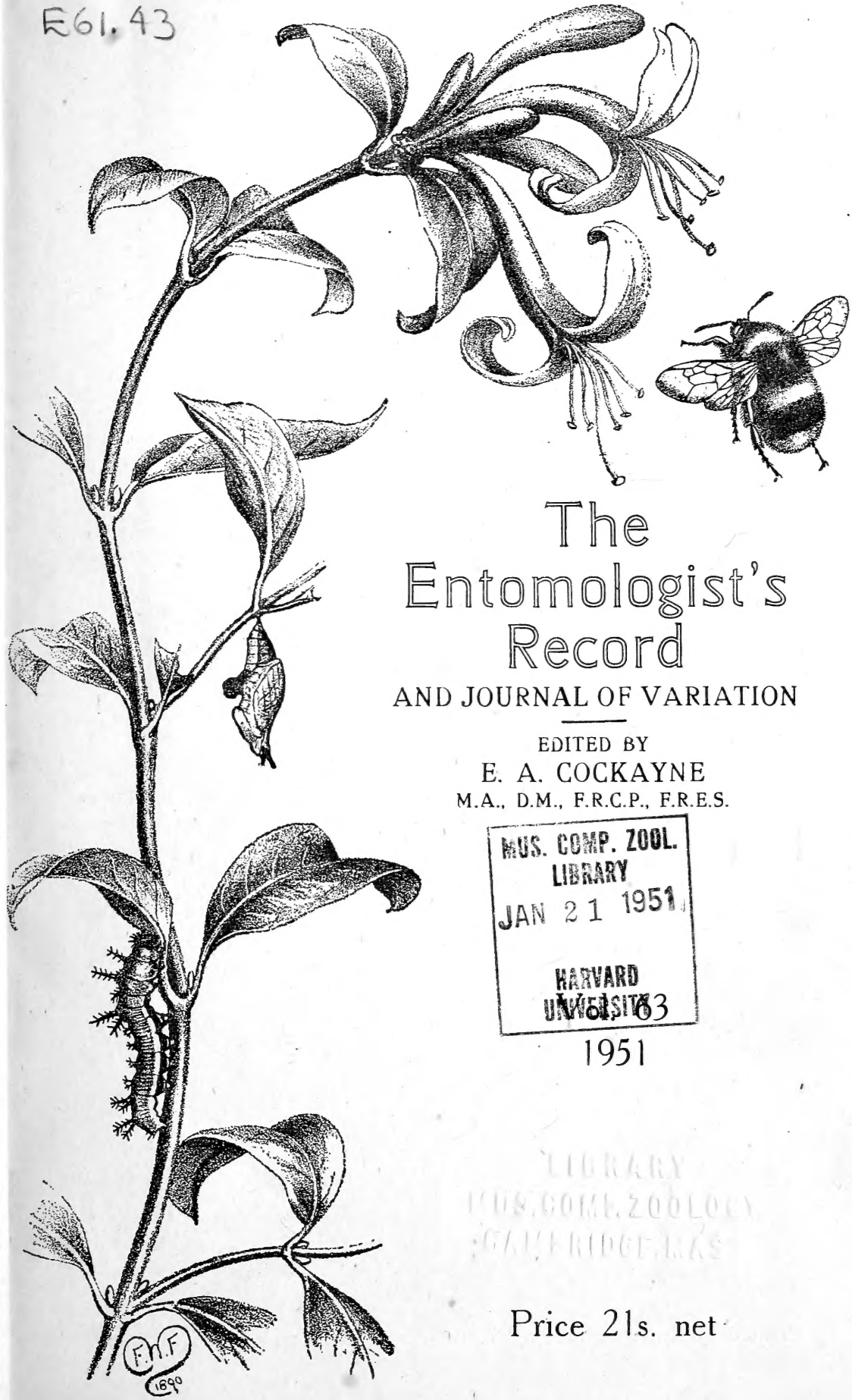


The Entomologist's Record

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

VOL. 63
1951

Price 21s. net

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

INDEX TO VOLUME 63

LIST OF CONTRIBUTORS.

SUPPLEMENTS.

PLATES.

ERRATA.

p. 21, line 9, *for* Colostygia *read* Calostigia.
p. 35, line 13, *for* Itame *read* Itama.
p. 35, line 35, *for* lithoxylaea *read* lithoxylea.
p. 77, line 34, *for* tragopogonis *read* tragopoginis.
p 78, line 30, *for* Anchocelis *read* Anchoscelis.
p. 89, line 26, *for* Iodis *read* Jodis.
p. 108, line 40, *for* Colostygia *read* Calostigia.
p 119, line 32, *for* Colostygia *read* Calostigia.
p. 126-129, *for* submarmorinaria *read* submarmoraria throughout this paper.
p. 131, line 8, *for* lithoxylaea *read* lithoxylea.
p. 131, line 27, *for* tragopogonis *read* tragopoginis.
p. 131, line 2 from foot, *for* caerulata *read* coerulata.
p. 149, line 8 from foot *should read* : *cardamines* and a solitary *Ectypa glyphica*.
p. 150, line 7, *for* Colostygia *read* Calostigia.
p. 177, line 29, *for* PVILUDORIA *read* PHILUDORIA.
p. 186, line 7 from foot, *for* Rhagioned *read* Rhagionid.
p. 223, line 20, *for* NUBILIALIS *read* NUBILALIS.
p. 228, line 25, *for* Island *read* Ireland.
p. 230, line 6, *for* absynthii *read* absinthii.
p. 232, line 25. Mr. E. J. Hare informs me that the type specimen of *Agrochola lychnidis* ab. *nigribasalis* was captured at Ham Street, 30.ix.1935, in his presence. The date on the label, ix.1931, is incorrect. [E.A.C.]

The Entomologist's Record and Journal of Variation

SPECIAL INDEX.
VOL. 63, 1951.

DERMAPTERA

DIPTERA

HEMIPTERA

NEUROPTERA

ODONATA

ORTHOPTERA

Further New Records of Lepidoptera from Cyprus, Iraq and Persia (Iran).

By E. P. Wiltshire, F.R.E.S.

Species

L. X III

No. 1

JANUARY 1951

ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

CONTENTS.

Subscription for Complete Volume, post free,
TEN SHILLINGS,
To be sent to
The Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,
Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

This Number, Price TWO SHILLINGS (net).

The Entomologist's Record

Journal of Variation

VOL. LXIII. 15TH JANUARY 1951. No. 1.

"CARPE DIEM, QUAM MINIMUM CREDULA POSTERO."

Many a sermon has originated from these words. As regards collecting, we have a reminder from Mr P. B. M. Allan in this number of the *Record*, and it is still interesting to re-read Mr Wailes' remarks on *Cerapteryx graminis* in Edward Newman's *British Moths*, pp. 293-294. But the particular and present application, which we now place on Horace's truly entomological recommendation, concerns the sending in of articles and notes for the *Record*. Volume LXII (1950) contained only 110 pages of text. Surely our subscribers and contributors can do better than that! Almost everyone must have some observations that he has made or collecting notes or other items, which would be of permanent value if recorded as well as of interest to fellow-readers. It is not always accounts of great rarities that are so interesting as are often those of the occurrence and habits of the common species. "Everybody knows that" may be the thought of some (otherwise) would-be contributor, or "I can't be bothered now" or "I can't find the time" may be excuses put forward, but such do not help to fill our pages. We must realize that it is the material received from our readers which does this in the main. So we would most earnestly ask our readers to send us any articles or notes and to do so now and regularly.

In spite of the enormously increased cost of production, our subscription price has not been raised and we hope to maintain it on its present level, if we can retain the support of all our present subscribers. Here again, the out-look is in the hands of our supporters.

The General Index, which usually appears in our December number, was not prepared at the time of Mr Turner's death, when that number was in the press. It will be included later, with the Title-page to Vol. LXII and the Special Index. EDITOR.

PHAONIA LAETABILIS SP. N. WITH NOTES ON SOME OTHER RELATED ANTHOMYIIDAE (DIPTERA).

By J. E. COLLIN, F.R.E.S.

Among the species of *Phaonia* having thorax distinctly four-striped with four pairs of postsutural dorsocentrals, and some strong presutural acrostichals, wings with infuscated crossveins, arista at least subplumose, and eyes sparsely hairy, there is a species (*P. laeta* Fln.) with legs black and only tibiae somewhat pale, which is usually considered a rarity. This is probably due to the fact that it appears to be found only in association with certain (usually *Cossus*-infested) trees from which fermenting sap has exuded. The capture of a large number of specimens on a *Cossus*-infested Oak tree in the New Forest in 1938 and 1939 led to the discovery that two closely related species were represented,

either of which (if the colour of the tibiae be considered variable) might well be placed in collections under the name of *P. laeta* Fln. These two species both possess, not only the characters given at the commencement of this article, but also two others which, though apparently insignificant, are certainly of some taxonomic value:—the side-margins of the scutellum are quite bare below the level of the lateral strong bristles, while there are a few distinct hairs on the hypopleura in front of the spiracle. In spite of this strong resemblance in so many features, each species possesses a combination of certain characters by which it may be recognized with certainty.

It appears certain (in so far at least as the Diptera are concerned) that when two very obviously related species, which occur in such close association as the two species under discussion, still retain recognizably distinct characters, they must undoubtedly represent two distinct non-interbreeding species, otherwise it would not be possible for them to retain these distinctive characters.

The usual question now arises, viz.:—to which of the two species the old name should be applied? The fact that Fallén included his *Musca laeta* in a section having "pedes toti nigri" (as well as "antennarum seta distincte plumata") might at first sight be considered to settle the question; but when it is found that some species with a considerable amount of yellow about the base of their tibiae were included in this section, that all species in the corresponding section with pale legs had the legs very extensively yellow, that Zetterstedt who made use of the specimens in Fallén's collection in his descriptions of the Scandinavian Diptera, described *laeta* Fln. as having the tibiae "obscurae testaceis", and that the name has ever since been associated with a species having somewhat yellowish tibiae, the true answer to the question becomes obvious, and I therefore indicate the characters of the black-legged species under the name of:—

Phaonia laetabilis sp. n. ♂ ♀.

♂. Closely resembling *P. laeta* Fln., but on an average somewhat smaller, differing chiefly in having a more dusted greyish frontal stripe, somewhat longer hairs to arista, *tibiae blacker*, front pair *without* a bristle at middle behind (variable in *laeta*), ungues and pulvilli shorter (shorter than last tarsal joint), while the bristles at end of this last joint (except middle bristle) are shorter. Frons rather narrower, and consequently inner pair of vertical bristles not so wide apart, and the pair of strong postvertical bristles *well in front* of a line drawn between these vertical bristles, not *on* or even behind that line as in *laeta*. There are small differences in the genitalia, especially in the shape of the truncate end of the large, yellowish, more or less rectangular, mesolobe; this is not quite so deeply indented as in *laeta*, the two middle broadly rounded projections not being so large or prominent, so that the narrower (in both species) lateral projections extend beyond them.

