

(i) The commonest race, which I have already mentioned, with the pale olive-brown male and reddish female, which feeds in the drier parts of bogs on dwarf sallow, bog myrtle, bilberry, and in the absence of these, on almost any low plant.

(ii) The heather race with an almost uniform reddish-brown male and female. This is found on almost all dry moors on heather and other plants.

(iii) The salt-marsh race. This is very large indeed, the male when fresh, creamy buff with some scattered grey scales, but no markings, and the female, whch is twice the size of that of any other race, reddish-grey with a marked central band. The larva of this feeds on *Aster tripolium, Artemisia maritia, Statice limonium, Inula crithmoides,* and other salt-marsh plants, usually keeping to those that grow on the side of sea walls or other raised ground. This is the race referred to in Tutt's Practical Hints II, 59, as probably a distinct species from the moorland *viburniana.* In 1922 I determined to clear this up and found the males flying freely at dusk on Iwade Saltings near Sittingbourne. I referred these to Sheldon and Durrant who declared them to be *T. paleana* Hübn. (this gives some idea of the colour of the male). I was not satisfied with this and sent some to Pierce for dissection, and he wrote that they were *viburniana* The next year I bred the female, and of course this robust, reddish-grey insect bore no resemblance to the small pallid female of *paleana.*

(iv) The form formerly known as *teucriana,* also mentioned in Practical Hints I, 12. This used to feed, and probably still does, on *Teucrium scorodonia* on the Folkestone Warren. The male was uniform shining drab, and the female of duller colour than in most races.

My thanks for information are due to the Irish Forestry Division, to Mr. G. de Brit, Mr. E. S. A. Baynes, Mr. J. D. Bradley and to Mr. G. Haggett.

Reminiscences of Cornwall

By F. W. Byers

Many holidays spent in this delectable Duchy have provided not only successful collecting experiences, but also some rather amusing and interesting incidents. Not being a car driver, it was my usual practice to go to a reliable local man, explaining my chief object in wanting to be driven occasionally to many out of the way places in search of insects. In every instance I found them most co-operative, and keenly interested.

In fact they all wanted a net to try their hand, and I owe my first *L. arion* (large blue) to one agile individual who calmly came to me and said, "Is this what you want".

Whist at Tintagel the local taxi man would not miss a day if he could help it, and when my wife in the course of conversation asked him what was his great ambition in life he replied to her astonishment, "to see the Cup Final at Wembley". Well, I was able to help in this respect due to the kind offices of one of my friends high up in the F.A., so was pleased to send him two 25/- tickets on my return home. I learnt from his letter of thanks (which also enclosed the cost) that he and his wife spent a right royal time, and that he was the envy of the village.

It was at Fowey when I first met Col. Rossel, a most charming man, retired from the Indian Army, and a very enthusiastic collector. He went out of his way to entertain us both at his delightful house at Bodinnick, and we went on many excursions collecting, including some delightful trips in his boat up the river. One day I insisted it was our turn to be hosts, and we packed up lunches to go over Bodmin Moor, where it is possible to obtain many nice specimens on the dozens of posts dotted about the Moor.

During our break for lunch, the Colonel wanted to know if we were anywhere near the "large blue country". I told him we were many miles away, and thought this was the end of the matter, but oh no, as at several stopping places he repeated the request.

I therefore thought that as he had been so very decent to us, it was only fair I should try to oblige, so pledging him to secrecy, we started off on a very long trek.

Eventually arriving at the ground, the Colonel within a few minutes netted a beautiful specimen, then packing up his net remarked, "I shall only *take one*, this has made my day". What an object lesson for some of those murderous individuals who take all they can see, and then discard more than half.

On another holiday in the area my wife and myself had tramped over quite a considerable area of Bodmin, when I spied a beautiful valley, which promised to be productive. Halfway down we were confronted by a rather burly individual complete with leather gaiters and stick who demanded to know what I was doing with a net. Not quite liking his tone, I requested to know what it had to do with him and he then explained he was the River Bailiff and on the look out for people with nets who poached the fish. I set his mind at rest by showing him some specimens I had caught, and then said: "Now you have had your say, where can we get a cup of tea". He replied that if we would accompany him to his cottage his daughter would do the needful, and we had a most gorgeous repast, for which, despite my protests, he refused payment.

Another example of Cornish generosity was experienced later on. Whilst at Fowey my wife had a fancy to see Lands End, and I arranged with our taxi man to take us, saying we would provide the lunch. We got to very near Penzance, where we found the ideal place for a picnic. Before settling down the driver said: "Wait a moment", and then proceeded to lift up the bonnet of the car, emerging with grease proof paper packets. They contained three real Cornish Pasties, which he had kept hot on the engine all the way, and we were informed that his wife had specially made them that morning. It was just as well we had this pleasant surprise, as we found Lands End a much over-rated and dismal place.

One stay was at Poundstock Farm, where the Farmer used to regale us on any wet evening with tales of the old smugglers and wreckers. The setting in an oak panelled room, in dim light, with a roaring fire would have provided enough material to warrant authors like Daphne du Maurier, or L. A. Knight writing a most thrilling yarn.

Knowing I was a collector, the farmer told me that years ago he was commissioned by a dealer (who shall be nameless) to send him all the larvae he could find of *craccae* (Scarce Blackneck) which feed on the blue vetch. He volunteered to show me the place, which happened to be down a frightfully steep cliff, likely to try the stoutest nerves. When I remarked that the place seemed a trifle hazardous, the farmer calmly said: "Oh this is easy, I used to go down here on my pony". I wondered at the time what payment he got for risking his neck.

It was in this area that I saw larvae of *Verbasci* (mullein shark) feeding on *Buddleia*, which is the only instance I ever have found. I think this rather upsets the text books.

Both on the coast and inland there are good hunting places for black banded moth (*xanthomista*), red necked footman (*rubicollis*), cream spot tiger (*villica*), as well as most of the fritillaries, and my friend, Colonel Rossel has told me that with his light trap perched on the top of the cliffs, he has had great success including some of the choice immigrants.

One's enthusiasm never wanes when investigating the haunts of the insect world, although the young man in the humourous story by F. W. Thomas would not agree.

This individual had spent a lovely day in the fields with his fiancee, and when safely in the train on the journey home, discovered he had been sitting on an ant hill. He was obliged to go down to the place where they used to keep the soap and towels, to find his trousers full of black ants.

To get rid of these he conceived the brilliant idea of shaking his trousers out through the narrow window, whereupon a passing train took his garments clean out of his hand.

I leave the reader with the youth standing in his bowler hat and pants, to discover what happened afterwards, as I do not wish to be guilty of plagiarising the laughable tale of "The Misogynist".

St Albans, Herts.

LEUCANIA LOREYI DUP. IN CORNWALL.—On 14th September I took *Leucania loreyi* Dup. (cosmopolitan) in my mercury vapour light trap at Bodinnick, and I think that this is worth putting on record.—Colonel H. G. ROSSEL, The Old School House, Bodinnick. Lanteglos by Fowey, Cornwall. 18.ix.1964.

Aviemore in August 1964

R. G. CHATELAIN and B. F. SKINNER

For some time, we have wanted to return to the Highlands to sample the insects for which we have previously been too early, and this year we decided that the third week of August should be reserved for these Scottish specialities. This turned out to be a wise choice as, although some species were showing signs of wear, an earlier visit would have caused us to miss others which were just appearing during our stay. Nothing extraordinary fell to our lot but, in view of the popularity of the area, we hope this note will be of some small assistance to future visitors.

We left London on the afternoon of Friday, 21st August, and arrived at Aviemore at 6 o'clock the following morning, when we repaired to the foot of the Burma Road for a catnap and a wash in the stream. We found the village much changed since our last visit with a row of new shops and a pleasant restaurant. We heard horrifying tales of further changes, with plans for ten hotels on the golf course, curling and bowling alleys and a flyover to connect the A.9 with the road to the ski lift.

On this occasion we stayed with Mrs. Tully and ran two traps in the extensive wooded grounds of Craigiellachie House. Fortunately, we had over 200 yards of cable with us and were thus able to place the traps well within the wooded area.

One of our main quarries was *Aporophyla luneburgensis* Fr. although we realised that we were a little late to get the bug in its prime. Accordingly, we repaired to a likely spot near Granish Moor on the night of 22nd and were rewarded by nine moths of this species, some of which were still fresh. Later visits to this and nearby localities produced more but we should have had some difficulty in obtaining enough good specimens to complete our series had we not taken one or two examples nightly in the traps. Both sexes appeared to frequent light in equal numbers.

Our second objective was *Lithomia solidaginis* Hübn. and, although only odd specimens came to light, we found the moth in numbers on posts with its head tucked under the wire and its posterior airing in the breeze. One morning's searching produced sixteen moths in perfect condition and others were found throughout our stay.

Antitype chi L. was worrying us slightly as, after three nights with the lamp and industrious searching, we had only found three moths. However, on 25th August we called on Commander Harper whose first words were to ask whether we wanted any *chi*. He then pointed out two sitting in his garden and during tea a knock at the door produced a third. Newtonmore moths are well trained in Naval discipline. During the next two mornings we visited the Kingussie-Newtonmore area and collected as many as we wanted from stone walls, including some which had not fully expanded their wings.

An attempt for *Tiliacea citrago* L. was abortive as the weather was hopeless and sugar unproductive. However, the lights in a nearby marsh produced four rather worn *Calaena haworthii* Curt. to add to two others taken at Granish and in the trap. Two days later the area on which we had run the lamps was completely under water.

Enargia paleacea Esp. was another moth on which we had set our sights but, although fairly plentiful, it was well past its best and we had some difficulty in obtaining a respectable series. We had almost given up

hope until we ran the lights at the foot of the Burma Road on 28th when several good specimens turned up. We have a few ova and hope to breed the beast.

Few other Noctuids of note were seen. On 24th August, on Granish Moor, we took a female *Eurois occulta* L. who obliged with a sizeable batch of eggs, and a fairly nice *Apamea furva* Schiff. *Paradiarsia glareosa* Esp. was fresh and common everywhere and *Amathes agathina* turned up fairly regularly but in small numbers as did *Stilbia anomala* Haw., *Diarsia dahlii* Hübn. and one or two *Plusia interrogationis* L. The "ears" were widespread but sporadic in appearance and we took a long series. As soon as those have been determined we will publish a note on their identity. Three *Plusia bractea* Schiff. were seen in the trap but all were males and badly worn. Surprisingly, *Eugnorisma depuncta* L. was common in the traps in far better condition than those we had taken early in August 1960, when we were too early for the majority of the other moths mentioned above. *Aporophyla nigra* Haw. was just coming out during our visit but quickly became worn. An unexpected visitor to the trap was *Amathes ditrapezium* Schiff., a rather uncommon moth in the area.

The Geometers were thin on the ground but nearly all of interest. *Dysstroma citrata* L. swarmed practically everywhere with many beautiful forms and, towards the end of our stay, we took half-a-dozen fresh *Chloroclysta miata* L. and one *C. siterata* Hufn. *Oporinia filigrammaria* H.-S. was also well out when we left. The *Thera* species were represented by one *cognata*, one *variata*, two *obeliscata* and several *firmata*. One *Plemyria rubiginata* ab. *fumosa* Prout was taken at the Burma Road, together with a female *Gnophos obfuscata* Schiff. which died without laying.

Because of the abominable weather, we were unable to devote as much time as we should have liked to larva searching, although we did obtain a number of *Hydriomenia ruberata* Fr. from sallow. Odd larvae of *N. ziczac*, *E. adusta*, *A. myrtilli* and *L. callunae* were noted and one gigantic larva of *E. versicolora*.

The highlight of the visit was undoubtedly a trip to the Findhorn sandhills on 26th August. We commenced by getting the car bogged in the sand. After digging her out and plastering the marram with sugar, we settled down to a steady stream of moths consisting of one *A. secalis*, one *A. tritici* and three *vestigialis*. The gale then abated sufficiently to allow a torrential downpour when we decided that discretion was the better part of valour. Returning across a desolate stretch of moor which made Dartmoor look like Kew Gardens in comparison, the car gave up the ghost. Arriving eventually at the hotel we found we had been locked out. It was little consolation that London was enjoying the warmest day of the year.

However, the trip was most enjoyable and we returned home with all setting boards occupied and the knowledge that we had been well rewarded for our efforts.

THUMATTA SENEX HÜBN. IN SCOTLAND.—Perhaps the two *Thumatta senex* Hübn. which I took at Aberfoyle, Perthshire, on 8th and 12th July of this year are worth recording, since "South" states that there is only one previous record of this species from Scotland.—Colonel H. G. ROSSEL, The Old School House, Bodinnick, Lanteglos by Fowey, Cornwall. 18.ix.1964.

A Scale Defect in *Lysandra bellargus* Rott.

By Dr. Neville L. Birkett

During the last week of August this year I was on holiday in the Istrian Peninsula, Yugoslavia. While there, I collected a moderate number of butterflies and among these a series of a 'blue' which gave some diagnostic difficulty. These blues had the chequered fringes and underside markings much as in typical *bellargus* but the colour of the upper surface of all the wings was a dull rather leaden hue. I finally decided these must be either ab. *pallida* Tutt or ab. *suffusa* Tutt as detailed in Seitz (1909). I finally decided to examine the wings under a magnification of 76X with the binocular microscope and was quite surprised to find that nearly all the scales on the upper surface were twisted and deformed—this anomaly accounting for the abnormal colouration observed.

This curious condition of the scales in some Lycaenids has been well described and illustrated by the late Dr. E. A. Cockayne (1917) and reference to his paper and plate will show exactly the condition found in my specimens although he was describing *Agriades thetis* Rott. (? *icarus* Rott., *thetis* Esp.). He refers to other blues also showing the defect but does not mention the condition as having been observed in *bellargus*.

It would appear that the cause of this abnormality is quite unknown. In the localities where I took my specimens quite normal coloured males were also flying but these seemed to be in smaller numbers than the deformed forms.

I do not know whether or not Tutt, when describing the forms mentioned, examined his specimens microscopically but I suspect that had he done so this scale deformity would have been observed because the condition is most striking and obvious.

REFERENCES

Cockayne, E. A. The condition of the scales in the leaden males of *Agriades thetis* Rott. and in other Lycaenids. *Trans. ent. Soc., Lond.*, 1917 : 165-168 with plate.

Seitz, A. Macrolepidoptera of the World. Vol. I : 115.

Lithosia quadra L. in Wales and Bristol.—Whilst on holiday in Wales in 1962, I took a fresh male specimen of *L. quadra* at mercury vapour light near the village of Corris, on the Montgomery-Merioneth border. The date was 31st July. I took a second specimen of this species away from the south coast this summer. On this occasion the moth, another male, was taken on 17th July at Bristol. It would be interesting to hear from those more expert than myself whether these were merely immigrants which had penetrated inland.—R. Hayward, 41 Suffolk Road, Southsea, Hants. 26.vii.1964.

Hyloicus pinastri L. in Portsmouth.—The year 1964 has seen a continuation of the establishment of *H. pinastri* (pine hawk) in the Forest of Bere, just north of Portsmouth, a very welcome addition to the moths of this superb area. Even more exciting, however, was the finding of a fine specimen of this moth in the centre of the city of Portsmouth about the middle of July 1964.—R. Hayward, 41 Suffolk Road, Southsea, Hants. 26.vii.1964.

The Coleoptera of a Suburban Garden

6 Brachelytra (Part 2)

By A. A. Allen, B.Sc., A.R.C.S.

(*Continued from Vol. 71, page 44*)

A new feature of the garden, having a bearing on this and still more on the supplementary part of the list, yet to come, should be mentioned here: viz., a very small artificial pond, only about 6′ by 4′ in area, constructed in the middle of a lawn in the autumn of 1958.

As before, rare, uncommon or very local species in our fauna, without reference to the garden, are marked with an asterisk (bracketed in 'borderline' or arguable cases).

Tachyporinae

The members of this group, often of more or less conical form and relatively bright colours, tend as a whole to be more in evidence from autumn to spring than in high summer.

Mycetoporus brunneus Marsh. (=*lepidus* Grav.).—Scarce and always found singly. The first on an outside doorstep, 20.iv.55; swept off mint flowers, viii.57; floating on pond, 28.iv.59; and the last amongst grass at edge of pond, 12.vi.64. Also once crawling up a wall from a moist spot beneath.

Mycetoporus longulus Mann.—Still rarer here, or more seldom seen; one under a stone at base of fence, and another among dead leaves on soil under a bush, 22.iv.62.

**Mycetoporus angularis* M. & R.—Only a solitary example has occurred, which was sifted out of loamy soil mixed with humus and debris of straw, 19.iv.53.

Mycetoporus splendens Marsh.—Most uncommon. First found settled on a wall of the house in hot sunshine, iv.40; twice from remains of old grass heaps, 10.vii.52 and 26.x.53; one by sweeping over a similar site, 11.iv.55; running on freshly-turned earth, 20.iv.53; two under a stone in a torpid state in grass by fence, 20.iv.56.

Mycetoporus splendidus Grav.—Like *longulus*, only twice captured up to the present: by sweeping in a rough overgrown corner in the vicinity of a compost heap, 8.v.56; and resting in the evening at base of wall above a tile placed as a trap, 29.viii.59.

Lordithon (=*Bolitobius* auct.) *trinotatus* Er.—A stray specimen of this fungus-feeder occurred by sweeping grass beneath apple trees in sultry weather, 30.vii.58.

Bolitobius (=*Bryocharis* auct.) *analis* Payk.— Extremely sparing, never more than one at a time, though seen more often since 1951 except just recently. At roots of grass and other herbage, in moss and litter, occasionally under stones, etc.; spring and autumn. This bright, elegant insect is very quick in its movements.

Conosomus littoreus L.—Another species which has occurred but twice: in rotten stems of cabbage (30.iv.53), and in rubbish left where there had been a bonfire (23.iii.59).

Conosomus testaceus F. (=*pubescens* Grav.).—In dryish refuse, humus and dead leaves, at grass roots, and once swept up; infrequent, but seems to be increasing. Oftenest, of late, in grass traps in spring.

Conosomus immaculatus Steph.—In similar situations, but more sparsely, though, again, less rare in the last two or three years; often with the preceding. First noted 17.x.52, whereas *testaceus* was detected some time before 1949.

Tachyporus hypnorum F.—Exceedingly common; at roots of herbage, in moss, humus, dead leaves and grass, vegetable litter, and indeed all refuse except such as is actively decaying; sometimes on the wing or by sweeping; found throughout the year. (These habitats apply equally, in general, to the succeeding species of the genus, some or all of which may occur in company.)

Tachyporus chrysomelinus L.—As for the last; but on the whole, and as a rule, perceptibly less abundant. Least common between late June and early August, when many of those met with are immaturely coloured; this evidently being the main emergence period, which is also true of at least the next species.

Tachyporus solutus Er.—Common, in similar situations but generally in slightly moister conditions, and (apart from special flight periods) markedly oftener by sweeping. Not noticed before 18.viii.51, when one was shaken from golden-rod flowers.

Tachyporus pusillus Grav.—Also common; habits about as *hypnorum* and similarly eurytopic. Unlike its congeners it varies much in colour from brownish-yellow to all black (the latter however being infrequent and the former perhaps immature). A pure colony of the species was found under a tile, 14.x.59.

Tachyporus nitidulus F. (=*brunneus* F.).—Easily the least common of the genus in the garden, but cannot be called rare; it tends, however, to occur singly. Sometimes under stones, tiles, etc., in damp places against a wall of the house.

Tachinus humeralis Grav.—Very rare indeed; first found in a manure heap as far back as May or June 1927. In cat-dung, 18.x.52; in dead grass, 27.x.55. All three were single specimens.

Tachinus subterraneus L.—Quite frequent from late autumn to early spring (but only casual at other times) in decaying herbage such as heaps of fermenting grass or compost; also in carrion, rotting apples or fungi, and (once) cat-dung. A typical winter species.

**Tachinus scapularis* Steph.—Rare, though occasionally in some small numbers in much-decayed grass heaps, etc., nearly always in late autumn; one under decomposing fish, 26.x.53.

Tachinus rufipes Deg.—Common without being abundant, and not noticeably gregarious, often found singly or by twos or threes. Habitat wider than the last three, more as the species of *Tachyporus*, and but little attracted by fermenting substances; often, for instance, at grass roots or in moss and under stones.

Tachinus marginellus F.—As the previous species, but a good deal less frequent and of far less regular incidence. Mostly in grass traps in spring and autumn in one or two fairly recent years; has occurred in mid-winter in dead grass litter. First recorded 6.vi.51.

**Tachinus laticollis* Grav.—Found twice only, in grass litter: 14.x.58, 28.iv.59. Very possibly passed over at times as *marginellus*.

Leucoparyphus silphoides L.—This pretty little species is confined to rotting plant material, especially grass mowings. Erratic and never at all common, but occasionally several together when it does occur.

Habrocerus capillaricornis Grav.—A great rarity here; single examples in identically the same spot 12 years apart (28.v.52, 27.iv.64)—under a piece of board at the base of a wall of the house where the ground is kept damp by the outflow of the kitchen sink.

Cypha (=*Hypocyptus*) *longicornis* Payk.—Not uncommon in comparatively dry vegetable refuse, grass litter, etc.; at roots of herbage, by sweeping, and in flight. More or less throughout the year.

Aleocharinae

A very large assemblage including many of the smallest and most obscure Staphylinidae. Many can be found almost throughout the year in their proper habitats. For the nomenclature and notably the subgenera of the huge genus *Atheta,* I follow Hansen (*Danmarks Fauna*, 1954) who to a great extent adopts the classification of Brundin, the chief modern authority on the systematics of the group.

Oligota inflata Mann.—Apparently rare, unless passed over as one of the commoner species—though I do not think this has often happened. I have an undoubted example from cut grass, 3.viii.38, and believe there have been one or two others.

(*)*Oligota parva* Kr.—This species is sometimes plentiful in a particular grass heap when discovered, but is most irregular in occurrence; found on and off since 1935.

Oligota atomaria Er.—In similar conditions; not common, and rarely found of late, but perhaps partly confused with *pusillima.* (The presence of *O. punctulata* Heer requires confirmation.)

Oligota pusillima Grav.—Certainly the commonest of the genus in the garden, but still erratic and far from abundant; sometimes with *parva.*

**Oligota flavicornis* Bsd. & Lac.—Scarce, only found two or three times singly at long intervals; swept or beaten from foliage of pear trees growing along a wall (8.vi.48, 22.ix.53). Recorded as preying on mites which attack fruit trees

Encephalus complicans Westw.—This curious little species, a newcomer to the garden, first turned up in the early spring of 1959, sparingly, in grass traps in one area only; taken most years since at the same time and place, so that it is evidently established. Also once by sweeping near this spot.

Bolitochara bella Märk.—One by sweeping long grass under apple trees, 11.v.53. There seemed to be no fungi near, so it was probably a wanderer —cf. *Lordithon trinotatus* above.

Autalia rivularis Grav.—Often occurs copiously in grass mowings, rotting straw, and various kinds of decaying vegetable matter.

Cordalia obscura Grav.—Plentiful as a rule in like situations; on the whole more regular and less periodic than the preceding.

Falagria sulcata Payk.—Also similar in habits, but very much less common and often taken only singly. First found in April 1933 in old dahlia roots, with the last two species.

Bohemiellina paradoxa* Mach.—An example of this small but interesting species, sifted out of a warm, actively fermenting grass heap on 8th August 1953, is one of the only two yet known as British—the other having been taken by the Rev. C. E. Tottenham near Cambridge. (Cf. *Ent. mon. Mag.*, 1955, **91: 296-7).

Gnypeta carbonaria Mann.—A solitary specimen at the muddy edge of the pond, 10.ix.64. This is the typical habitat of the beetle.

Callicerus obscurus Grav.—Very scarce indeed; one in a grass or compost heap, iii.35; another by sweeping long coarse grass, 5.v.60—a very warm day. (Generally found between March and May in grass tufts or flood rubbish, also by sweeping on moist low ground, and suspected of living in the runs of small mammals.)

Amischa analis Grav.—Extremely common and quite general at roots of herbage, in litter, moss, humus, etc.; often in numbers by sweeping in warm, close weather, flying and settling on one's clothing, etc.; but not attracted by decomposing substances.

Amischa decipiens Sharp.—The only record I have for the garden is of a specimen at grass roots at base of fence, 5.iii.51; it surely, however, must be far commoner than implied by this, being no rarity, and easy to overlook among the hordes of *A. analis*.

Atheta (*Aloconota*) *gregaria* Er.—Most infrequent; odd examples by sweeping or on the wing in early summer, and occasionally in a damp place by the house under bricks or other cover; a few under fish bait when nearly disintegrated, viii.53. Not certainly noted earlier than 1952.

Atheta (*A.*) *sulcifrons* Steph.—Very seldom met with and always singly, in the damp environment just mentioned (at least once beneath a large flagstone); not more than three times in 25 years.

Atheta (*Philhygra*) *luridipennis* Mann.—Found only twice up to the present; one in a small amount of rotted-down grass mulch placed around the roots of a rose tree, 11.v.57; and one crawling up a wall at the base of which was a quantity of well-decayed straw, 27.iv.64. (A species—like *elongatula*—of very varied biotope.)

Atheta (*P.*) *halophila* Ths. (=*tomlini* Joy).—A ♀ apparently referable to this species was taken at the edge of the pond, 7.v.60; but it is possible that it belongs rather to *hygrobia* Ths. (=*malleus* Joy), of which I have ♂♂ from a pond (no longer existing) not far away—♀♀ of the group being difficult to name with certainty.

Atheta (*P.*) *elongatula* Grav.—Not common; met with under the same conditions as *A. gregaria*, but less seldom; also sometimes in cut grass (perhaps only casually), and recently in small numbers at grass roots round the muddy edge of the pond, notably in the past summer. First in 1938.

Atheta (*Dinaraea*) *angustula* Gyll.—Sporadic; a few times since 1951 at roots of grass along a fence; in debris of moss and leaves, 17.iv.53; under remnants of putrid fish, 16.vii.52; at the pond-edge, 17.v.60.

Atheta (*D.*) *linearis* Grav.—One taken at base o ffence, 19.v.52, is the only record for the garden; the species mostly lives under bark and in rotten wood.

Atheta (*Plataraea*) *brunnea* F.—Very rare. Singly in remains of dry cat-dung, 8.viii.52; in humus (cat-dung being again in the vicinity), 15.x.53; swept under apple trees, 17.vi.54; and by sweeping ivy on wall and ground in shrubbery, 2.vii.64.

Atheta (*Bessobia*) *occulta* Er.—Not at all uncommon in autumn in rotting grass and straw, even plentiful at times; but in other seasons only odd specimens are met with. (One running on kitchen step, 10 or 11.iv.55.) The summer is normally spent in the larval and pupal stages—to judge

from a specimen taken in the garden as a young larva, and bred out by Mr. W. O. Steel. I cannot agree that the species is rare, as both Fowler and Joy state in their books.

Atheta (*Microdota*) *inquinula* Grav.—This, the smallest of the genus, is quite scarce, having occurred singly only some half-dozen times since 1937—or perhaps a little oftener. Probably, from its size, much overlooked. In heaps of cut grass, etc.

**Atheta* (*M.*) *benickiella* Brund. (=*validiuscula* auct. Brit.).—A rarity of which I obtained one example by sifting the latter material, 10.iv.48.

Atheta (*M.*) *amicula* Steph.—Frequent, in vegetable refuse of various sorts, in a moist place beneath bricks and tiles, and at times by sweeping grass or over rubbish heaps.

Atheta (*M.*) *atricolor* Shp.—Not common, and usually found singly, but taken at intervals from about 1940 up to the present time. In heaps of rotting grass or other herbage, and at least once on the wing near a pile of freshly-mown grass. (The known distribution is remarkable: England and Scotland, Calabria and Algeria. Joy wrongly omits the species from his book.)

Atheta* (*M.*) *alpina* Ben.—A rare and supposedly boreo-alpine species, known as British only on a few specimens from Devon and one from the New Forest, until a female was detected amongst material sieved from a small pile of rotting straw in the garden, 14.v.62. (Cf. *Ent. mon. Mag.*, 1963, **99: 63, where, however, I mentioned 'the first Scottish record' in error—this should be deleted—and 1962, **98**: 48.)

**Atheta* (*M.*) *indubia* Shp.—Three examples in loamy soil mixed with remnants of old straw, etc., and a fourth from bonfire ashes in which there remained some unburnt vegetable matter, March 1959; two further ♂♂ by sweeping widely over the garden, late April 1964. (I have not been able to check the few records of captures earlier than the former date.)

**Atheta* (*M.*) n.sp.?—A ♀ taken at the time and place first mentioned under *indubia* is indistinguishable externally from that species, but has an entirely different spermatheca; the species appears to be undescribed.

**Atheta* (*M.*) *perexigua* Shp.—In grass-mowings; rare, though in the period when first found (iv-v.37) a short series was obtained. Since then, however, it has been very seldom seen, the latest being one swept from a lawn (5.v.60)—probably in flight—where mowing was in progress, on a very warm day. Also two from rotten stems of cabbage, 20.iv.53.

Atheta (*Atheta*) *nigricornis* Ths.—In nests of thrushes and blackbirds; single specimens taken three times in the last few years, the first 6..iv.61. It is not, however, restricted to this habitat.

(*)*Atheta* (*A.*) *divisa* Märk.—Several times under the remains of decomposed fish and other carrion in 1952-3, once or twice in some small numbers; the first from a grass heap, 3.x.37, and a few later from similar loci; one shaken out of old cabbage stalks, 10.v.53. (Hardly rare as the books suggest.)

Atheta (*A.*) *coriaria* Kr.—From time to time in cut grass and other rotting herbage, occasionally in small numbers, but far from common; one brushed from pear foliage, 14.viii.64.

Atheta (*A.*) *crassicornis* F. (=*inoptata* Shp.).—Fairly common in most kinds of vegetable refuse, once or twice in fungus and rotten fruit; also at carrion (where, indeed, several of the Athetae attracted to rotting herbage

may well occur, but this material has not been closely worked for the genus in the garden).

Atheta (*A.*) *xanthopus* Ths.—Very sparingly by sweeping in suitable weather, at roots, in moss, straw, humus, plant litter and dead-grass traps; never more than one specimen at a time.

Atheta (*A.*) *trinotata* Kr.—Found chiefly of late years (first recorded 13.iv.51) and by no means common. In compost and decomposing herbage, especially in foul straw.

**Atheta* (*A.*) sp.?—A single ♀ sifted out of loamy earth rich in various organic debris (4.iii.61) is apparently very close to *trinotata* and to *hybrida* Shp., but has a strikingly different spermatheca from either; the species cannot yet be determined.

Atheta (*A.*) *triangulum* Kr.—So far rare and only found a few times, singly, in recent years; habitat about as the last two species; the first in grass litter, 30.iii.59. (Tends to be commoner near the coast.)

Atheta (*A.*) *aquatica* Ths.—One by sifting an accumulation of dead leaves under a buddleia bush, 19.i.62.

Atheta (*A.*) *pertyi* Heer.—One example from a pile of dead grass, 26.x.58.

**Atheta* (*A.*) *hypnorum* Kies.—A male in debris of hay, 20.iv.55. (A woodland species).

Atheta (*Liogluta*) *longiuscula* Grav. (=*vicina* Steph.).—Peculiarly scarce for a species regarded as common. Occasionally in past years, on the wing, on a wall of the house, under sods and pieces of board or tile lying on moist earth, etc. The most recent is one sieved out of dead grass, 18.x.58.

Atheta (*Dimetrota*) *atramentaria* Gyll.—Rather uncommon, but found from time to time over a long period of years in grass heaps, mulch, compost and decaying herbage in general; casual examples also under carrion. (A very common species elsewhere in dung).

**Atheta* (*D.*) *setigera* Shp. (?).—A specimen was swept off pear foliage, 13.iv.61, possibly attracted by the blossom. The spermatheca, however, differs in one important respect from that of *setigera* as figured by Brundin and of another ♀ in my collection, so that—whilst in any case nearest to this species—the identification is provisional.

Atheta (*D.*) *nigripes* Ths.—At fairly long intervals and very sparsely or singly as a rule, but at one period (18-21.v.59) it was present in some numbers. Always in heaps of rotting grass-mowings.

Atheta* (*D.*) *cauta* Er. (=*parvula* auct. Brit.).—Occasional only from 1956 (earlier records doubtful). In dead leaves and moss, on the wing and settling in fur of white cat, and in remains of compost in late November; the most recent is from old straw, 11.v.63. (Joy's 'common' for this species and 'rare' for *ischnocera* Ths. is an error of transposition—cf. Williams, 1930, *Ent. mon. Mag.*, **66: 51).

Atheta (*Datomicra*) *canescens* Shp.—Found sparingly in fermenting cut grass; rather erratic in occurrence but less so than some of the other species; may easily be passed over with the next.

Atheta (*D.*) *sordidula* Er.—In the same circumstances but considerably commoner, and of comparatively regular occurrence; and not infrequently by sweeping over or near grass heaps, especially in spring.

(*to be continued*)

Notes and Observations

COLIAS CROCEUS FOURC. IN ANGLESEY.—I saw one *Colias croceus* Fourc. (clouded yellow) in the island of Anglesey. The specimen was a male in very fresh condition.—J. A. C. GREENWOOD, Woodcote, Horsell Park, Woking, Surrey. 1.ix.1964.

COLIAS HYALE L. IN ESSEX.—On the 2nd September I took three fresh male *Colias hyale* L. (pale clouded yellow) in a lucerne field at Upminster, quite near to the Purfleet/Dartford tunnel, and two male *Colias croceus* Fourc. (clouded yellow) were also seen. I noted this latter species in good numbers along the Purbeck Hills, Swanage, and also odd specimens at Weymouth and Bournemouth during August.

I took a further *C. hyale* on 7th September at Bradwall-on-Sea, Essex.—R. R. COOK, 164 Collier Row Lane, Romford, Essex. 9.ix.1964.

COLIAS HYALE L. IN ESSEX.—During the morning of 5th September, in a lucerne field near Upminster, I captured a male specimen of *C. hyale*. As this specimen was in mint condition, it seems quite clear that it was of local emergence.—ANDREW M. FREEBREY, 29 Springfield Gardens, Upminster, Essex.

STIGMELLA ULMIFOLIAE HERING IN KENT.—On 19th September 1964, while examining bush elm for Nepticulid mines, I found several examples of the mine of *Stigmella ulmifoliae* Hering. Unfortunately, the mines had all been vacated by the larvae, and as the elms were on the edge of a building site in the middle of Bromley town, they are likely to disappear before another generation can make use of them. I examined other elm trees in the near vicinity without finding the species, but my time was limited and this does not mean that the species was not in fact there.