♀. Frontal stripe greyer (as in male) than in *laeta*, and it may bear a pair of incurved bristles (variable in both species); longer aristal hairs, and colour of tibiae as in male, but differences from *laeta* in length of ungues and pulvilli less marked because they are always shorter in females than in males, all bristles at end of last tarsal joint very short. Postvertical bristles in the female of both species *behind* a line connecting vertical bristles, but usually not so far behind in

laetabilis as in *laeta*. *Palpi distinctly wider* than in *laeta*, *wider than width of basal joint of front tarsi*.

Length about 7 mm., but varying from 5-8.5 mm., the female usually the larger.

It will be noticed that the more reliable distinctive characters are:— the narrower frons and position of the postvertical bristles in the male, the greyer frons and longer aristal hairs in both sexes, and the wider palpi in the female.

Described from specimens taken in the New Forest (Hants.) in June and July, but specimens have been examined from Kent (Col. Yerbury), Oxford (Rev. Canon L. W. Grensted), and Yorkshire (an old specimen without other particulars).

Among allied black-legged species, the female of *P. cincta* Ztt. is very similar (the male being very distinct owing to its partly translucently-yellowish abdomen), but it has a complete row of stronger anteroventral bristles to hind femora, shorter prealar bristle, no hairs on hypopleura, but some hairs below the lateral strong bristles on scutellum.

P. trimaculata Bché., is a stouter built species with much longer and denser hairs on eyes in both sexes, and it has, like *cincta*, a few hairs on lateral margins of scutellum, and usually 1-2 hairs on hypopleura.

P. mirabilis Ringd., is abundantly distinct in the male by the anteroventral comb of short black spines towards end of front femora, and in both sexes by the presence of numerous hairs *on* the frontal stripe, and the position of the posterodorsal bristle (or bristles) on hind tibiae (much higher up on tibia); it also has hairs below the lateral bristles on scutellum, and on hypopleura.

NOTES ON OTHER SPECIES.

Phaonia erronea Schnabl. (1886). The male type of *Mydaea longitarsis* Meade (1897) in Mr R. C. Bradley's Collection at Birmingham has been examined by me and found to be the same as our *P. erronea* Schnbl. Meade's name therefore sinks as a synonym. The second male mentioned by Meade when describing his species must have been the imperfect specimen referred to by him in his notes on *Mydaea angelicae* in 1881 (*Ent. Mon. Mag.*, **18**: 28), and the name *angelicae* Rdi. & Meade (nec Scop.) is also considered to be a synonym of *erronea* Schnbl.

Phaonia fusca Meade (1897). I have examined the male type of *Hydrophoria fusca* Meade, a specimen in his Collection labelled as taken at " Silverdale, 1896 ", and find that it is a *Phaonia* near *nitida* Mcq. I believe that a female taken by Mr H. W. Andrews in the Thames Marshes on 11th July 1908, belongs to the same species. This female was kindly presented to me some years ago by Mr Andrews. Some further details of the type male are given below.

♂. Head very much as in *Phaonia nitida*, rather square in profile with facial orbits wider opposite base of antennae than below, jowls below eyes rather wide, frons wider than third antennal joint. Arista yellowish with longer and denser hairs than in *nitida* (decidedly longer than third antennal joint is wide). Frontal bristles as in *nitida*.

Thorax with three postsutural dorsocentral bristles and practically no pre-alar. Acrostichals about quadriserial, but also with a few scattered short bristles between outer row and dorsocentrals. Two distinct narrow dark lines on middle of front part of thorax which however are clear of dorsocentral rows, two other broader stripes, one behind each

humerus; notopleural depression without hairs. Sternopleurals 1:2; a few hairs on hypopleura in front of spiracle, below ridge. Scutellum bare beneath tip (not hairy as in *Hydrophoria*).

Abdomen viewed from behind all dusted pale brownish-grey except for a small triangular patch on first, a narrow middle line on second, and a still narrower one on third, segment. Hypopygium not prominent. A pair of strong hindmarginal bristles on second to fourth sternites.

The type is rather immature, but the tibiae even in mature specimens might be indistinctly yellowish, front tibiae without bristle (except apical), middle tibiae with two bristles behind, hind legs missing.

Cubital and discal veins slightly divergent at tip, distance between cross-veins only slightly longer than length of outer one. Costal spine long, as long as humeral crossvein. Squamae and halteres yellow.

Length about 5.75 mm. (Meade gave 5 mm.).

Phaonia morio Zett. (1845). A very dark, black-legged species, with four post-sutural dorsocentrals on thorax, but no distinct presutural acrostichals. Front mouth edge considerably produced forwards. Eyes of male narrowly separated, hairy. At least some aristal hairs (above and below together) as long as third antennal joint is wide. Front tibiae with dense hairs, longer than tibia is wide, beneath towards tip, middle tibiae with bristles in front, and in two rows behind. Hind femora with distinct strong posteroventral bristles on basal half.

Found in the Highlands of Scotland (Perthshire and Inverness-shire).

A specimen from Mr Verrall's Collection has been incorrectly placed under the name *P. hybrida* Schnbl., in the British Museum Collection, a mistake probably responsible for this latter name appearing as that of a British species among the Diptera in Kloet & Hincks' recent list of British Insects. The true *P. hybrida* Schnbl. does not appear to have been yet discovered in Britain.

Phaonia humerella Stein. (1900). This is a yellow-legged species with usually only three pairs of postsutural dorsocentral bristles on thorax, and with humeri, and greater part of scutellum, yellow. Eyes hairy. Arista moderately plumose. Prealar bristle long, and one pair of presutural acrostichals. Abdomen dusted greyish, without markings except a narrow indistinct median line, and without any indication of yellow colouring.

There are three males in my Collection, one taken by Dr J. Waterston near Loch Tay (Perthshire) on 2nd July 1904, and two males taken by Mr C. A. Cheetham at Boltby (Yorks.) on 5th July 1926.

Phaonia crinipes Stein. (1914). This is also a yellow-legged species having only front femora and tarsi darkened. Eyes sparingly haired. Frons of male at narrowest part slightly wider than width of third antennal joint. Arista plumose. Thorax with three pairs of postsutural dorsocentrals, and a long strong prealar bristle. Scutellum not yellow. Abdomen with median dark line and dark patches at sides varying according to point of view. Middle tibiae with bristles behind in two rows. Hind tibiae strongly bristled in front and fringed with long fine hairs behind.

Mr Colbran J. Wainwright has taken males only of this species at Whixall Moss (Flintshire) in July, and gave me two specimens.

Dendrophaonia setifemur Stein (1916). The genus *Dendrophaonia* is very much like *Phaonia* but in the male the frontal bristles are con-

tinued upwards almost to ocellar triangle, *and the uppermost pair is strong and upcurved*, while in the female there is a strong anterior upper orbital bristle *pointing forwards*. The eyes are practically bare. In addition to *D. querceti* Bché., we have in Britain the large handsome species described by Stein as *Phaonia setifemur*, the male of which has a row of short anteroventral spines towards end of front femora as in *Phaonia mirabilis* Ringd. The female is larger and stouter than *querceti*, third antennal joint longer, quite twice length of second joint, arista with much longer hairs, orbital bristles in front part of frons further from eye margin. Abdomen with less distinct tessellations, and front femora with much stronger anteroventral bristles near tip.

Two females of this species were taken by Dr F. Jenkinson of Cambridge at Lyndhurst (Hants.) on 9th July 1904. In 1905 Dr D. Sharp bred it from material taken from a hollow beech tree in the same locality, and in 1939 I bred a male and two females out of material taken from (I believe) the same hollow tree. It is a fine addition to the British List.

Wahlgrenia magnicornis Zett. (1845). The genus *Wahlgrenia* was established by Ringdahl in 1927 upon this species because it has the scutellum hairy *beneath*, (an unusual character in those Anthomyids with the anal vein *not* continued to wing margin), the eyes quite widely separated in the male, and ocellar bristles very markedly divergent. An additional character worthy of note is the presence on the lateral facial ridges of a number of short fine bristles, for some considerable distance further than usual upwards from the vibrissae. Though more usually found in Scotland, I can record it from Suffolk (Barton Mills, and Tuddenham), and Herefordshire (Munsley).

CARPE DIEM.

By An Old Moth-Hunter.

We have no exact equivalent, in English, to this Horatian tag. "Take time by the forelock", "strike while the iron's hot", "make hay while the sun shines"—none of these quite conveys the import of the poet's "seize the day". It is a maxim of great value to the field lepidopterist. How many of us in the days of our youth—aye, and of our age too—have failed to seize some entomological opportunity, whether it was a day of sunshine amid weeks of rain or a warm evening intercalated in a long-continued cold spell. Perhaps we were not feeling up to the mark; maybe we just couldn't be bothered to go all that distance or to turn out that evening; perhaps we were sure that the fine weather had come at last and that to-morrow would be just as good as to-day. But the day passed and with it the opportunity. So we lost the chance of taking such-and-such a species that season, and the chance did not come again for years. Perhaps it did not come again at all.

The first time that I sugared a certain woodland some miles from my home *Noctua depuncta* came freely to my lure. I must have seen a dozen that night. But it was a remarkable year for sugaring and there were several other species which I wanted; so I paid no heed to *depuncta* and confined my attentions to moths which, though not common, occur throughout the country. "It's as common as mud here," said I of the local moth; "I can come to this wood again and get enough to breed from at any time."

Next year I decided to take and breed *depuncta*, so I went again to the woodland with my sugaring-tin. But not a single specimen appeared nor had I seen one again when, three years later, Fate decreed that I should go and live in a distant part of the country. This happened many years ago and never since that first visit to that little wood have I seen that moth in the flesh. Even now I have not forgiven myself.

Most of the less common moths have their good and bad years, and sometimes they are not seen at all for several seasons. The profusion of a certain species at our sugar does not mean that that species is *always* common in that particular place: we may have hit upon its first period of plenty in twenty years. *Carpe diem* . . . . Next year it may be absent altogether and we may not have another chance to secure a brace of females (which of course is the most that any good sugarer should take of a rare or local moth) till many years have passed.

Once in September when I was crossing a small marsh carpeted with devil's-bit scabious on a remote hillside in mid-Wales, I nearly stepped on a web containing infant larvae of *Euphydryas aurinia*. After spending some time watching the youngsters as they nibbled scabious leaves and busied themselves with running in and out of their " house " I decided to mark the spot and return, if possible, next March to collect a dozen; for it was many years since I had bred this pretty butterfly and I did not recall which form it takes in that part of our island. None of the foodplants was available in my garden and it was too much bother to dig up scabious plants, carry them four or five miles home, and grow them in a box or large pot, whereon the larvae could spend the winter. So I went on my way.

A fine November day prompted a long walk; I revisited the place to see how my fritillaries were getting on. I found the spot easily enough and my marker; but neither web nor caterpillars. A rabbit had constructed its burrow in a low bank at the edge of the marsh, and a much used highway for itself and its family across the marsh had obliterated plant, web and larvae. " *Carpe diem*!" I muttered to myself as I turned away. " When will you begin to learn wisdom?"

Experience has taught me that whenever I wish to mark a site with the intention of visiting it later it is profitless merely to stick a twig or branch in the ground. Twigs and branches are apt to get broken by some passing human or pushed aside by some quadruped, and all twigs and branches look alike when lying on the ground. So nowadays I cut a wand 2½ feet long from a nearby bush (ash or hazel if possible, for flexibility) and push it *very* firmly into the ground for at least six inches. It is a mistake to trust to one's memory for the *exact* site. One can of course locate the spot within an area of about nine square yards; but the reduced and particoloured vegetation of winter changes the prospect greatly; an area whereon the plants are of a uniform height seems larger than it does when sprinkled with tall mulleins or marsh thistles; two trees in full leaf appear to be closer together than when their leaves have fallen. Often the *locus* seems " quite different " when visited six months later.

If the wand is more than three feet high somebody is sure to see it—perhaps a gamekeeper, who, thinking it may have been put there by a poacher to mark a trap, promptly pulls it up and throws it away, then tramples down the herbage in his search for the hypothetical trap. If the " mark " is near a footpath it is well to remember that small boys

are quite incapable of leaving anything unusual alone. One's cunning must therefore be brought into play—a tree "blazed" so many paces to the east, and so on. On one occasion my mark was so cunning that I was unable to find it myself a month later!

For some unfathomed reason I have never been able to find a web of *aurinia* in March or April. Though in September I mark the spot never so carefully, and even the plant over which the web is spun, in spring there is not the slightest sign of the "nest". But I can usually find the larvae, half-grown, somewhere round about the home-plant, albeit a tragic proportion of them is always parasitized. However, last April Mr Castle Russell sent me a web containing a hundred infant larvae, so he at all events knows how to find the nests in spring. But then, he is a past master of the art, *primus inter pares*, and I am only a duffer.

Sometimes when setting out for the day we find a larva or sleeping moth near the house. "Why carry it about with us all day?" says Careless. "We can box it on the way home." But a tree-creeper or tit may come along presently and when we eagerly approach the tree later in the day the moth or larva may have gone. Had we boxed our quarry forthwith and hidden the box at the foot of the tree (where cattle could not have disturbed it and where it would have been safe from the congenital curiosity of urchins) all would have been well. . . . *Carpe diem, quam minimum credula postero*—seize the day, and put the least possible trust in to-morrow. Yes, it is a good motto for the field lepidopterist.

And here, as a postscript, is another maxim which should be ever on the lips of the lepidopterist: *Bene armatus, bene paratus*—he who is well equipped is ready to deal with a Clifden Nonpareil. Never, never, never go out for a country walk without a glazed pill-box in your pocket. Though it be Chrismas Day and you be accompanied by a giggle of virgins, take your pill-box with you. You never know what you may find. I myself have worn a box, in my hip-pocket, for years and years—no, not necessarily the same box, but a box of the same species. I wear it going to church, for I always like to do a little wall-searching before I doff my hat reverently to enter the "sacred edifice" as the journalists (of whom I am one) call it. *Nupta, ornitopus, chi, nebulosa—areola* once, I believe, and various Geometers—all these have rewarded my church-going.

But once in February, all unbeknowing, I went for a walk without my box, and on a low brick wall three miles from my home there appeared before me such a *Phigalia pedaria* as I have never seen before and never expect to see again. It was a male exactly the colour of Mr Colman's mustard, freshly mixed. A most lovely thing: just out of the chrysalis, a Brindled Yellow, a real Beauty. My hand slid round to the back of my pants—and I groped for the box that wasn't there . . . A matchbox, then? I was "off" smoking that day and had purposely left my matchbox at home lest I fell into temptation. So I hurried on to a small town a mile away, and bought a cardboard box, and rushed back again; and when I reached the spot, so carefully memorised—there was the low brick wall, and there was—*praeterea nihil* . . . .

And so—I say so—the poor dog had none. That was a terrible warning to me, and now, even if I am going to London for the day, I feel in my hip-pocket ere ever I shut the front door. As Mr Bernard Shaw remarked, "You never can tell . . . ."

ARTIFICIAL INTRODUCTION OF LEPIDOPTERA.

By CHAS. B. ANTRAM.

In this country where we have comparatively few species of butterflies, some of which in recent years have either become extinct or are now approaching that state, it might appear justifiable to introduce new species, not injurious to crops of course, or find new localities for colonisation by others still found in this country, especially those very rare and confined now to only one or two localities. I might make particular reference to *Melitaea athalia*, the Heath Fritillary, with which experiments have been made to introduce it to new localities, the butterfly maintaining itself successfully in some of its new sites. I do not find this insect recorded from the New Forest. On my property here in the New Forest, I have a small area of woodland where its chief foodplant, the cow-wheat (*Melampyrum pratense*), covers the ground in great profusion. If any Entomologists interested in this, residing in Kent, Sussex and Essex, where this insect is still found and specially in North Kent in good number, would kindly in next May supply me with larvae and/or live females in June, I will put them out in my wood and another suitable locality near by and try to establish new colonies. I can look after the spaces and would watch results and report annually.

It is with regret that the British Large Copper, *Lycaena dispar*, at one time commonly found in fenland became extinct about 1848-50, or a hundred years ago. Recently, however, the subspecies *batavus* from Holland, resembling our *dispar* more closely than any other race prevalent on the Continent and only distinguishable with difficulty, has been introduced to one or more localities in the fen country where its foodplant, the Great Water-dock, abounds. This experiment has been a success and the insect satisfactorily established. It is evident this sort of work sometimes pays when properly supervised, as has been the case in this instance. Restocking of the original localities of this butterfly has been expensive in that the land had to be cleared of rank undergrowth, draining and the planting up of its foodplant, the Great Water-dock.

An insect introduced to original or new localities must be protected for some years after first introduction and the area closed to all collecting for a suitable period until it is well established and increasing in number and the insect distributing itself of its own accord.

Another example of the successful introduction of a species to a new locality is that of *Melitaea cinxia*, the Glanville Fritillary. Larvae were brought from the Isle of Wight some five or six years ago and put down near New Milton, Hants. Since then it has worked its way unaided along the railway line right up to Sway and is still increasing its area every year, and that is why I think it would not be difficult to introduce and establish *Melitaea athalia* in the same locality here, as mentioned previously.

Another butterfly becoming exceedingly rare is *Thecla pruni*, the Black Hairstreak, and this insect will shortly become extinct unless something is done to prohibit its collection in any of its stages in its few remaining localities, particularly that of Monks Wood in Huntingdonshire. In olden days this insect was well distributed over the Southern Counties and there is no reason why it should not be successfully re-

established in one or more of its old haunts from which it has disappeared. I see it recorded, however, as being plentiful in 1950 in its chief locality in Huntingdonshire, but for all that, being so very local, over-collecting can easily cause its extinction as there are only a very few known localities for it in the whole of Great Britain. It apparently has not been recorded from the New Forest, where there is plenty of blackthorn, and here is a very large area to which it might be successfully introduced. I would put it down if I could only obtain a sufficient number of larvae and the living imago.

Further to this, I see no reason why certain species, that would be new to this country, cannot be introduced from abroad, which would thrive, notwithstanding our changeable climate and even in the severest of winters. One in particular, and of a genus not represented in our list, was put down in more than one spot in the South West where it thoroughly settled down and continued to increase for several years until some interfering person took it upon himself to exterminate it, being of the opinion that no foreign insect should be introduced into this country. The butterfly referred to is a Vanessid, *Araschnia levana*, a beautiful little insect of 1½ in. expanse, being double brooded and with pronounced seasonal variation. It is very hardy and withstands our very variable winters. It is widely distributed on the Continent and there is a race, *Araschnia prorsoides dohertyi*, which occurs in the Manipur and Naga Hills, Assam. As it feeds on nettle which is plentiful everywhere it could be put down almost anywhere but preferably in the warmer South West counties of England. I found it somewhat rare in India. I would like to see it introduced again and this time not interfered with as it would be an interesting addition to our list of butterflies.

The same applies to other carefully selected species that might be introduced from abroad without being a danger to crops or a pest in any way.

In addition to the above-mentioned species there are others it would be simple enough to reintroduce; for example, *Papilio podalirius* and *Aporia crataegi*, both very common on the Continent, could be imported and put down in their old haunts. If properly conserved and the area closed to all collecting for a number of years, and also by putting down more annually, these two species might take hold again. The occurrence of *podalirius* was probably before my time, so I never saw or took it, but, as a boy before 1900, I remember taking *crataegi* commonly at Detling in Kent, and I believe this butterfly was widely spread until quite recently. It is now difficult to explain its extinction apart from any odd immigrants and why these latter have not re-established themselves in a natural manner.

"Clay Copse," Sway, Lymington, Hants.
1st December 1950.

Could Mr Antram quote his authority for *Thecla pruni* L. being "well distributed over the Southern Counties" in "olden days"? We were under the impression that this species was discovered by Seaman the dealer in Monk's Wood during the early years of the nineteenth century (*see* Edward Newman's *British Butterflies*, p. 110) and that it has never been found outside the counties of Huntingdon, Northampton

Bedford, Buckingham and Oxford. All " records " of its occurrence elsewhere doubtless relate to its congener *T. w-album* Knoch.

Papilio podalirius does not breed north of the latitude of Namur and it does not cross Lat. 51°. Since 1789 only eight specimens have been caught in the Netherlands (B. J. Lempke in *Lambillionea*, vol. 32, p. 211), yet the Dutch frontier is scarcely 60 miles from Namur! We believe that *P. podalirius* has never been caught in the wild state in England, every specimen netted in this island having been imported (as egg, larva or pupa) and liberated.—(Ed.)

NORTH CUMBERLAND LEPIDOPTERA NOTES, 1950.

By D. F. Owen, M.B.O.U.

Long periods of wind and rain, together with late frosts and floods, made collecting almost impossible in N. Cumberland until the end of May. Even then and throughout the rest of the summer conditions were extremely poor, possibly worse than in most parts of the country.

Whitsun began with a bright day and some of the early Spring species, including *Pararge megera*, *Anthocharis cardamines*, large numbers of *Callophrys rubi* over the heather and a few of the hibernated *Nymphalidae*, were on the wing in fair numbers. Of the diurnal moths, *Euclidimera mi* and *Ematurga atomaria* were in plenty, and the larvae of *Arctia caja* and *Phragmatobia fuliginosa* were on the heather.

Then followed a wet spell until the first week in June when a number of the common moths began to make a rather late first appearance. These included *Dyscia fagaria*, *Lithina chlorosata*, *Anarta myrtilli*, *Dysstroma truncata*, *Opisthograptis luteolata*, *Tyria jacobaeae*, *Spilosoma lubricipeda*, *Iodis lactaeria*, *Epirrhoe alternata* and a few immigrant *Plusia gamma*. During the evenings, about sunset, large numbers of male *Macrothylacia rubi* careered over the mosses of the Solway Firth, especially where heather grew abundantly; at times one could see as many as twenty or more on the wing simultaneously.