I first found the mine on 12.ix.1950 in the Stratford-on-Avon district and reported it as a species new to Britain (*Ent. Rec.*, **74**: 122) after Mr. A. G. Carolsfeld-Krause had identified the mine for me. Mr. R. H. Richens reported the mine (*Ent. Gazette*, **14**: 37) from Essex in three widely separated districts: Rayleigh, near Southend-on-Sea; Stebbing, near Braintree; and Stifford, near Tilbury. It would therefore seem that, like many other small and obscure species, *ulmifoliae* is probably to be found over a wider area if sought after carefully enough.

The mine is easily distinguished by the fact that the frass lies in a thin central line throughout the course of the long thin gallery, the frass in all other elm species is spread at some part of the course of the mine.—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent. 21.ix.1964.

EROMENE OCELLEA HAW. IN HAMPSHIRE.—On 13th June 1964, I took here at light a specimen of *Eromene ocellea* in very good condition. Beirne's British Pyralid and Plume Moths gives Timoleague, Co. Cork (1932) as his last record.—C. H. DIXON, Northbrook Farm, Micheldever Station, Hants. 30.viii.1964.

LEUCANIA UNIPUNCTA HAW. IN KENT.—On the 21st September 1963, I took a male specimen of *Leucania unipuncta* Haw. at Lydd, Kent. I believe that there are only two previous records of this species having been taken in Kent during the past eighty-five years.—R. HAYWARD, 41 Suffolk Road, Southsea, Hants. 26.vii.1964.

WIDESPREAD IMMIGRATION OF EUROIS OCCULTA L. IN AUGUST.—I have had several pale grey specimens of the continental form of this fine Noctuid in my trap (mercury vapour) beginning on 16th August up to the end of the month. I also have news from Air Marshal Sir Robert Saundby, near Newbury, and from Mr. J. L. Campbell in the Isle of Canna in the Hebrides, that they took the moth also on 16th and later. I have not, however, heard yet whether their moths are also of the pale grey race, but I strongly expect so. This race is a regular immigrant with me, but I think the widespread nature of this year's occurrence is noteworthy.—Commander G. W. HARPER, R.N., Retd., Neadaich, Newtonmore, Inverness-shire. 2.ix.1964.

VENILIA MACULATA L. IN SEPTEMBER.—I would like to record a specimen of *Venilia maculata* L. (speckled yellow) on the wing at Grayswood, Surrey, on 18th September. It was quite typical, but I kept it as a curiosity of Spring in Autumn.—E. E. JOHNSON, Wood Pigeon Hotel, Witley, Surrey. 21.ix.1964.

ENARGIA PALEACEA ESP. NEW TO SUFFOLK.—Some very good weather for collecting lepidoptera at the beginning of August culminated on 6th August when between dusk and 1.45 a.m. I observed 148 species, the best being *Arenostola brevilinea* Fenn (Fenn's wainscot), at Harmony Hall, Weston, near Beccles, Suffolk. The weather then cooled off until 14th August (86 species) and 15th August (103 species). It was at 12.30 p.m. on the 15th that I saw attracted to the blended mercury vapour bulb and progressing up the red brick wall, a moth that in flight reminded me of *Apamea sublustris* Esp. (reddish light arches). The creature soon settled down and I was able to inveigle him within reach by means of my net. In the box his true identity was revealed as *Enargia paleacea* Esp. (angle striped sallow), and a further female specimen followed shortly after 1 a.m. I maintained the vigil until 3 in the morning, but there were no more *paleacea*.

I did not have my reference books with me on holiday, but I thought the insect might be a new county record, as I associated it mostly with Scotland. The moth is, in fact, new to Suffolk and, interestingly enough, three specimens were taken in Surrey on 14 and 15th August. Apparently the Surrey specimens were of a continental form and it seems likely that mine also will prove to have been immigrants, particularly as I captured four specimens of *Eurois occulta* L. (great brocade) the same week.

The native populations of *paleacea* seem to range through Cumberland, Yorkshire, Lancashire, Shropshire, Staffordshire, Derbyshire, Nottinghamshire, Worcestershire, Gloucestershire and Somerset. The species has been noted casually in the south in Hampshire, Surrey and London. In the east it has been taken rarely in Lincolnshire, Huntingdonshire, Norfolk, Essex, and now Suffolk. It seems, however, that most collectors travel to Scotland to take the species. *Paleacea* is Suffolk's 1572nd species of lepidoptera and may be added as the first species on page 23 of the "Final Catalogue of the Lepidoptera of Suffolk", published by the Suffolk Naturalists' Society in 1937. A list of additions to the county list from 1937 to 1960 was published in the Suffolk Naturalists' Transactions (IX: 479-488) adding 62 species, since when there have been seven further additions.—ALASDAIR ASTON, 15 Pickwick Road, London, S.E.21.

EUROIS OCCULTA L. IN SUFFOLK.—I was surprised to capture a good specimen of *Eurois occulta* L. (great brocade) at Harmony Hall, Weston, near Beccles, Suffolk, on 14th August. The insect came to blended mercury vapour light at 12.30 p.m. The next night brought two more, both after midnight, in company with *Enargia paleacea* Esp. The weather then turned very windy and I was not able to take a fourth and last specimen until 18th August, by which time the full moon was proving a nuisance to collecting. *E. occulta* is scarce in Suffolk and the possibility of an immigration is strengthened by the capture of *occulta* at Winchester the same week.

Suffolk records are mainly coastal: before 1890 near Ipswich (Harwood), Bentley (Morley) and Beccles (Crowfoot); July 1907, Waldringfield, on gate post (Waller); 31st July 1918, on Paling, Gorleston (Doughty); 8th August 1926, 3 on pine trees at Aldeburgh (incog.); Fritton Lake on sugared oak, Aug. 1934 (Morley); Sep. 1936, Pakefield (Goddard); 1st May 1938, Bury St. Edmunds (Allen); 1938, Beccles (Goldsmith); 18th August 1938, Oulton Broad, sugar (P. J. Burton); Aldringham, 13th August 1932 (J. and G. Burton); 30th August 1955, Waldringfield (Waller). Harmony Hall, where I took my four specimens, is only some six miles inland.

Apart from Scotland and certain northern haunts in England, it would be interesting to know whether *occulta* has a permanent home in Britain. It is recorded casually from Somerset, Oxford, Hampshire, Isle of Wight, Sussex, Kent, Surrey, London, Essex, Suffolk, Norfolk and Lincolnshire.—ALASDAIR ASTON, 15 Pickwick Road, Dulwich Village, London, S.E.21.

1964 NOTES.—I would like to put on record two interesting captures here at mercury vapour light; on 20.viii.1964. I took a very pale specimen indeed of *Enargia paleacea* Esp. in quite good condition, and on 3.ix.1964, two *Heterographis oblitella* Zell.

I went to Aviemore with Mr. Hare, 28.v. to 3.vi.1964, and we did quite well. Pupae of *Amathes alpicola* Zett. were not too difficult, *Anarta melanopa* Thbg. were flying in numbers at the top of the "Burma Road" and about half-way up we found a few *Apatele euphorbiae* ssp. *myricae* Guen, sitting on rocks fully exposed to the sun.—DAVID MORE, The Little House, Hockley Road, Rayleigh, Essex. 6.ix.1964.

MORE MIGRANTS IN THE NEW FOREST.—The following have appeared in my mercury vapour trap at Minstead:

28 Aug. *Rhodometra sacraria* L. ♂
29 Aug. *R. sacraria* ♂
7 Sep. *R. sacraria* ♂
12 Sep. *R. sacraria* ♀ ab. *sanguinaria* Esp.
13 Sep. *Acherontia atropos* L.

—L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants. 14.ix.1964.

UNUSUAL APPEARANCE OF MALACOSOMA NEUSTRIA (THE LACKEY).—On 9th September an *M. neustria* ♂, in perfect condition, was taken at Wyke Regis, Weymouth, by Mr. V. W. Philpot, who kindly gave it to me. What was this moth doing at such a date? Could it have been one of a second brood, such as sometimes happens with *Diacrisia sannio* L. and *Euproctis similis* Fuessl. (I mention these two species from personal experience) or was it merely a delayed emergence of the normal brood.—H. SYMES, 52 Lowther Road, Bournemouth, 22.ix.1964.

AGLAIS URTICAE L. AT LIGHT.—It is of interest to record that a specimen of *Aglais urticae* L. (small tortoiseshell) came to the electric reading lamp in my room at Bentham House School, Purton, Wilts., at 11.20 p.m. B.S.T. on 20th July. There appears to have been no case of fortuitous disturbance. There was definitely an attraction to the light as I have noted occasionally with *Vanessa atalanta* L. (red admiral), *V. cardui* L. (painted lady) and *Apatura iris* L. (purple emperor) (and in Africa with *Charaxes* species). The butterfly played and basked around the lamp for several minutes until I boxed it for release on the following day.—I. R. P. HESLOP, "Belfield", Burnham-on-Sea, Somerset. 5.ix.1964.

A NOTE ON STAPHYLINUS STERCORARIUS OLIV. (COL. STAPHYLINIDAE).—In a previous note concerning his personal records of this genus, Allen (*Ent. Rec.*, **64**: 126) writes of this species: "Despite its name, it does not frequent dung". Whilst I would agree that *stercorarius* does not *usually* frequent dung, I should mention that my first experience of the species was in August 1959, when I took a specimen in cow dung in New Mill quarry near Penzance, W. Cornwall. Fowler (*1888, Col. Brit. Isles.*, **2**: 251) writes about the species: "In carcases, *dung, dungheaps*, etc., but mostly found on the wing or running in pathways". My own limited experiences bear out Fowler's observations on the species: on paths, by sweeping, on the wing, and beneath stones, and of course the dung record mentioned above.—COLIN JOHNSON, Dept. of Entomology, Manchester Museum. 10.ix.1964.

CHLOROPS (CETEMA) NEGLECTA TONN. IN HUNTS.—Mr. R. L. Coe recently showed me a copy of the 1940 Handbook of the Society for the Promotion of Nature Reserves. On page 5 in the report on Wood Walton Fen Reserve, Mr. H. M. Edelsten recorded Mr. Coe's capture, in 1939, of this species as new to Britain. Mr. Coe, *in litt.*, informs me that in 1940 Dr. F. W. Edwards and he realised that the specimens standing in the British Diptera collection at the British Museum (Nat. Hist.) under the label of *Chlorops* (*Cetema*) *myopina* Lw. were misnamed and were really *neglecta* Tonn. and were accordingly relabelled. Owing to his leaving the Museum on war service, Mr. Coe omitted to publish the facts in an entomological journal, and by his return in 1946 the matter had slipped his mind.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 15.ix.1964.

On Saturday 31st October, The South London Entomological and Natural History Society will hold its Annual Exhibition in the libraries of the Royal Society and the Royal Geographical Society at Burlington House, Piccadilly. From 11.30 a.m. until 5.30 p.m. Visitors are welcome.

1937-38: 22) exhibited ab. *pallida* from E. Kent.

First Record, 1870: Parry, *Entomologist*, **5**: 58.

L. albipuncta Schiff.: White Point.

Resident, perhaps reinforced by immigration. Rough fields, chalky places, wood borders, etc.; on "grass". Recorded from all divisions, except 10, 13. Mostly observed in East Kent, particularly on the coast.

It is noteworthy that there is no record for the period 1913 to 1931, but that from 1932 to 1963 the moth was noted annually, except for the war years, 1940-44, and in 1950 a total of over 100 *albipuncta* was recorded.

On April 4, 1937, A. M. Morley found a larva feeding on grass in Alkham quarry (div. 8), from which he bred a ♂ *albipuncta* on July 11 that year.

1868-1896.—1868: Folkestone, August 15, one at sugar; one, much worn, on or about October 5, within 5 yards of the first, and one other supposedly this species that escaped (Briggs, *Proc. ent. Soc. Lond.*, 1868: xxxix; idem, *Ent. mon. Mag.*, **5**: 173; idem, *Entomologist*, **4**: 222). [1869: Canterbury, August 12 (1), 16 (1), 17 (1), 19 (3) (Parry, *Entomologist*, **7**: 16-17).] 1870: Folkestone, one, August 17 (Vaughan, *Ent. mon. Mag.*, **7**: 87); August 18 (1), 23 (2), and one a few days later (Ullyett, *Ent. mon. Mag.*, **7**: 111); [Blean, Hospital and Pine Woods, eleven (Parry, *Entomologist*, **5**: 172, **7**: 16-17).] [1871: Near Canterbury about 20 (Parry, *Entomologist*, **5**: 417, **7**: 16-17).] [1872: Near Canterbury, nine (Parry, *Entomologist*, **7**: 16-17).] 1873: Folkestone, ♀, August 30 (Jones, *Ent. mon. Mag.*, **10**: 118); two, September 1 (Oldham, *Entomologist*, **6**: 519); Sheppey, two at sugared thistle heads, August 24 (Hodgson, *Ent. mon. Mag.*, **10**: 180); Near Canterbury, five (Parry, *Entomologist*, **7**: 16-17).] 1874: Folkestone, two, September (Oldham, *Entomologist*, **7**: 228). 1875: West Wickham Wood, one, August 24 (Channon, *Entomologist*, **8**: 228); Folkestone (Oldham, *Entomologist*, **28**: 308). 1876: Deal Sandhills, two, August 23 (Andrewes, *Entomologist*, **9**: 232); Folkestone (Oldham, *loc. cit.*). 1877: Deal, one, August (Tugwell, *Naturalist, new series*, **3**: 41); Walmer, two, August 26 (Meldola, *Entomologist*, **10**: 255); Folkestone (Oldham, *loc. cit.*, 1878: Folkestone, August 14 (♀), 25 (♂) (Heatherley, *Entomologist*, **11**: 230). 1879: Folkestone (Oldham, *loc. cit.*). 1884: Sandwich dist., two (Tutt, *Entomologist*, **18**: 71). 1891: Folkestone Warren, one taken off ragwort flowers, end of August (Barker, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1890-91: 135). 1892: Folkestone, one, August (Austen, *Proc. Folkestone nat. Hist. Soc.*, 1892: 26). 1893: Folkestone Warren, one taken by W. J. Austen in May (Austen, *fide* Fenn, *Diary*). 1895: Willesborough Lees, one, August 24 (Chittenden, *Entomologist*, **28**: 281); Folkestone, one, September 7 (Oldham, *Entomologist*, **28**: 308). 1896: Yalding, one, September 10 (S. G. Reid, in *V.C.H.* (1908)).

1900-1912.—1900: Margate dist. (Barrett, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1900: 101; idem, *Entomologist*, **34**: 23). 1903: Chattenden (Ovenden, *Ent. Rec.*, *21*: 33). 1912: Deal sandhills, two taken at sugar, August 27 (Tonge, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1912-13: 103; idem. *Ent. Rec.*, **24**: 273).

1932-1939.—1932: Dungeness, August 20, one at dusk by C. G. M. de Worms, ♀ at sugar by A. M. Morley (Morley, *Entomologist*, **67**: 38; de Worms, *Entomologist*, **65**: 23). 1933: Dungeness, one, August 14, three, August 16, and six more by other people (de Worms, *Entomologist*, **66**: 259)

(about 12, but not taken by Morley (Morley, *Entomologist*, **67**: 238), may refer); Edenbridge (div. 11), at sugar (F. D. Greenwood). 1934: Dungeness, August 3 (5), 11 (1), September 3 (13), 8 (3) (A. M. Morley); August 5 (23), by Morley, Lowe, and two others (Lowe, *Entomologist*, **67**: 237); August 14, September 10 (A. J. L. Bowes); September 17 (2), 18 (1) (Beckwith Whitehouse MS.); August 31 (1) (A. G. Peyton); Ham Street, eight, August 4 (de Worms, *Entomologist*, **68**: 103); Sandwich, August, 24 (1); Deal, August 2 (1); Dover, August 31 (several) (Lowe, *loc. cit.*); Sandhurst, August 12, 13 (Bull, *Entomologist*, **67**: 279). 1935: Dungeness, August 16, ♂, "at Pits on Loosestrife" (A. M. Morley, *in litt.*); a few, September 7 (de Worms, *Entomologist*, **69**: 157); September 21 (1) (Beckwith Whitehouse MS.); Ham Street, September 17 (♀) (Beckwith Whitehouse MS.). 1936: Dungeness, August 20 (1), by J. O. T. Howard (A. J. L. Bowes); September 5 (de Worms, *Entomologist*, **70**: 89); Sandwich, August 20 (4), 30 (2), September 5 (2, by A. G. Peyton), 6 (5), 12 (1), 14 (1) (A. J. L. Bowes). 1937: Dungeness, September 1 (1) (A. H. Lanfear); September 27 (1) by B. Embry (A. M. Morley). 1938: Dungeness, August 9 (1), 21 (3) (Bowes, *Ent. Rec.*, **51**: 107); August 30 (5) (A. M. Morley); August 12 (1) (C.-H.); a total of some 50-100 noted here this year (A. M. Morley); Sandwich, September 14 (A. J. L. Bowes); September 25 (1) (C.-H.); [(Dover, larva, April 9, by J. O. T. Howard (A. J. L. Bowes). This is the basis for the record by Haggett (in *Proc. S. Lond. ent. nat. Hist. Soc.*, 1962: 196). However, Howard told me that he reared the moth and that it was not *albipuncta* but *L. lithargyria* (C.-H.).)] 1939: Sandwich, one, June (A. J. L. Bowes).

1945-63.—1945: Dungeness, August, 12 taken (Richardson, *Entomologist*, **79**: 20); August 11 (1) (A. M. Morley); August 5 (1), September 1 (1) (de Worms, *Entomologist*, **79**: 76-77); Herne Bay, June 22 (Dannreuther, *Entomologist*, **79**: 107); Reculver, August 6 (1); Sandwich, August 11 (1) (C.-H.). 1946: Deal, one at light, by C. M. Gummer, September 1 (Dannreuther, *Entomologist*, **80**: 140). 1947: Dungeness, August 11 (1) (A. M. Morley). 1948: Herne Bay, August 24 (1, at light) (D. G. Marsh, *Diary*); Ham Street, September 9 (1) (Howarth, *Ent. Gaz.*, **1**: 41); Brook; Dover; Westwell; eleven, August 14-September 7 (Dannreuther, *Entomologist*, **82**: 107) (including five at Westwell, September 7 (E. Scott)) c. 1948: Broadstairs, four (J. W. C. Hunt coll.). 1949: Broad Oak (div. 3), ♂, rather worn, at electric light, May 27 (C.-H.); Herne Bay, June 10 (2), 12 (one, worn), August 27 (1), September 4 (D. G. Marsh, *Diary*); Sandhurst, August, one, September 22, one (G. V. Bull); Ham Street, August 12 (1) (E. C. Pelham-Clinton); September 3 (♀), 9 (♀) (C.-H.); four at sugar, September 3 and 5 (R. F. Bretherton); Lydd-on-Sea, September 7 (1) (R. W. Parfitt); West Wood, near Lyminge (div. 8), ♂ and ♀, at sugar, September 2 (A. M. Morley). 1950: Herne Bay, June 2 (1), 12 (1), August 3 (1), 8 (2), 18 (2); Sandwich, at sugar, August 11 (about 30) D. G. Marsh & G. H. Youden); Dungeness, August 13 (2) (D. G. Marsh, *Diary*); Sandhurst August (2) (G. V. Bull); Deal, August (fairly common) (C. M. Gummer, *in litt.*, 20.viii.50); Waltham, August 25 (1), 27 (1) (J. W. C. Hunt); Cliftonville, one (W. D. Bowden); Sandwich, June 16 (3, at sugar), July 22 (1, at sugar), August 5 (1, at marram), August 26 (20, at sugar) (C.-H.); Kent (79) (Dannreuther, *Entomologist*, **84**: 102). 1951: Ham Street, July 9 (1) (W. D. Bowden); September 7 (1, at m.v.l.) (C.-H.); Broad Oak, September 21 (1, at electric light) (C.-H.); Folkestone Town, August 29 (1), September 5 (1), 10 (2) (Morley, *Ent. Rec.*, **64**: 71); Pinden (div. 6), one (E. J. Hare); Herne Bay, August 3 (D. G. Marsh, *Diary*); Dover (Dannreuther, *Entomologist*,

85: 155). 1952: Herne Bay, June 8 (♂) (D. G. Marsh, *Diary*); Folkestone Town, August 10 (1) (A. M. Morley). 1953: Herne Bay, May 17 (♂), June 3 (1) (D. G. Marsh, *Diary*); Ham Street, August 26 (A. H. Harbottle); August 30 (1) (de Worms, *Ent. Rec.*, **66**: 48); Folkestone Town, six at m.v.l., August 12-September 15 (A. M. Morley); Hoads Wood (div. 11), September 15 (P. Cue); Westwell, July 3 (2) (E. Scott, *Diary*); Folkestone, July 2; Dover, August-September (6) (French, *Entomologist*, **87**: 63). 1954: Brook, August 25 (C. A. W. Duffield, *fide* E. Scott); Ashford Town, October 18 (P. Cue); Cliftonville, September 1 (1) (W. D. Bowden); Ham Street, two (G. Law, *fide* P. B. Wacher); September 24 (E. J. Hare); Sandwich, September 19 (1), 26 (1) (B. K. West). Romney Marsh, three (Kettlewell, *Entomologist*, **88**: 45); Wye, October 13 (1) (W. L. Rudland); Folkestone Town, October 2 (1), September 7-October 14 (4, by R. W. Fawthrop) (A. M. Morley). 1955: Folkestone Town, September 5 (1), 20 (1), both at m.v.l., by R. W. Fawthrop (A. M. Morley). 1956: St. Peters, August 10 (1) (W. D. Bowden); Sandwich, June 19 (1) (P. B. Wacher); Wye, September 10 (1) (W. L. Rudland); Ham Street, September 9 (2) (Huggins, *Entomologist*, **90**: 50); September 14 (1) (de Worms, *Entomologist*, **90**: 181); Dungeness, July 28 (1) (W. L. Rudland); September 10 (Huggins, *loc. cit.*); Folkestone, September 10, 15, 25 (French, *Entomologist*, **90**: 235); Folkestone Warren, September 24 (♂) (W. L. Rudland). 1957: Ham Street Village, August 31 (de Worms, *Entomologist*, **91**: 152). 1958: Folkestone Town, August 26 (1) (A. M. Morley); Dungeness (de Worms, *Entomologist*, **92**: 73); Folkestone, July 26 (1), August 29 (2) (French, *Entomologist*, **92**: 173). 1959: Folkestone, July 26, August 22, October 12; Dover, October 11 (4) (French, *Entomologist*, **95**: 175); Ham Street, October 6 (3) (R. G. Chatelain). 1960: Dover, June 10 (2); Folkestone, late August; Ham Street, September 7; Brook, September 14 (French, *Entomologist*, **95**: 210). 1961: Ham Street Village, September 3 and 7 (de Worms, *Entomologist*, **94**: 163; idem, *Ent. Rec.*, **72**: 246); Orlestone Woods, September 1 (1) (B. F. Skinner); Tenterden, August 25, 27; Folkestone, August 30; Brook, September 4, 5, 9; Dover, September 17 (French, *Entomologist*, **96**: 37). 1962: Dungeness, October 1 (1, at m.v.l.) (R. E. Scott); October 1-4 (22) (Wightman, *Ent. Rec.*, **74**: 237); Ashford Town, autumn (1) (P. Cue); Folkestone, August 5 (1), October 3 (1), 21 (1); Dover, September 4-October 5 (12); Ickham, October 1 (2), 4 (2) (French, *Entomologist*, **97**: 125-126) 1963: Dover, about six in m.v. trap, September 7-30 (G. H. Youden).

VARIATION.—The following named abs. are in R.C.K.:—*grisea* Tutt, Sandwich, one, 1935; *ochrea* Warren, Dungeness, four; *suffusa* Tutt, Dungeness, several; *italo-gallica* Mill., Dungeness, two; *flecki* Caradja, Dungeness, two; *rufa* Tutt, Dungeness, several; also, typical *albipuncta* Schiff., Dungeness, several.

FIRST RECORD, 1868: Folkestone, one at sugar, August 15, 1868 (Briggs, *Proc. ent. Soc., Lond.*, 1868: xxxix). This is also the first British record.

L. lythargyria Esp.: Clay.

Native. Grassy places in woods, marshes, waste land, etc.; on *Festuca rubra*. In all divisions. "Generally common" (*V.C.H.* (1908)).

A larva taken by me, Trottescliffe (div. 7), April 20, 1962, feeding on *F. rubra* L. (det. C. A. Stace), from which D. R. M. Long reared an imago (C.-H.). A. R. Kidner (*Diary*) records finding young larvae in numbers

at night at Sidcup, in April 1924, and again in 1936, but does not specify foodplant.

The moth is fairly plentiful at flowers of rush, sugar, and especially at light. For example, it has been recorded at m.v.l. as follows:—Dungeness, July 1-August 13, 1962 (62), with maximum (6) on July 24 (R. E. Scott); Willesborough, July 11-August 9, 1954 (51), June 27-August 8, 1955 (85), July 10-August 9, 1956 (80); Wye, July 2-August 8, 1953 (32), July 12-August 20, 1954 (27), July 4-August 11, 1955 (58), July 7-August 13, 1956 (63) (W. L. Rudland); Bromley, 1962 (30), last noted September 4; 1963 (33), first noted June 28 (D. R. M. Long).

VARIATION.—Tutt (*Br. Noct.*, **1**: 32) records the following aberrations: *pallida* Tutt, Farnborough; *extralinea* Tutt, Strood; *fulvescens* Tutt, Chattenden.

FIRST RECORD, 1829: "*Mythimna grisea* . . . occasionally at Darenth Wood" (Stephens, *Haust.*, **2**: 150).

L. conigera Shiff.: Brown-line Bright-eye.

Native. Downs, commons, lanes, grassy places; on *Festuca rubra*. In all divisions. "Generally common" (*V.C.H.* (1908)); but markedly less plentiful than *L. lythargyria*.

An imago was reared from a larva found by me at Trottescliffe (div. 7.), April 20, 1962, feeding on *F. rubra* L., det. C. A. Stace—the only record I have of the feral larva (C.-H.).

VARIATION.—In R.C.K. is a striking ♂, ab. *coxi* C.-H., pale and markingless, taken at Abbey Wood (div. 1) in 1949; also, ab. *intermedia* Tutt, one, Ashford, 1935.

FIRST RECORD, 1829: "Not uncommon in Darenth-wood" (Stephens, *Haust.*, **2**: 151).

[(**L. commoides** Guen.

Very doubtfully genuine.

15. Four specimens taken, "in a spot bordering on Romney Marsh",* during the first week of August (1873) (Parry, *Entomologist*, **6**: 522-523).)]

Mythimna turca L.: Double Line.

Immigrant? Woods.

6a. Knight's Place near Rochester, 1890 (Pye, *Rochester Nat.*, 1896 (51) 353.

8. Folkestone* (Newman, *Br. Moths*, 260); one, taken by J. W. Walton, c. 1907, flying at dusk at the foot of the downs, is in A. M. Morley coll. (A. M. Morley). Brook, one worn specimen, taken by C. A. W. Duffield, in light trap, June 18, 1961 (E. Scott, *Diary*).

FIRST RECORD, 1869: Folkestone (Newman, *Illustrated Natural History of British Moths*, 260).

NONAGRIINAE

Stilbia anomala Haw.: Anomalous.

Perhaps resident, but doubtless now long extinct. Heaths?

Note:—It is regrettable that the species has been so badly recorded, with failure in every case to give sufficient particulars.

1. Allchin (*Ent. week. Int.*, **7**: 205) records that he took one at sugar, in August 1859, "in Kent" [West Wickham?], which record I have tenta-

tively placed in this division (C.-H.)*.

8. Near Folkestone*, one (in 1875) (Haggar, *Entomologist,* **8**: 300). Folkestone* (Ullyett (1880)), may refer to the preceding occurrence.

[11. Wateringbury.—W. A. Cope told me he was fairly certain E. Goodwin took an *anomala* at Wateringbury; there is however no such specimen in the Goodwin coll. (C.-H.).]

13. Pembury (Stainton, *Man.*, 2: 314).

First Record, 1837: "Mr. Standish has met with it I think in Kent" (Curtis, *Br. Ent.*, 631). A more positive record dates from 1857: Stainton, *loc. cit.*

Rhizedra lutosa Hübn. (**crassicornis** Haw.): Large Wainscot.

Resident, perhaps native. Reed beds[1], marshes, ditches, river-banks; [on *Phragmites communis*]. Locally plentiful in 2, 4, 15.

The records are often of single specimens—mostly at light, occasionally ivy blossom—away from suitable terrain, many of which must have flown far from their place of birth. The moth is classed as a migrant by Williams *et al.* (1942).

1. Lee, October 28, 1863, October 20, 1885, October 26, 1886 (Fenn, *Diary*). Charlton, September 13, 1865 (Fenn, *Diary*) (Jones, *Ent. mon. Mag.*, **2**: 139). Bromley, at sugar (Watchurst, *Entomologist,* **17**: 279); one, October 14, 1962 (D. R. M. Long). Sydenham, one, 1901 (Hammond, in Buckle and Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1901: 63). Bexley; Eltham (*Wool. Surv.* (1909)). Dartford (B. K. West). Petts Wood, two, 1947, three, 1949, one, 1950 (E. Evans). Abbey Wood, 1952 (A. J. Showler). Orpington, one, 1957 (R. G. Chatelain). Blackheath (de Worms, *Lond. Nat.*, 1955: 36). Lee, one, September 28, 1959 (C. G. Bruce).

3. Herne Bay, several at light (A. J. L. Bowes). Whitstable (P. F. Harris). Broad Oak, three at light, October 17, 1953 (C.-H.).

5. Westerham (R. C. Edwards).

6. Greenhithe* (*V.C.H.* (1908)). Gravesend, odd ones, 1910, 1912-14, 1922 (F. T. Grant). Pinden, a few, 1952 (E. J. Hare) Otford, two, 1955-56 (W. B. L. Manley).

7. Westwell, one, September 18, 1953, at light (E. Scott, *Diary*).

8. Folkestone* (Ullyett (1880)). Dover, 1936, 1939 (E. & Y. (1949)).

9. Margate, October 5, 1920 (H. G. Gomm, *Diary*); (H. C. Huggins). St. Peters, October 9, 1955 (W. D. Bowden).

11. Wateringbury (*V.C.H.* (1908)). Hoads Wood (E. Scott). Aylesford (G. A. N. Davis). Sevenoaks Weald, two at m.v.l., October 1, 14, 1959 (E. A. Sadler).

12. Canterbury, 1895 (S. Wacher MS.); one at light, c. 1947 (J. A. Parry). Hothfield (Scott (1936)). Brook*, 1947; Ashford (Scott (1950)). Chartham (P. B. Wacher). Willesborough, four, 1953, two, 1955, five, 1956; Wye, twelve, 1953, one, 1954, fourteen, 1955, six, 1956 (W. L. Rudland). Willesborough, several at light, 1959, 1961; West Ashford, one, 1960, one, 1961 (M. Singleton). Ham Street, September 21, 1957 (R. F. Bretherton).

13. Goudhurst, several at light (W. V. D. Bolt, *personal communication*, 1961).

14. Iden Green, 1951 (H. Boxall).

16. Folkestone (Morley, *Ent. Rec.*, **64**: 171).

Variation.—The following abs. are in R.C.K.: *crassicornis* Haw., Dymchurch, one, bred 1932; *pilicornis* Haw., Dymchurch, several; *rufescens*

Tutt, Dymchurch, Herne Bay.

FIRST RECORD, 1853: Near Deal (Harding, *Soc. Br. Ent.*, in *Zoologist*, 4141).

[1]Haggett (*Entomologist*, **90**: 184) observes that the "ideal habitat is in a large reed basin where drainage has caused a permanent lowering of the water-table and a weakening of the reed vigour, but there is sufficient moisture and periodic flooding to prevent colonization by other plants". I have seen the moth in abundance at Ebbsfleet (div. 4), and Dymchurch (div. 15), where these conditions obtained exactly (C.-H.).

Arenostola pygmina Haw. (**fulva** Hübn.): Small Wainscot.

Native. Marshy places, damp woods, fens; foodplant unknown. "Abundant in some places" (*V.C.H.* (1908)).

Note:—The species is evidently locally plentiful, but the majority of observers including myself have never had the fortune to encounter it in good numbers (C.-H.). C. & J. Fenn (*Diary*), who took it so abundantly at Lee Swamp, wrote: "By looking on the *Carices* with a lantern we found *N. fulva* in tolerable plenty—this is certainly *the* way to take it".

1. Lee Swamp, took 49, September 9-18, 1862; took 103, August 20-September 16, 1863; August 31, 1864; one, September 15, 1885; Lee, one at light, September 17, 1865; one at light, September 30, 1866 (Fen, *Lepidoptera Data* MS.). Shooters Hill Wood (Purnell, *Week. Ent.*, **3**: 268). Bromley (Watchurst, *Entomologist*, **17**: 279). Eltham; Holwood; Paul's Cray (*Wool. Surv.* (1909)). Paul's Cray Common, annually to September 1920 (S. F. P. Blyth). Sidcup, one, at light, September 5, 1913 (A. R. Kidner). West Wickham, common, 1929 (S. Wakely). Lee, 1954 (C. G. Bruce).

2. Near Sheerness, rare among reeds (Walker, *Ent. mon. Mag.*, **8**: 185). Greenhithe* (*V.C.H.* (1908)). Rochester* (Ovenden, *Ent. Rec.*, **18**: 19). Cliffe Marshes, one, September 3, 1960 (R. G. Chatelain).

4. Deal, one, August 22, 1890; Ham ponds, one, August 17, 1892 (Fenn, *Diary*). Minster Marshes, one, August 9, 1927 (H. G. Gomm, *Diary*). Westbere, two, August 28, 1938, one, August 3, 1946 (C.-H.). Sandwich (E. & Y. (1949)). Ickham, several, 1954-59 (D. G. Marsh). Worth, 1961 (T. W. Harman).

6. Springhead (H. C. Huggins). Otford, one, 1956 (W. B. L. Manley).

7. Detling, September 23, 1960 (R. G. Chatelain).

8. Folkestone Downs (A. M. Morley, *in litt* 22.viii.1958).

11. Shipborne (P. A. & D. J. A. Buxton coll.). Aylesford (G. A. N. Davis).

12. Shadoxhurst (Scott (1936)). Brook*, October, 1947 (Scott (1950)). Ham Street, in small numbers at light, 1949-54 (C.-H.); (de Worms, *Entomologist*, **88**: 61); September 3-5, 1949, September 29, 1956, September 21, 1957 (R. F. Bretherton). Ashford, September 10, 1955 (P. Cue). Willesborough, two, September 24-October 2, 1953, four, September 12-25, 1956; Wye, one, September 10, 1953, two, September 6-26, 1954, two, September 5-16, 1955, two, September 25, 1956 (W. L. Rudland). Willesborough, one, 1957, two, 1959 (M. Singleton).