Euphydryas aurinia was beginning to emerge on 4th June—the males being fairly common; apparently only a single female had hatched. It is interesting to note that on the same day in Hertfordshire my brother (J. E. Owen) noted that this species was worn, only the females being worth collecting. On the local moss *Drepana falcataria* and *Xanthorhoe montanata* appeared on the 8th June and *Macrothylacia rubi* continued to be an endless source of amusement to watch every evening. A further visit to the *E. aurinia* colony a week later (10th June) proved most interesting. Thousands were on the wing and great numbers of females hatching out into the bright afternoon sunshine. I examined many hundreds of specimens during the day and secured a few unusual varieties, though nothing of a really remarkable nature. Ova had already been deposited on scabious and a few adult larvae were still feeding—all presumably parasitized.

Argynnis selene males flew abundantly among the woodland glades and a few females had just hatched. Other butterflies freshly out and now quite common included *Coenonympha pamphilus* and *Ochlodes venata* (males only). The first immigrant butterflies of the season—three *Vanessa atalanta*—were seen and *Plusia gamma* was now a com-

mon species. In and around hayfields *Odezia atrata* flew abundantly and *Procris statices* was in profusion. Larvae included *Lasiocampa quercus callunae* and *Philudoria potatoria*.

The following day (11th June) proved equally as fine as the previous day and I again visited the *E. aurinia* colony, noting two fresh butterflies—*Maniola jurtina* and *Polyommatus icarus*—and *Lomaspilis marginata*, a fresh diurnal moth. It is interesting to record that in Kent my brother did not see *M. jurtina* until 18th June.

Doubtless the fine weather was responsible for the early emergence of *Coenonympha tullia*, which I first noted on the 12th June during my evening walk across the local moss. Six newly emerged males were seen and the following evening males flew abundantly with only one female as yet hatched. In the same area larvae of *L. quercus callunae* fed on the heather and several species of moth, such as *Bupalus piniarius*, *Ematurga atomaria*, *Dyscia fagaria*, *Anarta myrtilli* and *Macrothylacia rubi*, were in profusion. *Drepana lacertinaria* was also noted. Here the fine spell ended and the typical Solway weather returned. On the mosses *C. tullia occasionally* appeared in the rain—nearly always well battered. Two fresh moths—*Ellopia fasciaria* and *Cybosia mesomella*—now appeared.

The 18th June was the next reasonable day we had in N. Cumberland and again I was out on the moss collecting *C. tullia* females, which are very variable and were still in fair condition. *Parasemia plantaginis* had begun to emerge—a species which later proved to be abundant in this locality—taking the place of *M. rubi* as they flew over the heather on fine evenings.

A trip to the hills at Bewcastle was disappointing; the only interesting butterfly seen was a worn *E. aurinia*. Bad weather now became general for almost the remainder of the summer in the Solway Firth area. Consequently very little collecting was possible and most of the following observations are incidental. *Phlogophora meticulosa* appeared on 29th June, *Apatele psi* on 1st July and *Pseudopanthera macularia* was common at this time. Visits to the mosses north of the Solway in Dumfriesshire revealed only a few *C. tullia*, all of which were worn. A single *Vanessa cardui* was seen on the 6th July and later in the summer a few fresh imagines appeared locally.

Aphantopus hyperantus was abundant on 9th July and fresh *Aglais urticae* had made their appearance. Larvae of *Nymphalis* io were now full grown. On the sallows a few immature larvae of *Smerinthus ocellatus* were seen on 12th July and at light I recorded *Philudoria potatoria* and *Hepialus humuli*.

August was almost entirely one rainy period and September little better—in fact the only noteworthy incident during these two months was the occurrence of an adult larva of *Deilephila elpenor* at Gretna in Dumfriesshire.

Returning to Kent for a fortnight in early October it was a pleasure to see *Colias croceus* flying abundantly in the fields as well as good numbers of other late summer species.

Thus it will be seen from these notes that 1950 was a poor year, particularly in N. Cumberland where the only reasonable weather was during the first fortnight or so in June.

3 Lockmead Road, Lewisham, London, S.E.13.

COLLECTING NOTES.

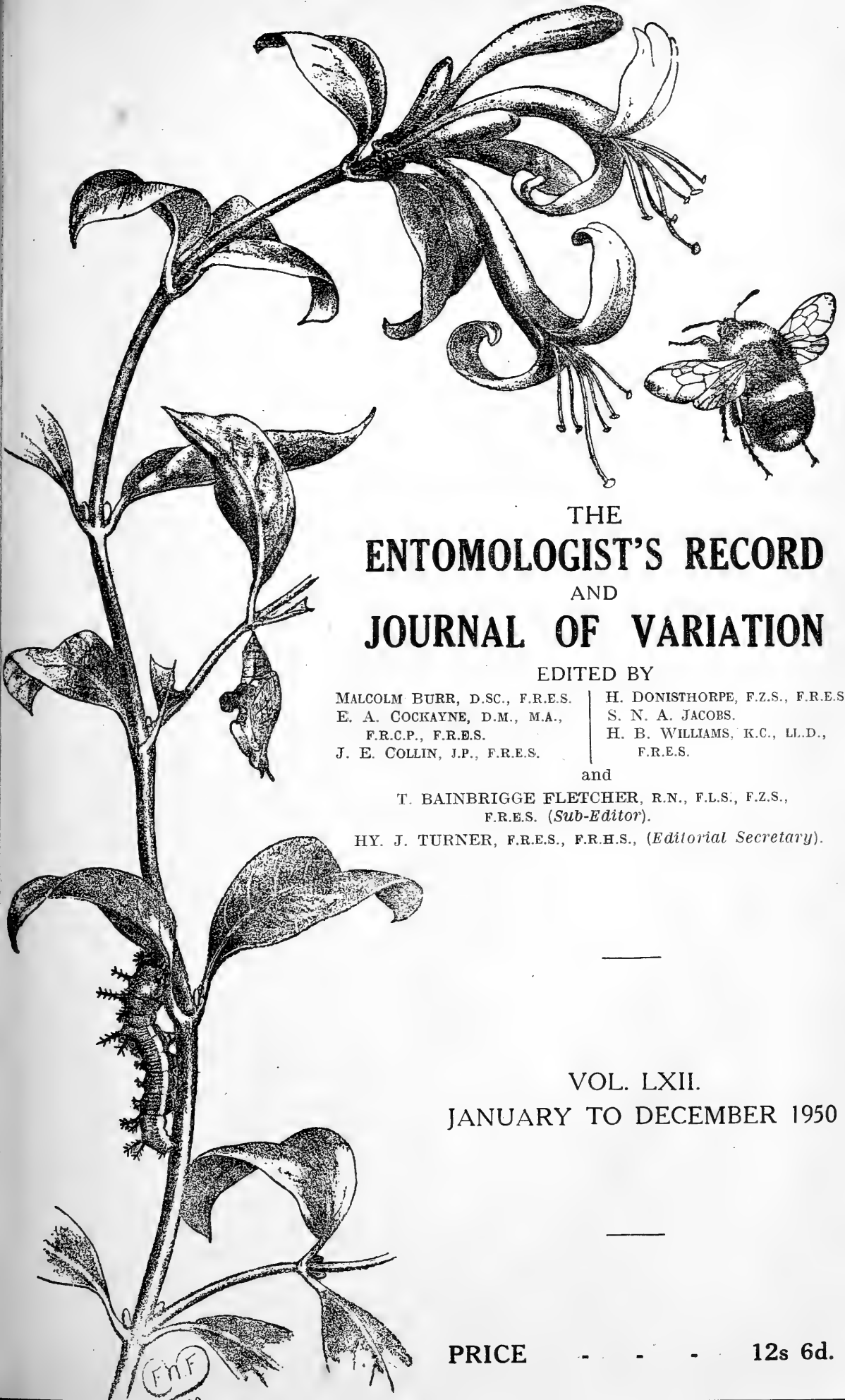
ANTIGASTRA CATALAUNALIS (LXII, 88).—Mr A. H. Turner's additional record (p. 97) was from near Taunton, Somerset. It has recently been recorded for the first time from Switzerland, where a few examples were taken at Geneva in September 1940.

Mr J. S. Taylor, of Fort Beaufort, Cape Province, S. Africa, writes: "In 1926 I found the larva feeding on the young leaves and shoots of *Sesamum* at Barberton, Transvaal, as well as in the green pods, about twenty per cent. of the latter being affected. The leaves were webbed together by the larvae. I believe the species is indigenous in S. Africa."

HEPIALUS SYLVINUS (LXII, 94).—I have noted the appearance of this species in my district (N.W. Kent) for the past ten years. In 1941 it was first observed on 21st June and in 1949 on 31st July. In other years it has not been seen before the third week of August. The latest date that I have noted it is 5th September.—R. F. BIRCHENOUGH, 8 Ravenswood Crescent, W. Wickham, 19.xi.50. (This is an interesting confirmation of its occasional occurrence in June.—ED.)

UNUSUAL PAIRING OF CUPIDO MINIMUS, FUES.—While walking across Newmarket Heath on 10th June I came upon a small colony of *C. minimus* and presently noticed a pair *in cop.* on a grass-stem. Stooping to examine them I found that *two* males were attached to the female. They allowed me to put a lens close to them; but unfortunately their position precluded me from seeing *how* they were conjoined; and presently, disturbed by my attempts at observation, they fluttered away to another stem lower down among the herbage. Evidently they were well and truly joined, but only by the impossible procedure of killing all three instantaneously could one have ascertained how their remarkable feat was achieved. On revisiting them a quarter of an hour later I found that one of the males had broken off relations; so I left the remaining pair to continue their good work. I do not remember ever to have seen such a thing before.—P. B. M. ALLAN.

LEPIDOPTERA AT AVIEMORE IN 1950.—Aviemore was visited from 21st July to 4th August and was not very productive. Larvae of *Endromis versicolora* and *Lasiocampa quercus* ab. *callunae* were to be found, though the first-named were full grown and scarce. All the *quercus* collected died off when full fed. Sugar yielded *Eurois occulta* (worn), *Amathes baia*, *Apamea crenata*, *A. furva*, *Lycophotia varia*, *Cerapteryx graminis*, *Diarsia rubi*, and *Ceramica pisi*. *Geometra papilionaria* came to light. One *Polia hepatica*, one *Triphaena orbona*, and two *Agrotis vestigialis* were taken. Melanic specimens of *Apamea monoglypha*, *Triphaena pronuba* and *Amathes xanthographa* were as usual frequent. Two *Triphaena interjecta*, two *Celama haworthii*, and a few *Parastichtis suspecta* were interspersed with the usual moths of the district. *Coenonympha tullia* was nearly over but on 25th July *Erebia aethiops* was emerging and a few *Argynnis aglaia* were flying; but the weather was not too bright. On 2nd August Mr Quibell introduced me to *Carsia paludata*, which were in beautiful condition and quite abundant. In the afternoon *Sterrha dimidiata* was flying in the Larig Ghru.—C. CRAUFURD, "Denny," Galloway Road, Bishop's Stortford.



THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

EDITED BY

VOL. LXII.

JANUARY TO DECEMBER 1950

PRICE - - - 12s 6d.

DATES OF PUBLICATION.

No. 1	...	13.ii.50
No. 2	...	17.iii.50
No. 3	...	3.iv.50
No. 4	...	5.v.50
No. 5	...	8.vi.50
No. 6	...	27.vii.50
Nos. 7-8	...	11.viii.50
No. 9	..	4.x.50
No. 10	...	8.xi.50
No. 11	...	12.xii.50
No. 12	...	6.i.51

CONTENTS OF VOLUME LXII.

LIST OF CONTRIBUTORS.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antiopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; Etudes les Mouches Parasites, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Lycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted this coming season—Ova, larvae and pupae of *Abraxas grossulariata* and *Abraxas ulmata (sylvata)*, for cash or exchange.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

Wanted.—Urgently required for laboratory work this year: larvae (any stadium), or fertile eggs, of *Stauropus fagi*, L. Any reasonable price will be paid.—*P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.*

All Communications should be addressed to the Acting Editor, T. BAINBRIGGE FLETCHER, Woodfold, Down Hatherley, near Gloucester, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: Mar. 7th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: Jan. 27th (Annual Meeting); Feb. 17th, 6.0 for 6.30 p.m. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

TO OUR READERS.

Short Collecting Notes and Current Notes. Please, Early.—Eds.

All MS. and EDITORIAL MATTER should be sent and all PROOFS returned to T. BAINBRIGGE FLETCHER, Woodfold, Down Hatherley, near Gloucester.

We must earnestly request our correspondents NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

REPRINTS of articles may be obtained by authors at very reasonable cost if ordered at THE TIME OF SENDING IN MS.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

Printed by T. Buncle & Co. Ltd., Arbroath.

ol. LXIII

No. 2

FEBRUARY 1951

ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

CONTENTS.

Subscription for Complete Volume, post free,
TEN SHILLINGS.
To be sent to
The Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,
Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

This Number, Price TWO SHILLINGS (net).

EDITORIAL.

We have much pleasure in welcoming Messrs A. A. Allen and E. C. M. D'Assis-Fonseca on to our Editorial Panel. Mr Allen is especially
shall look
subjects.
t's right-
th of our

Will our Contributors please note that owing to the Editor's illness all material for the magazine should be sent, until further notice, to The Hon. Treasurer at the address given on the front of the cover.

d, and it
d objects.
e devoted

n, and it
e or meet

that part
ctive and

led; ably
logists of

Since those days new methods of collecting have vastly increased our knowledge of the incidence, range, distribution, and life-histories of the British insects, and it is confidently believed that if our subscribers will rally round us we can, and will, succeed in restoring *The Entomologist's Record* to its former usefulness.

During the coming season we shall do our utmost to print matter which will justify our subscribers in continuing their support. Local lists, noteworthy captures, notes on life-histories, notes on collecting in all parts of the United Kingdom, practical hints, and many other articles of use and value to collectors will appear in our pages.

May we therefore appeal to *you* to keep us supplied with notes (however brief) of your own experiences and observations in the field and with such other matter as will be of interest to your fellow collectors?

A CURIOUS ABERRATION OF CALLIMORPHA DOMINULA.

By Harold B. Williams, K.C., LL.D., F.R.E.S.

In June 1945 Lt.-Col. L. E. Becher, of Godalming, bred a female *C. dominula* from a wild larva collected in the Newbury district. The insect differs from normal *C. dominula* in that it lacks entirely the two longitudinal yellow stripes on the thorax. The wing markings are normal. Col. Becher paired this insect with a normal male bred from a Newbury larva collected at the same time, and very kindly gave me the ova.

Larvae began to hatch 29.vi.1945, and were sleeved on Sallow until 16.ix.1945, when I transferred a large number of larvae to a breeding cage, in which they were fed on cut stems of Comfrey until they ceased

EDITORIAL.

We have much pleasure in welcoming Messrs A. A. Allen and E. C. M. D'Assis-Fonseca on to our Editorial Panel. Mr Allen is especially interested in Coleoptera and Mr Fonseca in Diptera, so we shall look forward to an expansion of interest in the *Record* in these two subjects.

With the passing of Henry J. Turner, who had been Tutt's right-hand man and had edited this Magazine ever since the death of our Founder, *The Entomologist's Record* enters upon a new era.

It was on 15th April 1890 that our first number appeared, and it was prefaced by a letter in which Tutt described its aims and objects. He had founded the *Record* " in order to supply a magazine devoted entirely to the wants of British entomologists."

" Variation," he went on, " will occupy a leading position, and it is trusted that Collectors will record the varieties they capture or meet with, which . . . are of the utmost scientific value."

" To Collectors themselves I appeal with confidence to make that part of the Magazine under the head of ' Collecting, etc.' instructive and interesting . . . "

A glance at our early volumes shows how well Tutt succeeded: ably seconded by his many correspondents he supplied the entomologists of Great Britain with a journal admirably suited to their needs.

Since those days new methods of collecting have vastly increased our knowledge of the incidence, range, distribution, and life-histories of the British insects, and it is confidently believed that if our subscribers will rally round us we can, and will, succeed in restoring *The Entomologist's Record* to its former usefulness.

During the coming season we shall do our utmost to print matter which will justify our subscribers in continuing their support. Local lists, noteworthy captures, notes on life-histories, notes on collecting in all parts of the United Kingdom, practical hints, and many other articles of use and value to collectors will appear in our pages.

May we therefore appeal to *you* to keep us supplied with notes (however brief) of your own experiences and observations in the field and with such other matter as will be of interest to your fellow collectors?

A CURIOUS ABERRATION OF CALLIMORPHA DOMINULA.

By Harold B. Williams, K.C., LL.D., F.R.E.S.

In June 1945 Lt.-Col. L. E. Becher, of Godalming, bred a female *C. dominula* from a wild larva collected in the Newbury district. The insect differs from normal *C. dominula* in that it lacks entirely the two longitudinal yellow stripes on the thorax. The wing markings are normal. Col. Becher paired this insect with a normal male bred from a Newbury larva collected at the same time, and very kindly gave me the ova.

Larvae began to hatch 29.vi.1945, and were sleeved on Sallow until 16.ix.1945, when I transferred a large number of larvae to a breeding cage, in which they were fed on cut stems of Comfrey until they ceased

to feed and entered hibernation. None survived the winter. I cannot account for the mortality, which did not extend to other broods I was rearing at that time.

I have watched for this form for some years since, and have bred large numbers of moths from the same area, but have not seen another example. The insect bred in 1945 is now in the Rothschild-Cockayne-Kettlewell collection in the British Museum and Dr Cockayne has suggested to me that it ought to have a name. In my MS. notes I have always called it " *plebeia* " (having lost its epaulettes it may be regarded as reduced to the lowest rank) and I therefore describe it under that name.

Callimorpha dominula ab. **plebeia**, ab. nov.

Differs from nominotypical *dominula* by the absence of the two longitudinal stripes on the thorax.

Female Type. Bred June 1945 from larva taken at Newbury, Berks., by Lt.-Col. L. E. Becher. In Rothschild-Cockayne-Kettlewell coll., British Museum, Tring.

FIELD NOTES FROM ANATOLIA.

By Malcolm Burr, D.Sc., F.R.E.S.

Plate I.

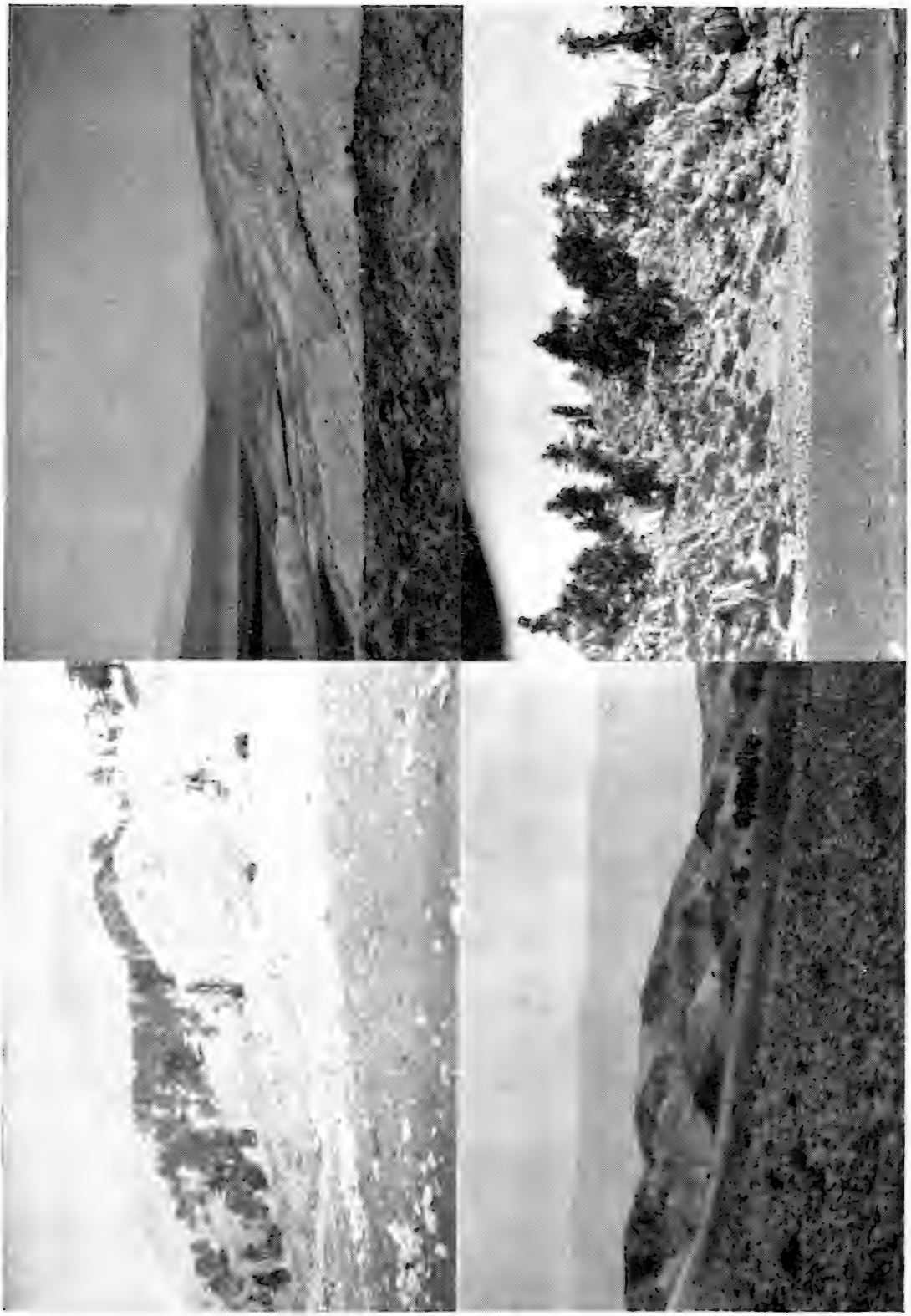
VIII. TAHTALI AND BURDUR.