13. Tunbridge Wells, fairly common (Knipe (1916)). Goudhurst, two at light, 1959 (W. V. D. Bolt).

15. Dungeness, August 7, 19, 1935 (A. J. L. Bowes); one August 18, 1958 (E. C. Pelham-Clinton); one, taken by T. W. Harman, August 30, 1962 (R. E.

Scott). Military Canal* (G. V. Bull). Dymchurch (A. M. Morley, *in litt.* 22.viii.1958). Appledore, 1962 (de Worms, *Entomologist*, **96**: 59).

16. Folkestone* (Ullyett (1880)). Hythe* (E. J. Hare). Folkestone Town, one at m.v.l., September 19, 1957 (A. M. Morley). Sandgate, one, 1960, one, 1961 (N. Reay-Jones).

VARIATION.—Tutt (*Br. Noct.*, **1**: 45) records specimens from Deal of the whitish form, ab. *concolor* Tutt. Ab. *concolor* is also represented by a single specimen in R.C.K., taken Dungeness, 1935.

FIRST RECORD, 1862: Lee Swamp (Fenn, *Diary*, 9.ix.1862).

[**A. extrema** Hübn. (**concolor** Guen.): Concolorous.

Doubtfully Kentish[1].

8. Folkestone (1871, Morris, *Br. Moths*, **2**: 89). No particulars are given, and the record is not confirmed from any other source; it is possible, however, that Morris confused it with *A. morrisii* Dale (*q.v.*), which was first recorded from Folkestone as *extrema* in error.]

[1]The species has been recorded from Eastbourne, Sussex, and was exhibited (Ellison, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1957: 12).

A. fluxa Hübn. (**hellmanni** Ev.): Mere Wainscot.

Perhaps resident. Woods, marshy places.

Note: *Calamagrostis epigeois* is a rare plant in Kent, but of the few recorded stations, two are located between Folkestone and Ham Street (cf Hanbury and Marshall, *Flora of Kent*, 394), and a number of plants were recently noted at Dungeness by S. Wakely and the late Dr. E. Scott.

12. Orlestone Woods, one taken by R. F. Bretherton and J. L. Messenger, at m.v., July 28, 1956 (Scott, *Trans. Folkestone nat. Hist. Soc.*, 1956: 6).

15. Dungeness, two, including one of the red form, July 31, 1963, taken by D. W. H. ffennell (D. W. H. ffennell, *in litt.*).

16. Folkestone* (Ullyett (1880)).

FIRST RECORD, 1880: Folkestone (Ullyett, *Rambles of a Naturalist Round Folkestone*, 142).

A. morrisii Dale ssp. **bondii** Knaggs: Bond's Wainscot.

Native. Greensand cliffs; on *Festuca arundinacea*, *Arrhenatherum elatius*.

[(2. "The moth . . . has been taken in Woolwich marshes" (Newman, *Br. Moths*, 276). A most unlikely occurrence, unless introduced (C.-H.).)]

16. Folkestone.—The main locality is a rough extent of cliff between the Leas and the beach, the most accessible portion and that best known nowadays being adjacent to the Road of Remembrance. About 1928, A. M. Morley found the moth flying on the cliffs between the Leas and Sandgate, at a spot a mile or so to the west of the Road of Remembrance, but the place was so steep as to be virtually unworkable. Knaggs (*Entomologist*, **30**: 75) records that he was informed that a "straggling specimen" was once taken in the Warren on the gault.

First found by Dr. H. Guard Knaggs in 1859, and exhibited by him as "*Nonagria concolor*" in September of that year at the Entomological Society of London (see *First Record*). Within a few years of its discovery here, the species was collected in enormous numbers, and Fenn (*Diary*)

writing in 1862 testified to the fact that up to that time "about a thousand specimens have been captured". It was still "very common" in 1864, according to Meek (*Ent. mon. Mag.*, **1**: 123); but in 1867 the same observer noted that it had become "very scarce". Webb (*S. East Nat.*, 1903: 54) records it as having become far less common around the turn of the century, though it appears that this was only a temporary decline.

In 1935-36, according to A. J. L. Bowes (*Diary*), a landslip over its breeding ground considerably reduced the numbers in 1936. Despite this however, the moth was noted by me flying in good numbers between 9.30 and 10 p.m., on June 29, 1939, although at this date many were already getting worn; on June 24, 1952, the insect was abundant and fresh; but in 1956, a year considered a poor one generally, only twelve were noted, on June 29 (C.-H.).

Nicholls (*Entomologist*, **11**: 252) records that he bred the species in 1863 from larvae which he found in the roots of *A. avenaceum* (*elatius*), growing along the Sandgate Road. About 1955, G. M. Haggett (*in litt.*) found larvae full grown, May 13-27, on *F. arudinacea*, by the Road of Remembrance, and reared the moths; and he states that it was on no other plant.

Variation.—The form occurring in Kent is referable to ssp. *bondii* Knaggs. G. M. Haggett who has compared a good many fresh examples from Folkestone, Kent, and Charmouth, Dorset (the original locality of typical *morrisii* Dale), states (*in litt.*) that Charmouth examples have "pallid white ground colour compared with cream-white of Folkestone, and Charmouth moths are well dusted with dark grey atoms on the central fascia and especially at the outer margin so that the white nervures stand out more sharply than those from Folkestone".

First Record, 1859: Folkestone (Knaggs, *Proc. ent. Soc. Lond.*, 1859: lxxvii).

Arenostola phragmitidis Hübn.: Fen Wainscot.

Native. Marshes, fens, ditches, riversides [on *Phragmites communis*].

1. Bromley Marshes (Courtney, *Entomologist*, **1**: 227). Abbey Wood* (C. Fenn, in *Wool. Surv.* (1909)). Sidcup, one at light, August 13, 1909 (A. R. Kidner).

2. Greenwich Marshes (Stainton, *Man.*); abundant, July 30-August 1, 1861; fifteen, July 16, 1886 (Fenn, *Diary*); on the banks of the Thames below Greenwich (Newman, *Br. Moths*, 273). Greenwich to Erith (J. W. Tutt, in *Wool. Surv.* (1909)). Gravesend (Button, *Entomologist*, **4**: 129); (Miller and Jones, *Ent. mon. Mag.*, **6**: 114); 1926-27 (F. T. Grant). Greenhithe; Cliffe (*V.C.H.* (1908)). Sheppey (Hodgson, *Ent. mon. Mag.*, **10**: 180). Near Strood (Ovenden, *Ent. Rec.*, **21**: 32). Higham Marshes (F. T. Grant). Iwade (H. C. Huggins). Aylesford, one (G. A. N. Davis). Dartford, common (B. K. West).

4. Deal (Harding, *Ent. week. Int.*, **1**: 163, **8**: 155; Fenn, *Ent. week. Int.*, **9**: 60; Browne, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1906-07: 86). Sandwich to Deal (Shepherd, *Entomologist*, **17**: 136). Cliffsend, numerous, 1907, 1912 (J. W. C. Hunt). Reculver, 1934-36 (A. J. L. Bowes). Sandwich (de Worms, *Entomologist*, **67**: 103); several on marram grass, August 5, 1946 (C.-H.); one, August 5, 1957 (R. F. Bretherton). Westbere, twenty, flying and on rushes, August 3, 1946; Ham Fen, four, July 31, 1955 (C.-H.). Minster Marshes, July 24, 1951 (W. D. Bowden). Worth, one on Hemp

ENTOMOLOGIST'S GAZETTE

A QUARTERLY JOURNAL OF BRITISH ENTOMOLOGY

Well illustrated

Subscription: 42/- per year

Free Sample Copy sent on request

353 Hanworth Road, Hampton, Middlesex

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact: *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jirí Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

Barograph For Sale.—Handsome brass barograph, on mahogany stand, in glass and mahogany showcase, together with charts. Used as an aid to successful sugaring (cf. Allan, *A Moth-Hunter's Gossip*, pp. 110-114). In excellent condition throughout, £8.—*J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.*

Stud. Lars Axelsson, Järnvägen, Kungsängen, Sweden, aged 17, interested in Lepidoptera desires to contact any English boy of similar age willing to correspond and exchange specimens.

DOUBLEDAY LETTERS.—In 1888 Miller Christy possessed "one hundred and one interesting letters written by Henry Doubleday between August 1831 and March 2nd, 1846, to T. C. Heysham of Carlisle". Can anybody tell me where these letters are now?.—P. B. M. ALLAN, 4 Windhill, Bishop's Stortford, Herts.

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years:

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact: Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

MIKROPS NETS

NETS AND FRAMES INTERCHANGEABLE

LIGHT BUT RIGID WHEN ERECTED

NETS OF ROT-PROOF TERYLENE

See list NT/E for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD.

309 OXFORD ROAD : MANCHESTER 13

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 10-14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4: Fauna palaearctica. Vol. 5-16: Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 11 NOVEMBER 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35/- POST FREE OR U.S. DOLLARS 5.50

Hon. Treasurer, CLIFFORD CRAUFURD.
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY

THE STANDARD NATURAL HISTORY

From Amoeba to Man

The task of the editor, **W P Pycraft**, and his contributors has been to provide a balanced presentation of the animal Kingdom such as will afford a comprehensive survey of the classification of animals and of the outstanding types which have come into being as a result of the process of evolution. The book is lavishly illustrated with colour plates, photographs and diagrams, and with the high quality of its general presentation this superb book represents outstanding value. **35s net**

THE WORLD IN THE PAST

What It Was Like and What It Contained

Here is given a popular account, in simple nontechnical language, of the wonders recorded in Nature's Great Stone Book of the Earth. Every cliff, quarry or river has a tale to tell. We wander amongst the Coral Islands, Mountains and Volcano Craters. We read of the birth of the Earth and the Dawn of Life; the succession of ages, each characterised by its own peculiar form of life. Every student of Nature will be thrilled by this most interesting story of the world when it was young by **B Webster Smith.**

73 plates in full colour
193 half-tone photographs

21s net

FREDERICK WARNE & CO LTD

1/4 Bedford Court, London WC2

In The Welsh Hills

By An Old Moth-Hunter

In central Wales there is a tract of mountain moorland more than 200 square miles in extent which has never yet—so far as I have read—been trodden by the foot of entomologist. There is no road across it nor even a track, and the distance from the road which bounds it on the north (that from Yspytty Ystwyth to Rhayader) to its southern limit (a line drawn from Lampeter to Llanwrtyd Wells) is about 18 miles. From west to east the average width is roughly twelve miles.

It is a desolate place indeed, peopled chiefly by scraggy hill sheep, ravens, buzzards, and, in summer, curlews. The going is hard—heather clumps and tussocks of fescue and moorgrass, with patches of cotton-grass and small sedges marking the bogs. But there are many green valley bottoms with chattering streams, and much bilberry and mountain plants—butterwort and *Viola tricolor*, and stonecrops in clefts of rock, and many another interesting plant too. On the steep hillside of a narrow valley on the fringe of this area—a lonely spot where I wished I had a companion in case I fell, for I was many miles from help if help were needed and it was only once in a blue moon that anyone passed that way—I once netted *Procris statices* (Forester) and found that handsome singing dipteron *Sericomyia borealis* in plenty on the tall marsh thistles.

Si Jupiter referat annos I would fit out an expedition to explore that territory. There should be four of us—lepidopterist, coleopterist, dipterist and botanist. We should engage two ponies to carry the equipment, and a man to lead them and perhaps cook, and we should take provisions for fourteen days; for we should travel slowly and perhaps camp in a likely spot for a day or two while exploring the country round about. The lepidopterist would sugar every night (having provided himself with a reel or two of broad white tape with which to mark the herbage sugared, for of course there are no trees nor fences) and light the petrol lamp as soon as the moths had finished visiting the sugar. By day we should walk about and sweep the heather and bilberry and examine every insect that we saw—for I am sure our Editor would like to have an account of the expedition, And we would make a representative collection of all the Orders.

I don't suggest that we should find anything to 'write home about'; but we *might*. You never know. We might—if it were early July—find the Marsh Ringlet; for although *tullia* has not yet been recorded as ranging so far to the south in this island, in Ireland it flies in a south coastal county, south indeed of Latitude 52°N. We might also find *ashworthii* and a mountain Geometer or two. Perhaps even the larva of a Small Lappet. When I lived in Montgomeryshire I refused to believe that the Feathered Footman (*grammica* or *striata*, according to the book you use) was extinct and diligently I searched those limestone hills and valleys; but I never found one, not even a wing in a spider's web.

Alas, it is now too late for me to join the expedition, for I am in 'the sere, the yellow leaf'. But if you, reader, being young and enthusiastic and possessed of sturdy legs would allow me to drop my mantle, lightly, upon your shoulders, I can assure you that such an expedition—supposing you went about it in the right way—would ensure for you and your three friends a very happy and healthy holiday—provided of course that it did

not rain every day, that the tent did not leak, and that you had not forgotten to pack the corkscrew. . . .

All the same it is not an expedition that anyone—especially anyone without previous experience of the Welsh moorlands—should undertake lightheartedly. It sounds ridiculous to suggest getting 'lost' in this little island of ours; but I can assure you that it would be very easy indeed to get into trouble, serious trouble, in those hills. Even in the height of summer, mists, real dense mists, sometimes roll down from the peaks with disconcerting suddenness, often too suddenly for 'avoiding action' to be taken. Believe me, I am speaking from personal and unpleasant experience. To go on walking in one of these mists is the height of folly: it is likely to end in disaster. In a mist one could quite easily walk over the edge of a shelf beneath which was a drop of twenty feet.

Once on the Plinlimmon range at about 2,000 feet I was caught in a real corker; so instead of trying to climb down I climbed *up*, and presently I was sitting in blazing sunshine, smoking my pipe and looking down over what was apparently an obliterated world. I started to recite Cowper's lines—

"I am monarch of all I survey,
My right there is none to dispute,
From the centre all round to the sea,
I am lord of the fowl and the brute".

At this point there was a loud *ba-a-a* beside me, and the brute, in the shape of a very untidy sheep, joined me for company. It was followed by the fowl, a raven, which alit on a rock about thirty yards away, and croaked. The sheep distrusted it, and moved nearer to me. I threw a stone at the raven, which said *bah!* and flew away. Half an hour later a breeze arose, and sheep and I marched downhill together at our ease.

So if you put some chocolate and a sizeable flask of sherry in your haversack on leaving camp you will not find your temporary segregation from mankind so unpleasant if caught in a mist, for it is possible that a breeze may not spring up until the evening.

Shouting is no use on these occasions even if a companion is only a hundred yards away: it is impossible to locate the source of a sound in mist. If you decide to go on walking, very slowly and carefully, you will walk in a circle. To trust to a compass is to make certain that you will land in a bog or walk over a shelf of rock.

Sometimes the mists come low and fill the valleys. And if on such an occasion you have lost your way and you should catch sight of a cow, and it be afternoon, you will know that all is well with you; for the cow will be aware that milking-time is approaching and she will graze nearer and nearer home; and after a while you will hear, through the mist, the welcome cry of "Co, co, co", and your cow will make her way towards the cry, and soon you will catch sight of a farmer leaning on a gate, calling his herd back to the milking-shed. Ravens and crows dislike mist, and if one flies past you going uphill, follow his example and most likely you will be clear of the mist presently.

Get into the habit of scrutinising and memorising the shapes of the surrounding peaks and their position in relation to the camp when you go out in the morning, and look at them occasionally while you are doing your field work. If your pursuit of an insect carries you over and beyond a ridge, go back to the top of the ridge when you have boxed your capture

and take your bearing afresh. Remember that distance as the crow flies is of no significance in those hills: it may be far easier to travel twelve miles in one direction than three in another. Some of the bogs cover nearly an acre and you may find that the one you are skirting ends right up against a wall of rock which it is impossible to climb. *Never attempt to cross a bog.*

Stout ankle-supporting boots (and waterproof at that) are essential: with shoes you would become a casualty (and thus a nuisance to your friends) before the first day was out. Let them be well shod: steep dry grassy hillsides are sometimes as slippery as glass. A waterproof sheet is necessary: you cannot roll yourself up in a blanket and sleep on the ground in the Welsh hills.

But these things are mentioned only to prepare you for a possible contingency and it is unlikely that in settled weather you would be troubled by mist. In a fine summer there is really no risk at all; for the hills do not exceed 1,800 feet above sea-level; most of them are only from 1,400 to 1,700 ft. Normally the atmosphere is so clear that one can see peaks ten and more miles away. With ordinary precautions the danger of losing one's way is negligible and with a one-inch Ordnance map and a reliable pocket compass one can readily identify every hill. Of course if you have been collecting in the Cairngorms you already know all about hills of this nature. Anyhow, good luck to you—and please report to our Editor in due course.

Lastly, don't forget that you are the guests of the landowners. For although the law of trespass does not exist in these pasts of Wales the landowners are as susceptible as any of us to the virtue of courtesy and the nuisance of *litter* (especially sharp-edged tins where sheep are liable to tread). Treat your hosts, if you meet them, as you would like to be treated yourself and you will be received with a warm-hearted hospitality, a ready welcome, and offers to do anything that will be of assistance to you. I know, for I lived in those parts for five years, and kinder folk I have not met anywhere in this island.

Rearing The Jersey Tiger—A Third Attempt

By L. P. J. Waddington

Those readers who have followed my fortunes in the September issue of the Record—1963—may have their interest stimulated by a recital of the happenings this year.

Although a modicum of success attended my efforts last year, I felt that given a reasonable amount of luck, freedom from illness and better weather conditions, I could, profiting by previous experience, achieve better results.

I decided therefore, instead of imposing on the good nature of my friend in Plympton by a request for more eggs, to make the journey, to Paignton, thus enabling me to have the pleasure of meeting my friend and acquiring the know-how of collecting the moths from an experienced exponent of the art.

Alert to the fact that 25% of present day motorists have no more road sense than a cow, I decided to take my car by train ferry from Sheffield to Exeter and so minimise the risk of being an unwilling party to accident statistics.

Thus it came about that at midnight on 19th August 1963, I was on my way to Exeter. On arrival there I was kidnapped by a hotel scout who whisked me off to a welcome and delectable breakfast.

Having fortified my constitution I proceeded at a leisurely gait to the Park Hotel at Paignton, where my friend called on the Wednesday morning.

The weather was warm and sunny and we lost no time in sallying out in search of the elusive tigers.

We wandered on the south side of the town, examining the ivy growing on party walls in hotel grounds or drooping over garden walls in the residential areas.

They are not easy to see but in the course of the morning we managed to box 8.

Eggs were laid by three of the moths the same night, thus solving the difficult problem of sex determination.

By the following night I had about 130 eggs, so all the moths were released in a park at the rear of the hotel.

Unsettled weather with strong winds prevailed during the rest of my stay, and having obtained as many eggs as I required, further excursions were somewhat perfunctory and met with no success, probably due to the fact that it was now getting late in the season.

Grouse and jersey tiger shooting both open on the same date.

Back in Doncaster the eggs were all distrbuted in four 3″ plastic boxes and kept in a bedroom.

By 10th September all had hatched and were fed on stinging nettle, and most of them had moulted for the first time by the 19th.

The bulk of them were transferred to three glass cages and housed in the garage, while the remainder, about 40 in number, were put in a plastic sandwich case and put on top of the 'frig in the kitchen, the idea being to compare progress with those in the garage.

On 28th September they were transferred to a 4th glass cage but still kept in the kitchen.

In the previous article I described how, in inserting nettle in the glass cages, I cut the stems to such a length that the leaves just impinged on the muslin cap where they were instantly available for the larvae clustered there.

It was just about this time that I noticed with alarm that the caps on the three cages in the garage were clear of the glass; on examination it transpired that the nettle had proceeded to grow and pushed the caps off, so they were duly pruned.

By 11th October 11 had died in the kitchen and four in the garage, but it was now clear that the larvae in the garage were making far more progress than those in the kitchen, so I brought the kitchen cage into the garage.

The move had little effect on the mortality as casualties continued to mount and by 7th December there were only four survivors, so these were put into one of the other cages.

Cold weather now supervened so I deemed it avisable to bring all three glass cages into the kitchen and install them on top of the 'frig.

All larvae appeared to be very healthy.

Keen frost occurred on 18th to 20th December and ruined all available stinging nettle, so recourse was had to dead nettle.

By 9th January this year 15 larvae had died and I suspected overcrowding was partly to blame, so once more I used No 4 glass cage and put about a score of the most advanced larvae in it; they were all about 1″ long.

Severe frost occurred on the 16th and dead nettle was unobtainable so the ever dependable lettuce was used.

By Jan 23rd many larvae were full fed, so about 30 were transferred to a breeding cage; pupation took place daily.

Four, however, after abortive attempts to spin up at the top of the cage, gave it up as a bad job, and pupated on top of the moss—more about these anon.

By 13th February another 30 were put in a second breeding cage and the last instalment of 10 in a small wooden muslin covered box about 9″ × 6″ × 4″ with about 2″ moss pressed down on the bottom; this small box had to be tilted to prevent the water running out of the food-plant bottle.

Dead nettle was available all during February but from time to time supplemented by lettuce.

By the end of the month all larvae had pupated.

The first emergence took place on 20th March, and thereafter occurred practically every day, no less than seven emerging on 27th March.

The last emergence took place on 11th April, bringing the total to 51: of these two were badly crippled, two were slightly crippled, but to off-set this there were four fine specimens of lutescens.

General Observations

This year I had no trouble with larvae eating their way out of the muslin covered cages.

As soon as pupation commenced I sprayed the moss daily in the cages with tepid water; the four pupae referred to previously lying exposed on the moss were left in situ and suffered spraying till they glistened like iced lollies.

Apparently they suffered no ill-effects, since in due course the wing pattern showed up clearly and they looked ripe for emergence, but all four dried up; I feel confident that had I buried them in the peat they would have survived, but being exposed they lost the benefit of sustained dampness.

The ten larvae which had spun up in the moss in the small wooden box all emerged safely and colour the suggestion that a layer of peat is not absolutely necessary for pupation purposes; ample moss will fit the bill.

As of yore, the bulk of the emergences took place in the morning, usually between 8 a.m. and 11 a.m. and transferred to the porch as soon as they became restless; it was quite a job at times to get them to settle down on the framework; some persistently flew back on to my hand or sleeve, but patience prevailed, and once they closed their wings they stayed put until I returned home for tea.

One was 'lost' for ten minutes until it was finally located on my trousers, quite happy to be carted about in the meantime.

It is interesting to compare some the 1963 features with 1964; 20th April 1963 saw larvae still feeding, while this year all had pupated by the end of February.

The first emergence took place on 12th March in 1963, and 20th March this year, while the corresponding last emergences took place on 15th June and 11th April this year.

I think the most significant factor in this third shot at rearing the moth was the high mortality rate of the batch of larvae reared at the outset in the warm kitchen; I doubt if any survived.

It would appear therefore that undue warmth in the early stages is inimical to success; fatalities also arose through overcrowding in the glass cages and coupled with this, the growth of mould on the foodplant when owing to harsh weather conditions, changing the foodplant was deferred a few days.

I had visions of getting a pairing and rearing a second brood this August, but although I kept several alive for some days, I was unsuccessful.

I may have a fourth go at rearing the moth, as my friend has promised me another batch of eggs next year providing I can stave off the undertaker.

One last word—the bulk of the specimens bred were exceptionally fine, and on the average larger than caught ones.

9 Greenleafe Avenue, Doncaster.

Madeira in the Spring, April 1964

By C. G. M. de Worms, M.A., Ph.D., F.R.E.S.

Having visited the Canaries in 1961, I thought that the spring of 1964 would be an appropriate period for spending in the sister island of Madeira, situated some three hundred miles north west of them. A good deal has been written about the natural history of this delightful island and its lepidoptera, particularly of recent years, largely due to the visits and researches of Messrs E. W. Classey, A. E. Gardner, W. H. T. Tams and R. W. Uffen. The results of their sojourn there in December 1957 is embodied in two papers in the *Proceedings of the South London Entomological and Natural History* (Part I, 1959: 184-206 and Part II, 149-159).

I set out by air in a Caravel jet about mid-day on 2nd April, and after a brief stop in Lisbon we reached the island of Porto Santo by 4 p.m. Although an airstrip on Madeira has been in preparation for some time it was not yet serviceable and we had to resort to the small coastal steamer for the forty miles to Funchal. We were landed there after 10 p.m. having endured three hours of a very unkind sea, but the sight of the thousands of lights of this fine city of 90,000 inhabitants, stretching up the steep slopes was most impressive and cheering. Most of the hotels are situated to the west of the main centre, and mine, the Miramar, near Reid's, was most comfortable, with a large garden and excellent cuisine, run by a former English family. But I was told what a very fickle and cool spring was in progress and when I looked out towards the mountains towering up to 5,000 feet, I could see a heavy coating of snow still lying.

However, the first morning proved warm and sunny, and after visiting Mr. Jerry Maul, the well-known director of the Museum, I found a piece of ground just overlooking the harbour, but right in the centre of the city, which had been allowed to go derelict with a luxuriant growth of yellow daisies and other flowers. I soon discovered that it was attracting most of

the butterflies in the vicinity, the first of which I noted being *Pyrameis callirhoe* Mill., the Indian painted lady which was also so common in the Canaries. But I soon found that the whole area of about four acres was alive with *Colias croceus* Fourc. and I have seldom seen it more abundant in a confined space, but shortly afterwards I missed a specimen of the only butterfly peculiar to the island, *Pararge xiphea* Fab. which looks rather like an outsize speckled wood, of which it was at one time considered only a race, but is now regarded as a good species. It flies in shady places, as a rule round bushes even in the city gardens, and is extremely dodgy and difficult to catch when in full flight: it has usually to be stalked when at rest. *Lampides boeticus* L., the only blue on Madeira, was also in this restricted area on medick.

4th April was a dull and showery day when I took the 'bus to Monte, lying at 2,000 feet above Funchal, of which a magnificent view is to be had from the steps of the church where Emperor Karl, last of the Hapsburgs is buried. Thence I wended my way on foot up the excellent main road a further 1,000 feet up to Terreiro da Lucta where there is a very pleasant restaurant, but the only interesting capture was *Heodes phlaeas* L., actually the only one I saw in the whole period. The 5th was again a very unsettled day which only produced a few more *C. croceus* and a *L. boeticus* on the town site. The next day I embarked on one of the many excursions that are run daily to the various show places of this enchanting Island. On this occasion we went westwards to Camara de Lobos, a delightful fishing village, just to the west of which is the second highest sheer cliff in the world. One looks down straight into the sea from a height of 2,000 feet. Another on Formosa only just beats it. Thence we travelled further along the rugged coast road and struck inland up the Serra d'Agua to the Encumeada Pass which is the watershed at 3,000 feet, and when clear, both coasts of the island, north and south can be readily seen. Nearby is a special hostel and a power station.

The next three days were spent in the vicinity of Funchal in mixed weather. *P. callirhoe* and *P. xiphea* appeared in allotments to the west of the city on the 7th, as they did also in the fine garden of Quinta de Palheiro belonging to the Blandy family on the high ground to the east of Funchal on the 9th. That afternoon I went by coach to the Grand Curral, an amazing round bowl, a former crater, in the heart of the mountains, looking rather like a miniature Grand Canyon since you look down on it from some 3,000 feet. *P. xiphea* was also flying here, as it also was on the following day which was spent on an excursion to the north east of the island. We went up through the thick fir forests to Poiso, where the road reaches a height of 4,500 feet. *C. croceus* was again everywhere with a few *P. callirhoe*, especially round Ribeiro Frio where we lunched under very warm conditions, returning through Porto da Cruz and over the pass at Portela and Machico on the eastern peninsula.

On the last four days, April 12 to 15, I paid daily visits by 'bus to the high ground in the neighbourhood of Monte, since this seemed the most productive area. Just below this small town, near the Sanatorium, I came upon a flourishing colony of *L. boeticus* on a steep sunny bank with a luscious growth of vetch, but not an easy spot to try to net *P. xiphea* which frequently flitted past, usually singly. The 13th was an especially fine day when both these insects were well in evidence, and I also saw a female of the endemic form of *Pieris brassicae* L., *f. wollastoni* Butler, which unfortunately just eluded me. My final morning on the 15th, I spent

in the deep barranco to the east of Monte, but a dull day prevented any interesting captures. I was much disappointed not to see anything of that fine butterfly, the local brimstone, *Gonepteryx cleopatra medarensis* Felder, virtually a separate species, but getting very hard to come by in recent years.

During my fortnight's stay, I had made almost daily visits just after dinner round the street and other lights in the immediate vicinity of the hotel, and on occasions these proved very fruitful. But some of the lights were out of reach of my net and these were often the best patronized, especially by the pugs. I also saw a large hawk-moth, probably *Deilephila tithymali* B.W. on a lamp overhanging the deep barranco that carries the main road into the city. However, I had some interesting captures, though quite a number were "old friends", especially among the Noctuids which included *Leucania loreyi* Dup., *L. unipuncta* Haw., *Prodenia litura* Fab., *Plusia limbirena* Guen., *P. orichalcea* Fab., *P. chalcites* Esp. and of course *P. gamma* L., also *P. circumflexa* L., *Leucania scirpi* Dup. and *Hypaena obsitalis* Hübn.

Most of the Geometers were more specialized. These comprised *Sterrha atlantica* Sttn., *Scopula irrorata* Bethune Baker, *Cosymbia maderensis* B-Baker, *Xanthorhöe centrostrigaria* Woll. and *Gymnoscelis lundbladi* Prout. *Palpita unionalis* Hübn. was quite numerous.

I left Madeira with a heavy heart on the morning of 16th April by the sea route, which was even more uncomfortable than the previous journey. After a five-hour stop on Porto Santo, we flew to Lisbon, arriving at 1 a.m. I stayed in this grand and most picturesque city until the 22nd, visiting several famous resorts such as Sintra to the north, Estoril to the west and Setubal south of the Tagus, but hardly saw any lepidopterous life, only a few *Pieris napi* L. at Sintra on the 18th, also *Zerynthia rumina* L. and *Anthocharis cardamines* L. at Estoril the next day. So ended yet another very enjoyable few weeks spent in southern climes in the height of spring.

Three Oaks, Woking. 6.ix.64.

Who Was Coleman?

By Dr. R. G. Ainley

"British Butterflies; figures and descriptions of Every Native Species. By W. S. Coleman". So reads the title page of a little book which will provide hours of entertainment for those who have a taste for things Victorian. I found this book a joy to read, and have met few collectors who have encountered it—hence this article.

The date given in the Preface is 1860, thus antedating by a few years the works of Newman and Kirby. The layout is conventional, begining with chapters on anatomy, metamorphosis and hints on collecting, followed by a systematic account of each species. The information given is accurate as far as it goes, and the standard of colour printing is good, considering its date.

The real attraction of the book lies in its style, and in little snippets of information that so vividly highlight the contrasts between the time in which it was written, and our own. Its whole atmosphere is that of a more leisurely age (when, we are told, a 14″ × 10″ storebox cost half a crown). The style is of the ripest Victorian "literary-rhetorical"—discursive, and full of picturesque analogies and Classical allusions, with the usual curious

capacity for stating the obvious at great length. And, of course, every story points a Moral.

Chapter III has a splendid beginning, in which more than a page is devoted to the proposition that "*no butterfly can either sting or bite in the least degree*", followed by the story of "a murderous onslaught made by a Privet Hawk-Moth on the neck of a lady". Having, at some length, argued the case for the moth's innocence, Coleman concludes that he (the moth) ". . . might have been pardoned for mistaking the fair neck for one of his favourite flowers (a *lily*, perhaps), while the utmost harm he contemplated was to pilfer a sip of nectar from the lips he doubtless took for rosebuds". I am sure Freud would have made something of this.

Chapter V begins with four pages of justification for the killing of butterflies, presumably to soothe the conscience of the squeamish. The message is that you aren't necessarily a Bad Chap merely because you kill a few butterflies. But having calmed the fears of the sensitive young reader, the author then risks breaking his heart by the following harrowing footnote, the pathos of which is somewhat marred by a spot of surreptitious advertising. He describes an apparatus for carrying chloroform as "A very ingenious and neat contrivance—the invention of my friend Dr. Allchin, of Bayswater. It may be procured from Mrs. Foxcroft of 3 Union Yard, Oxford Street (near Orchard Street), the widow of an assiduous collector and dealer in insects, who, I regret to state, has lately fallen a victim to his entomological labours in the deadly climate of Sierra Leone. Mrs. F. also keeps a stock of excellent entomological apparatus and specimens of all kinds". One cannot but feel sorry for both Mr. and Mrs. F.—but what a shining example to us all!

Setting is, of course, to be done with cardboard braces on a saddle board. And the following advice struck a familiar chord, remembering the recent controversy in the Record (*vide* Messrs. Irvin and Waddington): ". . . . don't waste time in trying to puzzle out the meaning, the why or the wherefore of butterflies' scientific names; . . . . in general there is no more connection between the name and character of a butterfly, than there is between a ship's name . . . . and the moral disposition or personal appearance of the vessel that bears it".

It is saddening to think that in 1858, two years before the book was published, larvae of *Aporia crataegi* L. were recorded near Cardiff as " feeding by thousands on shrubs of Prunus spinosa". And the Chequered Skipper (here called *Steropes paniscus*) is recorded as occurring at Charlbury, in Oxfordshire—its old Wychwood Forest haunts. However, one's credulity is somewhat strained by a record of the Lulworth Skipper "in great abundance" near Lichfield in 1835, and the Glanville Fritillery at Falkland in Fifeshire.

The final chapter, very properly, deals with Reputed British Species, namely, *Papilio podalirius*, *Parnassius apollo*, *Erebia ligea*, *Argynnis dia* ("taken by Mr. Richard Weaver at Sutton Park, near Tamworth"), *Chrysophanus chryseis* (*i.e. Lycaena hippothoe*), and *Polyommatus boeticus*, (first recorded the year before the book was published.) *Danaus plexippus* L., *Everes argiades* Pall., and *Thymelicus lineola* Ochs., none of which had yet been recorded in Britain, are not mentioned.

Only a shadowy picture of the author emerges from all this. Coleman was a member of the Entomological Society of London, lived in Bayswater, and appears to have been a close friend of a Dr. Allchin, also of Bayswater,

who shared Coleman's liking for Lepidoptera. He was an enthusiast, who obviously enjoyed writing his book, and may well have been a good all-round naturalist (for example, he is insistent that "Nasturtiums" should be called Tropaeolums; and he has written another book entitled "Our Woodlands, Heaths and Hedges".) Can any readers of the "Record" throw any light on the problem; who was Coleman?