Kuzdere is situated on the steep slope of the wooded mountain, watered by bustling little brooks. I was able to pick up some *Paratettix meridionalis* Ramb., a grasshopper that I take to be *Chorthippus biguttulus* L., a larval *Ph. bucephala* Br., and a few freshly hatched grasshoppers, which shows how late the season is at that altitude.

The next morning we worked our way higher and stopped to rest at a pleasant dell called Gürleyi Yaylari, at an altitude of about 1400 m., where a copious spring encouraged the growth of clusters of low plants, many of which Peter Davis said were undescribed, in a clearing among the forest of old cedars. In this striking spot there was good collecting to be done, but I had hardly any strength left. I took a few *Pholidoptera tahtalica* Uv., recently described by Dr. Uvarov from specimens taken on the mountain by Peter Davis on a previous visit. We had found one on the flat, so it has a complete vertical range of the mountain. There were a *Poecilimon*, which is almost certainly new, one or two *Platycleis*, a *Metrioptera* that is probably new and another brachypterous *Decticid* recalling *Anterastes*.

On the rocks around there were plenty of *Ch. biguttulus* L., *Oedipoda caerulescens* L., and the golden winged *Oed. aurea* Uv., a fat brachypterous *Dociostaurus* recalling the Spanish *D. crassiusculus* Pantel, and a grasshopper resembling *Arcyptera*. Saw one larva of *Mantis religiosa* L. Of other insects all I noticed were a *Perla* common in the brook and a big handsome dragonfly, which I took to be *Cordulegaster annulatus*. The characteristic birds were the Egyptian vulture, Alpine chough, and the water pipit, *Anthus spinolettus*.

Our destination was a wretched depression called Chukur Yayla, about 1600 m., flat, watered by a trickle of a rivulet and the whole



VIEWS OF ANATOLIA.

1. Tahtali Dagh, top of the Cedar zone.
2. Country round Burdur.
3. Country round Burdur.
4. Top of the Cedar zone, Tahtali Dagh.

place covered with the dung of the flocks and herds of the nomad Yürük Turks who summer in the alpine pastures. Here, in intervals between high fever and delirium, I took *Ph. tahtalica* again, the *Metrioptera* and the other Decticid that occurs a little lower down, and the *Poecilimon*.

The rest of my adventures on that mountain were not entomological, but pretty grim, and I have described them elsewhere.*

By July 13th I managed to make my way back to Antalya alive. There a doctor patched me up for the long journey home. This I broke for a few days at a little town called Burdur, alongside a long and narrow lake of the same name, which is fed by arsenical springs, so that fish cannot live in it, but this does not seem to worry the dragonflies for Odonata were extraordinarily abundant. I took several dozen, representing several species, which I sent to Mr. Cowley for determination.

The commonest grasshopper was our familiar *Chorthippus parallelus* Zett. There were also a number of a species that is clearly related to *Ch. pulvinatus* F. de W., but probably distinct. I found a single *Dociostaurus brevicollis* Eversm., *Ramburiella truchmana* F. de W., with *Oed. caerulescens* L., and *Oed. aurea* Uv. There were *Aiolopus thalassinus* Fab., *Acrydium depressum* Bris., and a *Sphingonotus* with non-banded wings. Tettigoniids were not much in evidence, but I saw nymphs of *B. bucephala* Br. and *Conocephalus*, probably *fuscus* L. Also I took a single *Decticus* that had a slightly unfamiliar look to my eyes, and a couple of *Gryllus desertus* Pall. It is surprising how few *Gryllidae* one comes across in this country.

I was able to do a little collecting on the arid, sterile hills behind the town, where I picked up a single *Bolivaria*. The common grasshoppers were *Notostaurus anatolicus* Kr., *Metromerus caelosyrensis* G.-T., *Pyrgodera armata* F. de W., *Tmethis heldreichi*, *Ramburiella truchmana* F. de W., *Dociostaurus brevicollis* Ev., *Oedipoda gratiosa* Serv., and *Oed. schochii* Sauss., and a single *Sphingonotus theodori* Uv. The commonest grasshopper is a *Calliptamus*, I think *tenuicercis* Tarb. There were *Oed. aurea* in several spots but nowhere numerous. Of Tettigoniids there were very few. It was a pleasant relief to find a single male *Acrometopa*, probably *A. syriaca*. Karabagh does not include this species in his account of the Orthoptera of the Ankara province.

Butterflies were not numerous. What I noticed—and I can only guess the determinations—were the irrepressible *Pyrameis cardui*, *Pieris rapae*, a few dingy *Lycaenas* and Hesperiids, *P. daplidice*, *Melitaea*, Satyrids that look like *H. jurtina*, *Melanargia* and *Colias croceus*.

Waiting for a sleeper, I was able to pass another day or two at Dinar, where I took a good number more Odonata for Mr. Cowley. I was disappointed that the Decticidae were all immature, but I recognise *B. bucephala* Br. and *Decticus monspelliensis*. Back at my favourite spot, this time I could not find a *Saga*. There were a few *Sph. theodori*, plenty of *Pyrgodera*, to which one does not become blasé, as it is such a striking insect, with an interesting range of colour variation, including deep violet, which is unusual in grasshoppers. It is the only compressed form in a group in which depression is the marked tendency. A single female *Conocephalus fuscus*, which is surprising, as the locality

**Blackwood's Magazine*, March 1950.

seemed suitable, and they usually occur in colonies. This one had very long wings. The common grasshopper in the flats was what I take to be *Ch. dorsatus*. *Paracinema* was there, but only a few mature. A single *Platycleis*, a female, which I take to be *Pl. intermedia* Serv.

The chief butterflies were *P. cardui*, *Melanargia*, Satyrids resembling *H. jurtina* and *S. briseis*, but probably really quite distinct, with a few Hesperiids and an occasional *Papilio podalirius*.

On 23rd July I reached home alive.

NOTE:—The unfamiliar Decticid taken at Choklukja on Sandrs Dagh alluded to on p. 13 of the *Ent. Record*, 1948, turns out to be a new species of *Anterastes*. This is a Mediterranean genus, with one species in the western portion, one in the Balkans, and a third on Ulu Dagh, *A. anatolicus* Uv. (v. *Ent. Rec.*, 1945, p. 101).

Dr. Tevfik Karabagh, an energetic and keen young Turkish Orthopterist from Ankara, at present working in the British Museum, writes to me that he is satisfied that the Choklukja Decticid is new, and also that the grasshopper referred by me to *Stenobothrus fischeri* Ev., from Ulu Dagh (v. *Ent. Rec.*, 1945, p. 100) is a distinct and new species.

BRITISH SPHINGIDAE IN SOUTH AFRICA.

By J. SNEYD TAYLOR, M.A., D.I.C., F.R.E.S.

South Africa is rich in hawkmoths, and Janse's "Check-List," published in 1917, mentions sixty-eight species, while more have doubtless been recorded since. Among the species found are several of the British representatives of the family, and a brief account of their occurrence may be of interest. The majority of the species concerned are seen abundantly at times, and then for lengthy periods are only noted sparingly, if at all. The following species have been met with by the writer:—

Acherontia atropos L. (Death's-head Hawkmoth). This species is widespread throughout South Africa, and although of more frequent occurrence than in Britain, is by no means common. The larva is found singly on the usual host-plants such as potato and other solanaceous species, as well as on Jasmine, *Lantana* and *Tecoma*, among others. The adult is not infrequently obtained in or near the nests or hives of bees, where it feeds upon the honey, hence the popular name of "Bee-Moth." As in Europe, there is much superstition concerning the adult insect, including one which appears to be peculiar to South Africa. This is to the effect that the moth possesses a sting with which it is capable of inflicting a fatal wound upon the person who disturbs it. The "sting" is usually attributed to the proboscis, but sometimes to the sexual organ of the male. Many people, including Europeans, believe this, with the result that, when one receives a specimen, it is usually badly damaged. This superstition is of long standing, having been recorded over a century ago by the French naturalist and traveller Delegorgue, and its origin is obscure. Various explanations have been advanced, and Delegorgue pointed out that poisonous snakes sometimes occur in the holes in which bees nest in the wild state. He also stated that snakes were responsible for the fatalities attributed by popular belief to the moth. It is quite conceivable that when re-

moving the honey, the person doing so might be bitten by a snake; in fact, such incidents are not unknown. In the ensuing confusion, the snake might escape unnoticed, and on a Death's-head moth leaving the nest at the same time, it would be blamed for the bite. Another theory is that the fine and sharp spines on the third leg of the moth are capable of giving an acute prick which might give rise to blood-poisoning. Whatever the reason, however, the superstition persists, and the luckless moth often comes to an untimely end in consequence.

Herse convolvuli L. (Convolvulus Hawk) is also widespread, and is of common but irregular occurrence. It is more generally known in South Africa as the Sweet Potato Sphinx Moth, from the fact that the larva is so often found feeding upon the leaves of sweet potato, sometimes defoliating hundreds of acres, thus causing extensive damage to the crop. Under such circumstances, the larvae have been known to move like an army from one field to another. It also feeds upon indigenous species of *Ipomoea* and *Convolvulus*. There are three generations during the year, and the adult is sometimes seen at garden flowers in the late evening, as well as at light.

Chaerocampa celerio L. (Silver-striped Hawk) is another common and widely-distributed species, and is known in South Africa as the White-lined Grape-Vine Sphinx Moth, the larva being a defoliator of grape-vines, causing extensive damage when it occurs in numbers. It has also been found on tobacco, sweet potato and Virginia creeper, among other plants, and would appear to be a general feeder. There are three generations during the year, and the winter is spent in the pupal stage. Like most members of its family, it has its seasons of abundance, and it was particularly numerous at Fort Beaufort during the autumn of 1950, full-grown larvae frequently being found on roads and paths. During this period, a particularly dark form of the larva, not previously observed, was most prevalent, the ground colour of the dorsal region being a deep and dull black, instead of the more usual green or varying shades of brown, as described by South (1907) and others. A large patch of black also occurred laterally on each segment. The resulting adults did not differ from the usual form.

In a land of many superstitions regarding natural phenomena, it is perhaps not surprising that statements have been published in the newspapers to the effect that the anal horn of the larva of this species is poisonous, and that people have been actually stung and poisoned by it. The " eye-spots " also have an alarming effect upon the ignorant, and are, of course, regarded as actual eyes by them.

Deilephila lineata Fabr., subsp. *livornica* Esp. (Striped Hawk) is also common and widespread, but irregular like the preceding species. At times the larva is very numerous, as on one occasion at Graaff-Reinet in the Karoo, when it was found in hundreds feeding on the buds, flowers and seed capsules of *Aloe striata*, a common indigenous species. Almost every flower-stalk had several larvae, and never, before or since, have so many been seen by the writer. Generally, one finds the larva singly here and there, and it feeds on various other plants, including the flowerheads of *Bulbine asphodeloides* and the leaves of garden valerian. The adult is commonly seen at garden flowers of an evening.

Daphnis nerii L. (Oleander Hawk) is apparently of widespread occurrence in South Africa, but does not seem to be generally common. Although the writer has been searching for it for years, it was only during last autumn (1950) that it was first met with. In March and April many oleander bushes in the town and neighbourhood of Fort Beaufort were found to be heavily infested with the larva, and in some cases were badly defoliated. By mid-April the majority of the larvae were full-grown or almost so, although a few younger individuals were still present. Pupation commenced about 17th April and continued throughout May and into June, while adults emerged from the end of May until early September; that is throughout the winter. In spite of constant search of oleander, no sign of a subsequent generation was seen, and the species seems to have completely disappeared again. Although a large number of adults was reared from the larval stage, no parasites were observed.

The colouring of the larva varies considerably, but in the majority the ground colour of the dorsal region is pale yellowish-green, and darker green laterally and ventrally. Some individuals are suffused with dull black laterally, spreading up and over the dorsal region, while others are pinkish. The " eye-spots " are cream in the centre, bordered by deep pink and then black. The dark olive appearance, referred to and depicted by South (1907) is only assumed when the larva is full-grown and ready for pupation. It then becomes olive dorsally, while the " eye-spots " turn black, and elsewhere a dirty greenish-yellow, the whole having a dark and greasy appearance. South mentions that his illustration is from a preserved specimen.

The larva has frequently been seen in a resting attitude, which seems typical. In this attitude it remains on a twig with the anterior half of the body hanging backwards and downwards, and gripping the twig with its claspers and the three posterior pairs of prolegs, the first pair being usually, although not always, free. It may remain in this position for fairly lengthy periods.

Pupation took place on the soil surface, and slightly embedded in it, in a cocoon of leaves and debris loosely bound together. Adults emerged in from 41 to 50 days.

Other host-plants have been recorded, including mango, also *Gardenia* sp., and other indigenous trees.

REFERENCES.

(1) Janse, A. J. T. (1917), Check-List of the South African Lepidoptera Heterocera. Transvaal Museum, Pretoria.

(2) Platt, E. E. (1921), Foodplants of some South African Lepidopterous Larvae. *S.A. Jl. Nat. Hist.*, 3, 1, pp. 99-138.

(3) South, Richard (1907), The Moths of the British Isles. Series 1. London.

ANDRINDE: A COMEDY OF ERRORS.

In *The Entomologist's Record*, 1916, 28 (94), the following editorial note appeared: " Mr E. V. Shaw, a series of *E. cardamines*, including large and small spotless forms in both sexes, a ♀ with the orange patch

heavily rayed with black, a ♂ with the orange patch rayed with white between the veins (*andrinde*), and two ab. *turritis* from Caterham."

In the index this is referred to as " andderinde (cardamines *ab.*), Euchloë." At first sight this note appeared to give us a valid name for the form of *cardamines* with white interneural rays running through the orange apical patch on the upper side. The name has been ignored or overlooked by all the authors I have consulted, but the aberration had not been named previously. The note in the *Record* purports to be a copy of the original report which appeared in the *Transactions of the London Natural History Society*, 1915 (1916), p. 17, but on referring to this the report actually reads as follows: " Mr V. E. Shaw, a series of *E. cardamines*, including large and small spotted forms in both sexes, a ♂ with the orange patch heavily rayed with black, a ♂ with the orange patch rayed with white between the veins (underside), and two ab. *turritis* taken in 1892 at Caterham."

There are four errors in four lines, but the only one that concerns us is " andrinde " for " underside." Careless transcription or careless proof reading has created a nomenclatorial puzzle. Are we allowed to use our common sense and disregard the name in spite of the fact that it complies with the rules of nomenclature and was indexed, with another mistake in transcription as " andderinde, cardamines *ab.*, Euchloë " or are we obliged to accept it? If we must accept it and admit that the editor, Mr Turner, accidentally created a valid name for an aberration, does the name apply to the rather common form, in which the middle of each interneural space on the under side is paler than the rest of the orange patch or to the uncommon and attractive form in which there are white rays running through the interneural spaces on the upper side? All the other forms mentioned in the *Record* are abnormal on the upper side and by inference the name should apply to an aberration of the upper side, but if the specimen shown by Mr Shaw can be identified, which is unlikely, it will not agree with this interpretation of the description. What is the verdict of our new editor?—E. A. Cockayne, 8 High Street, Tring.

[Scientific work (such as Entomology is—or should be) can only be based on true facts or statements, not on error. I should without hesitation reject " andrinde " as a mere *lapsus calami*. Unfortunately, our Lists are full of such errors.—T. Bainbrigge Fletcher.]

LEPIDOPTERA COLLECTING NOTES, 1950.

By W. Reid.

I have read other people's notes on collecting with so much interest that it is hoped that these notes of mine describing activities in 1950 may be of some interest and use to collectors, particularly those in Yorkshire and North Derbyshire, in that they give the *dates of first appearance at a Light Trap* in Sheffield, with remarks on the apparent frequency on the outskirts of the city. They are given in the chronological order of appearance, and all dates, unless otherwise mentioned, refer to the actual dates of first appearance in my garden, where, with one or two exceptions, the trap was run continuously from the 16th

April until the end of November. In general, the group of moths generally referred to as Macro-lepidoptera are the only ones referred to, and it will be noted that the list does not include so many of the Geometridae as might be expected. There are probably several reasons for this, one of which must be my inexperience in identifying many of the Pugs, some of which have a decided tendency towards melanism in this district. May I also add that although I have always been interested in the subject, it is only during the past two years that I have been able to devote the time which is necessary in order to make a serious effort at recording. My collection, which is not extensive, was started in my much younger days, and includes a specimen of *Actebia praecox*, taken at Ramsey in the Isle of Man in 1896—still in good condition except for the loss of antennae.

The first records of interest are for early March, when *Phigalia pedaria* Fab. and *Alsophila aescularia* Schf. were found on tree trunks near Rotherham. *Pedaria* was not nearly so abundant as in the previous year, and the blackish form predominates in this district. On the 17th March, *Eupsilia transversa*, *Conistra vaccinii* and *Erannis marginaria* were common at sugar and light in Beauchief Woods, while *Orthosia gothica* was just coming out. I have a note on this date of a very worn *Anchoscelis litura* and cannot imagine what circumstances produced it at this time of the year.

At Easter, I visited Freshfield, the headquarters of the Raven Society, where I stayed with Mr. and Mrs. Fraser. Collecting conditions were most unpleasant, strong gales and rain being prevalent over the whole of the holiday. *Orthosia advena* Schf. (*opima* Hb.) had been taken during a relatively calm period at sallow bloom on the Friday night, but no more were seen during my stay. It was quite impossible to work the sallows, as if there were any moths there, they were blown away horizontally if they released their hold. A visit to Wallasey on Saturday afternoon with the party, which included Mr. and Mrs. Fraser, Mr. W. Quibell, and Baron de Worms, produced *Nyssia zonaria*, more females than males, but again the high wind made conditions very unpleasant. The females obliged with plenty of ova, but I am inclined to believe that this species is a difficult one to rear except on a small percentage basis. There was nothing much moving on the sandhills, but a few pupae of *Hydriomena coerulata* Fab. (*impluviata* Schf.) were taken from under the bark of alder stumps. *Panolis flammea* Schf. (*piniperda* Panz.) were taken before the gales at light.

The light trap at Sheffield was now put into use, but little unusual appeared for some time.

April 16th. *Orthosia incerta* Hufn., *Orthosia stabilis* Schf., *Orthosia gracilis* Schf., *Orthosia gothica* L., *Cerastis rubricosa* and *Europhila badiata* Schf.

April 20th. *A. aescularia* Schf.

As these species were flying freely before the trap was used, the records are only of interest as appearance in the trap. *Erannis leucophaearia* Schf. was not taken in the trap, but it was fairly plentiful on tree trunks in Beauchief Woods on April 14th. On April 21st we visited Conway, again in company with the Raven Society, and the following larvae were taken at Sychnant Pass and Penmaenmawr—*Amathes ashworthii* Dbld., many of which were nearly full fed, *Aporophyla nigra*

Haw., *Ammogrotis lucernea* L., *Eumichtis lichenea* Hb., *Amathes agathina* Dup., *Lasiocampa quercus* L., which proved to be var. *callunae*, *Epione repandata* Hufn. (a fine form), *Gnophos obscurata* Schf., and, in the Conway Valley, batches of ova of *Eriogaster lanestris*. The weather then turned very cold and nothing appeared at Sheffield until May 3rd. Sallow blooms were a complete failure.

May 3rd. *Pheosia gnoma* Fab. (common).

May 5th. *Notodonta ziczac* L. (scarce), *Cucullia chamomillae* Schf. (1 only), *Colostygia multistrigaria* Haw. (1 only).

On May 10th, several *Amathes castanea* Esp. larvae were taken on Totley Moor.

May 12th. *Cerura vinula* L. (common).

May 13th. *Cycnia mendica* Cl. (scarce).

On May 13th, *Hadena bombycina* Hufn. and *Apatele menyanthidis* View. appeared on walls on the moor, while *Macrothylacia rubi* L. was flying freely.

May 14th. *Xanthorhoe fluctuata* L. (common).

May 19th. *Spilosoma lubricipeda* L. (common), *Eumichtis adusta* Esp. (scarce), *Mamestra brassicae* L. (not common), *Phlogophora meticulosa* L. (common).

May 20th. *Ectropis bistortata* Göze (uncommon in trap).

May 21st. *Notodonta dromedarius* L. (common), *Hadena cucubali* Schf. (not uncommon).

On May 24th we visited Aviemore, again with a party from the Raven Society, this time including Dr. Neville Birkett of Kendal, and Mr. and Mrs. Byers of St. Albans. Here we were fortunate in having bright sunny weather on most days, and it was warm work walking to the high ground inhabited by *Amathes alpicola* Zett. Not having had previous experience of this insect at Aviemore (nor indeed anywhere!!!) it would appear to be not so abundant at Aviemore as previous accounts seem to imply. Aviemore is, of course, an extremely convenient spot, from which the breeding grounds are easily accessible, and while it *may* be scarcer there, it is probably as abundant as it was previously at Aviemore, in other places in Perthshire, which are less accessible and where its foodplant occurs. We found a sufficiency of pupae, however, and those of us who had not taken it before were pleased with our short series eventually reared. *Anarta melanopa* Thun. was flying freely on the tops in the sunshine. And, here is a tip for beginners—if you want a species take it when you first see it. The chance may not occur again. I only took four on the first day, being much more keen to find *alpicola*, and on two further visits to the tops, the sun, at the time of the visits, was sufficiently obscure to prevent free flight, so I had to be content with my four examples! *Isturgia carbonaria* Cl. was taken on the way up the mountain, but there was no sign of *Apatele euphorbiae* Schf. ssp. *myricae* Guen. It was evidently late this year as a most assiduous search was made by all members of the party on the hillside and also on the boulders on Granish Moor. On the *alpicola* ground, one pupa of *Psodos coracina* Esp. fell to my lot.