46 Peveril Crescent, Chorlton-cum-Hardy, Manchester 21.

7.x.64.

Heliothis peltigera Schiff. (The Bordered Straw) in Wessex

By H. Symes

This migrant makes frequent but somewhat irregular appearances in the southern counties. A favourite locality for it is Dungeness, where in some years (this was one) the larvae have been found in large numbers on sticky (or stinking) groundsel (*Senecio viscosus*). Both the English names are well deserved. In July I found this plant growing freely in a fire break near Wareham, and was looking forward to searching it for larvae of *peltigera* in due course, but before 11th August it had all been cleared away. In Dorset, 1906 was a particularly good year for this species (W. P. Curtis, Lepidoptera of Dorset).

The first time I saw the moth alive was on 23rd August 1945, in the New Forest, when one suddenly appeared from nowhere, and settled on a forest track almost at my feet, where it was promptly captured by D. R. M. Long, then on holiday from school. In 1950, that great *convolvuli* year, the Rev. F. M. B. Carr found a larva in his butterfly net after taking a swipe at a convolvus hawk on his tobacco plants at Sandbanks. He told me that he could find no suitable foodplant in his flower bed (perhaps it had fed on the buds of *Nicotiana*), but the larva went down almost at once, and was probably under-nourished, as the moth which emerged about a month later was a very small one.

On 10th June 1958, Brig. Warry, Miss Pengilly and I saw two *peltigera* beside the Chesil Beach, of which one got away. That evening Brig. Warry and I took five specimens at mercury vapour light in a garden at Lodmoor, where Sir Billy is to open one of his holiday camps. They are very lively on the sheet, and one, after the briefest of visits flew off to a neighbouring *Cypressus macrocarpa*, and settled there about twelve feet from the ground, where it tantalizingly remained, clearly visible against the background of dark foliage, until it was time for us to pack up. We were hoping all along that it might come down to the sheet again. In the same year, Captain R. A. Jackson took two *peltigera* at Codford (The Macrolepidoptera of Wiltshire, ed. Baron de Worms: 64).

On 12th June this year, I glanced casually at a vase of mixed flowers that my wife had brought in from the garden and saw a dull, dark-green larva about half an inch long in the middle of a marigold (*Calendula officinalis*) I immediately remembered reading in "South" that these flowers are a useful food for the larvae in confinement. I put the larva in a box and went out into the garden, where I found two more, a good deal smaller than the first. They all fed only on the inner florets in the middle of the bloom, and did not touch the large outer ones. As these soon closed when the flowers were brought indoors and remained closed,

they hid the larvae from view. I did not wish to disturb them, and in the case of the largest larva, pellets of frass were soon extruded and showed that all was well. I had never seen the larva before, and still had a disquieting suspicion that these might after all belong to some common polyphagous species, and indeed on 29th June I did find one such larva (*Orthosia incerta* Hufn.) on a marigold flower. It was not until 20th June, when No. 1 changed into its final instar, that I was convinced that they really were *peltigera*, for this beast was exactly like fig. 2d on plate XCIX in Buckler. It grew rapidly and ate immature green seeds as well as the florets. After spending barely a week in the last instar, it stopped feeding on 26th June and went down on the 27th. Meantime, on 22nd June I had found three more larvae on marigolds in my garden. All these, when full fed, were light green, exactly the same shade as the marigold stems, with three darker green lines along the back, harmonising with the ribs on the stems, and a white line along the spiracles: they were sparsely covered with inconspicuous short hairs, and the head, which had been black in the earlier stages, was now the same colour as the body. I found another larva on 1st July: it was in its last instar and was stretched out on a marigold stem where it was almost invisible, and attacking a flower from below. All seven larvae had gone down by 6th July, but on the 8th, I found two half-grown larvae on the same marigold plants, and when they were in their last instar, their ground colour was pale pink, rather like fig. 2c in Buckler, but somewhat lighter. On 17th July I found yet another larva, of the green form, like the first seven. It went down on 22nd July. These three larvae must have had a different parent from the first seven.

On 25th June, Brig. Warry took a very worn *peltigera* on the Chesil Beach, which died during the following night, but not before it had laid about twenty eggs: these, unfortunately did not hatch. They were round, creamy-white, laid singly or in pairs on rest-harrow (*Ononis ripens*), and they were small for the size of the moth, noticeably smaller, for instance, than those of *Diacrisia sannio* L., with which I was able to compare them. But more than a month before this, Capt. J. Ellerton tells me, his son Hugh took a specimen in his light trap at Sherborne on 23rd May, a foul, wet night. An even earlier specimen, though not quite in Wessex, was taken by Mr. G. Haggett at Arundel 9th May (supra: 193).

To return to my Bournemouth brood, the first moth emerged on 26th July, a large, richly coloured dark specimen, and four more, of which the last was paler than the others, emerged by 3rd August. From the three later larvae I had two moths, which emerged on 13th August and 22nd August. They were similar in colour to the last of the earlier lot, but not nearly so pale as those figured in "South". All seven moths were fine specimens, larger than wild ones I have taken. The period that elapsed between the going down of a larva and the emergence of the moth varied between 26 and 31 days. On turning out the pupating material, I found one pupa containing a dead moth, one slightly malformed pupa, and the remains of a larva. The pupa is fragile, pale brown, and semi-transparent. From the somewhat blunt tail end, there projects a very fine hair-like spine or bristle.

In conclusion, I will mention that Mr. F. R. Clafton, the warden at the Portland Field Centre, took four *peltigera* at his mercury vapour light during the summer. These specimens are all of the pale form.

52 Lowther Road, Bournemouth, Hants.

The Microlepidoptera

By B. W. Weddell

Reading through the notes on Current Literature in the July/August issue, on Microlepidoptera Palaearctica, I was struck afresh by the magnitude of the task facing the students of micros.

As a humble lepidopterist who has for over thirty years been keenly interested in micros *and* macros, I have always been puzzled by the mysterious tradition which has always obsessed the great majority of our fraternity. I refer, of course, to the concentrated study of the 850 species of macros, to the complete exclusion of the 1450 species of micros. For generations, all but a handful of enthusiasts have shrugged off as "only a micro" any moth found in the net, which could not be indentified in the sacred 850 species of South.

There cannot be much still left to be discovered about the macros after all this continual and assiduous study. On the other hand, the micros still hold many secrets, and indeed, I believe there are still new species waiting to be discovered.

It is a great pity that such a wealth of beauty and interest should be neglected through this arbitrary division of the order—"above and below the salt", so to speak.

Turning to other orders studied by naturalists, can anyone imagine an ornithologist only being interested in birds over (or under) the size of say, a lark? Would any botanist confine his interest exclusively to plants over, say six inches high, or bearing a flower over half an inch in diameter?

While it is probably too much to hope that the older members of our fraternity would ever be persuaded to jettison the present "apartheid" practice, one hopes that the younger element amongst us might become aware of the rewarding pleasure and almost unlimited scope that is awaiting them in the study of Microlepidoptera.

I have always thought that ideally one ought to start collecting at the micro end of the scale while the eyes are young and sharp, and able to focus closely. There is plenty of time, when the finding and handling of micros becomes difficult, to move on to the macros. Setting these presents little difficulty even for octogenarians!

An incidental advantage to be gained from this approach is that a collection of micros takes up very much less room, and is consequently a lot less expensive to house that the usual macro collection.

11 The Halve, Trowbridge, Wilts.

While I fully agree with the sentiments expressed by Mr. Weddell, I think it only fair to point out that during the past twenty years, the number of members of the South London Entomological and Natural History Society interested in the Microlepidoptera has shown a very substantial increase. I have little doubt that this increase is not limited to members of that society alone, and some of these young men have done serious work, and have added considerably to our knowledge of these interesting insects.—Ed.

Rhodometra sacraria L.—A male specimen of *Rhodometra sacraria* L. was taken at mercury vapour light at Lee, south east London, on 9th September this year.—C. G. Bruce, 16 Harland Road, London, S.E.12, 8.x.1964.

Abisko Revisited

By Major-General Sir GEORGE JOHNSON, K.C.V.O., C.B., C.B.E., D.S.O.

In 1960 I visited Abisko in Swedish Lapland from 7th until the 18th July. It was an early season and although I did well with some of the later butterflies, I failed to secure the earlier species in good condition (*Ent. Rec.*, **72**: 203). This year (1964) with Lt. Colonel C. Mackworth Praed, O.B.E., and his son, Mr. H. Mackworth Praed, I went again to this interesting area, north of the Arctic Circle (Lat. 68° 23′).

We arrived off the night sleeper from Stockholm on the afternoon of 24th June. It had been raining steadily all the way north, but Abisko itself was in sunshine. On a short walk in the late afternoon, we found a few *Clossiana freija* Thnbg. and *Pyrgus centaureae* Rbr., which satisfied us that some butterflies anyhow were on the wing. We also found the nesting hole of a pair of three-toed woodpeckers about ten feet up in a small birch trunk, being attracted thereto by the very noisy young inside. The old birds showed little fear of us and we were able to watch their frequent visits with food at very close quarters. On our way back to our hotel we found a Tengmalm's owl on a low bush in a sallow thicket, which allowed approach to within a few feet. After photographing it we withdrew without disturbing it.

The next day was cold, wet and windy with nothing flying. Indifferent weather pursued us throughout our stay, which ended on 3rd July. During this period we only had two full sunny mornings, and on the other days an hour or so of intermittent sun, usually best about mid-day. Shade temperatures did not rise much above 60° F. (in 1964 when I arrived and for several days afterwards they were over 80° F.) and on occasion at 1 a.m. dropped to below 40° F. even though the sun, albeit obscured by cloud, did not of course, sink below the northern horizon. Snow wreaths and patches, which on my previous visit were confined to north-facing slopes of the higher hills, this year extended down into the upper limits of the birch zone only 300 feet above our hotel. Nevertheless butterflies flew freely directly the sun came out and we secured a very fair sample of the earlier species in good condition.

Our collecting was mostly confined to areas round Abisko Ost, just outside the nature reserve in which our hotel itself was situated. At this stage in the season it was useless to go up high, and we did not, in fact, attempt anything above the tree line except two walks by the Praeds up Nuolja, the hill immediately above the hotel, and a lower hill to the south, to look for flowers.

The first really fine morning (28th June) I took the early train to Stordalen, the next station east of Abisko, and worked the mosses immediately north of it. I was successful in finding *Erebia disa* Thnbg., of which I took seven, though some were worn. In addition, a few *Clossiana frigga* Thnbg. and *Proclossiana eunomia* Esp. f. *ossianus* Hebst. were flying on the mosses. We all revisited the mosses on 1st July, but only got three more *E. disa*, a very cold wind with cloud springing up about mid-day.

Notes on the species found by us are as follows:—

Pieris brassicae L. One only, 28.vi.1964.

P. napi L. One ♂ caught by the Praeds south of Abisko Ost, 2.vii.1964.

Colias nastes Boisd. Fairly common and widespread in all areas flying the moment the sun appeared. Some of the ♂♂ were already a little worn.

Erebia disa Thnbg. Only on the Stordalen mosses and not numerous. By no means easy to catch, partly from their ability to dodge the net and partly from the boggy nature of the ground, which afforded them refuge where one could not follow.

E. pandrose Esp. Flying quite commonly in a number of places in the birch zone, usually on the edge of bogs. On my previous visit it was only to be found well above the birch zone.

Oeneis norma Thnbg. Only found in one area about two miles south of Abisko Ost, where it was flying on a bog and in the drier birch zone surrounding it. In fresh condition, but curiously ♂♂ were very scarce. Not very numerous.

Euphydryas iduna Dalm. In small numbers in widely scattered areas in the birch zone. Very fresh and just emerging, no doubt more numerous later.

Proclossiana eunomia Esp. The local form *ossianus* Herbst. is very different from the Pyrenean race. It was in small numbers on the Stordalen mosses and in a bog next the railway line between Abisko Ost and Abisko Turiststation (our hotel).

Clossiana euphrosyne L. Just emerging, only one or two taken. It is a nice dark form.

C. freija Thnbg. By far the commonest fritillary, occurring practically everywhere, though preferring dry ground to bogs. Fresh to start with, but going over towards the end of our stay.

C. frigga Thnbg. Only in bogs or mosses. Not uncommon and very fresh. The best places for it were the bog between Abisko Ost and Abisko Turiststation, and the Stordalen mosses.

Lycaeides idas L. Only beginning to emerge at the end of our visit. Two or three taken by the Praeds.

Vacciniia optilete Kn. One only taken by the Praeds on our last day. In 1960 it was already going over by this date.

Pyrgus centaureae Rbr. Fairly common in most places in the birch zone —not seen on the mosses. In good condition.

Castlesteads, Brampton, Cumberland. 11.x.1964.

PATRICK BUXTON MEMORIAL PRIZE

The Patrick Buxton Memorial Prize, endowed by his relatives in memory of the late Professor Patrick Alfred Buxton, C.M.G., F.R.S., Director of the Department of Entomology at the London School of Hygiene and Tropical Medicine from 1926 to 1955, is open to competition among past or present students and staff of the London School of Hygiene and Tropical Medicine.

The Prize of £150 will be awarded for the best essay relating to medical or veterinary entomology or an allied subject based on a candidate's published or unpublished research. Essays should reach the Dean, London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), London, W.C.1, not later than September 30, 1965.

The Coleoptera of a Suburban Garden

6 - Brachelytra (Part 2)

By A. A. Allen, B.Sc., A.R.C.S.

(*Continued from Vol. 76, page 242*)

Atheta (*D.*) *arenicola* Ths. (=*germana* Shp.).—Sporadic, though probably less so than it seems, as it can easily pass in the field as the very common *A. nigra*. In the same conditions as the two preceding, and singly in flight, in fur of white cat, and by sweeping.

Atheta (*D.*) *nigra* Kr. (=*zosterae* auct. Brit.).—Quite general, usually plentiful and often in profusion in cut grass, old straw and most kinds of vegetable rubbish and litter; the most regularly occurring of the smaller species in such biotopes, and found from early times.

Atheta (*Chaetida*) *longicornis* Grav.—A common and often abundant species in similar situations; on the whole the most frequent of the larger Athetae in the garden, though, like most, varying much in numbers.

Atheta (*Acrotona*) *sordida* Marsh.—This bright-looking species (at least in life, and despite its name) is often met with in the same habitats as *longicornis*, but as a rule far more sparingly.

Atheta (*A.*) *aterrima* Grav.—Moderately common in decaying herbage etc., sometimes in considerable numbers, and like the last two it has been captured by sweeping; one at mercury-vapour light (5.ix.59), the only specimen of the Aleocharinae I have so taken. Abundant in straw, 16.iii.61.

(*)*Atheta* (*A.*) n.sp.—A species confused by some authors with the next, only separable by the quite different aedeagus of the male, and which it is proposed to describe elsewhere. I know of it from several localities and it is probably not much less common in Britain than *pygmaea*. Scarce in the garden; a ♂ from a grass heap much rotted down, 3.iii.57, and another from foul straw, 10.iv.64.

Atheta (*A.*) *pygmaea* Grav. (*sensu* Brundin).—Equally seldom found; a ♂ with the preceding in grass mulch, with two ♀♀ which may belong to either or both species. I have also noted it previously but cannot at present trace the specimens.

Atheta (*A.*) *muscorum* Bris.—Seemingly rare here; one sieved from humus with debris of straw, where refuse had been dumped the year before, 1.iii.59; and another from moss at edge of lawn, 4.iii.61.

**Atheta* (*A.*) *exigua* Er.—Of this, formerly thought to be an *Oxypoda*, one captured on the wing over a lawn (20.iv.60) is the sole record hitherto.

Atheta (*A.*) *fungi* Grav.—Very general and plentiful throughout; perhaps the commonest Aleocharine, even outnumbering *Amischa analis* which has similar habits. At roots of herbage, under any sort of cover on soil, in humus, moss, dead leaves and sometimes freely by sweeping. Often profusely in vegetable litter or traps of dead grass; not however, in actively decomposing material, except casually. Very variable; the small forms with more transverse joints to the shorter, darker antennae can be most confusing and easily mistaken for the rare *A. orphana* Er.

Atheta (*A.*) *laticollis* Steph.—Decidedly erratic; but tends to be more or less gregarious and often present in some little quantity when found. In various kinds of decayed plant material, usually with several of the other species.

Atheta (Rhagocneme) subsinuata Er.—Not common, in similar environments to the last; mostly by ones or twos (occasionally more) at intervals from about 1934 onwards. There is some indication that it is mainly a winter and early spring species, probably often overlooked.

**Aleuonota gracilenta* Er. (=*splendens* Kr.).—Twice taken by sweeping in May on lawns in the warm afternoon sunshine (8.v.59, 7.v.60). A great rarity which has been taken, always singly, in sand- and chalk-pits and by sweeping on downs, and once (by myself) in rotten wood with ants; the proper habitat of the genus is doubtless subterranean.

**Aleuonota* n.sp.—A species differing from *gracilenta* in having the antennae shorter and steadily thickened to apex, which Dr. G. Benick of Lübeck is studying; it appears to be certainly new. The unique specimen was obtained in sweeping long grass by a fence (where there were probably mouse-runs) while the air was very warm, still, and humid after a thunder shower, on 30th August 1958.

Zyras limbatus Payk.—Irregular and periodic in incidence but by no means rare in company with the ant *Lasius niger* (only too common in the garden); should also occur with *L. flavus*, which too now abounds here. First found in the spring of 1951 in some numbers with the ants at grass roots along the base of a fence, but perhaps commonest in 1955.

**Amarochara umbrosa* Er.—Very scarce; one in a grass heap, iv.35; occasionally under stones or bricks in moist places along a wall of the house in May and June, 1952, while the latest was swept off long grass beneath apple trees in sultry weather, 11.v.53. This is another of the small Staphylinids believed to live underground in the runs of mice etc.

Oxypoda opaca Grav.—One, 17.xi.56, in debris of dry dead grass. (I appear to have taken it previously, about three years earlier, but details of this are not to hand).

Oxypoda lividipennis Mann.—One beaten from an apple tree, 22.v.59.

(*)*Oxypoda pectita* Sharp (?*induta* M. & R.).—A little-known species because much confused with the next, and so doubtless overlooked. Not at all uncommon here in cut grass and other rotting herbage, though not of quite regular occurrence; the first as long ago as iv.35. Also swept up (a teneral one 14.iv.57, etc.) (*Note*: *induta* is now used as the valid name but I am not convinced that Mulsant and Rey's species is really the same as Sharp's—whereas our beetle, or at all events the Blackheath one, is quite certainly the latter. Donisthorpe, who compared a series of continental *induta* with our *pectita*, pronounced them 'quite different species').

Oxypoda umbrata Gyll.—Though considered common (and I have it from several localities, unlike the last) the only specimen I can record from the garden was found under a piece of board placed as a trap in a muddy spot at the base of a wall of the house, 20.iv.55.

Oxypoda nigrina Wat.—First noted in February 1952, when it occurred rather freely in well-rotted grass-mowings; since taken at intervals, in similar material and especially (lately) in decaying straw, nearly always in late winter and early spring—after which it almost disappears.

Oxypoda haemorrhoa Mann.—Tolerably common in cut grass, old straw, etc., sometimes numerous. Has also occurred by sweeping in warm weather, on house wall, under sods, and cover in damp places, at roots, and so on.

**Oxypoda ferruginea* Er. (=*misella* Fowl.).—Infrequent, but found singly or few at a time on a good many occasions in fairly recent years;

the first in grass-cuttings (1.vi.41) but subsequently at roots on turf along the base of a fence during the early '50's, March-April; more rarely since, but once lately in straw; also in the past beneath stones and suchlike traps along house wall. Has occurred in company with the next; likewise said to inhabit sandy places.

Oxypoda brachyptera Steph.—Very uncommon; single examples in spring and early summer since 1951, one or two at grass roots and on or under turf and sods along fence as above, and the rest (little in excess of half-a-dozen) under bricks and tiles in spots where the soil was light and somewhat sandy or mixed with fine gravel; 4 of these taken on one day, 19.iv.51. Not seen since one was found floating at edge of pond, 27.iii.59. (Chiefly a species of sandpits etc., whose presence here is surprising).

Microglotta pulla Gyll.—In nests of thrushes and doubtless other birds; twice only so far (30.iv.53, 11.v.61) but is probably far more frequent than this would suggest.

Aleochara curtula Gze.—Often rather numerous under any kind of carrion, to which it seems quite confined; copiously at fish bait at times; in dead sparrow, 8.v.59. Excessively variable in size.

**Aleochara lata* Grav.—Though fish etc. was put out almost continuously in the summer of 1952 (and often later) to attract carrion species, only one specimen of *A. lata* has turned up (29.vii.52). This insect has the same habitat as *curtula* but is very scarce in comparison.

Aleochara intricata Mann.—Under carrion (fish); the sole record I have is of two specimens, 14.vii.52.

(*)*Aleochara tristis* Grav.—Likewise extremely rare; a single individual shaken out of the carcass of a starling, 7.viii.52. (These two species mostly frequent dung, in my experience, *tristis* being much the less common of them).

Aleochara lanuginosa Grav.—Formerly very sporadic in grass heaps, but latterly more common in rotting straw on particular occasions (e.g. 17.iv.62, when it was plentiful) but very variable in numbers. One was noted with a springtail (Collembola sp.) as prey (1962, *Ent. mon. Mag.*, **98**: 227).

Aleochara diversa Sahlb. (=*moesta* Er.).—Another species which is 'unique' in the garden records (5.viii.52 at the fish bait when much disintegrated).

Aleochara sparsa Heer.—Again only a single example has occurred, which was sifted out of loamy soil where a pile of straw had stood, 1.iii.59.

Aleochara bipustulata L.—Not altogether uncommon in the period 1952-3, and casual specimens before and since, but not found earlier than 4.iii.51. In rotten wood at the foot of a fence-buttress, once or twice swept up or on the wing, and the last in cut grass 5.v.60; otherwise at carrion—usually buried in the soil beneath.

**Aleochara bilineata* Gyll.—A few between 5th and 10th July, 1952, under rotting fish with others of the genus, the total not exceeding 5 or 6. (In my experience it is rare anywhere, at all events as compared with the last).

Tinotus morion Grav.—In various situations, but very seldom met with; except for the first (iv.33) all in relatively recent times. Twice at carrion (1952, 6.vii.53) and has been swept from lush grass under apple trees; 3 in compost, 11.v.53; and one in cut grass, 5.v.60.

This completes the body of the list, but during the course of publication —inevitably spread over a number of years—a great many additions have accumulated. Naturally, the earlier sections of the list are now very incomplete and out of date, for—quite apart from the substantial numbers of species to be added—further experience of many of the others means that some of the published data require modification in the light of this. In the supplement which it is proposed to publish in due course, therefore, not only will additional species be listed but also, where the status in the garden fauna of species already in the main list has changed considerably, the fact will be noted—along with any points of special interest.

LITHOPHANE LEAUTIERI BOISD. IN SOMERSET.—In October 1963 I was delighted to find a *Lithophane leautieri* Boisd. in my light trap in my garden at Minehead. This was, to the best of my knowledge, the first time that the species had been noted from Somerset. At that time I was living in the built-up area of Minehead, and there are a good many mature trees of *Cupressus macrocarpa* in the vicinity as well as in my garden.

Since then I have moved about four miles into the country where the *Cupressus* trees are by no means common, in fact the nearest one seems to be about one mile away in the valley, although the adjacent Selworthy woods have a good selection of mature and introduced conifers.

On 2nd October of this year I was surprised and delighted to get a further example at my mercury vapour lamp.

From what I have read about this moth, I have gathered that it is usually taken in the vicinity of mature *Cupressus macrocarpa*, and I wonder whether it may possibly prove to breed on allied species. Of course, it may have been just a wanderer, and it remains to be seen whether more will be found.—Dr. H. M. CHAPPEL, The Old Rectory, Selworthy Minehead, Somerset. 19.x.1964.

SPHECIA BEMBECIFORMIS HB. IN DERBYSHIRE.—A perfect female *Sphecia bembeciformis* Hb., was found at rest on a sallow bush growing on a piece of waste land near the abandoned colliery near the village of Tibshelf in Derbyshire at 10.0 a.m. on 22nd July 1963. It was kept alive for a few days and laid a few eggs which were attached to a sallow trunk. Unfortunately they failed to hatch. Although this is not the first record for the county, I think its appearance at any time is worthy of note.—J. H. JOHNSON, 1 Berry Street, Hepthorne Lane, Chesterfield. 15.x.1964.

APATELE TRIDENS SCHIFF., IN DERBYSHIRE.—In September 1963 a small boy brought me two larvae which were undoubtedly *Apatele tridens* Schiff., and almost fully fed. They had been found feeding on some species of small leaved elm growing in a hedgerow near a bus stop in the village of Tibshelf, Derbyshire. This is the first definite record of this species in this section of Derbyshire. I at once promised half a crown to any boy who could find another one of these caterpillars, but even that failed to produce any more. Twenty *psi* larvae were brought to me in a few days, proving that an intense search was in progress, and also that *tridens* is not very common.—J. H. JOHNSON, 1 Berry Street, Hepthorne Lane, Chesterfield. 15.x.1964.

Mrs. R. W. WATSON

Obituary

Colonel SIDNEY HARDINGE KERSHAW, D.S.O.

Colonel Sidney Hardinge Kershaw, D.S.O., who died on 12th July 1964, was born at the Rectory at Fledborough in Nottinghamshire in 1881, being the youngest son of the Reverend E. W. Kershaw. Educated at The Wells House, Malvern Wells, and Repton, he passed into Sandhurst and had a distinguished Army career, both as commanding officer of his regiment, the Fifth Fusiliers, and on the General Staff. During the Palestine campaign in 1916 he was present at the battles which resulted in the defeat of the Turkish 7th and 8th armies. Subsequently (1917) he served as G.S.O.1 on General Lord Allenby's staff and was in the famous pursuit when the Turkish Army was pushed northwards. For his services in this campaign he was awarded the D.S.O. Later came the Order of the Nile and the White Eagle of Serbia. After the war he commanded the 2nd Battalion of his regiment in India.

Kershaw began collecting Lepidoptera when at school, and throughout his life as a soldier he collected wherever he was stationed. Thus he formed a fine collection of foreign Lepidoptera, which collection has now passed, at his request, to the Nottingham Museum.

For many years Kershaw was a friend and correspondent of the late S. G. Castle Russell, and since it was impossible for anyone who knew Castle Russell intimately not to become infected by his enthusiasm for and great knowledge of the variations of the British Rhopalocera, Kershaw turned his attention more and more to this branch of collecting. His butterfly collection, a fine one which increased in interest with the years, has now passed to his youngest son, Major R. M. Kershaw, who is himself a keen collector. His moth collection he left to Mr. Sydney Humphries of Roade, Northamptonshire.

In 1932 Kershaw retired from the Army and settled at Alderman's Lodge, Aspley Heath, near Bletchley, where he continued to collect actively, visiting many of his favourite localities for both butterflies and moths. And here after nearly seventy years of collecting he succumbed to the illness which has now resulted in his death.

A man with a delightful personality, an entertaining companion, a staunch friend and a correspondent to whose letters one always looked forward, Kershaw had a strong sense of duty to his fellow men. He founded his local branch of the British Legion and was President of it up to the time of his death. He was also an active supporter of the church at which he worshipped. By his many friends and correspondents he will be sorely missed.

He is survived by his wife, two sons and a daughter. To them we offer our profound sympathy in their great loss.

Multis ille bonis flebilis occidit.

P. B. M. A.

NORA WATSON

The sudden death on April 10th, 1964, of Mrs. R. W. Watson, at the age of thirty-seven, was a grief to all who knew her. She had been the wife of Mr. Robert Watson, accountant, for seventeen years, and had taken a prominent part in building up their vast collection—all specimens perfect and most exquisitely set—of British Lepidoptera. She was

a regular exhibitor, nearly always with something startling or unusual, at the Annual Exhibition of the South London Society.

Nora Watson combined a patience for searching among myriads of insects on the wing, with an unerring eye for locality. She had also a remarkable flair in breeding aberrations; and had bred, right through, nearly every species of resident British butterfly and many of the moths —including even some of the most difficult species.

Among her major aberrations, taken or bred, were the following: a male underside of *Colias croceus* Fourc. with black suffusion, both male and female ab. *cinnamoneus* of *Lysandra coridon* Poda, a *fowleri* female of *L. bellargus* Rott., an albino *Coenonympha pamphilus* L., and a female ab. *illustris* of *Panaxia dominula* L. There were also a remarkable asymmetrical specimen of *Aphantopus hyperantus* L. taken only in 1963, and several specimens showing homoeosis of both *Euphydryas aurinia* Rott. and *Melitaea cinxia* L. There were many others, too numerous to detail here. Mrs. Watson shared also in her husband's predilection for and skill in game shooting.

Nora Watson was the third daughter of Mr. and Mrs. Alfred Hayter of Twyford, near Shaftesbury, Dorset. Her many friends remember her, apart from her qualities as an entomologist, as a charming personality and a most gracious hostess.

To Robert Watson, who owed so much to her, both in the field and in business, our deepest sympathy is due.—I. R. P. H.

Notes and Observations

HERSE CONVOLVULI L. IN SHANKLIN.—During the past three seasons I have grown a clump of *Nicotiana* for the purpose of attracting hawk moths, and at last I have had a little reward. A male *H. convolvuli* came to the light on 12th September, and another male specimen was found hovering over the *Nicotiana* flowers after dark on 25th September. On both occasions a strong breeze was blowing from the south west. The only specimen of *Macroglossum stellatarum* L. seen this year was at the *Nicotiana* flowers on 19th September at 7 a.m.—T. D. FEARNEHOUGH, 26 Green Lane, Shanklin, Isle of Wight. 27.ix.1964.

ENARGIA PALEACEA ESP. IN SURREY.—May I add the following records of the occurrence of this species in southern England to those recently reported by Mr. Alasdair Aston and Mr. David More (antea 224/5).

A specimen of *E. paleacea* came to my mercury vapour light trap here on the night of 13th August last, and was followed by two further examples on 17th August. All three were males in mixed condition and have a pale dull background colour, which suggests that they assort well with Mr. More's example, and all lack the bright colouring of the normal northern British form.

It would be most interesting if any readers could make any reliable suggestion as to their place or origin.—J. L. MESSENGER, Stonehaven, Wormley, Godalming, Surrey. 17.x.1964.

CUCULLIA VERBASCI L. ON BUDDLEIA.—A full grown larva of *C. verbasci* was found feeding on *Buddleia davidii (variabilis)* in my garden on 5th July last. My attention was attracted by the eaten condition of the leaves, and I felt sure that more than one larva had been present.

The larvae of *verbasci* have been found on *Buddleia globosa* according to South (Barrett) but some years ago I had a few larvae, and running short of mullein I offered them leaves of *Buddleia davidii*. They refused to touch this possible food plant.—T. D. FEARNHOUGH, 26 Green Lane, Shanklin, Isle of Wight. 27.ix.1964.

COLIAS CROCEUS FOURCH. (CLOUDED YELLOW) IN DEVONSHIRE.—On 21st September of this year I saw a perfect specimen of *Colias croceus* Fourch. at Start Point, south Devon, Start Point is about four miles east of Prawle Point, where Mr. Burton reports that two were seen in August (antea 217). The butterfly was flying along the coast in the direction of Prawle Point.—J. MUGGLETON, 32 Penton Road, Staines, Middlesex. 4.x.1964.

RHODOMETRA SACRARIA L.—This may well turn out to be a bumper year for *Rhodometra sacraria* L. Two specimens have come under my notice this year, the first came to a mercury vapour light operated in company with Mr. B. Goater at Scratch Wood, Middlesex, who later bred a short series from this female. The second, a male, came aboard the Marine Biological Association's research vessel "Sarsia" while trawling at forty fathoms at the Eddystone grounds. This latter was not retained, as I collect only Noctuae.—A. A. MYERS, 34 Crundale Avenue, Kingsbury, London, N.W.9.—3.x.1964.

ENARGIA PALEACEA ESP., A CORRECTION.—I made a slip in my note on Hampshire migrants (antea 214) when I said that Mr. Ian Lorrimer had recorded *Enargia paleacea* Esp. at Chandler's Ford. It was, of course, Mr. Barry Goater who did so.

May I take this opportunity of recording the capture at light at Camber, Sussex, of one *Leucania unipuncta* Haw., in good condition, on the night of 4th-5th October last.—AIR MARSHAL SIR ROBERT SAUNDBY, K.C.B., Oxleas, Burghclere, near Newbury, Berks. 10.x.1964.

HADENA COMPTA FABR. IN NORFOLK.—Having seen two male specimens of *Hadena compta* at mercury vapour light in a garden at Rackheath in 1963, the Sweet Williams in the garden were left undisturbed and no seed heads were removed this summer. During August this year the seed heads were searched and forty larvae were found, in all stages from one third to fully fed. These duly pupated, the last in the third week of September, and some of these were parasitized, and the pupae of these are being bred for identification.—C. G. BRUCE, 16 Harland Road, London, S.E.12. 8.x.1964.

EUROIS OCCULTA L. IN MIDDLESEX.—As this species has been widely reported this year, I should like to record that a pale female *Eurois occulta* L. came to my mercury vapour light trap here on 17th August.—M. G. MASON, 14 Paxford Road, North Wembley, Middlesex. 17.x.1964.

THE OCCURRENCE OF ENARGIA PALEACEA ESP. (ANGLE-STRIPED SALLOW) IN WILTSHIRE.—On the night of Saturday 15th August last, which was fairly mild and dry, with the sky overcast and little or no wind blowing, I ran a mercury vapour light beside a barley field in the vicinity of Old Sarum, about a mile from the outskirts of the City of Salisbury. Ostensibly I was collecting in this particular area for the purpose of obtaining a series of *Oria musculosa* Hübn. (Brighton Wainscot), but was naturally on the look-out for anything else of special interest. Around 2 a.m. a rather large orange-coloured moth circled the light and moved away as though to escape into the night. Thinking it was probably only some common species of noctuid, perhaps an over-sized *Diarsia mendica* Fab. (*festiva* Schiff.) I netted the insect and having boxed it, was somewhat puzzled as to its identity.

Two days later, I went through my copy of R. South's "Moths of the British Isles" and the only species which my moth resembled was *Enargia paleacea* Esp. Before setting the specimen, I showed it to my friend. Mr. B. F. Skinner who has collected this species in Scotland; he confirmed straightaway that I had indeed caught the angle-striped Sallow moth.

In view of the fact that the fairly recent work compiled by Baron de Worms "The Macrolepidoptera of Wiltshire" (1962) does not enmesh the species, it is worth-while to draw readers' attention to what I hope is a new county record.—R. F. HAYNES, 29 Fairfield Drive, Dorking, Surrey. 24.x.1964.

LAMPIDES BOETICUS L. ON ASCENSION ISLAND.—In July 1964, during the course of geological field work on Ascension, a remote island in the southern atlantic (7° 57′ S.: 14° 22′ W.), *Lampides boeticus* L. (long tailed blue) was observed in large numbers above 2300 feet on Green Mountain. This mountain (2817 feet), the highest on the island, is the only one with prolific vegetation.

A search through the literature has failed to find any previous record of Rhopalocera on Ascension Island, although C. O. Waterhouse (Annals and Magazine of Natural History 1881) listed several Noctuid moths, most of which were in evidence in July 1964.—F. B. ATKINS, Dept. of Geology and Mineralogy, University Museum, Oxford. 4.x.1964.

FOOD PLANT OF LEUCANIA OBSELETA HÜBN.—I noticed in this month's Record that Mr. Chalmers-Hunt in his account of *Leucania obsoleta* Hübn. (obscure wainscot) says that the food plant is unknown. I think it is generally accepted that the larva feeds on *Phragmites,* the common reed, but it may be of interest to note that in 1949 I took a female *obsoleta* at Wood Walton. She deposited ova, and when the larvae hatched, I put them on *Phragmites*, but they would not feed. I tried various food plants and finally they started on knot-grass, *Polygonum aviculare.* I fed them entirely on this until they went into hibernation, pupated in the spring, and produced moths in the following June. I had a rather similar experience with the larvae of *Hydrillula palustris* Hübn (marsh moth). I had a large number of ova in 1954, and when they hatched I put them on *Spiraea* (meadow sweet), their usual food plant, but they would not feed. I finally got them to feed on *Taraxacum* (dandelion) and *Lactuca* (lettuce) but after about two weeks they turned to withered *Spiraea* and finally fed up on this.—R. GEOFFREY TODD, West Runton, Cromer, Norfolk. 30.ix.1964.

Current Literature

Ten Little Housemates. Karl von Frisch. 146 pp. 8vo. Pergamon Press. 12/6.

This book deals with ten insects and other creatures associated with the domestic biotope, and the subject is treated in a manner calculated to appeal to school biology classes, but this is in no way allowed to impair the accuracy of the accounts. The author has a keen sense of humour and a fund of anecdotes which impress his points on the mind.

The creatures treated are the house fly, gnats, the flea, the bed bug, lice, the clothes moth, the cockroach, silver fish, spiders and ticks. Each is the subject of a chapter and is treated from a diversity of aspects. The book makes interesting and amusing reading, and will certainly have a strong appeal in school libraries, as also in families blessed with children with enquiring minds (parents may also read it when the children have gone to bed).

It is well printed on good paper with stiff paper covers, and is copiously illustrated with good line drawings of the subjects, sufficiently enlarged to show their structure (and the scale is mentioned), and also of many other aspects of their life and activities, including the harnessing of a "performing flea", a matter which had always puzzled me.—S.N.A.J.

Wasp Farm. Dr. Howard Ensign Evans. 178 pp. and 16 half-tone plates. George G. Harrap & Co. Ltd. 21/-.

This book is full of pleasing features and can be recommended to all classes of naturalist. It gives an account of the author's field activities studying the behaviour of many genera of wasps on a small piece of wild land which he occupied for a few years. His personal observations are not, however, the sole material used, but the writings and observations of others are used in order to make the account as complete as possible.

The book is packed with fascinating details of insect behaviour, and each chapter deals with a different aspect or problem of wasp life, and each is very well ordered. A most pleasing feature is that the author does not go out of his way to simplify scientific names, but applies them naturally to the subjects of his accounts so that they may be intelligible both to the entomologist of any country, or to the layman; he does not, however, omit to mention popular names of species which are part of the ordinary life of everyone. The chapters all finish with two welcome features: "Cast of Characters," in which the scientific names mentioned are analysed and their component Greek and Latin parts translated, and "For Further Reading", in which a short relevant bibliography is given.

The author holds the reader's interest throughout and, as one would expect from a university graduate, he keeps clear of both anthropomorphism and of cold scientific inhumanity. The illustrations consist of line drawings, mostly explaining the peculiarities of certain wasp nests, and of photographs showing the various activities of the insects concerned, the taking of which must have required infinite patience. The most pleasing feature of these is that they are taken to illustrate the *activity*, and they are not merely cosmetic pictures to ornament the book, of a kind all too familiar in these days of advanced photography.—S. N. A. J.

Current Notes

HOD HILL

In years gone by, this famous collecting ground supported a large and flourishing population of both *Euphydryas aurina* L. (marsh fritillary) and *Lysandra bellargus* Rott. (adonis blue). They occurred over the whole of the top of the hill, and their numbers were not noticeably affected by the casual grazing to which their breeding grounds were subjected from time to time.

Of recent years, however, stock has been kept on much of the hill in greater numbers with disastrous consequences for the butterfly population. So much so in fact that the fritillary is now confined to a very limited area which is not subject to grazing, and the Adonis Blue has become a rarity.

In an effort to preserve both these insects by giving their breeding grounds some measure of protection the Dorset Naturalists' Trust, through the sympathetic co-operation of the owner, has recently arranged to lease an area of the hill-top on the south and west sides. These areas have now been enclosed by several hundred yards of stock-proof fencing.

Provided collectors play the game, the Trust does not propose to interfere with their activities, but at the same time they hope that the utmost restraint will be used, particularly while these two butterflies are re-establishing themselves.

The cost of this project has been considerable and should any entomologist wish to contribute towards it, the hon. treasurer of the Trust, Mr. P. A. Bentley, St. Judes, Wimborne Road West, Hayes, Wimborne, Dorset, would welcome a donation.

The Treasurer's Appeal

With the December issues of 1961 and 1962 I made an appeal to all subscribers who pay by cheque to subscribe by Banker's Order, and I have had a fairly good response. There, are, however, more than a hundred subscribers who pay direct by cheque, and I again appeal to them to save themselves and the Treasurer trouble and expense by using a Banker's Order.

I often receive in March and April charming letters of apology for having overlooked the subscription.

I hope that those subscribers not using a Banker's Order will send me their subscriptions before 1st February. If a subscription is not paid before the end of February, I have to send a reminder, and thereafter, if no reply is received, I must assume that the Record is no longer required, and must withold further issues. This applies also to those who subscribe through subscription agents.

I again assure subscribers that I am not being high-handed in this matter; the Record has to pay its way even though it is not run for profit, and your co-operation will be sincerely appreciated.

I will on request send a Banker's Order for 1965 onwards to any subscriber; it is payable on 1st February each year, and can be cancelled at any time should the necessity arise.—C.C.

Agrimony flower, September 1, 1962 (T. W. Harman). Ickham, 1954-59, several most years (D. G. Marsh).

6. Gravesend, August 9, 1910 (F. T. Grant). Springhead (H. C. Huggins).

9. Margate, August 4, 1951; Cliftonville, one, July 30, 1955 (W. D. Bowden).

11. Aylesford, two (G. A. N. Davis).

12. Willesborough, one, August 4, 1954, one, July 29, 1955 (W. L. Rudland).

15. Dymchurch (Browne, *Entomologist*, **35**: 269); (G. V. Bull); 1952 (Wakely, *Ent. Rec.*, **65**: 44). Appledore, several, 1953, twelve, 1957 (P. Cue). Dungeness, one, taken by T. W. Harman, August 30, 1962 (R. E. Scott).

16. Folkestone* (Ullyett (1880)). Near Hythe*, 1929 (Morley (1931)). Folkestone Town (Morley, *Ent. Rec.*, **64**: 171).

VARIATION.—According to Tutt (*Br. Noct.*, **1**: 42-43) ab. *pallida* Tutt is the commonest form of the species; of ab. *rufescens* Tutt, he writes (*loc. cit.*):—"I have a fine series . . . captured on the banks of the Thames in North Kent".

FIRST RECORD, 1841: Bromley Marshes (Courtney, *Entomologist*, **1**: 227).

Oria musculosa Hübn.: Brighton Wainscot.

Resident?

Note:—It is possible the species has been much overlooked owing to its habit of frequenting corn-fields.

8. Wye*.—A rather worn *musculosa* in J. Platt Barrett coll., labelled "Wye 8/8/81 J. Platt Barrett"† (C.-H.).

[The following records cannot be accepted here without reserve:—(1) Under *Simyra nervosa* Steph. (which Bainbridge Fletcher attributes to *musculosa*, see *Entomologist*, **75**: 141), Stephens records one taken by Pittard near Darenth Wood; (2) a specimen of *musculosa* in Rev. C. A. Sladen's coll. sale, labelled "Wye Downs, 1885, Morley collection" (*Ent. Rec.*, **8**: 15).]

FIRST RECORD, 1881: Wye (J. P. Barrett).

Nonagria algae Esp. (**cannae** Ochs.): Reed Wainscot.

Resident. Ponds; [on *Typha latifolia*].

11. Frittenden, one taken at light, c. 1949, by Rev. O. S. S. Edwards (R. C. Edwards).

15. Dungeness, Open Pits, 1952, "I had cut some mined stems of *Scirpus* and *Typha*, expecting to breed *N. sparganii* (Esp.), and was very surprised to find that a male *cannae* had emerged on 12th September, to be followed by a female on the 14th" (Jackson, *Entomologist*, **86**: 2; *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 36). Dungeness, one taken 1954 by E. J. Hare and in his coll.† (C.-H.).

FIRST RECORD, c. 1949: Frittenden (O. S. S. Edwards).

N. sparganii Esp.: Webb's Wainscot.

Resident, probably native. Marshes, ponds, ditches; on *Iris pseudocorus*, *Typha latifolia*, *T. angustifolia*, *Sparganium ramosum*. Formerly chiefly maritime; now ranging well inland as a breeding species. The "Kent Wainscot" of Tutt (1896, *Br. Moths*, 164).

Note:— In wet seasons liable to suffer heavily from attacks by Moorhen, which can then more easily reach the larvae and pupae.

2. Iwade Marshes, 1922, approximately 1% larvae against *N. typhae* (H. C. Huggins). Queenborough, imagines plentiful in ditches, August 1936 (E. H. Wild). Higham, four pupae and a larva among 24 larvae and pupae of *N. typhae* in stems of *T. latifolia*, August 12, 1956 (C.-H.); eighteen pupae, August 11, 1962; pupae fairly plentiful, August 1963 (R. G. Chatelain). Burham Marsh, Aylesford, pupae, 1953 (G. A. N. Davis); common, 1955 (Davis, *Bull. K. Field Cl.*, **1**: 6).

3. Whitstable, pupae rather common, imagines reared; in 1942 and other years (P. F. Harris). Broad Oak, several pupae, August 9, 1955, in *T. latifolia*, growing in village pond, imagines reared (C.-H.).

4. Dover district, at Haggerston Entomological Soc., November 15, 1883, Messrs. T. Cook & Son exhibited *sparganii* (*Entomologist*, **17**: 24). Deal, September, 1884 (Meldola, *Ent. mon. Mag.*, **21**: 135; idem, *Entomologist*, **17**: 253); August 1884 (Tutt, *Entomologist*, **18**: 71). Reculver, larvae and pupae on *Typha*, 1934, 1937-38, much more common in 1939 (A. J. L. Bowes). Sandwich, one, 1947 (J. A. Parry). Hersden, pupae abundant in *T. latifolia* and *I. pseudocorus*, August 5, 1955, August 6, 1956, almost every stem being tenanted, with sometimes two per stem, and in one stem of *T. latifolia* I counted three (C.-H.). Ickham, imagines fairly frequent at light, 1954-59, six in 1959 with four in m.v. trap one night (D. G. Marsh).

6. Cliffe Chalkpit, pupae common, c. 1950, all in *I. pseudocorus* (B. K. West).

6a. Chattenden, larvae and pupae in *T. latifolia*, June 26, 1960 (C.-H., *Proc. S. Lond. ent. nat. Hist. Soc.*, 1960: 85).

8. Folkestone Warren, one at light, taken by R. C. Crewdson, September 18, 1931 (A. M. Morley).

9. St. Peters, one, at light, August 28, 1933 (J. W. C. Hunt).

11. Hoads Wood, ♂, at m.v.l., August 11, 1955 (C.-H.); August 1960 (C. R. Haxby). Great Chart, five pupae in *Typha*, 1962, produced 4 ♂♂, 1 ♀ (M. Singleton).

12. Ashford, one, September 21, 1938 (de Worms, *Entomologist*, **71**: 261); one, 1954, one, 1955, both at light (P. Cue). Chartham, pupae in *Typha*, August 5, 1955 (C.-H.). Brook, one, end August 1952 (C. A. W. Duffield, *fide* E. Scott). Wye, one, September 28, 1953, one, October 1, 1954 (W. L. Rudland). Ham Street, one, at light, September 4, 1954 (W. L. Rudland); one in m.v. trap, September 21, 1957 (R. F. Bretherton); August 1960 (C. R. Haxby).

14. Hawkhurst, one at light, August 12, 1952† (B. G. Chatfield).

15. Dungeness, one exhibited by S. Webb in January 1879, bred from a larva taken by him in 1878 (Carrington, *Entomologist*, **13**: 50; see also *First Record*); larvae in *S. ramosum* and *I. pseudocorus*, 1879 (Carrington, *loc. cit.*); many were taken by Webb, Hanbury and Jeffery before 1900; "my first *sparganii* was taken at Dungeness in 1902" (H. M. Edelsten, *in litt.*); 1931 (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1931-32: 91); larvae and pupae at the ponds and in scattered clumps of *Typha* in wet spots over the shingle, August 1937 (A. J. L. Bowes); larvae and pupae in *Typha* on the road to the Hope and Anchor, July 24, 1949 (C.-H.); larvae in *T. angustifolia* (Edwards & Wakely, *Ent. Rec.*, **70**: 93); one in m.v. trap, August 20, 1962 (R. E. Scott); ♀, at the new lighthouse, September 21, 1963

(C.-H.). Hythe (Tutt, *Br. Moths* (1896), 164), probably refers to Dungeness (C.-H.). Appledore, pupae and spun-up larvae, August 1, 1962 (S. Wakely).

16. Folkestone Town, ♂, at m.v., September 8, 1958 (A. M. Morley). Sandgate, one, 1961, at light (N. Reay-Jones).

VARIATION.—Very variable, particularly the ♂. It appears the type is of frequent occurrence in the ♀, but much less so in ♂ specimens. My series of 64 Kentish examples contains the following named abs.:—♀ *bipunctata* Tutt, one, Reculver; ♀ *obsoleta* Tutt, one, Reculver; and several of each of what appear to be the following colour abs.—♂ *rufescens* Tutt, Dungeness and Hersden; ♂ *rufa* Tutt, Broad Oak and Hersden; ♂ *nigrostriata* Wightman, Dungeness, Hersden, and Whitstable; ♂ *roseoradiata* Wightman, Hersden. I also have a ♂ from Hersden, which closely approaches *N. algae* in appearance; and another, a ♀ from Broad Oak, having the reniform broadly semi-colon shaped (C.-H.).

A. J. L. Bowes (*Diary*) notices certain features apparently distinguishing specimens from Dungeness from those from Reculver. He observes the main difference is that "Dungeness specimens have a darker transverse black band on forewings and a tendency to pinkness".

Turner (*Supplement to Tutt's Br. Noct.*, **1**: 155) described ab. *clara*, North Kent, two; Richardson (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1953-54: 41) records ab. *bipunctata* Tutt from Kent; and Morley (*loc. cit.*) records ♂ and ♀ ab. *rufescens* from Kent.

The following abs. are in R.C.K.:—♂ *unimaculata* Dumont, Dungeness, one, Herne Bay, one, E. Kent, one; ♀ *clara* Turner, E. Kent, one; ♀ *bipunctata* Tutt, Herne Bay, one; ♂ *rosea* Wightman, S. Kent, two; ♀ *obsoleta* Tutt, Reculver, one; ♂ *roseoradiata* Wightman, Dungeness, one, Kent, one; *lutea* Wightman, East Kent, two; *rufescens* Tutt, numerous ♂♂ and ♀♀, Dungeness and Herne Bay; *rufa* Wightman, ♂♂, Dungeness and Herne Bay, and one ♀, East Kent; *nigrostriata* Wightman, numerous ♂♂ and ♀♀, Dungeness. Note:—The locality of these *sparganii* labelled "Herne Bay", is Reculver (C.-H.).

FIRST RECORD, 1879: At meeting of Royal Horticultural Society on January 14, 1879, "S. Webb showed a moth, *Nonagria sparganii*, the larva of which . . . in this country is found to prey on the stems of Irises . . . ". "The insect is a new introduction to this country" (*Proc. R. hort. Soc.*, 1879: ci). This is also the first British record. The provenance was subsequently given out as "south-east Kent", but hitherto there has been no authenticated record specifying the locality, which for many years was kept secret. It is therefore of interest to note that H. M. Edelsten wrote me that Webb first discovered *sparganii* as new to Britain at the Open Pits (or "Hoppen Pits" as they were known locally), Dungeness, and that he was informed of this by Webb himself (C.-H.).

N. typhae Thunb. (**arundinis** F.): Bulrush Wainscot.

Native. Marshes, dykes, ponds; on *Typha latifolia*. Plentiful in many localities in 2, 4, 15.

Obs.—At Minster (div. 4), August 26, 1919, H. G. Gomm (*Diary*) records finding four pupae of *typhae* in a single stem of *T. latifolia*. Tonge (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1913-14: 124) observes that at Deal in 1913, most of the larvae were parasitized.

1. Lee Swamp, A. H. Jones took a ♀, sitting on a stem of *T. latifolia*

drying its wings, September 12, 1862; eight, August 20-21, 1863 (Fenn, *Diary*). Lewisham, occurred commonly up to 1877, ground since built over (R. Adkin, in *Wool. Surv.* (1909)). Brockley, pupae common (West, *Ent. Rec.*, **18**: 200). Beckenham, 1948 (de Worms, *Lond. Nat.*, 1955: 33). Lee, one, at light, October 30, 1955 (C. G. Bruce). Foots Cray, in gravel pits (R. G. Chatelain, *in litt.*, 25.xi.1958).

3. Whitstable (P. F. Harris). Broad Oak, pupae abundant in stems of *T. latifolia* in village pond, August 9, 1955 (C.-H.). Eddington, at light, September 11, 14, 20, 28, 1949 (D. G. Marsh, *Diary*).

5. Westerham (R. C. Edwards).

6. Pinden, one, August 1953 (de Worms, *loc. cit.*). Otford, four at m.v.l., 1955 (W. B. L. Manley).

6a. Chattenden, larvae and pupae in stems of *T. latifolia*, June 26, 1960 (C.-H., *Proc. S. Lond. ent. nat. Hist. Soc.*, 1960: 85).

7. Boxley (A. H. Harbottle).

8. Folkestone* (Ullyett (1880)). Folkestone Warren, August 26, 1932 (J. H. B. Lowe).

10. Shoreham (H. E. Hammond).

11. Edenbridge, pupae plentiful, 1930 (F. D. Greenwood). Tonbridge (H. E. Hammond). Hoads Wood (P. Cue). Frittenden, pupae, 1955 (C.-H.). Headcorn, "bullrush pond in field near main road infested, several pupae shelled out, August 17, 1960" (C. R. Haxby, *in litt.*).

12. Wye; Kennington (Scott (1936)). Vauxhall Lakes, Canterbury, pupae, 1938; Chartham, pupae, 1955 (C.-H.). Wye, two, August 15-September 15, 1953, one, August 31, 1954, one, September 8, 1955; Willesborough, one, August 21, 1955; Ham Street, September 4, 1954; all at m.v.l. (W. L. Rudland). Ashford Town (P. Cue). Ham Street, in m.v.t., September 21, 1957 (R. F. Bretherton); one at light, August 31, 1957, in the village; one at light, September 22, 1962 (de Worms, *Entomologist*, **91**: 152, **96**: 58).

13. Tunbridge Wells (M. M. Phipps, in Knipe (1916)). Goudhurst, one at light, 1954 (W. V. D. Bolt).

14. Sandhurst (G. V. Bull). Tenterden, 1960 (C. G. Orpin).

16. Folkestone, one, 1951 (Morley, *Ent. Rec.*, **64**: 171). Sandgate, 1961 (N. Reay-Jones).

VARIATION.—Ab. *fraterna* Tr. has the anterior wings suffused with deep reddish-brown and black scales, and in some specimens to such an extent that the insect is almost black in colour. Tutt (*Br. Noct.*, **1**: 54) states that in the neighbourhood of Higham, of many bred 1881-83, not more than one in thirty was *fraterna*. At Higham in 1956, two that I bred were *fraterna*, the remaining eighteen being more or less typical (C.-H.). A. J. L. Bowes (*Diary*) records two ♀♀ *fraterna* bred Reculver, 1934-35; and H. C. Huggins states that on Sheppey, he has found that about one in five are this ab.

FIRST RECORD, 1862: Lee, ♀, by A. H. Jones (Fenn, *Diary*).

N. geminipuncta Haw.: Twin-spot Wainscot.

Native. Marshes, ditches, dykes, riverbanks, swamps; on *Phragmites communis*. Mainly coastal, but like *N. sparganii*, appears to have extended its range inland within recent years.

2. Cliffe, larvae very common, July 4, 1874, bred August 4, 1874 (Fenn, *Diary*). Higham, two, July 29, 1926 (F. T. Grant). Greenhithe (Farn MS.). Rochester district, 1907 (Ovenden, *Ent. Rec.*, **19**: 230). Graves-

end (*V.C.H.* (1908)); (L. T. Ford). Sittingbourne (H. C. Huggins). Denton Marshes, several bred, 1926 (F. T. Grant). Faversham, pupae common (Robertson, *Entomologist*, **52**: 59); larva, June 27, 1954 (Marsh & Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-55: 85). Whitstable district, "larvae common in any reed bed" (P. F. Harris, *in litt.*, xii. 1950). Burham Marsh, Aylesford, three, 1953 (G. A. N. Davis); 1955 (Davis, *Bull. K. Fld. Cl.*, **1**: 6).

4. Minster, one bred, 1905, in J. P. Barrett coll. (C.-H.). Deal (*V.C.H.* (1908)). [Reculver] "I once found five pupae between two nodes of one reed-stem" (Edelsten, *Entomologist*, **42**: 323). Reculver, pupae usually abundant; 1936-37 were bumper years; very few, 1938-39; imago seen only once or twice in many evenings (A. J. L. Bowes); pupae abundant in reed-stems in a dyke, August 1-2, 1955 (C.-H.). Sandwich, ten pupae, August 7, 1955; Westbere, pupae fairly plentiful, August 4, 1955 (C.-H.). [(Westbere (C.-H., *Ent. Rec.*, **57**: 10), refers to *N. dissoluta* Treits. (q.v.).).]. Ickham, 1954-59, fairly numerous, with several at light most years (D. G. Marsh). Worth, August 3, 1962 (T. W. Harman).

6. Springhead (H. C. Huggins). Otford, one at m.v.l., August 22, 1955 (W. B. L. Manley).

12. Ham Street, one, 1952 (E. J. Hare). Willesborough, two, August 21, 1955; Wye, two, August 10-12, 1953 (W. L. Rudland). Chartham, several pupae, August 5, 1955 (C.-H.). West Ashford, two taken by D. Youngs, 1961; one at light by M. Enfield, October 2, 1962 (M. Singleton).

15. Shirley Moor near Woodchurch (Scott (1936)). Near Dymchurch, August 4, 1933 (de Worms, *Entomologist*, 67: 103). Dungeness, two, August 22, 1951 (E. H. Wild); one, 1952 (E. J. Hare); Appledore, one, August 11, 1956 (P. Cue). Lydd (Coxey, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1961: 29).

16. Folkestone* (Ullyett (1880)). Folkestone Town, ♀, August 22, 1955 (A. M. Morley).

Variation.—Of some 100 pupae taken at Reculver in 1955, 40 were parasitized, and 56 produced moths of what I judge to be the following abs.:—*rufa* Tutt, fifteen; *rufa-unipuncta* Tutt, eighteen; *rufa-obsoleta* Tutt, ten; *nigropunctata* Kroul., five; *fusca-unipuncta* Tutt, one; *unipuncta* Tutt, two; *obsoleta* Tutt, two; *nigricans* Stgr., one; also, *forma typica*, two (C.-H.). Davis (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1955: 23) exhibited ab. *nigricans* Stgr., from Aylesford.

First Record, 1880: Folkestone (Ullyett, *Rambles of a Naturalist Round Folkestone*, 142).

N. dissoluta Treits.: Brown-veined Wainscot.

Resident. Marshes, fens, ditches, ponds; on *Phragmites communis*.

Note: Since 1950 the species has appeared in many new localities in Kent, and with greater frequency than for many years[1].

1. Lee, one, at m.v.l., August 2, 1963 (C. G. Bruce).

2. Cliffe, common, 1906-13 (H. C. Huggins). Higham, riverbank by Shorne Mead Fort, plentiful 1926-27 (Grant, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1927-28: 108); Higham, one, August 30, 1963 (R. G. Chatelain). Aylesford, one, 1954 (G. A. N. Davis).

3. Broad Oak, three at electric light, August 5, 1951 (C.-H.). Herne Bay, one, 1951, two, 1952 (Marsh, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 39).

4. East Kent [Reculver] (see *First Record*). Reculver, taken by A. U. Battley, later by H. M. Edelsten, who found larvae in 1912 (H. M. Edelsten *personal communication*; idem, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1912-13: 17; idem, *Proc. ent. Soc. Lond.*, 1912: ciii); several "E. Kent" and "Herne Bay" specimens in R.C.K. variously dated 1905, 1907, 1924, are probably from Reculver (C.-H.); one worn ♂, July 21, 1935 (A. J. L. Bowes); ♀ *formatypica*, ♂ ab. *arundineta* Schmidt, bred 1955, from pupae in *P. communis* (C.-H.). Ham Fen, eight at light, August 6, 1950 (C.-H.). Westbere, two, August 28, 1938 (C.-H.); three, worn, August 10, 1945 (C.-H., *Ent. Rec.*, **57**: 10, where it is recorded by me in error as *N. geminipuncta*). Deal, two, August 19, 1949; Sandwich, one, August 11, 1950, one, August 5, 1955 (G. H. Youden). Ickham, 1954-59, fairly numerous at m.v.l., with occasionally "a black form" (D. G. Marsh). Near Worth, one, "very dark form", on Hemp Agrimony flowers, September 1, 1962 (T. W. Harman).

6. Springhead, common, 1906-13 (H. C. Huggins).

8. Dover, one, August 7, 1951, one, July 31, 1964, both in m.v. trap (G. H. Youden).

11. Frittenden Lake, pupa in stem of *P. communis*, August 5, from which a ♂ emerged August 6, 1955 (C.-H.).

12. Ham Street, two at m.v.l., Long Rope, July 31, 1951 (C.-H.); August 3, 1951 (E. W. Classey, *fide* E. Scott); one, "dark form", taken near a pond at light, September 2, 1962 (M. Singleton). Wye, one, August 13, 1953; one, August 8, 1954 (W. L. Rudland). Potters Corner, West Ashford, a small colony discovered, 1961; six at light, September 15, 1962 (M. Singleton, M. Enfield, and D. Youngs). Ham Street Village, August 31, 1957 (de Worms, *Entomologist*, **91**: 152).

15. Dungeness, one, at light, August 10, 1936 (J. O. T. Howard, *teste* A. J. L. Bowes); eight at m.v.l., August 3, 1951 (C.-H.); c. 1952 (E. J. Hare); ♂, at light, July 25, 1952 (Jackson, *Entomologist*, **86**: 2); two, August 3, 1953 (A. Richardson, *fide* A. M. Morley); one, 1957 (P. Cue); two August 30, 1962 (T. W. Harman). Lydd (Coxey, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1961: 29). Appledore, eight, August 6, 1956 (W. L. Rudland).

VARIATION.—In 1912, Edelsten (*loc. cit.*) observed that 75% of those he had from East Kent were referable to the typical *dissoluta* Treits., which is a blackish form. Contrary to the usual melanistic trend, however, the type does not appear to have increased since then, and indeed may even have become less numerous. For the records show that less than 50% of Kentish specimens noted as taken or bred during the past 30 years have been typical, and that the majority were referable, broadly speaking, to the brownish variegated ab. *arundineta* Schmidt (C.-H.). The following are in R.C.K. Typical *dissoluta* Treits.: E. Kent, several, 1907, E. A. Bowles: Herne Bay, three, July 1905, L. B. Prout: E. Kent, several, bred July 1924, A. J. Wightman; Kent, one, August 16, 1907, H. M. Edelsten. Ab. *arundineta* Schmidt: E. Kent, several.

FIRST RECORD, 1905: At meeting on October 3, 1905, L. B. Prout exhibited a series of "*Nonagria neurica*" from the East Kent marshes including the black form known as "var. *hessii*" which is not known to occur in the Norfolk Broads where the species is abundant (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1905: 11).

[1]Having regard to this, it is noteworthy that the species was recorded as of unusual occurrence in 1953 in Herts. and Surrey (cf. *Ent. Rec.*, **65**: 291, 364), it being suggested that its appearance there might be due to immigration.

Coenobia rufa Haw. (**despecta** Treits.): Small Rufous.

Native. Marshes, ditches, fens; foodplant unknown.

1. Lee, in a swampy patch top of Manor Farm Lane, taken by H. T. Stainton before 1862; several, August 11-September 18, 1862; very common, July 22-August 10, 1863; plentiful July 15-24, 1865; 1866; scarce, August 6, 1874; extinct 1885 (Fenn, *Diary*; idem, *Ent. Rec.*, **6**: 231).

2. Sittingbourne (H. C. Huggins).

4. Deal (see *First Record*); plentiful (Harding, *Entomologist*, **2**: 194); "extremely abundant", 1881 (Tugwell, *Entomologist*, **14**: 214); 1882, "by the sides of some rushy marsh ditches *Nonagria despecta* swarmed; one could get six or eight at one sweep of the net" (Tugwell, *Entomologist*, **15**: 205); swarmed by the rushes at the second battery ditch, July 22, 1891, "I must have seen 1000" (Fenn, *Diary*; idem, *Ent. Rec.*, **2**: 203). Reculver, common, July 23, 1935 (A. J. L. Bowes). Sandwich (E. & Y. (1949)). Ham Fen, two at light, August 6, 1950 (C.-H.).

8. Dover, one, 1938 (E. & Y. (1949)).

11. Hoads Wood (Scott (1950)); August 3, 1954 (P. Cue); about five at m.v.l., August 4, 1961 (B. F. Skinner). Sevenoaks Weald, two, at m.v.l., August 6, 1959, one, July 30, 1960 (E. A. Sadler).

12. Hothfield Bog (Scott (1936)). Ham Street (Scott (1936)); several at m.v.l. at edge of Birchett Wood, end July 1951 (C.-H.). Brook, 1951 (E. Scott). Willesborough, one at light, August 1959 (M. Singleton).

14. Tenterden, 1960 (C. G. Orpin).

15. Dungeness, July 22, 1935 (A. J. L. Bowes); August 4, 1946 (de Worms, *Entomologist*, **80**: 81); several fresh, August 13, 1950 (D. G. Marsh); several at m.v.l., August 3, 1951 (C.-H.); July 27, 1956 (R. F. Bretherton); several, August 18, 1958 (E. C. Pelham-Clinton); 1959 (A. L. Goodson).

16. Folkestone Town, one, August 13, 1953 (A. M. Morley).

Variation.—Tutt (*Br. Noct.*, **1**: 48) says: "I took a very long series at Deal, and found every gradation in colour, from a very deep reddish, to an exceedingly pale greyish-white". He also (*loc. cit.*) describes ab. *pallescens* from Deal.

First Record, 1859: Harding, *Ent. week. Int.*, **6**: 124.

Chilodes maritima Tausch. (**ulvae** Hübn.): Silky Wainscot.

Native. Maritime and submaritime reed beds; foodplant unknown.

2. Gravesend, "bred and at sugar and mothing" (Button, *Entomologist*, **4**: 129); a few, July 10, 1869 (Miller & Jones, *Ent. mon. Mag.*, **6**: 114); between Shorne Mead and Higham, four, July 4, 1874 (Fenn, *Diary*) (Cliffe (*V.C.H.* (1908)), may refer); plentiful, and ab. *wismariensis*, 1926-27 (Grant & Watson, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1927-28: 106). Greenwich Marshes, three, 1895, C. H. Forsythe (C.-H. coll.). Rochester dist., one, July 1904 (Ovenden, *Ent. Rec.*, **16**: 239). Greenhithe (Farn MS.). Sittingbourne, plentiful, two ab. *bipunctata*, several abs. *nigrostriata* and *wismariensis* (H. C. Huggins); June 26, 30, 1949, six *wismariensis*, six *nigrostriata*, among nearly 100 *maritima*, mostly at light; only two moths, June 20, 1953; four, June 22, 1956 (C.-H.). Kingsferry, Sheppey, four, including one *wismariensis* (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1932-33: 111). Nagden Marshes, Faversham, one, June 25, 1952 (C.-H.). Dartford Marshes, one, 1956 (B. K. West).

4. Minster, one, June 3, 1906; two, ab. *bipunctata*, June 18, 30,, 1904; one, ab. *wismariensis*, June 16, 1902 (J. P. Barrett coll.). Sandwich, July

24, 1938, taken by J. O. T. Howard (A. J. L. Bowes).

[11. "A doubtful specimen taken on a bog near Shipbourne awaits confirmation" (Knipe (1916)).]

12. Willesborough, ♂, on window of a shed, taken August 1959 (M. Singleton).

15. Dymchurch, five taken, 1933, all ab. *nigrostriata* (misprinted "*nigrocincta*") (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1933-34: 50). St. Mary-in-the-Marsh, July 30 (1), 31 (1), August 1 (1), 1948, at car lights (P. Le Masurier).

16. Folkestone, one, June 1951, by A. G. Riddell (Morley, *Ent. Rec.*, **64**: 171).

VARIATION.—At Sittingbourne, about 1 in 15 is ab. *wismariensis* Schmidt; about 1 in 20 is ab. *nigrostriata* Stgr.; and according to H. C. Huggins, about 1 in 150 is ab. *bipunctata* Haw. (C.-H.). In R.C.K. are single specimens of abs. *nigrostriata* and *bipunctata* from Kent, each labelled: "S. Kent 30.6.1934. B. H. Armstrong".

FIRST RECORD, 1868: Gravesend (Button, *Entomologist*, **4**: 129).

CARADRININAE

Meristis trigrammica Hufn. (**trilinea** Schiff.): Treble-line.

Native. Woods, chalk downs, etc.; on *Centaurea nigra, Cirsium acaule.* In all divisions; apparently scarce in 15. "Generally common" (*V.C.H.* (1908)).

The moth seems very occasionally to fly naturally by day. Thus, A. A. Allen states that in Greenwich Park, c. 1926, he observed one hovering for some time at flowers in a flower-bed in the afternoon sun.

15. Dungeness, five at m.v.l., June 10-23, 1962, all singletons; none in 1963 (R. E. Scott).

There is no record of the feral larva, but at Wye Crown on the night of May 31, 1953, I watched a ♀ flying low over the down and deposit several ova on the uppersides of leaves of *C. nigra* and *C. acaule* (both det. F. Rose) (C.-H.).

VARIATION.—The majority of Kentish specimens are referable to typical *trigrammica* Hufn.; ab. *evidens* Thunb., the ochreous form, is frequent and seems to occur everywhere with the type, and some extreme examples that I have of this tend to be rust-coloured; ab. *semifuscans* Haw. is scarce, I have one only from West Wickham; ab. *semifuscans* Haw. + *evidens* Thunb., one, Sandwich, one, Broad Oak; of ab. *bilinea* Haw. (=*obscura* Tutt), which appears to favour chalky districts, although not confined to them, I have only once seen myself, West Wickham, 1962, but possess another taken by E. Scott, Westwell, 1953; ab. *approximans* Haw. is fairly frequent, but as yet I know of no Kentish specimen in which the 2nd and 3rd lines actually touch on the inner margin; ab. *renata* Lenz, ♀, Sandwich, June 16, 1950, is the only Kentish example of this known to me (C.-H.).

Ab. *bilinea* Haw. has also been noted as follows:—Sandhurst, one, 1927, one, 1939 (G. V. Bull); Aylesford, one, 1953 (G. A. N. Davis); Otford, eight taken, others seen, 1955-56 (W. B. L. Manley); Folkestone (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1952-53: 41). Under *bilinea* Hübn., Stephens (*Haust.*, **2**: 153) and Curtis (*Br. Ent.*, 651) give Birch Wood; probably the references are to *bilinea* Haw. though, indeed Curtis's figure is quite clearly this ab.

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact: *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jirí Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

Barograph For Sale.—Handsome brass barograph, on mahogany stand, in glass and mahogany showcase, together with charts. Used as an aid to successful sugaring (cf. Allan, *A Moth-Hunter's Gossip*, pp. 110-114). In excellent condition throughout, £8.—*J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.*

Stud. Lars Axelsson, Järnvägen, Kungsängen, Sweden, aged 17, interested in Lepidoptera desires to contact any English boy of similar age willing to correspond and exchange specimens.

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years:

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact: Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

LENS ON RAILS

See your Insects in comfort

The 4" lens enables both eyes to be used in comfort.
Moves easily over the 12" rails. Can be used over a setting board.

Price £3. 19. 0d. each
Per doz. £3. 12. 0d. each

FLATTERS & GARNETT LTD.
309 Oxford Road Manchester 13

Part of our extensive service to Biologists

R. N. BAXTER

Supplier of EXOTIC INSECTS to
Museums, the research worker, the amateur entomologist, etc.

LEPIDOPTERA and COLEOPTERA a speciality.

16 Bective Road, Forest Gate, London, E.7, England.

Mail Orders Only.

In your Replies please mention "The Entomologist's Record".

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by
Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1(14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

VOL. 76 No. 12 DECEMBER 1964

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by S. N. A. JACOBS, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.
NEVILLE BIRKETT, M.A., M.B.
J. M. CHALMERS-HUNT, F.R.E.S.
Major A. E. COLLIER, M.C., F.R.E.S.
C. A. COLLINGWOOD, B.SC., F.R.E.S.
H. C. HUGGINS, F.R.E.S.
L. PARMENTER, F.R.E.S.
H. SYMES, M.A.
S. WAKELY
Commander G. W. HARPER, R.N.(Retd.), F.R.E.S.

ANNUAL SUBSCRIPTION 35/- POST FREE OR U.S. DOLLARS 5.50

Hon. Treasurer, CLIFFORD CRAUFURD,
Denny, Galloway Road, Bishop's Stortford, Herts.

PUBLISHED MONTHLY PRICE 5/- NET

BOOKS MAKE IDEAL GIFTS

THE WAYSIDE AND WOODLAND SERIES

The series which every Naturalist will appreciate—what better gift than the Wayside title on a favourite subject, be it beetles, butterflies, spiders, caterpillars, fish or wild animals; the right book is available from your bookshop. All the books are constantly revised and brought up-to-date both in text and illustrations. Below is a selection of titles for the Entomologist.

PRACTICAL ENTOMOLOGY
17s 6d net

BUTTERFLIES OF THE BRITISH ISLES
21s net

FLIES OF THE BRITISH ISLES
35s net

LAND AND WATER BUGS OF THE BRITISH ISLES
35s net

BEETLES OF THE BRITISH ISLES
2 vols each **30s net**

MOTHS OF THE BRITISH ISLES
2 vols each **35s net**

CATERPILLARS OF BRITISH MOTHS
2 vols each **17s 6d net**

SPIDERS AND ALLIED ORDERS OF THE BRITISH ISLES
12s 6d net

WILD ANIMALS OF THE BRITISH ISLES
17s 6d net

FREDERICK WARNE & CO LTD
1/4 Bedford Court, London WC2

Holiday at Thorpeness, Suffolk, 1964

By J. M. Chalmers-Hunt and S. Wakely

It was decided to have a holiday on the Suffolk coast this year, and Thorpeness, near Aldeburgh, seemed an ideal place. Mr. Chipperfield. of Stowmarket, had stayed at a bungalow there in 1963, and we were luckily able to book the same bungalow from 4th to 18th July.

We found the bungalow ideally situated on a lovely wild beach covered with maritime flowers and plants and the sea stretching away to the horizon about a hundred yards away. The piping cries of a colony of nesting terns greeted us as soon as we prospected the beach, and several times eggs or young chicks were seen on the shingle. On the other side of the bungalow was the Aldeburgh road bordered by old fen land bordering a large mere.

Serious collecting did not begin until Sunday night (5th), when the light trap was used. On examining the trap the next morning we realised we had been lucky in our choice, and many of the species taken exceeded all our expectations. However, more of the Thorpeness captures at m.v. later.

On Monday (6th), after a busy morning setting moths taken the previous night, we explored the immediate locality in the car. By the local golf course quantities of *Chaerophyllum temulentum* (Rough Chervil) was seen in flower, and an examination of the flower heads revealed the presence of larvae of *Depressaria chaerophylli* Zell. The larvae are a bright green in colour with black longitudinal lines and were found stretched across the umbels in a kind of hammock of thin silk. Care had to be taken as the larvae threw themselves violently out of the web when disturbed.

On Tuesday (7th) a visit was paid to Southwold, where larvae of *Agonopterix umbellana* Steph. were found commonly in webs on gorse. This species was also found on gorse at Thorpeness on the 11th. The temperature had fallen considerably and the numbers in the trap that night were very low.

On Wednesday (8th) we spent an hour or two on the beach, where numbers of larvae of *Epischnia boisduvaliella* Guen. were found in the seed-pods of *Lathyrus japonicus* (*maritimus*) (Sea Pea). It was surprising to find that some of the larvae were full grown as one usually looks for the larvae of this species in September. We had arranged to meet Mr. Chipperfield at Stowmarket in the evening, when he joined us in the car for a trip to the Breck. On the way we visited the lane near Bury St. Edmunds famous for its hedge of *Berberis vulgaris*. Larvae of both *Pareulype berberata* Schiff. and *Rheumaptera cervinalis* Scop. were taken here. On a few plants of *Artemisia vulgaris* growing in the hedge hereabouts a number of the characteristic larval spinnings of *Leioptilus lienigianus* Zell. were noticed—a local species worth mentioning. Continuing our journey to the Breck, we did some collecting in the vicinity of Barton Mills and gathered a bag of seedheads of *Silene otites*. An examination of these later disclosed that a fair number of larvae of *Anepia irregularis* Hufn. were present. A single *Pseudopanthera macularia* L. was seen here, a very late date for this species. Larvae of *Lithostege griseata* Schiff. were swept from plants of Flixweed (*Descurainia sophia*) and Tumbling Mustard (*Sisymbrium altissimum*). The verges of cornfields

were the places where this plant flourishes. A fairly good specimen of *Hyloicus pinastri* L. was seen at rest on a pine trunk but left. A freshly-emerged *Ellopia fasciaria* L. was also observed. We arrived back from this trip about midnight after a very profitable day.

Thursday (9th).—Several *Heliothis viriplaca* Hufn. were seen flying over the beach and imbibing at the flowers of *Ononis arvense* and *Lotus corniculatus,* but attempts to net one were futile. This is a most difficult species to catch owing to its erratic flight and speed. In the afternoon we visited Sizewell, a few miles north. The beach and adjoining fen looked very promising, but the only species of note taken were a few *Elachista rhynchosporella* Stt. which were found among a species of Carex which grew there in profusion. At Thorpeness in the evening sugaring was tried with little success, and we found dusking in the fen more rewarding. Three local species were particularly common—*Leucania pudorina* Schiff., *Lygephila pastinum* Treits. and *Zanclognatha cribrumalis* Hübn.

Earlier in the week we had met Dr. Banner who was staying at Aldeburgh. We suggested he should bring his generator along on Friday (10th), and it was tried out in a convenient place on the fen near the bungalow. Mr. Chipperfield had previously shown us a cemented platform in the middle of the fen by the side of the mere, and this relic of the last war made an ideal place on which to run the m.v. light. It was not a good night as the temperature was low, but some fen species were taken.

On Saturday evening (11th) Mr. Chipperfield visited us. We showed him where the larvae of *Depressaria chaerophylli* Zell. occurred and both he and a friend, Mr. Charles Pierce, were able to find numbers of them. Moving on to Aldeburgh, our visitors took two *Xanthorhoe quadrifasciata* at rest on some old pine trunks. Back at the bungalow later a sheet was used instead of the trap and our visitors were able to take a few species which they wanted on the sheet and on the walls of the porch near the m.v.

On Sunday 12th we had arranged to meet Mr. Chipperfield and go on to the Breck again. Earlier in the year, on 24th May, Mr. Uffen had shown us a field north of Thetford where he had taken a few specimens of the very rare *Coleophora tricolor* Wals. We wanted to introduce Mr. Chipperfield to this field, and after picking him up at his house at Stowmarket made our way to the ground. There were large clumps of Basil Thyme (thought to be the foodplant of the larva) growing in the field and we were soon quartering the ground trying to put up our quarry. The first moth taken was a lovely *Scopula rubiginata* Hufn—incidentally the only one of this rare species seen on our holiday. Mr. Chipperfield generously gave the specimen to one of us, as he had taken the species previously. A Coleophorid was taken a little later but it proved to be *C. versurella* Zell., one of the Chenopodium-feeding species only recognised recently in Britain, and quite an interesting record. The specimen was identified by Mr. Uffen. However, two specimens of *C. tricolor* were eventually taken. Once again Mr. Chipperfield netted one of these, but insisted we should have it as it was the main object of our long journey. The similarity of this species to *C. lixella* Zell. is very pronounced. Earlier in the day a visit was made to Lakenheath, where we had been told that *Artemisia campestris* was to be found, a very local plant which we wished to see. Eventually we found it growing fairly commonly around the many houses built there in recent years by the military authorities. It was disappoint-

ing to see such a local plant on the way to being exterminated, and it is to be hoped there are other places on the Breck where it will be allowed to survive. Returning to Stowmarket, we were hospitably entertained by Mr. and Mrs. Chipperfield before undertaking the long ride back to Thorpeness.

On Tuesday (14th) we went to Southwold to look for larvae of *Euxoa cursoria* Hufn., which Dr. Banner had said he found there in numbers in the sand under clumps of *Ononis arvense*. We did not find it as common as Dr. Banner had, but we did eventually find five. During the search a number of larvae were dislodged from the plants and these were thought to be *Pyrrhia umbra* Hufn. In the evening we visited the fens at Walberswick and took several *Chilodes maritima* Tausch. as well as *Brachmia inornatella* Dougl. Mr. Chipperfield joined us on this occasion.

On Wednesday (15th) we made a long trip to Barton Broad. Arriving at Barton Turf, we walked about among the thick herbage and quickly found larvae of *Agonopterix ciliella* Stt., which were quite common in spun shoots of Milk Parsley (*Peucedanum palustre*). It was not long before one of us spotted a larva of *Papilio machaon* L. on the same plant. Before we left we had taken eight of these handsome larvae, some full grown and others in the young stage—dark with white middle band. One of these produced a fine imago a few weeks later, but the rest are still pupae. We returned home via the *Coleophora tricolor* field near Thetford but failed to find any more.

On Thursday (16th) we had arranged to meet Dr. Banner, who came over with his generator before dusk. It was a wonderful night with moths swarming at the sheet. We had already taken four *Celama trituberculana* Bosc. at the bungalow, and Dr. Banner got a nice one at his m.v. which proved to be ab. *atomosa* Brem. He admitted he would probably not have noticed this rarity had it not been pointed out to him.

On Friday (17th) we visited Dunwich in the evening. A visit to the beach was unfruitful so we went along to the cliffs near the coastguard cottages where we had a lovely view of Minsmere Bird Sanctuary. This was the last trip of our holiday as we were returning home the following day.

As already mentioned, larvae of *Epischnia boisduvaliella* were plentiful in the seedpods of the Sea Pea at Thorpeness. Some were also noticed at Dunwich and they apparently occur all along the Suffolk coast where the plant grows. We found the larvae always in the pods feeding on the seeds and never on the flowers as is mentioned in several books. To our surprise many of our larvae spun up and emerged a few weeks later. The normal behaviour of the larva is to spin up in the autumn in a round flat cocoon, the larva being coiled "head to tail" in a ring. In the spring the larva leaves this cocoon and spins another elongate cocoon in which it pupates and emerges a few weeks later. A number of the larvae we found spun up in long cocoons, which puzzled us, until the moths emerged. It was noticed, however, that some spun up in the normal round cocoons and these should emerge next year after the change to long cocoons. We can find no reference in literature to a second brood and it would be interesting to find out if July larvae often have a partial second brood in August in this country.

A list was compiled of all the species of lepidoptera seen during our stay in Suffolk. There were nearly 200 "macros" and over 100 "micros".

The publication of this list would take up too much space for this article, but some of the more interesting ones are mentioned in the following paragraphs—all being taken at Thorpeness at m.v. unless otherwise stated.

The most exciting was *Celama trituberculana* Bosc.—the *Nola centonalis* Hübn. of our older lists. We feel this species is probably mistaken for a micro by those people who do not bother with the smaller moths. Five specimens in all were taken—three on 14th, one on the 15th and one on the 16th (Dr. Banner's specimen at his m.v. by the mere) (antea: 215). Three specimens of *Nola albula* Schiff. (a much larger insect) also came to m.v.

Notodonta dromedarius L. was present on most nights and a single *Lophopteryx cucullina* Schiff. also appeared. A single male *Orgyria antiqua* L. was seen, a common enough species, but one would not expect to take such a day-flying species at light. A fine male *Dasychira fascelina* L. together with *Diacrisia sannio* L. were both rare captures for Suffolk.

Amathes ditrapezium Schiff. and *Heliothis viriplaca* Hufn. both came to light singly, but *Hadena compta* Schiff. was represented by three specimens.

The Wainscots were well in evidence but we were too early in the year for some of the better ones for which the district is noted. *Leucania pudorina* Schiff. was really common, both in the trap and at rest after dark on the reeds. *Arenostola elymi* Treits. and *Nonagria dissoluta* Treits. appeared—one of each—and *Chilodes maritima* Tausch. was not uncommon in the fen and at m.v. (also at Walberswick). A few aberrations of the latter were taken—*bipunctata* Haw., *wismarensis* Schmidt and *nigristriata* Staud. One *Plusia jota* L. was taken and *P. pulchrina* Haw. was one of the commonest species in the trap during the first week, but absent later.

Geometra papilionaria L. was seen on one occasion. The local *Sterrha ochrata* Scop. could be walked up daily on the beach by the bungalow, and as many as twenty were sometimes in the trap. Other local Geometers which appeared singly were *Euphyia cuculata* Hufn., *Cidaria fulvata* Forst., and *Chesias rufata* F. *Mysticoptera sexalata* Ret. was taken both in the trap and on the fen.

Some good Pyralides were taken, including a single *Nephopteryx hostilis* Steph. This was the handsome form with bright red markings, and proved to be a new addition to the Suffolk list (cf. *Ent. Rec.*, **76**: 215). Several male *Schoenobius gigantellus* Schiff. were taken in the trap and a few females came to m.v. on the fen. *Witlesia pallida* Steph. was plentiful in the fen—also at Walberswick. A worn *Nascia cilialis* Hübn. appeared in the trap on the 15th—a particularly interesting record for Suffolk. *Homoeosoma nebulella* Schiff. appeared once and is apparently rarely seen nowadays. *Nyctegretis achatinella* Hübn. was very common on the beach at dusk and came in great numbers to the m.v.

One of the Crambidae which we particularly wanted was the very local *Pediasia fascelinellus* Hübn., and we were delighted to find one in the trap a few days after our arrival. Their numbers increased nightly until the 17th when there were eight in the trap, bringing our total of this species up to thirty. We failed to find them at rest on the grasses as we had hoped, and it appeared to be a late-comer to light. A single *P. aridellus* Thunb. appeared on the 16th, much to our surprise as the nearest salterns were beyond Aldeburgh.

Tortricidae worth special mention which came to light included: *Hysterosia inopiana* Haw., *Phalonia rubigana* Treits., *P. dipoltella* Hübn., *Cochylichroa atricapitana* Steph., *Phtheochroa rugosana* Hb., *Acleris comariana* Zell., *A. latifasciana* Haw., *A. hastiana* L., *Gypsonoma dealbana* Frol., *Eucosma expallidana* Haw., *Lobesia abscissana* Dbl., *Hedya salicella* L., and *Celypha purpurana* Haw.

Some interesting Tineidae taken included *Brachmia inornatella* Dougl., which was taken among reeds at Walberswick as well as at Thorpeness and proved to be a new addition to the Suffolk list (*cf. Ent. Rec.*, **76**: 215). *Aristotelia palustrella* Dougl. was not uncommon at light. *Chionodes distinctella* Zell. was taken at light as well as at sugar.

Blastobasis decolorella Woll. had been recorded from Aldeburgh the previous year by Messrs. Aston and Chipperfield, and we were surprised to find examples not only in the trap but also at rest on the reeds or flying after dark. One *Agonopterix cnicella* Treits. was taken at flowers of Marram Grass on the beach. *A. conterminella* Zell. was taken at light and is worth recording for this district. Some small Coleophorids flying abundantly over *Carex* before dusk at Walberswick on the 14th have still to be identified. *Monopis imella* Hübn. was taken at Thorpeness—a rare species in Suffolk according to Morley (*op. cit.*).

The nomenclature used is that employed by Heslop in his Check List, 1962.

The sparrows were a great nuisance at the bungalow and gobbled up all the moths they could find in the porch and on the outside of the trap as soon as it started to get light.

Hadena barrettii Dbld. The Hard Way

By Major General C. G. Lipscomb, C.B., D.S.O.

I am no moth hunter, but when an entomological friend heard that my wife and I were going to Cornwall for the first week of October, he asked me to try to find some *Hadena barrettii* pupae for him. I asked how one set about this and was told that the larvae feed on the roots of the sea campion and that if one dug up the plant and gave it a shake, the pupae just fell out. It all sounded quite simple, in theory at any rate, and I said I would see what I could do. We planned to make the Headland Hotel, Coverack, our headquarters; it has a fine situation on the cliffs, with a wild rocky coast-line stretching away on both sides, and we reached it in the early afternoon of October 2nd. The day was hot and sunny, and after depositing our luggage, we began at once to explore our surroundings.

It was now that we realized that neither of us really knew what sea campion looked like, but by examining a variety of plants we decided that one that resembled *aubretia*, but with dead campion-like flower heads, must be the plant we were looking for. But all those we could find were growing in thick grass or scrub, and there was absolutely no question of digging them up with the small hand fork with which I was armed, so we gave it up as a bad job for the time being.

The next day we awoke to find the coast almost blotted out by a thick sea mist and the morning weather forecast was not encouraging. Making the best of this indifferent outlook we set off after breakfast for the Lizard, leaving our car near Housel Bay and walking along the cliff top to the lighthouse.

In spite of the lack of sun the day was warm and a number of *Pyrameis atalanta* L., were seen, all flying in an easterly direction along the cliffs. After the long drought the grass and undergrowth were tinder dry, and extensive areas of rough ground had recently been burnt and were still smouldering, and it was difficult to escape the smell of burning. Where the fires had not reached, the larvae of *Macrothylacia rubi* L. were everywhere to be seen, but many must have been destroyed. We decided that this place offered little hope of anything entomologically interesting and drove on to Kynance Cove for lunch. As we reached the cove, the sun came out and it became really hot. The beauty of being in Cornwall at this time of year is that the beaches and coast are free of trippers and one virtually has the place to oneself. Kynance Cove was no exception to this and we spent the rest of the day enjoying the scenery and sunbathing on the beach, at least my wife sunbathed while I conscientiously set off with my fork to explore the possibilities of some rough ground at the back of the tea house which was closed. There was plenty of campion here, but although I grubbed about for an hour or so, the best I could find was one old dead root with its centre eaten out. This discovery at least made me feel reasonably certain that I was tackling the right plant.

The following day we were again plagued with sea mist but nevertheless decided to explore the coast further west and after breakfast motored over to Gunwalloe. Here we parked our car on the cliff edge near a disused quarry on the outskirts of the village. As the sky was still overcast and nothing was seen on the wing, we made our way down to the beach for a walk before lunch. The only other occupant of a fine stretch of sand was a large *rubi* larva found well below high water mark and heading hard for France. I picked it up and in due course restored it to its more normal habitat. We eventually made our way to Loe Bar, a most attractive place, where the sea and a large expanse of fresh water are only separated by a narrow strip of sand. Here there is a memorial to one hundred members of the crew of H.M.S. Anson, who were drowned when their ship was wrecked on the bar in 1806. We saw it under such peaceful conditions that it was difficult to imagine the tragedy.

We returned to the car for lunch and I then noticed a large heap of loose stone and rubble thrown out from the quarry, supporting a good crop of campion. The vegetation on one side of the mound had recently been burnt, but enough plants remained to make a search worth while. After we had eaten our sandwiches I set to work with my fork, and very soon, while loosening the soil under one of the plants, I unearthed a fine pupa. No gold digger could have been more delighted with his find than I was, but in spite of further digging I could find no more, although a rather repulsive white larva from under another plant was probably of this species, but it subsequently failed to pupate.

While I was still at my excavations, the sun suddenly broke through, and at once butterflies began to appear; *atalanta*, *phlaeas*, and, what I had been particularly hoping to see, a fair number of *Colias croceus* Fourc. I exchanged the fork for a net and went off to see what I could find. The

majority of the Croceus were very fresh, probably indicating a third brood, and I was delighted to take a fine female of the golden yellow form, *chrysothome* before the mist came down again. As we drove home we felt that what with one thing and another, it had been quite a successful day.

October 5th was a miserable day with cloud and heavy rain, but we awoke the following morning to find the sun streaming into our bedroom. It was a most welcome sight as we had already planned to make an expedition to Porthcurno on the south coast, a few miles short of Land's End. On the way we visited Lamorna Cove, a well-known beauty spot, but beyond a few worn *Nymphalis cardui* L. on some flowers near the car park, nothing of interest was seen. I did, however, notice that sea campion was growing on the cliff side, but much of it was inaccessible and I did not feel inclined to risk my neck in reaching it. Porthcurno is a charming spot and we were particularly anxious to visit the open-air theatre on the cliff top, where a member of the family had taken part, during the summer, in a play put on by Cambridge University. The whole setting is most unusual, occupying as it does, a natural amphitheatre with the sea, far below, as a back cloth. After exploring the theatre, we walked along the cliffs towards St. Leven in fitful sunshine and I noticed that all the butterflies we had seen at Gunwalloe were again in evidence but in reduced numbers, perhaps as a result of the previous day's downpour. Just as we were thinking of retracing our steps back to the car for lunch, I spotted a large plant of sea campion growing in a very accessible place. Not having my fork with me I lifted up the foliage and disturbed the soil under it in a rather half-hearted way with my fingers. Suddenly, and rather to my astonishment, a nice brown pupa appeared on the surface, and this encouraged me to return properly equipped after we had lunched. To cut a long story short, I found twelve other pupae in a comparatively short time that afternoon, seven of them under the one big clump of the food plant. The secret, for those who do not already know it, seemed to be to look for plants growing in a position sheltered from the prevailing westerly wind and then to search those that look partly dead.

Normally, the larva seems to pupate close to the surface and near to the roots on which it has been feeding. There is, accordingly, no need to pull up the plants wholesale and I found it sufficient just to sift through with my fork, the top inch or so of soil.

There was any amount of the food plant in this place, and I have no doubt that if I had had more time to spare. I could have found many more, but then, as I have said, I am no moth man, and I felt I had probably done sufficient damage to the local population as it was.

The following day was our last, and although there was a certain amount of sun between heavy rain storms, a cold and relentless gale blew all day and large seas came crashing in on the beaches. Without much hope, we went to Mullion, where years ago the late Clifford Wells used to play golf and always carried a butterfly net in his golf bag when Clouded Yellows were about. But with the weather as it was, both golf and entomology were out of the question and I regretfully came to the conclusion that the season, for butterflies at any rate, was probably over.

More About *Heliothis peltigera* Schiff.

By H. Symes

The number of *H. peltigera* that arrived in Dorset this year cannot have been large. In the whole of the summer, only four were recorded at mercury vapour light at Portland, and none were seen by Brigadier Warry at Upwey or by Mr. V. W. Philpott at Wyke Regis.

At Dungeness, however, there was a large invasion. This disparity, coupled with a similar one in reverse in 1906, when Mr. Chalmers-Hunt (p. 153 of his Kentish List appended to the February "Record") mentions only one *peltigera* as having been taken in Kent, whereas Mr. Parkinson Curtis, in his Dorset List, enumerates two dozen captured and "many others seen", suggests that the immigrants arriving in Kent and Dorset come from different parts of Europe.

Mr. Chalmers-Hunt (loc. cit.) gives much information about the occurrence of *peltigera* in Kent, mainly at Dungeness, since 1827, and of the numbers bred from larvae. In 1931, Mr. A. M. Morley, from about fifty August larvae, bred seven moths in October, and four in July-August the following year. From twenty larvae found in 1938, Mr. Morley bred eight moths between 23rd and 30th August that year, and three between August and October 1939. In 1947, Dr. H. King's diary notes that he found "two dozen or more" larvae on 31st August and a "few more" on 3rd September, when he was getting a fresh supply of the foodplant. Six moths emerged on 13th October and three on 14th, and three of them had their hindwings deformed. There is no mention in the diary of any moths emerging the following year. Finally, in 1958, Mr. Chalmers-Hunt bred two moths on 2nd and 4th September from three larvae found on 2nd August. From all these facts it appears that nearly 80 per cent. of the moths that emerged did so in the same year as the larvae were found, and that the number of moths bred was about 32 per cent. of the larvae found.

On 5th September 1964, acting on information received, I paid a very short visit to Dungeness, where in rather more than two hours' search in a very limited area, my wife and I found thirty-two larvae on stinking groundsel (*Senecio viscosus*). Most of them were in their penultimate instar, but three had reached the last stage, and went down on 8th September. I have never seen such a profusion of the foodplant, and unless we were particularly lucky in striking a particularly good spot, there must have been hundreds in the locality. Only one had been "stung", three died, I gave away four, and of the two dozen that completed their growth, three did not go down and failed to pupate properly on the surface. All the others had gone down by 15th September. These larvae showed a considerable range of colour. The majority were of a nondescript dull green (Buckler, XCIX, 2d) but some were of a darker but brighter green, with bold black lines along the back, rather like Buckler's fig. 2, but a more handsome insect, and two or three were of the pink form (Buckler's 2b).

In the light of the figures given above, I fully expected half the larvae that had gone down to produce moths about the middle of October and was very disappointed when the end of the month arrived without a single moth having emerged. At the "South London" Society's exhibition on 31st October, a few *peltigera* that had emerged in October from Dungeness larvae were on view, and I was lucky enough to have a talk with

Mr. Morley about his experience in breeding the species. He told me that the pupae should be kept dry, and I remembered rather ruefully that in ignorance of this, I had put my breeding cages out in the rain early in the month. But next morning when I had a look at the cages, I found to my surprise and delight that two moths had emerged. They were a good deal smaller than those I bred in July and August, but as far as I could remember, they looked as large as the specimens I had seen the day before. One of them was very dark. More moths emerged on 2nd, 5th, 9th and 13th November: all six had soft olive brown forewings, with hardly a trace of the large dark spot, so conspicuous in the pale form, and they were all perfect specimens. They emerged at almost any hour of the day, such as 9.15 a.m., 4.30 p.m. and 9.15 p.m.

In a good year for *peltigera* at Dungeness, hundreds of larvae must go down and pupate beneath the shingle. I wonder how many, if indeed any, of the pupae can survive a normal English winter.

Of the status of this species in Dorset, with a milder climate than Kent, Mr. W. Parlinson Curtis expresses the opinion that it cannot maintain a continuous foothold in the county, although he thinks it may do so in Devon. But Mr. V. W. Philpott informs me that a few years ago, he discovered a colony of larvae (the pink form) feeding on rest-harrow (*Ononis repens*) on the southern slopes of the Mendips, and that he considered them to be residents. If so, they must have been a tough lot, but I do not think they could have survived the winter of 1963.

52 Lowther Road, Bournemouth, Hants.

A Visit To Yugoslavia, 1964

By Dr. Neville L. Birkett

For some years I have been attracted by the thought of a holiday visit to Yugoslavia and this year we left England on 13th August with the determination to get our caravan and selves to that country. Having managed the rather long distances involved in getting to Venice the year before we were full of confidence in our ability this year, especially in view of the acquisition of a new and lighter caravan, of covering the slight extra mileage to Yugoslavia. Papers concerning the lepidoptera to be encountered in Yugoslavia seemed to be rather scarce. Mr. L. G. Higgins kindly drew my attention to two papers published in 1920 which seemed to cover both the time and places I was proposing to visit. Also the more recent papers by Major-General C. G. Lipscomb gave me some idea of the species I was most likely to find. In the event the number of species I actually observed was less than hoped for. The rather indifferent results seem to be accounted for mainly by the fact that my visit was necessarily rather late in the season and the weather in Continental Europe had been very good for some months so that many species I should have seen were probably over by the time I was in the right places. Nevertheless I feel it may be worthwhile and of interest to put on record my experiences collecting in a part of Yugoslavia where, in addition to entomology, an enjoyable holiday can be had.

We crossed to Calais on 13th August and then travelled to Bonn in W. Germany where we stayed a couple of nights and during the day saw something of the many interesting sights of the W. German capital.

Apart from a few 'whites', some *Colias croceus* Fourc. and *Vanessa cardui* Linn. butterflies were virtually non-existent at Bonn. We left our Rhine-side site on 16th August and travelled up the Rhine valley seeing many of its famous castles and other features of interest. Then after crossing the Rhine we travelled eastwards on the fine autobahn to Nuremberg where a night and more sight-seeing were spent. During our traverse of Germany we saw few butterflies and hopes of getting many species on the holiday suffered a set-back. From Nuremberg we went via Garmisch Partenkirchen and Innsbruck to reach Cortina D'Ampezzo in Italy on 18th. That evening we were treated to a monumental thunder-storm in the middle of which the caravan awning nearly took off. However, the next morning dawned fine and bright with fresh snow on the high peaks around. I went up the Tre Croci Pass, in company with a vast horde of other tourists, in order to do some collecting about the summit of the pass. There were many butterflies about but of few species. *Erebia pronoë* (Esper) was the dominant species and the only species of the genus noted. I took a fairly good series, many of which are referable to r. *tarcenta* Frhst. (of which race Tre Croci is the type-locality). One or two specimens of the ab. *subalpina* Gmppg., with much reduced spotting on the upper surface, were also taken. *Lysandra coridon* Poda was very common but exhibited little variation of note. Other species seen or taken included:—*Coenonympha satyrion* Esp., a few worn specimens; *Vanessa cardui* Linn., *Colias australis* Vty., *Boloria pales* Schiff. and *Hesperia comma* Linn. A poor list in what looked such a good collecting area and on a bright sunny day.

We had intended staying a few days at Cortina, which is a most delightful centre, but unhappily the weather broke in no uncertain fashion on the 20th so we decided to move on towards our main goal. After a two-night stay near Trieste we actually reached Yugoslavia on 22nd August and took up a caravan pitch on a rather crowded camp site at Medveja—a seaside resort a few miles down the Istrian Peninsula from Opatija. Apart from the popularity of the place—mainly German tourists—this proved a delightful spot with glorious swimming and quite a lot of interesting sight-seeing to be done. In fact the latter severely curtailed time for collecting. Major-General Lipscomb has noted that in Yugoslavia many excellent collecting areas are untouched by human activity. This is very true. The difficulty then is deciding where one will devote one's time, and that is no easy problem, coupled also with the fact that off the main roads (which are quite good in northern Yugoslavia) there are rough tracks only. Another problem here, which rarely is a factor when collecting in England, was that after about 11 a.m. the temperature was well into the nineties in the shade and all effort became a difficulty! I give below a list of insects taken here with comments regarding variation, etc.

Papilio machaon ssp. *gorganus Frhst.* A few seen about Medveja. Not so common as I should have expected.

Pieris brassicae Linn. Common.

Pieris rapae Linn. Very common. Many specimens fine and large. I took quite a lot of specimens as I was hoping that some would prove to be the less common species of *Pieris*. Although both *P. manni* Mayer and *P. ergane* H.G. are recorded from Istria I saw no signs of these in spite of careful search.

Gonepteryx rhamni Linn. Fairly common.

Colias croceus Fourc. Generally distributed in the Istrian Peninsula but nowhere really abundant.

Leptidea sinapis Linn. Very common everywhere. I did not find any f. *erysimmi* Bkh. which Major-General Lipscomb took at Rabac.

Hipparchia fagi Scop. Common and seen flying about all the roads of the area.

Hipparchia semele Linn. Very common but worn.

Hipparchia statilinus f. *allionia* Fab. Frequent throughout the Istrian Peninsula.

Brintesia circe Fab. Generally common.

Chazara briseis Linn. Not so common as the other large Satyrids but nevertheless quite frequent. The specimens are very fine and large, especially the females, and seem referable to f. *magna* Stgr.

Dira maera Linn. Frequent about Medveja. The few specimens I collected do not show any marked racial characteristics.

Maniola jurtina Linn. Common but mainly worn. They are similar in appearance but smaller than f. *hispulla* Hübn. and are perhaps referable to ab. *rufocincta* Fuchs.

Coenonympha pamphilus Linn. Common. These have a well-marked broad dark border and seem to be var. *marginata* Ruhl.

Limenitis anonyma Lewis. I caught only one and saw one other. In view of the freshness of the specimen I took perhaps the brood was not fully out at the time of my visit.

Vanessa cardui Linn. Generally frequent throughout the area.

Polygonia egea Cramer. I only saw and took one specimen.

Melitaea didyma f. *occidentalis* Stgr. A few seen and taken near Plomin. They were apparently just emerging.

Argynnis paphia Linn. Abundant throughout Istria. I caught quite a lot of large fritillaries but did not find any of the other large species which might have been expected.

Thecla quercus Linn. Abundant and of large size. They were all very worn and I did not get a really fresh specimen.

Syntarucus pirithous Linn. One worn specimen only—the species was probably over.

Everes alcetas Hffmgg. Common.

Polyommatus icarus Rott. Very common but not showing any great variation.

Lysandra bellargus Rott. Abundant. I have already noted the ab. *suffusa* Tutt associated with a scale defect (Birkett, 1964a).

Meleageria daphnis Schiff. (*meleager* Esp.). Two worn females only. Again I think the species must have been nearly over.

Erynnis tages Linn. Common and of the usual rather dull form found in warm climates.

Reverdinus floccifera Zell. (*altheae* Hübn.). One only at Medveja.

Pyrgus armoricanus Obth. One male only taken. The small black and white skippers seemed to be very scarce.

Hesperia comma Linn. Frequent.

I have few observations to make on moths or other insects. The giant blue Carpenter Bees (*Xylocopa* sp.) and hornets, noted by Lipscomb, I also noticed. After numerous chases and frustrations I caught a moth that was flying in numbers and at great pace among the woods on the

rough hill sides. This proved to be *Lasiocampa quercus* Linn. It was centainly very common.

We left Yugoslavia on 29th August and heard later that the weather then deteriorated. Apart from the collecting we had visited the wonderful caves at Postojna and the Roman remains at Pula and can endorse all that Lipscomb recounts of these places. Perhaps I should note that we were luckier with our meal in Pula!

Our route home took us again for a few days to the site we were on at Cavallino, near Venice, last year. I revisited my collecting haunts there and found all the species previously noted in good strength. In addition I took a single female *Thersamonia dispar* Haw. During the rest of our journey back to England, which we reached on 7th September, little collecting was possible due mainly to the weather being cloudy. However, conditions were quite good when we stopped on the summit of the Simplon Pass but there was only one *Vanessa cardui* seen—not another butterfly.

Yugoslavia is a country well worth visiting and a visit in July would, I think, well repay an entomologist with some interesting material. Living in Yugoslavia is cheap, thanks to a good exchange rate, there are plenty of adequate camp sites for those whose circumstances or inclinations lie in that direction, and the natives were most friendly and helpful.

REFERENCES

Birkett, N. L. (1964a). A Continental Holiday, 1963. *Ent. Rec.*, **76** : 102-106, 126-129.

——— (1964b). A Scale Defect in *Lysandra bellargus* Rott. *Ent. Rec.*, **76** : 236.

Forster, W. and Wohlfart, T. A. (1955). Die Schmetterlinge Mitteleuropas. Band **II.**

Lipscomb, C. G. (1958). Butterfly Hunting in Yugoslavia. *Ent. Rec.*, **70** : 207-211.

Lipscomb, C. G. (1959). Yugoslavia Revisited. *Ent. Rec.*, **71** : 258-262.

Loebel, F. (1920). Beitrag. zur Kentnis der Makrolepidopterenfauna Istriens. *Z. ost. Ent. Ver.*, **5** : 9 et seq.

Schawarda, K. (1920). Lepidoptera Ausbeute aus der Gegend von Lovrana und vom Monte Maggiore. *Z. ost. Ent. Ver.*, **5** : 10 et seq.

Polymorphism in N.E. Derbyshire

By J. H. Johnson, F.R.E.S.

The study of polymorphism in lepidoptera may provide the answer to the central problem in biology at the present time, which is—how exactly does a species originate? If the causes of polymorphism (the word simply means variation of some kind) were understood by the scientist, down to the smallest detail then he would be close to understanding how evolution has happened and where it is leading. The great advantage of studying polymorphism in lepidoptera is that in every acre of the world several examples of the phenomenon may be found without much searching. Every entomologist who uses a light trap must have taken scores of specimens showing polymorphism, transient or balanced or accidental, but very few have bothered to make a record of their captures, and fewer still have had them published in the journals, despite the statement of Dr. E. B. Ford in "Moths", a work which every moth collector should study, that such activity would be of the greatest value. A few people will no doubt be put off by the word polymorphism because it is too scientific, but the same number will be attracted to it for the same reason.

At the end of the last century and the beginning of this one, many entomologists spent their leisure studying the varieties of the Noctuae and the Geometers, and much erudition went into the giving of names and tracing the synonyms of a multitude of varieties and aberrations. Hy. J. Turner, for many years Editor of the *Entomologist's Record*, must have spent thousands of hours and pounds searching the literature for portraits and descriptions of moths in Latin and German and possibly Russian. His work, the Supplement to Tutt's earlier work, "The British Noctuae and their varieties", is an amazing example of patient compilation of obscure references, and yet the number of people who have even heard of it is tiny, judging by the number of times it is referred to in any entomological journal. Does anyone pay any attention to the naming of varieties of moths to-day? No doubt someone is patiently carrying on the work of Tutt and Turner, but very little use seems to be made of the names of varieties of the commoner species of moths in ecological work, where they should be really valuable. If the study of ecology is to mean anything it should show how the changes in the environment affect the individual species. The great changes in the face of England are changing the plants and the animals that live there, not only are new species coming in from other areas to occupy the new niches which are being formed but the outward appearance of the resident species is changing, very slowly perhaps, but still changing. The selective forces work on the living material, and one variety succeeds in one locality, and another variety of the same species succeeds in another. How far is this the true picture in England to-day? To find out we need records of the actual numbers of varieties and typical forms kept over long periods.

TABLE SHOWING POLYMORPHISM IN LEPIDOPTERA IN DERBYSHIRE

Species	1960	1961	1962	1963	Average
	%	%	%	%	%
Allophyes oxycanthae L.					
Typical	9·5	2·9	23·6	17·2	13·3
Melanic	90·5	97·1	76·4	82·8	86·7
Apamea crenata Hufn.					
Typical	25·0	13·9	13·6	17·1	17·4
Var. *alopecurus*	75·0	86·1	86·4	82·9	82·6
Apamea monoglypha Hufn.					
Typical	94·6	89·6	89·7	88·6	90·6
Var. *aethiops*	5·4	10·4	10·3	11·4	9·4
Apamea secalis L.					
Typical	83·2	85·6	76·2	80·7	81·4
Var. *leucostigma*	9·9	10·9	19·3	14·8	13·7
Var. *rava*	7·9	3·5	5·5	4·5	5·9
Procus fasciuncula Haw.					
Typical	35·1	23·2	20·8	18·0	24·3
Melanic	58·1	69·6	67·7	73·8	67·3
Var. *cana*	6·8	7·2	11·5	8·2	8·4
Sterrha aversata L.					
Var. *remutata*	82·4	83·0	80·4	79·7	81·4
Var. *aversata*	17·6	17·0	19·6	20·3	18·6
Gonodontis bidentata Cl.					
Typical	86·2	75·6	65·9	86·7	78·6
Melanic	13·8	24·4	34·1	13·3	21·4
Biston betularia L.					
Typical	4·0	2·7	1·7	2·2	2·6
Melanic	96·0	97·3	98·3	96·7	97·1
Intermediate				1·1	·3

Between 1959 and 1963 accurate and complete records of the varieties of moths which could be recognised in the nightly catches in my mercury vapour light trap were kept. This is an important point. Some varieties differ so slightly that close scrutiny is necessary to sort out the variety from the typical, and this is not possible for the amateur whose time is limited. He has no time to resort to microscopic technique every morning, enough time is taken up with just counting the catch. The easiest variety to recognise, of course, is the melanic. In the Chesterfield area melanism has been heavy in the past, but seems to be decreasing now. Heavy industry is leaving the district, three more coal mines are due to close down next year, and the furnaces and gas works are so modernised that they could not give off soot and noxious fumes if they tried. It is not possible to state with certainty that melanism is decreasing because no systematic records have been kept in the same place for a sufficient number of years, but the number of melanic specimens seen in one season *seems* to be smaller now than in the pre-war years. My records extend over only four years, but if anyone is able to carry out a similar survey in the same area in the future my figures should give a useful basis for comparison.

Of the many species of moths which exhibit polymorphism in this district I have chosen eight for this little survey. Five are dimorphic and three are trimorphic. All eight are fairly common and are obtained regularly in the light trap in the proper season.

Allophyes oxyacanthae L., the Green Brindled Crescent, is included among the industrial melanics by Ford, but only tentatively since Haworth mentioned the melanic form early in the nineteenth century, giving the name Dark Crescent to this species. In this area in some years typical forms are very rare but in 1962 almost a quarter of all the specimens obtained were of the beautiful green form. Judging by the figures obtained in the four years the typical form seems to be on the increase, but it is not so pale or faded looking as the southern typical form. Also no really jet black specimens are ever obtained.

Apamea crenata Hufn. (*rurea* Fab.), the Clouded Bordered Brindle is another of Ford's doubtful industrial melanics, and the melanic form is extremely rare in this district, but the reddish brown variety which South figures under the name of *alopecurus* is commoner than the typical form so that polymorphism is still present. Both forms are quite attractive.

Apamea monoglypha Hufn. (*polyodon* L.), the Dark Arches, is the commonest moth in this locality. In ten years over 10,000 specimens were taken in the light trap, showing the complete range of variation from very pale with pretty markings to sooty black without any markings at all. Only the extremely black form referable to var. *aethiops* Tutt has been counted as melanic, it is quite distinct from the merely very dark typical form. This species is frequently found at rest on tree trunks, and occasionally on brick walls. In both cases the black specimens seem to human eyes to be less conspicuous. On brick walls they are almost invisible at five paces. Sparrows find both forms equally attractive as food, judging by the way they go for them when the contents of the light trap are made available to them. The black form seems to be on the increase in this area. Since 1960 the ratio of melanics has gone up from 5% to 11%. The great abundance of this species in every year shows that it is well adapted to living under industrial and urban conditions. The

very similar moth, *Polia nebulosa* Hufn., the Grey Arches, is a complete failure under the same conditions, appearing in the trap only once in the same period, although, in Hardwick Wood, less than three miles away, it is almost as common as *monoglypha*. Although Ford classes *nebulosa* as an industrial melanic, evidence from this area suggests that it is not a very successful one.

Apamea secalis L. (*oculea* L. *didymea* Esp.), the Common Rustic is one of the most variable species known in England. Hy. J. Turner named and described scores of aberrations. Many of them are very rare or difficult to identify, so for the purpose of this investigation only three forms have been considered: the typical unexciting brown variety, the melanic form with white reniform mark referable to var. *leucostigma* Esp., and the barred form referable to var. *rava* Haw. and *didyma* Esp., which is probably the most attractive. These forms are easily separated with only occasional doubtfuls. This is also a very abundant species, its success being due probably to its variability, the melanic form comprising no more than an eighth of the total.

Procus fasciuncula Haw., the Middle Barred Minor, is a very special case, which Ford said should be left alone until more was known about it because of the difficulties surrounding it. The melanic form is not mentioned by Tutt or Turner, but there is no doubt that one occurs in this country now, and in this locality at least it is far more abundant than the typical pale form or the reddish variety referable to var. *cana* Staud.

Sterrha aversata L., the Riband Wave, shows a delicate shade of polymorphism. There are two distinct forms of this species, var. *aversata*, which has a dark band across the fore wings, and a plain form, var. *remutata* L., which has no dark band. The difference is very easily seen, but the reason for it is by no means obvious. Until I began to operate the light trap I had never seen a specimen of var. *aversata*, although the ratio of that form to the typical seems to be in the region of 1:5.

Gonodontis bidentata Cl., the Scalloped Hazel, is one of the original industrial melanics, appearing regularly in most of the early works on the subject of melanism. In this locality the proportion of melanics seems to fluctuate, usually common enough but never more numerous than the typical form. The reason for its lack of success may lie in the hiding place of the imagines, usually the underside of a leaf growing near the bottom of a bush in a hedgerow with the wing tips showing outside the edge of the leaf and seemingly part of the growing leaf. This method of camouflage means that the colour of the top surface of the moth's wings is not so important, except, perhaps to the creatures which search from below the leaves at the bottom of the bush. Whatever may be the cause, the melanic form of *bidentata* is not as successful as that of the next species.

Biston betularia L., the Peppered Moth, has almost completely assumed the jet black form in this area. The melanic variety *carbonaria* is usually the only one taken by any collecting method. Very rarely a typical specimen is taken in the mercury vapour light trap, and even more rarely an intermediate one appears. The only typical female which I have obtained in this locality laid a large batch of eggs which all produced melanic imagines, as I had expected, there was little chance that she would have mated with a typical male. The larvae of this species are invariably very dark brown, almost black, and they are not easy to rear. Some disease wipes them out when they are about half grown,

at least in captivity; what happens under natural conditions in the field is difficult to find out.

Since it is much easier to appreciate the significance of comparative figures when they are side by side, I have tabulated the percentages of the various forms of polymorphic species of moths taken in a mercury vapour light trap of a simple box-type operated in a small garden in a loosely built-up area five miles from the town of Chesterfield in Derbyshire, sometimes described as the centre of industrial England. The value of these figures lies in the possibility of comparison with other localities in the country during the same period or with the same locality at another period, say in twenty or a hundred years' time. They have some local interest as they stand, but they would be of more value if other collectors in other localities could be persuaded to carry out similar surveys.

1 Berry Street, Hepthorne Lane, Chesterfield.

A New Aberration of *Xylocampa areola* Esp.

By H. C. Huggins, F.R.E.S.

In a note of mine, "Some Aspects of Melanism" (*Entomologist*, **89**: 185-7), I mentioned that on 3rd June 1955 I had taken a striking melanic specimen of *Xylocampa areola* Esp. which Mr. A. L. Goodson considered unique, but which I anticipated would recur.

On 17th April 1964 I had the good fortune to take another exactly similar specimen; the original one was sitting on the fence of the Westcliff High School for Girls, the second in my mercury vapour light trap in the garden here.

On showing these two specimens this year to Mr. Donald Down he told me he had another, captured in 1963 in Westcliff.

As this aberration seems to be a recurring one which may possibly become commoner, it appears desirable to describe and name it.

Xylocampa areola Esp. ab. ***nigra-brunnea*** ab. nov.

Forewings deep brownish-grey with the usual black markings showing somewhat darker. Hindwings, including cilia, dark brownish-grey. Thorax and abdomen uniform brownish-grey. Type: female, Westcliff-on-Sea, 3.vi.1955, in coll. H. C. Huggins. Paratype: female, Westcliff-on-Sea, 17.iv.1964, in coll. H. C. Huggins.

The feature of this aberration is the brown tinge of the ground colour, which is quite different from that of ab. *confusa* Tutt, in which the ground colour is blackish-grey and lighter, indeed at a short distance ab. *nigro-brunnea* looks unicolorous. I have taken ab. *confusa* occasionally in this district for many years.

It is quite possible that ab. *nigro-brunnea* is now commoner here than my captures suggest, as in the past two years I have only occasionally set my trap in the spring.

I have to thank Mr. D. S. Fletcher for making certain the insect has not previously been described.

A Correction.—In my account of my trip to Madeira, *Pyrameis callirhoe* (antea 253, line 2 from top) should of course be the Indian red admiral.—C. G. M. de Worms. 20.xi.1964.

Ant Records and Observations for 1964

By K. E. J. Barrett

The following species have been noted during the past season.

Tetramorium caespitum Latr.

It occurred abundantly on the Bagshot Sands in Dorset at Gore Heath, with *Lasius alienus* Först. at Rempstone Heath, Newton Heath and Warmwell Heath, and with both *L. alienus* and *Tapinoma erraticum* Latr. at Wytch Heath and Godlingston Heath. It was also found on the Lower Greensand at Longmoor, Whitehill and Liphook in N. Hants, and at Elstead Common and Tunnel Hill, near Pirbright, in Surrey.

Myrmica schencki Em.

A few workers were seen in May on earth mounds of *Lasius flavus* Fab. in a railway cutting near Helmdon, Northants This site is 500 ft. above sea-level on the Great Oolite series and some 20 miles north of known sites in Oxfordshire on the Cornbrash formation (Barrett, 1963). This rather subterranean species has a wide but very local distribution in England and Wales and must be often overlooked.

Lasius fuliginosus Latr.

I have seen this species this year at a railway-crossing near Alderbury, S. Wilts., at Tunnel Hill and Thursley Common, Surrey, and at Clophill, Bedfordshire. I am grateful to Mr. J. Cowley for specimens from Congresbury, N. Somerset.

Lasius umbratus Nyl.

Coupled winged sexes have been seen in my garden at Windsor, Berks., in two successive years. The mating flights occurred on warm evenings on the 1st August, 1963, and again on the 27th August, 1964.

Lasius brunneus Latr.

It occurred abundantly at Forest Gate, Windsor, during May in the presence of *Leptothorax nylanderi* Först. My wife took a solitary deälated female of the latter species wandering in the grounds of Beaumont College at Old Windsor in July.

Formica sanguinea Latr.

The distribution of this species has been reviewed recently (Barrett, 1964). I am grateful to Mr. J. Cowley for drawing my attention to a further published locality for N. Somerset (Parnell, 1938) from Steep Holm Island in the British Channel. Specimens have not been traced and this unlikely record might refer to *F. cunicularia* Latr. which is known to occur nearby on the mainland at Brean Down (Collingwood, 1961) and has been recorded from Lundy Island (Pontin, 1957). I have again failed to confirm the occurrence of *F. sanguinea* Latr. in N. Somerset (Monkton Combe), E. Sussex and W. Kent. I have seen it this season at Thursley Common and Elstead Common (SU 94), Tunnel Hill and Stony Castle, near Pirbright (SU 95), Surrey, and at Whitehill (SU 73) and Round Hill (SU 83) in N. Hants.

Formica exsecta Nyl.

Mr. S. C. S. Brown kindly showed me the solitary but flourishing colony in what is now the only Bournemouth locality known for this

species (Fraser 1959). *Tetramorium caespitum* Latr., *Tapinoma erraticum* Latr. and *Formica rufa* L. were also present in the area.

Formica rufa L.

I have been mainly concerned this season with a revision of the distribution of this species in Southern England. Confirmation of published localities (Nelmes, 1938; Yarrow, 1955) and new records obtained during 1964 are listed in Table 1.

TABLE 1

Localities recorded for *Formica rufa* L. during 1964

10 Km. Square	*Vice-County*	*Locality*
SX 76	S. Devon	Buckfastleigh.
SX 87	S. Devon	Bovey Tracey.
SY 78	Dorset	Redbridge.
SY 79	Dorset	Puddleton.
SY 88	Dorset	East Lulworth.
SY 89	Dorset	Affpuddle, Bloxworth.
SY 98	Dorset	East Holme, Rempstone.
SY 99	Dorset	Gore Heath, Lytchett Minster, Stony Down.
SZ 09	Dorset	Broadstone.
SZ 29	S. Hants	Sway.
ST 45	N. Somerset	Winscombe, Cheddar (J. Cowley).
ST 46	N. Somerset	Congresbury (J. Cowley).
ST 75	N. Somerset	Hinton Charterhouse (J. Cowley).
SU 00	Dorset	Colehill.
SU 30	S. Hants	Brockenhurst, Stockley.
SU 73	N. Hants	Whitehill.
SU 93	Surrey	Witley.
SU 94	Surrey	Thursley Common.
TQ 01	W. Sussex	Greatham.
TQ 06	Surrey	Sheerwater. (First taken here by B. Ing, 1956.)
TQ 19	Middlesex	Stanmore.
TQ 22	W. Sussex	Crabtree.
TQ 23	E. Sussex	Tilgate.
TQ 33	E. Sussex	Balcombe.
TQ 42	E. Sussex	Newick, Piltdown.
TQ 45	Surrey	Limpsfield Chart.
TQ 53	E. Sussex	Broadwater.
TQ 55	W. Kent	Seal Chart.
TQ 62	E. Sussex	Brightling.
TQ 64	W. Kent	Pembury.
TQ 73	W. Kent	Flimwell.
TQ 83	E. Kent	Biddenden.
TQ 88	S. Essex	Hadleigh (R. Lambourne).
TQ 95	E. Kent	Stalisfield.
TR 05	E. Kent	Challock.
SP 93	Bucks.	Bow Brickhill.
TL 03	Bedford	Clophill.

I am grateful to Mr. J. Cowley for the records from N. Somerset, to Mr. R. Lambourne for specimens from S. Essex, and to Mr. B. Ing for the Surrey locality. *F. rufa* was taken at Hinton Charterhouse, N. Somerset, by Mr. J. A. J. Smith in 1952. The locality was visited this season with Mr. J. Cowley and the species is now on the verge of extinction there. Two nests only were present near a felled larch plantation. One was a very small nest of chopped bracken and a further stronger colony was present in a hazel stump. A curious nest was seen

in a clearing in the New Forest near Brockenhurst, S. Hants. It was constructed of twigs and was about two feet high with almost vertical sides and resembled an upturned wicker waste-paper basket.

F. rufa was not found at the following published localities: Limpley Stoke, N. Somerset; Longleat, S. Wilts.; Glanville's Wooton and Blandford Forest, Dorset; Harewood Forest, N. Hants.; Ashstead, Reigate and Felcourt Heath, Surrey; Chiddingstone, W. Kent; Bolney, E. Sussex.

Formica cunicularia Latr.

A colony was present at Warmwell Heath, Dorset. It had constructed a solarium of heather bells above its nest in rather boggy ground. This habit has been observed in similar situations in the New Forest and seems to be a characteristic of this species.

REFERENCES

Barrett, K. E. J., 1963. *Myrmica schenckii* Em. in Surrey and Oxfordshire. *Entomologist*, **96** : 82.

———, 1964. *Formica sanguinea* Latr. in Southern England. *Ent. Rec.*, **76** : 107-114.

Collingwood, C. A., 1961. New Vice-County Records for British Ants. *Ent. Rec.*, **73** : 90-93.

Fraser, F. C., 1959. *Formica exsecta* in the Bournemouth Area. *Ent. mon. Mag.*, **95** : 172.

Nelmes, E., 1938. A Survey of the Distribution of the Wood Ant (*Formica rufa*) in England, Wales and Scotland. *J. anim. Ecol.*, **7** : 74-104.

Parnell, G. W., 1938. A Survey of Steep Holm. VII Entomology. *Proc. Bristol Nat. Soc.*, **8** : 471-473.

Pontin, A. J. 1957. The *Formica fusca* group (Hym., Formicidae) on Lundy Island. *Ent. mon. Mag.*, **93** : 36.

Yarrow, I. H. H., 1955. The British Ants allied to *Formica rufa* L. *Trans. Soc. Brit. Ent.*, **12** : 1-48.

129 Smith's Lane, Windsor, Berks. 17.x.1964.

Notes on *Anabolia (Phacopteryx) brevipennis* (Curtis), and *Ironoquia (Caborius) dubia* (Stephens), (Trichoptera, Limnephilidae).

By Allan Brindle

These two species are amongst the rarest of the British caddis-flies, and the following notes are an attempt to discuss existing records and some aspects of their distribution. These notes result from the capture of a male *A. brevipennis* by the writer at Hawes Water, Lancashire (v.c. 60) on 9th September, 1964, which prompted some investigation into previous records.

I. dubia appears to be the rarer of the two species, and McLachlan (1865) remarks of this species: "The only known specimen is Stephens type, said to have been taken 'in June, in the vicinity of the metropolis'." Mosely (1939) comments: "This insect is so rarely seen by collectors that it must be very retiring in its habits. It has been taken in Windsor Forest, and Stephens' type is said to have been taken near London in June". The Windsor Forest record appears to consist of two specimens, swept by Donisthorpe from the banks of a small stream, a male on 2nd October, 1931, and a female on 18th September, 1932. To these three records, Crichton and Baker (1959) added a fourth, a male, taken at

Wokefield (Millbarn pond), Berkshire, on 2nd October, 1957.

Mr. E. C. Pelham-Clinton has informed me (in litt.) that a specimen of *I. dubia*, a female taken in Suffolk, is at present in Morton's collection in the Royal Scottish Museum in Edinburgh. He writes that this was originally recorded as *A. brevipennis* by Morton (1908) and Morton's label on the specimen reads "Stenophylax/dubius, Steph/ recorded E.M.M./ Vol. XLIV, 1908/ as P. brevipennis/ in error". It is not known if a correction was published.

There are thus only five British records of this insect, all in Southern England. Out of the five, four are in the present century and one is very recent.

There are more records of *A. brevipennis*, but all published records apparently are dated previous to the present century.

McLachlan (1865) remarks of *A. brevipennis*: "I am only acquainted with four British examples of this singular insect: one in Curtis' collection, of which I know not the locality: two in my own collection, taken by Mr. Fereday at Scarborough, in September, 1862; and one taken by Mr. B. Cooke, at Bowden, Cheshire". Mosely (1939) merely states, "a very local species which has been taken in this country in Yorkshire". The omission of the Cheshire record by Mosely was apparently on account of his distrust of records of specimens which he did not see himself, and evidently he had no opportunity to see the Cheshire specimen. The Cheshire record, and a second one from the same locality was published by Cooke (1882), and these records consisted of two specimens, both taken at Hale Moss, Cheshire, one on 10th June, 1865, and one on 5th June, 1868. These are the only records for the county.

Mr. D. E. Kimmins has informed me (in litt.) that there is a male specimen in the McLachlan collection labelled "Norfolk, Norwich and Ranworth Fen, 1871, C. G. Barrett".

Porritt (1907) wrote of this insect: "One of the rarest of British Trichoptera, there being only about half a dozen specimens known in collections. I have one from *York*, and the late Mr. Alfred Beaumont possessed two from the same locality, and the late Mr. McLachlan had one from *Scarborough*".

The latter was evidently an error for two, and this note brings the total of records of *A. brevipennis* to nine. The York specimen is in Porritt's collection, now in the Tolson Memorial Museum, Huddersfield, and Mr. E. W. Aubrook has kindly given the following details from the label on the specimen, which reads, "G. C. Dennis at York/ Probably Askham Bogs/ Given to me by C. G. D., Jany. 1890".

This is apparently the last record published of this species until the recent capture at Hawes Water.

The specimens of *A. brevipennis* listed above may be summarised as follows:—

1.	?	?	?	Curtis collection
2.	Scarborough	1862	Fereday	McLachlan collection
3.	Scarborough	1862	Fereday	McLachlan collection
4.	Hale Moss	1865	Cooke	
5.	Hale Moss	1868	Cooke	
6.	Norfolk	1871	Barrett	McLachlan collection
7.	York	(previous to 1890)	Dennis	Porritt collection
8.	York	?	Beaumont	
9.	York	?	Beaumont	

The first specimen is presumably in the Curtis collection in Australia, and specimens 2, 3, 6, are now in the British Museum (Natural History). No. 7 is, as mentioned, at Huddersfield. The whereabouts of the other four, however, are unknown.

There is one female specimen in the Manchester Museum without locality; this is apparently mounted by a former keeper, the late Mr. H. Britten, but it is most unusual for him to have omitted the locality since he was noted for attention to detail. Mr. Gorton, of Bolton Museum, has informed me (in litt.) that there are three specimens of *A. brevipennis* in that Museum, but it has not yet been possible to trace their origin.

There are thus four specimens whose whereabouts are unknown, and four specimens without localities. Whether a connection can be traced between them is uncertain. Cooke was a prominent member of the Lancashire and Cheshire Entomological Society, and his collection was sold in 1883, but I have not been able to trace its disposal. It is possible that it was retained in Lancashire, and if so, the Bolton specimens may include one or both of the Cheshire specimens collected by Cooke. Mr. A. Beaumont was associated with Mr. J. M. Brown, who was a recorder of Trichoptera for the Yorkshire Naturalists' Union, and a search through the copies of the *Naturalist* may give a clue as to the disposal of Beaumont's specimens. At the present the position is that the four specimens recorded of which the whereabouts are unknown, may represent the four specimens at Bolton and Manchester, but further investigation is necessary to confirm or confute this possibility.

It is quite likely that additional specimens of both *A. brevipennis* and *I. dubia* have been taken without having been recorded, and their rarity is probably more apparent than real. Both are widely distributed on the Continent, *brevipennis* having in general a more northerly distribution than *dubia*, a feature which is reflected in the British records.

Mr. Kimmins has shown me a note from O. Nybom in Finland, which was received by Mosely in 1947 (also quoted in Crichton and Baker, 1959), which reports that *dubia* was found along a small rivulet and a ditch near the home of Nybom. The insects could only be taken at sunset, when they flew over the water in numbers. At other times it was almost impossible to find them. Mosely (1939) states the position clearly when he remarks of *dubia*, ". . . it must be very retiring in its habits". The records, at least of *brevipennis*, suggest a wide distribution in Britain, and further searches will probably show that both these caddis-flies are local but not rare, the main difficulty is to find out the best time of day, and other circumstances, when the insects can be found most easily.

It would, however, seem that a much easier method may be to search for the larvae, and the larvae of both species are known and are described in Lestage (1921).

He describes the habitat of *dubia* as more or less static water, such as shaded ponds, or in woodland streams, in which the bed is covered with dead leaves. This agrees closely with the situation in Windsor Forest where Donisthorpe swept his specimens. The larval case is rather distinctive, consisting of pieces of vegetable material arranged rather like tiles on a roof, i.e. imbricated, but the case itself is "arched", i.e. rather curved longitudinally. The larva itself is the only one in the Limnephilidae to have the abdominal gills divided into about ten branches, most larvae of this family having single or double filamentous gills. The habitat of

brevipennis is given as ponds or lakes again with the bed covered with dead leaves, which suggests shaded habitats. The larval case is triangular in section, resembling in this feature those of *Limnephilus decipiens* and *L. nigriceps*, but that of *brevipennis* is said to be uniform in breadth whilst those of the *Limnephilus* species taper posteriorly. The case is covered with pieces of vegetable material as in the case of *dubia*.

It is hoped to search for the larvae of *brevipennis* at Hawes Water during the coming year, and also to try to find more adults by using various methods of collecting. It would be most useful if other entomologists could, in their light traps, check on the caddis-flies which often enter together with the Lepidoptera. By doing so they would certainly add to our knowledge of the distribution, and the flight period of many of the caddis, and possibly even produce additional records of *dubia* and *brevipennis*.

I wish to thank my correspondents mentioned for their kindness in supplying details.

REFERENCES

Cooke, B., 1882. *Naturalist*, **7** : 111.
Crichton, M. I., and Baker, B. R., 1959. Records of Trichoptera from the Reading area, 1957-58. *Ent. mon. Mag.*, **95** : 85-87.
Lestage, J. A., 1921, *in* Rousseau, E. *Les larves et nymphes aquatiques des Insectes d'Europe*. Brussels.
McLachlan, R., 1865. Trichoptera Britannica, A Monograph of the British species of Caddis-flies. *Trans. ent. Soc. Lond.*, **5** (3) : 60-61, 69-70.
Morton, K. J., 1908. *Ent. mon. Mag.*, **44** : 43.
Mosely, M. E., 1939. *The British Caddis Flies*, pp. 75-76, 78-79. London.
Porritt, G. T., 1907. Trichoptera in *Victoria County History (Yorkshire)*.

Coleopterous Fauna of Sand-martin (*Riparia riparia riparia* (L.)) Burrows in Ireland

By A. J. M. Claassens, M.Sc.

The beetles (Coleoptera) recorded in this paper were mostly taken from the burrows of sand-martins, *Riparia riparia riparia* (L.), but the specimens recorded from Ballycroneen strand (East-Cork) were recovered from the nests of starlings, *Sturnus vulgaris vulgaris* L. which had occupied deserted sand-martins' burrows.

The number of specimens of each species of beetle collected from the different localities is listed. The species not mentioned in Johnson and Halbert's (1902) list of the Irish Coleoptera have been asterisked.

Family CARABIDAE

Subfamily Harpalinae

Pristonichus terricola (Herbst), one specimen from Little Island (East-Cork), September 1963, and one specimen from Saleen (East-Cork), December 1963.

Abax parallelopipedus (Pi and Mitterpacher), one specimen from Little Island, May 1963.

Family STAPHYLINIDAE

Subfamily Oxytelinae

Omalium allardi Fairm, three specimens from two nests at Ballycroneen strand, June and July 1964.

Subfamily STAPHYLININAE

Philonthus carbonarius Gyll., one specimen from Little Island, January 1964.

**Heterothops nigra*, Kraatz, one specimen from Ballycroneen strand, June 1964.

**Quedius assimilis* Nord., two specimens from Ballycroneen strand, July 1964.

Quedius mesomelinus Fairm, one specimen from Ballycroneen strand, July 1964.

Subfamily TACHYPORINAE

Tachinus rufipes Degeer, two specimens from Little Island, June 1963.

Subfamily ALEOCHARINAE

Microglotta nidicola Fairm, five specimens from Little Island, June 1963; one specimen from Saleen, July 1964; 139 specimens and many larvae from Ballinaclash (Wicklow), June 1964, and 349 specimens and many larvae from five nests at Ovens (Mid-Cork), June 1964.

**Crataraea suturalis* (Salhb.), one specimen from Ballycroneen strand, June 1964.

Atheta palustris Kies, three specimens from Ballycroneen strand, June 1964.

**Atheta zosterae* Thoms., one specimen from Ballcroneen strand, July 1964.

**Atheta nigricornis* Thoms., one specimen from Ballcroneen strand, July 1964.

Drusilla canaliculata Fairm, one specimen from Saleen, July 1964.

Aleochara diversa Sahlb., one specimen from Ballycroneen strand, June 1964

Subfamily PAEDERINAE

**Sunius melanocephalus* Fairm, one specimen from Ballycroneen strand, July 1964, and one specimen from Saleen, July 1964.

Family CRYPTOPHAGIDAE

Cryptophagus saginatus Sturm, four specimens.

Cryptophagus distinguendus Sturm, one specimen, both species were taken at Ballycroneen strand, June and July 1964.

Family LATHRIDIIDAE

Subfamily LATHRIDIINAE

**Lathridius consimilis* Mann., one specimen from Ballycroneen strand, July 1964.

Dr. J. Balfour Browne, who identified this species noted, that there is still uncertainty about *L. cosimilis* which might also be *L. minutus* (L.).

Discussion

Microglotta nidicola was the only species which was found in large numbers in the nests examined. It was the only beetle of which larvae were found. It is difficult to determine in what ways this beetle benefits by its nidicolous existence. Johnson and Halbert (1902) found *M. nidicola* in sand-martin burrows at Coolmore (Donegal) and Killiney (Dublin). Keer (1930) recorded it from sand-dunes, sand-martin burrows, nests of starlings, herons, *Ardea cinerea* L., goshawks, *Accipter gentilis*

(L), as well as from the burrows of rabbits, *Oryctolagus cuniculus* (L.), and from the nests of the ants *Lasius fuliginosus* Latr. and *L. brunneus* Latr,

The species *M. nidicola, C. suturalis, D. canaliculata* and *C. saginatus* have been recorded not only from the nests of birds but also from ants' nests, decaying matter, under leaves, etc. (Keer, 1930). Faris (1936) recorded that the beetle *Astilbus canaliculatus* (=*D. canaliculata*) attacked ants of the species *Myrmica sabuleti* Meinert in Co. Cavan. Several of the other species have been previously recorded associated with other animals

The presence of 13 species (11 Staphylinidae and two Cryptophagidae) in two nests of starlings at Ballycroneen strand is an indication that the beetles must be able to find the nests. The attractant may be decaying matter to feed on, or some beetles may be predatory on woodlice (Isopoda), mites (Acarina), fleas (Siphonaptera), flies (Diptera) and moths (Lepidoptera), or their immature stages, which were all present in these nests. The interesting coleopterous fauna and their ecology in birds' nests invites further investigation.

ACKNOWLEDGMENTS

Thanks are expressed to Dr. J. Balfour Browne, Principal Scientific Officer, British Museum (Nat. Hist.), Department of Entomology, who kindly identified all Staphylinidae and Cryptophagidae mentioned in this paper. Thanks are extended to Professor Fergus O'Rourke, Department of Zoology, University College, Cork, under whose supervision the study of nidicoles was undertaken.

Department of Zoology, University College, Cork. September 1964.

REFERENCES

Faris, R. C. (1936). "Records for some Bees, Wasps and Ants from Co. Cavan". *Irish Nat. J.*, **6** (6): 143-145.

Johnson, W. F., and J. N. Halbert. (1902). "A List of Beetles of Ireland". *Proc. R. Irish Acad.*, **6**: 535-827.

Keer, P. M. (1930). "*Calwer Keverboek*". Thieme and Cie Zutphen, Holland.

Notes and Observations

THE HIBERNATION AND PUPATION OF COSSUS COSSUS L.—I was greatly interested in Commander Harper's note on this subject (*antea* 227). In my youth, my grandfather lived at Stanford-le-Hope, Essex, then a small country village. *Cossus* was very common there, indeed there was a disused saw-pit surrounded by willows near his house where the larvae were so abundant that they could be smelt from the road five yards away.

In the autumn of 1902, when I paid one of my usual duty visits, I was told that the gardener had dug up two goat moth caterpillars when ridging the vegetable plot for the winter, and they had been saved for me. When I got home, I emptied the tin and found they had begun to spin cocoons, so I put them back in the tin with more earth and placed them in the garden shed for the winter. Towards the end of April I emptied the tin and found they had spun tough cocoons of earth and silk and I could hear the pupa rattling when I shook these.

I accordingly re-buried the cocoons in the earth and in due course two perfect specimens of *cossus* emerged.

As I have already said, *cossus* was common in the district; C. R. N. Burrows used to take one or two at sugar in his garden every year. As *cossus* is a non-feeder, this seems very strange, but Burrows said these were always females and he thought they mistook the sugar for sap from an injured trunk when looking for somewhere to lay their eggs.—H. C. Huggins, F.R.E.S., 65 Eastwood Boulevard, Westcliff-on-Sea, Essex. 30.x.1964.

Hibernation and Pupation of Cossus cossus L. (Lep. Cossidae).—In the October issue (*antea* 226) Commander Harper expresses the belief that those larvae of *cossus* which leave the tree in the autumn, return for pupation in the spring to one tree or another. As a boy I lived in a private road in Lewes, Sussex, in front of which stretched a long row of well grown black poplars. Some of these trees were riddled by the larvae of this species, and at that time I frequently saw the full fed larvae in the roadway, far from the nearest of these infected trees, and in the summer, from time to time, noted moths on the trunks, and pupa cases protruding, but always thought it odd that I saw so few in comparision with the number of larvae seen in the previous autumn.

During the 1914-18 war, a Lewes grocer had a consignment of dried figs of Greek or Turkish origin, condemned as unfit for human consumption, and these were carted to his small walled garden just outside the town. I cannot say at what precise date this was done, but in 1921, upon my return to the town on my demobilisation, he asked me if I was interested in foreign moths, as he was finding large moths on the rotten figs, and had done so for several years. On inspecting his garden, I found it was devoid of trees, and that the figs, stacked against the wall, had formed a solid mass, from which empty pupa cases were extruding, and upon opening this material up with a spade, a great many larvae of *cossus* were found, of all sizes from very small to full fed.

Beyond doubt, these figs had been infested by this species in this country, either before condemnation, or after removal to the garden; I suspect the latter. They had bred in this strange way successfully over a period of years, so despite the obvious adaptation for pupation in a tree, they can do quite well in other surroundings.

In the early 1930s, I noted a few oak trees at Pulborough, by the marsh, which were much infested by *cossus* larvae, and here, as at Lewes, I often found larvae in the roadway in the autumn, far from these or any trees, but rarely found the moth, and never found a protruding pupa case.

From these experiences, I must express disbelief in the suggestion that the larvae which leave the trees ever return, but I think it probably true that many larvae remain in the trees to winter, and others pupate in earth or other material at the tree base. On the only occasion when I decided to breed from straying larvae, I put two in a wooden box with both earth and wood, and in the spring discovered that both had eaten their way out through the box, and could not be found at that time, despite a thorough search, but later in the year I found a freshly emerged moth on a cupboard door and the pupa case projecting from one of the floor boards at the cupboard bottom.—A. J. Wightman, F.R.E.S., 67 The Spinney, Pulborough, Sussex. 25.x.1964.

EUROIS OCCULTA L. IN 1964.—I notice two or three references to *Eurois occulta* L. in the October number of the Record. Seven examples of this species came to my trap in Sheffield between 14th and 24th August, so there would appear to have been quite a large immigration. All were of the pale continental form, five males and two females, both of which failed to lay any eggs.—W. REID, 6 Whirlow Park Road, Sheffield 11. 29.x.1964.

ACHERONTIA ATROPOS L. IN SUFFOLK.—During the first two weeks of October 1964, I had the good fortune of having four pupae of *Acherontia atropos* L. given to me. These had been found in the potato fields around Stowmarket, Suffolk.—T. M. SHIPP, F.N.D., F.N.D.S., 14 Silverdale Avenue, Stowmarket, Suffolk. 20.x.1964.

LITHOPHANE LEAUTIERI AND OTHER NOTABLE RECORDS OF MOTHS AT ARUNDEL.—A male *Lithophane leautieri* was taken in the mercury vapour light trap on 3rd October 1964, being the first record of this species in the district. The following migrant species were taken in the mercury vapour trap this year: *Lithosia quadra*, 4 on 17th July, one on 18th July, and one on 19th July; *Leucania albipuncta*, one on 13th September; *Leucania unipuncta*, one on 18th September, one on 3rd October and one on 4th October; *Leucania l-album*, one on 2nd October.—G. HAGGETT, 1 Torton Hill, Arundel, Sussex. 9.xi.1964.

THE ISLE OF ARRAN, 1964,—A POSTCRIPT.—In the final paragraph of my note on the Isle of Arran (*Ent. Rec.*, 76: 229-30) reference was made to a larva which evaded indentification. On 26th September the mystery was solved as a female *Chloroclysta miata* L. emerged. This species therefore completes the list of macro lepidoptera found on the island during the period under review.—M. J. LEECH, The Cottage, Hallgates, Cropston, Leicestershire. 26.x.1964.

ODONTAEUS ARMIGER Sp. (COL. SCARABAEIDAE) IN NORTHAMPTONSHIRE.—During a visit to Kings Cliffe, Northamptonshire, on 27th July two specimens, a male and female, of this rare beetle flew into m.v. light. Little is known about the early stages but it seems to be associated with dung. From the amount of rabbit droppings present in the area it may be that there is some relationship between the species and this pabulum.—M. J. LEECH, The Cottage, Hallgates, Cropston, Leicestershire. 26.x.1964.

AN APPARENT MIGRATION OF RED ADMIRALS.—In view of the phenomenal numbers of *Pyrameis atalanta* L. in most parts of the British Isles this summer (1964) I have thought it is of special interest to mention that my neighbour, Mr. J. A. G. Coates, tells me that whilst sailing off the coast of South Devon between 20th and 27th August, he saw on several fine days red admirals passing, sometimes two a minute, usually some three feet above the water. He was in Wembury Bay, just south-east of Plymouth Sound, about five miles off shore and says the general direction of the butterflies was north-westerly. He estimates that he must have observed several hundred specimens flying past in this way and that all the gardens along the coast were full of red admirals during the following days.—C. G. M. de WORMS, Three Oaks, Woking, Surrey. 9.xi.1964.

WHO WAS COLEMAN?—Dr. R. G. Ainley's query in the November *Record* (*Ent. Rec.*, **76**: 254) is answered in the *Dict. Nat. Biog.* (Second Supp., **1**. 382) where an account of William Stephen Coleman (1829-1904) is given.—P. B. M. ALLAN.

FOODPLANT OF CUCULLIA VERBASCI LINN.—I can confirm Barrett's record (*Lep. Br. Is.*, **6**: 64) referred to by Mr T. D. Fearnehough at page 267 of *Ent. Rec.*, **76** (November 1964) of this species feeding on *Buddleia globosa*. Some years ago I found several of its larvae on a shrub of this species growing against the wall of a farmhouse in N.W. Essex. A search of the magazines would probably disclose further records. An entry in my diary under date 11th July 1941 reads: "To-day I placed six *C. verbasci* larvae, found on 4th July on *Verbascum thapsus*, on *Scrophularia aquatica*. They began to eat the new food at once. They are from one-third to half-grown" —P. B. M. ALLAN.

APEIRA SYRINGARIA L., A DISPROPORTIONATE RATIO OF THE SEXES.—On 27th July whilst going the rounds of the sugar patches at Kings Cliffe, Northamptonshire, a female *Apeira syringaria* L. (Lilac Beauty) was netted. Not having a full series of this handsome insect it was decided to keep her for eggs. To aid ovipositing she was, on the following day, enclosed in a sleeve with some privet stems. Ova appeared in plenty and as I had far more than actually required some were given away to a friend. Approximately half of the resulting larvae retained fed up rapidly and pupated. This state of affairs was reproduced with those that were handed on. Emergence commenced in late August and continued through to the first week of September. The ratio of females to males, in both cases, is so unbalanced that it is worth recording. All my pupae emerged; these produced 24 females and one male: of those given away nine females and one male emerged. Why this peculiar state of affairs came about is perplexing. It would be interesting to have comments on this and I should be interested to know if there is any biological reason behind the uneven ratio. The remaining larvae (in both cases) have gone into hibernation and it remains to be seen if the specimens which will result next year will be predominantly of the male sex.—M. J. LEECH, The Cottage, Hallgates, Cropston, Leicestershire. 26.x.1964.

APATELE LEPORINA L. OVERWINTERING A THIRD TIME.—In a previous note (*Ent. Rec.*, 76: 29) on this species attention was drawn to the fact that in captivity pupae had gone over for a second winter. At the appointed time this year a proportion emerged satisfactorily but some failed to emerge. The remaining pupae are healthy and it now appears as if they are going over for a third winter. Since the time they originally pupated the pupae have been kept indoors.—M. J. LEECH, The Cottage, Hallgates, Cropston, Leicestershire. 26.x.1964.

MIGRANT MOTHS AT WESTON-SUPER-MARE.—The only migrants of interest that I have seen in my moth trap here this year have been a specimen of *Heliothis peltigera* Schiff. on 15th August and two females of *Nycterosea obstipata* Fab. on 10th and 23rd September respectively.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 19.xi.1964.

NYMPHALIS ANTIOPA L. IN CAMBRIDGESHIRE.—It is now sixty years since the last recorded appearance of this occasional migrant in Cambridgeshire. This year (1964) two have been reported to me, both by reliable observers who know the butterfly. There is the possibility that only one butterfly is involved, since *antiopa* is both long-lived and a strong flyer; there is less than a fortnight between the two observations and the localities are only some two miles apart. The first specimen was seen in Storey's Way, Cambridge, during the middle of August by Col. R. G. Turner and the second by Mr. and Mrs. Stevens towards the end of the same month, between the villages of Barton and Grantchester.—BRIAN O. C. GARDINER, 18 Chesterton Hall Crescent, Cambridge. 12.xi.1964.

NYMPHALIS ANTIOPA L. ON ANGLESEY.—My daughter, Mrs. M. Smith, of Dore, Sheffield, advises me that she saw a specimen of *Vanessa antiopa* L. at Llandwyn Island, on the south coast of Anglesey in August this year. I was, I am afraid, quite unimpressed at first, thinking that she had made a mistake, but her description of what she saw is exactly that of a Camberwell beauty. She is not a collector, but knows enough about butterflies to recognise something unusual when she sees it.—WILLIAM REID, 6 Whirlow Park Road, Sheffield 11, 19.xi.1964.

Current Literature

The Scientific Principles of Crop Protection (Fifth Edition). By Hubert Martin. Edward Arnold (Publishers) Ltd. Pp. viii + 376. 90/-.

This edition is mentioned by the author in his preface as introducing two new features in crop protection which were not included in the fourth edition. These two advances are the synthesis of new molecules of selective toxicity, which tend to reduce the hazards associated with general pesticides which have aroused some public opposition, and also the advances in applied biology, which has developed into a study of the relationships between host and pest, enabling methods which do not involve the use of toxic chemicals to be applied, thus giving scope for the co-operation of entomologists and mycologists with those engaged in crop protection.

The text is divided into sixteen chapters, Chapter I. being a general introduction, and giving an interesting account of man's outlook on plant diseases back to the days of Pliny and even earlier. Plant resistance is discussed in Chapter II., giving examples of the development of strains resistant to both pathogens and to insect pests, the term insect being used throughout to give the sense of arthropod. On through the chapters, the many different aspects of this subject are dealt with in a thorough, clear, and interesting manner, and there is much of great interest even for one who is not an advanced chemist, the chapters on traps and on biological control being particularly interesting.

The index is divided into an Authors index and a Subject index, and there is a very good bibliography at the end of each chapter. The paper is of good quality and the book is strongly bound in linen boards. It is essentially a book for the student and specialist, but it is one which should find a place in the libraries of scientific agricultural and natural history societies.

S. N. A. J.

The following named abs. are in R.C.K.:—*trilinea* Hb., Wye, one; *semifuscans* Haw., Wye, several; *semifuscans* Haw. + *evidens* Thunb., Wye; *pallida-linea* Tutt (=*bilinea* Treits.), Chatham, one; *approximans* Haw., Chatham, one, 1908; *approximans* Haw. + *semifuscans* Haw., Ham Street, one, 1948.

First Record, 1829: Darenth Wood (Stephens, *Haust.*, **2**: 152).

Caradrina morpheus Hufn.: Mottled Rustic.

Native. Waste places, marshes, gardens, river-banks, etc.; foodplant unrecorded. In all divisions. "Generally common; often abundant" (*V.C.H.* (1908)).

A. R. Kidner (*Diary*) records finding larvae at Sidcup as follows, but gives no mention of the foodplant:—Several on September 19, 1928, one on September 5, 1930.

Variation.—Many Kentish specimens have a reddish tint around the stigmata, and thus appear to conform to ab. *sepii* Hübn., and all those that I have seen have been either this or typical *morpheus* Hufn. (C.-H.). Tutt (*Br. Noct.*, **1**: 147) describes ab. *minor*, holotype, from Deal.

In R.C.K. are the following named abs.:—*sepii* Hübn., one "Westcombe Park June 1886 Tutt"; *obscura* Tutt, two, Westcombe Park, 1886, Tutt. Also, typical *morpheus* Hufn., Sheppey, one, 1924, bred E. A. Cockayne; several, Westcombe Park, 1892-93, Tutt; one, Wilmington, 1904.

First Record, 1829: *C. sepii* Hübn. "A common species in gardens, on the borders of woods and in shady lanes throughout the metropolitan district" (Stephens, *Haust.*, **2**: 158).

C. alsines Brahm: Uncertain.

Native. Cultivated and waste places; on "dock". Recorded from all divisions, except 10 (from which it is unlikely to be absent). "Generally common; often abundant" (*V.C.H.* (1908)).

A. R. Kidner (*Diary*) wrote that he found a larva at Sidcup, on May 5, 1917. H. E. Hammond records a single larva found at Tonbridge in 1951, which was feeding on dock.

Variation.—Stephens describes ab. *implexa* from Darenth Wood (see *First Record*). In R.C.K. are ab. *elegans* Lempke, one, "Tutt Deal 12.vii.90"; ab. *rufescens* Lempke, several, Chattenden.

First Record, 1829: *C. implexa* Steph., Darenth Wood, 1820 (Stephens, *Haust.*, **2**: 156).

C. blanda Schiff. (**taraxaci** Hübn.): Rustic.

Native. Cultivated and waste places; foodplant unknown. Recorded from all divisions. "Generally common; often abundant" (*V.C.H.* (1908)).

The records indicate that this is generally the most numerous *Caradrina* in Kent, especially on the coast, and at Sandwich (div. 4) in my experience it almost entirely replaces *C. alsines* Brahm.

The moth normally appears in one generation from about the end of June to mid August. In 1955, W. L. Rudland took one at Willesborough on October 2, probably representative of a partial second brood; and in 1956, the same recorder noted it on the wing at Wye as early as June 10.

There is no record of the discovery in Kent of any of the early stages in nature.

VARIATION.—Tutt (*Br. Noct.*, **1**: 149-151) records ab. *sordida* Haw., from Chattenden Wood. He states that specimens from the coast of Kent are "rarely brown, and often have a distinct purplish tinge, the basal area of the hindwings of the male also being of a very pale grey", and refers these to ab. *blanda* Gn. He mentions a "fuscous black form which I have taken at Deal".

In R.C.K. are ab. *taraxaci* Hübn., one, "Deal 18.viii.88 Tutt"; ab. *redacta* Haw., three, Sandwich, one, Dungeness. Also, typical *blanda* Schiff., Chattenden, one.

FIRST RECORD, 1829: *Noctua redacta* Haw., near Darenth Wood, "where I have taken it abundantly" (Stephens, *Haust.*, **2**: 156).

C. ambigua Schiff.: **Vine's Rustic.**

Suspected immigrant and temporary resident. Waste places, etc.; foodplant unknown. Recorded from all divisions (except 10, 13, 14), though mainly from the east coast.

The history of *ambigua* in Kent shows certain similarities to that of *Laphygma exigua* Hübn. (*q.v.*). Both were of very occasional occurrence prior to about 1935, but have since appeared much more regularly and in far greater numbers. In the case of *ambigua*, however, the comparative numerical increase and greater regularity of occurrence is more marked, and there are indications that it has for some years now been resident in Kent.

19th Century Occurrence.—1885: Deal, one, August (Tutt, *Entomologist*, **19**: 42). 1886: Deal (Prout, *Ent. Rec.*, **6**: 203-204). 1887: Deal, ♂, July (Prout, *loc. cit.*). 1888: Deal, ♂, July (Prout, *loc. cit.*). Note: It may be inferred that J. W. Tutt was the captor of all Kentish *ambigue* taken 1885-88, and that his "numerous ambigua . . . dated June or August", referred to by Prout, were likewise taken by him at Deal during this period.

1917-1928.—1917: West Wickham (div. 1), one taken at sugar, July 21 (Kershaw, *Entomologist*, **51**: 67). 1928: Margate, one, taken August 6 (Huggins, *Entomologist*, **61**: 223).

1934-1939.—1934: Dungeness (Morley, *Proc. S. Lond. ent. Nat. Hist. Soc.*, 1934-35: 50). 1935: Dungeness, several, September 7 (de Worms, *Entomologist*, **69**: 157); September 30 (J. H. B. Lowe). Reculver, September 18 (1), 22 (2), 26 (1) (A. J. L. Bowes). 1936: Sandwich, September 6 (A. J. L. Bowes). 1938: Dungeness, August 6 (2), 25 (A. J. L. Bowes); September 2, 3, 4, and 5, fairly numerous on each night at sugar (de Worms, *Entomologist*, **72** :262). Sandwich, September 6 (A. J. L. Bowes).

1945-1964.—The records show that except for 1947, the moth has occurred annually during this period, and was particularly plentiful in 1950, 1951, 1952, and 1962. 1945:—Folkestone-Dungeness area, four, August 1-10 (Richardson, *Entomologist*, **79**: 19). Broad Oak, one, August 7; Sandwich, one August 11 (C.-H.). Dungeness, one. September 1 (de Worms, *Entomologist*, **79**: 77). Goodnestone (div. 8), September, fairly common at sugar (R. W. Parfitt). 1946: Dungeness, September 18 (1), 27 (1) (A. M. Morley, *per* Dannreuther, *Entomologist*, **80**: 140). 1948: Deal, June 13 (♂), 14 (♀), at valerian (C. M. Gummer, *per* Dannreuther, *Entomologist*, **82**: 107). Dover, August 26 (1), September 11 (2) (G. H. Youden, *per* Dannreuther, *Entomologist*, **82**: 107). Ramsgate, August 28 (1) (A. H. Lanfear). Petts Wood (div. 1), one (E. E. Evans). 1949: Dungeness, August 13 (1),

23 (24 at sugar) (A. M. Morley *per* Rothamsted); September 3 (1), 4 (1), 6 (4) (R. W. Parfitt *per* Rothamsted). Eddington (div. 3), August 27 (several) (D. G. Marsh, *Diary*). East Kent [Dungeness], common at sugar, August 27 (G. Haggett *per* Rothamsted). Deal, September 2 (1) (C. M. Gummer *per* Rothamsted). Isle of Thanet (Manley, *Proc. S. Lond. ent. Nat. Hist. Soc.*, 1949-50: 38). Pinden (div. 6), two (E. J. Hare). Ham Street, several, September (Scott (1950)). 1950: Dungeness, a few, June 6-7 (E. C. Pelham-Clinton); August 11 (3) (A. M. Morley *per* Rothamsted). Sandwich, June 15, August 11 (plentiful both nights) (D. G. Marsh, *Diary*); June 16 (10); August 26 (plentiful) (C.-H.). Deal and Sandwich, June and September (20) (C. M. Gummer *per* Rothamsted). Eddington, August 8, 18 (plentiful both nights) (D. G. Marsh, *Diary*). Cliftonville, plentiful (W. D. Bowden). Pinden, common (E. J. Hare). Folkestone, August 28 (1) (A. M. Morley *per* Rothamsted). West Wickham (E. Trundell). 1951: Margate. June 20 (1), September 14 (1); Minster (div. 4), July 2 (1) (W. D. Bowden). Bexley, June 24 (1) (A. Heselden). Aylesford (G. A. N. Davis). Eddington, August 3 (1), September 21 (1) (D. G. Marsh). Pinden, common (E. J. Hare). Folkestone (div. 16), 59 in all, with 20 on September 5 (Morley, *Ent. Rec.*, **64**: 171). Dover, "has appeared in astonishingly large numbers" (Youden, *Entomologist*, **84**: 261). Brook, September 22 (2) (C. A. W. Duffield, *fide* E. Scott). West Wickham (E. Trundell). 1952: Folkestone, May 27—June 22 (12), August 6—September 12 (84) (A. M. Morley *per* Rothamsted). Dungeness, May 31 (several); Broad Oak, June 14 (1) (C.-H.). Dover, May and August, common (G. H. Youden *per* Rothamsted). Bexley, August 28 (1) (A. Heselden). Abbey Wood (A. J. Showler). Pinden, common (E. J. Hare). Aylesford (G. A. N. Davis). Westerham (div. 5), August 25 (1) (R. C. Edwards). Ham Street, August 9 (1) (A. Richardson *per* Rothamsted). West Wickham (E. J. Trundell). 1953: Folkestone and Dover, common at coast in two broods (A. M. Morley & G. H. Youden *per* Rothamsted). Wye, July 8—October 3 (4); Willesborough, September 11-18 (4) (W. L. Rudland). Aylesford (G. A. N. Davis). West Wickham (E. Trundell). 1954: Sandwich, June 14 (1); Cliftonville, June 17 (1) (W. D. Bowden). Willesborough, July 12 (1) (W. L. Rudland). West Wickham (E. Trundell). Dartford Heath, August 28 (1) (C.-H.). 1955: Queensbridge, June 25 (1) (W. D. Bowden). Willesborough, August 4-8 (4), 30 (1) (W. L. Rudland). 1956: Willesborough, July 17—September 17 (15); Wye, July 21—September 14 (9) (W. L. Rudland). Lydd, September (several) (de Worms, *Entomologist*, **90**: 182). 1957: Folkestone, June 18 (1), September 26 (1) (A. M. Morley *per* Rothamsted). St. Peters, August 20 (W. D. Bowden). Ham Street, August 31 (de Worms, *Entomologist*, **91**: 152). Dungeness, September 1 (de Worms, *loc cit.*); six (P. Cue). Ashford, one (P. Cue). 1958: Folkestone, September 18 (1) (Morley, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1959: 43). Lydd-on-Sea (Wakely, *Proc. S. Lond. ent. nat. Hist Soc.*, 1958: 42; idem, *Ent. Rec.*, **71**: 93). Shorne (div. 6a), one, September 4 (E. Trundell). 1959: Folkestone, August 26 (1) (A. M. Morley *per* Rothamsted). Dover, autumn (a few) (G. H. Youden *per* Rothamsted). 1960: Dover, June 11 (2) (G. H. Youden *per* Rothamsted). Folkestone, September 1 (1) (A. M. Morley *per* Rothamsted). Cliffe Marshes, September 3 (R. G. Chatelain). Bromley, six (D. R. M. Long). 1961: Folkestone, two (A. M. Morley *per* Rothamsted). Westerham (div. 5) (R. C. Edwards). Bromley, 31, with max. (12) on August 30 (D. R. M. Long). 1962: Dungeness, June 11-30 (34), July 13 (5), August 29, 30, October 10 (1), 15 (1) (R. E. Scott). Ham Street, September 12 (1); Lee, September 14

(1) (C. G. Bruce). Bromley, 83, June 15—October 23 (D. R. M. Long). West Ashford, October 20 (1) (M. Enfield). 1963: Dungeness, June 12—October 11 (13) (R. E. Scott). Lee, September 9 (1) (C. G. Bruce). Bromley, 12 (D. R. M. Long). 1964: Bromley, August 28 (1), September 6 (1) (D. R. M. Long).

FIRST RECORD, 1886: Deal (Tutt, *Entomologist*, **19**: 42).

C. superstes Ochs. (**blanda** Hübn.): Powdered Rustic.

Immigrant.

4. Deal*, two ♂♂, taken by J. W. Tutt, July 1886 (Tutt, *Ent. Rec.*, **4**: 99, **6**: 53-54; Prout, *Ent. Rec.*, **6**: 203) (in *Lond. Nat.*, 1945: 17, the captor of these *superstes* is given as A. J. Hodges in error). In R.C.K. are two *superstes*, labelled: "Deal July 1886 (ex Tutt coll.)" (C.-H.).

FIRST RECORD, 1891: Deal (Tutt, *British Noctuae and their Varieties*, **1**: 149).

C. clavipalpis Scop. (**quadripunctata** F.): Pale Mottled Willow.

Resident. Gardens, vegetable fields, marshes, waste places, etc.; foodplant unknown. Recorded from all divisions, except 10 (from which it is most unlikely to be absent). "Generally common" (*V.C.H.* (1908)).

The moth seems to appear in a succession of broods, with maximum numbers in September, and has been noted in every month from February to November inclusive. In 1957, Allen (*Ent. Rec.*, **69**: 245) recorded its occurrence at Blackheath as early as February 20; and H. D. Stockwell (*Diary*) observed one "on a bedroom window" at Dover in 1900 as late as November 3.

There is no record of the discovery in Kent of any of the early stages in nature.

VARIATION.—Tutt (*Br. Noct.*, **1**: 154) records specimens from Deal referable to ab. *albina* Ev.; and Andrews (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1898: 122) exhibited one from Darenth Wood supposedly this species, which "was very dark, and almost the whole central area of the forewings was black".

In R.C.K. is ab. *thunbergi* Nordstrom, one, labelled "Deal Tutt '90".

FIRST RECORD, 1829: Birch Wood (Stephens, *Haust.*, **2**: 158).

Laphygma exigua Hübn.: Small Mottled Willow.

Immigrant. Vegetable, clover and lucerne fields, waste places, etc.; foodplant unknown. Recorded from all divisions (except 2, 6a, 10, 14), but has mostly occurred on the east coast.

Altogether there are records of over 300 *exigua* for Kent; of this number, however, only about 20 occurred up to 1937, though in the following year it is estimated that roughly 170 were noted. None was recorded for the period 1939-44, but since 1945 the moth has appeared fairly regularly, and in 1962, 62 individuals were recorded.

There is no record of the discovery of any of the early stages in nature, though in 1938, Bowes (*Ent. Rec.*, **51**: 107) made a particular point of searching for the larva, and careful examination of all likely plants failed to reveal it. It is probable, nevertheless, that in certain years, e.g. 1952 and 1963, early immigration was followed by successful breeding in Kent during the summer, giving rise to large numbers of offspring appearing in August and September.

EXCHANGES AND WANTS

Wanted.—Part 2 of the "Record" for 1930. Can anyone oblige?—*B. O. C. Gardiner, 18 Chesterton Hall Crescent, Cambridge.*

United States Lepidopterist wishes to correspond with collectors in the United Kingdom.—Contact: *Phillip Nordin, 4811 34 Ave. So., Minneapolis, Minn. 55417, U.S.A.*

Jirí Adam, Fučíkova 330, Ostrava-Poruba, CCSR, Czechoslozakia, wishes to establish contact with English Entomologists. He is interested in Lepidoptera, particularly the genus *Zygaena* F. (*Anthrocera* Scop.).

Barograph For Sale.—Handsome brass barograph, on mahogany stand, in glass and mahogany showcase, together with charts. Used as an aid to successful sugaring (cf. Allan, *A Moth-Hunter's Gossip*, pp. 110-114). In excellent condition throughout, £8.—*J. M. Chalmers-Hunt, St. Teresa, Hardcourts Close, West Wickham, Kent.*

Stud. Lars Axelsson, Järnvägen, Kungsängen, Sweden, aged 17, interested in Lepidoptera desires to contact any English boy of similar age willing to correspond and exchange specimens.

Wanted.—Duplicate large insects, all Orders, any condition, papered or pinned, for dissection, demonstration and free distribution to Extra-Mural and W.E.A. classes. Data not essential.—*G. S. Kloet, 4 Devonshire Park Road, Stockport, Cheshire.*

IMPORTANT

To our subscribers

We have for disposal either part numbers or complete volumes of old issues dating from 1890/1 up to and including volume 73. If any of our subscribers would care to state their requirements to Mr. F. W Byers, 59 Gurney Court Road, St. Albans, he will then quote the special prices which can be offered for any particular issue.

Subscription prices will be paid for clean, unbound copies of the following years:

Vol. 36 — 1924	Vol. 51 — 1939	Vol. 55 — 1943
41 — 1929	52 — 1940	57 — 1945
42 — 1930	53 — 1941	62 — 1950
50 — 1938	54 — 1942	63 — 1951

Please contact: Mr. S. N. A. JACOBS, 54 HAYES LANE, BROMLEY, KENT.

6019 074

FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets, and Set Specimens

Price lists of the above are issued from time to time, so if you would like to receive regular issues please send me a postcard stating your interests

L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, England

(Postal business only)

Official agent for publications of the Amateur Entomologist's Society

---

J. J. HILL & SON LTD.

ENTOMOLOGICAL CABINET MANUFACTURERS

Specialists in Interchangeable Unit Systems, Store Boxes, Insect Cases, Setting Boards, Micro-slide Cabinets, etc.

Reconditioned Second-Hand Insect Cabinets available from time to time.

YEWFIELD ROAD, N.W.10 'Phone Wil 0309

THE MACROLEPIDOPTERA OF THE WORLD

A systematic work, in collaboration with the best specialists of all Countries, edited by

Prof. Dr. A. SEITZ

Every known butterfly of the whole world is life-like represented in 1(14 colours and described scientifically. There is no similar work in existence English, German and French editions. Vol. 1-4 : Fauna palaearctica. Vol. 5 16 : Fauna exotica.

Every volume may be had separately.

A. KERNEN, publishers, Stuttgart, Schloss-Str. 80

Bumble, Stingless, and Hive Bees—Selected reprints from Bee World covering a wide field, also books on Anatomy and Dissection, History of Beekeeping and Pollination, full complimentary list from Bee Research Association Publications, 11 Poplar Grove, Maidstone, Kent.

ENTOMOLOGIST'S GAZETTE

A QUARTERLY JOURNAL OF BRITISH ENTOMOLOGY

Well illustrated

Subscription: 42/- per year

Free Sample Copy sent on request

353 Hanworth Road, Hampton, Middlesex

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

The following gentlemen act as Honorary Consultants to the magazine: Lepidoptera: Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S.; E. C. M. d'ASSIS-FONSECA, F.R.E.S.

CONTENTS

TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at 54 Hayes Lane, Bromley, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts. Specimen copies supplied by F. W. Byers on payment of 2s. 6d. or Sterling equivalent, which will be refunded or taken into account if person in question becomes a subscriber.

BACK NUMBERS, VOLUMES, and SETS OF VOLUMES to the TREASURER, Denny, Galloway Road, Bishop's Stortford, Herts.

CHANGES OF ADDRESS to the TREASURER.

REPRINTS: 12 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

Printed by T. BUNCLE AND CO. LTD., Arbroath.

Acme
Bookbinding Co., Inc.
100 Cambridge St.
Charlestown, MA 02129

MAR 1 8 1983


3 2044 072 176 605