On Granish Moor during the daytime, *Anarta cordigera* Thun., *A. menyanthidis* and *H. bombycina* were fairly plentiful on the posts and stones. Some of the *menyanthidis* are indistinguishable from the common type at Sheffield, but *bombycina* at Aviemore are much darker than

those at Sheffield, and lack the brownish appearance of the Sheffield type. Baron de Worms took the only specimen of *Hyppa rectilinea* Esp. seen—freshly emerged, sitting on a post bordering the railway. I understand that the first week in June is usually about the best time for this species, so that we were a little early. In fact, I found a freshly emerged *Endromis versicolora* L. (female) on May 30th which seems to be a very late date, and while ova of this species were found by one of the party a few days previously, no other imagines were seen.

Sugar attracted little, *E. adusta* being the only species plentiful. One *Hadena nana* Hufn. (*dentina* Esp.), one *Xylena vetusta* Hb., and a few *O. incerta*, almost constituted the entire bag; but nights, except the last, were very chilly. Larvae were also scarce. *Eurois occulta* L. were still very small and difficult to find, as was also the case with *Polia hepatica* Cl. (*tincta* Hb.), but the bog myrtle was only just starting to leaf. On Granish Moor, night searching produced larvae of *Triphaena comes* Hb. and *Plusia interrogationis* L. The former produced moths with very dark and clouded red forewings, smaller than the Sheffield moths, while the *interrogationis* have a purplish tinge which is lacking in those taken in the Sheffield area. They are also slightly smaller, but this may be because they finished their larval stage in confinement. *Chesias rufata* Fab. was taken flying round broom bushes at dusk, but a trip to Forres sandhills produced nothing except a few *Agrotis vestigialis* Hufn. larvae.

(*To be continued.*)

THE BAD YEAR.

By An Old Moth-Hunter.

Looking back, I do not remember, nor do my diaries indicate, so bad a year for me as 1950—entomologically speaking. It was not that I bungled *fraxini* and *alchymista* at my sugar, for I did not sugar at all and *that*, for an old moth-hunter, is a bad thing in itself. But all my plans and plots for rearing larvae went agley. At least very nearly all. 'Tis true I achieved a record (for me) by producing seven fine specimens of *Lithomoia solidaginis* from seven small larvae; I also was unusually successful with a brood of *Arctia caia* which defied all the rules, moulted only six times, and became very ordinary moths. Some *Nyssia zonaria*, too, looked after themselves and behaved like well-behaved caterpillars should behave. No, it was not the moths that marked the year 1950 with the blackest of black letters but the butterflies.

At the beginning of June I went to stay with a friend in Surrey, a famous lepidopterist, and in the course of two sunshiny days such as June produces every ten years or so I came near to becoming light-headed with all the butterflies that I saw, butterflies I had not seen since my boyhood, oh ever so many years ago. When I was thirteen, so my diary records, on 1st July I "caught a privet hawk moth outside the lavatory window very rubbed with large wound on its abdomen could not fly at all must have been fighting." But let that pass. A year or two later I caught *Leucophasia sinapis* in Burlescombe Wood (if I have read my own handwriting aright), and never since then, way back in the 'nineties, had I seen *sinapis* until one fluttered past my

legs as I sat on a log beside my friend in a Surrey woodland, eating my lunch. "May I catch it?" I whispered. "Good heavens, yes," said my friend, to whom, of course, *sinapis* is a common thing. So I netted *sinapis* for the second time in sixty years and as it was a female I decided to keep it for eggs. Later, during that memorable day, I netted two more, both females.

Next day I caught two or three females each of *H. lucina*, which I had not seen since I lived in the New Forest at the close of the last century, and *L. bellargus*, last taken at Streatley-on-Thames, so long ago that W. Holland—a famous lepidopterist of days gone by—referred to me as "a schoolboy" when he announced my capture in an early volume of this magazine.

As soon a I reached home with my treasures I telephoned to a friend and bade him procure for me, at all costs, a plant of *Hippocrepis comosa* whereon my *bellargus* could lay their eggs. For although the larvae of *bellargus* will eat "crushed pods of Green Pea"—so says Allan—one cannot expect a self-respecting butterfly to oviposit on a crushed pea. You can judge what kind of a friend he is when I relate that next morning he travelled thirty miles there and thirty miles back to procure the plant for me—and, incidentally, when I shook the plant, out fell three larvae of *Lysandra coridon*—so my *sinapis*, *lucina* and *bellargus* were duly enlarged in roomy mosquito-net cages in my garden. Inside each cage I put a vase containing assorted flowers (anointed with honey) and a pot of the foodplant.

Next morning I walked out to inspect my butterflies and, I hoped, to watch them laying me eggs in plenty. But oh what a dreadful sight awaited me? Ants had invaded the cages and had killed and partly devoured nearly all my butterflies. One *lucina*, one *sinapis* and one *bellargus* remained. Remedial measures finally resulted in 20 eggs of *lucina* and about fifty of *bellargus*. The remaining *sinapis* laid no eggs and died later in the day. I went out and bought enough ant-killer to destroy every ant in an area of about two square miles.

However, "it might have been worse," I comforted myself, and I stood the pots containing primrose and *Hippocrepis* in what should have been a safe place. The eggs hatched, and since the pots were in a place unreachable by any ant and all the ants in the district were now dead—or at least so I hoped—I began to dream dreams. The infant larvae seemed well and contented, ecologically. Yet every day my flocks diminished in number. And then I had to leave home for a week. Instructions were typed out and hung in a prominent place, and all those instructions were carried out to the letter. Yet when I returned, no single larva of *bellargus* could I find. Where they crawled to, or into what stomach they went, I never discovered. They just went. And so did my dreams.

The *lucina* survived for a few days longer and then they too disappeared, one by one. Had I only had the sense to take drastic action, to pick them off the leaves and put them in a larva-tin, I am sure I should have reared every one. But I did the wrong thing: I *hoped* that all would be well—and "hope told a flattering tale . . ."

Chastened, but still lepidopterologically inclined, at the end of June I netted two female *M. athalia* and a day or two later one of them laid

a batch of eggs on a ribwort leaf. The foodplant, carefully potted, was placed on a small table of which the feet reposed in saucers filled with paraffin, just in case an odd ant or two should have escaped the holocaust. The eggs hatched as expected and again all seemed well, and again the flock diminished. When only twelve larvae were left I removed them to a larva-tin and picked the plant to pieces with a forceps. Among the roots were two large and very fat earwigs . . .

As Dr Burr is on the advisory committee of this magazine it is only prudent of me to say nothing at all about earwigs, here. But if ever you and I, reader, have an opportunity to discuss these things out of earshot of a dermapterist I will tell you exactly what I think about earwigs, *qua* earwigs.

Yes, it was a shocking bad year for me, larviculturally speaking. And I don't suppose I shall ever net *sinapis*, *lucina*, or *bellargus* again. But, after all, a moth-hunter should stick to moths and leave butterflies alone. Perhaps it serves me right—or does it?

FIELD NOTES.

Those who wish to take and breed *Biston stratarius* should remember that this species is remarkably punctual in its appearance, emerging from the pupa in normal seasons on 23rd-24th March. Often it occurs profusely in certain localities: our diaries record, for the afternoon of 24th March 1940, a considerable number on the boles of a group of hornbeams within an area of about four acres. Most of them had just emerged and were drying their wings, from six to nine feet above ground on the northern half-circle of the tree. The proportion of sexes was about four females to one male.

We have noted them on boles so early as 15th March and have found pairs *in cop.* so late as 10th April (1947). Emergence continues for a fortnight or three weeks—usually till about mid-April: our diaries remark a freshly emerged female on a bole on 13th April (1942). But a female which emerged in our cages on 22nd April and was taken for four successive nights to a place where the species is common failed to attract a male though she " called " for two hours each night.

In captivity, if kept out of doors, the imagines will usually appear ten days earlier (12th March is our earliest date); if the pupae are kept in an unheated room eclosion is often at the end of February—about 4 p.m. They pair readily in captivity and remain *in cop.* until dusk the following evening.

Pairs *in cop.* rest with the long axis of their bodies vertical, the male below. They strongly resemble a patch of lichen, but of course are easily spotted by the lepidopterist. Eggs are laid on the night following copulation and hatch in five to seven days. They are crammed (by means of the long ovipositor) into crevices; so it is wise to line the back of the laying-cage with corrugated cardboard in the ridges of which small holes have been snipped with a pair of nail-scissors; the eggs can be exposed by stripping off the back layer of the cardboard.

The larvae are normally full grown during the second half of June. They are easily beaten from oak, etc. Allan (*Larval Foodplants*, p. 114) says that the larva " has been found on almost every species of native

deciduous tree and shrub ''; but in our experience oak is the foodplant most commonly chosen. The male imago comes to light and can often be found on telegraph posts, cement lamp-posts, etc., in towns.

If February has been a severe month and mild weather supervenes in mid-March it is wise to sugar two or three days after the milder conditions have come in. Some of the hibernating Noctuae—*Lithophane socia, L. semibrunnea, Graptolitha ornitopus, Jodia croceago, Xylena exsoleta* and *vetusta*—are often early astir.

Achlya flavicornis, which is usually on the wing quite early in the month, can be, and often is, an extremely difficult moth to find. For sometimes it rests by day on the trunk of its native birch, and then it provides an outstanding example of the virtue of procrypsis. But, happily for the lepidopterist, it is far more usually to be found (at least that has been our experience) resting on the twigs of low branches or of branches lying on the ground underneath the tree, or on a sprig of bramble or some stunted bush close at hand. Yet even then it is not too easy to spot! Barrett remarks that ''half a dozen specimens may sometimes be picked off a little bush not more than a foot high''. We ourselves have never had *quite* that experience though we once found eight on an isolated bush about six feet high. But plainly such an event indicates that the lepidopterist has chanced to be afield on an afternoon when there has happened to be a ''general emergence''—an event that does not, unhappily, occur very often.

Apocheima hispidaria is another species which can never be taken in quantity until one chances upon *der tag*—the afternoon when meteorological conditions are so propitious that there is a general scramble to get out of the pupa-case. Happy indeed is the lepidopterist who chances upon such a day; most of us have to be contented with an odd specimen or two gathered on a murky afternoon in early March just as we were reflecting on the foolishness of entomologising at such a season. Moreover it seems impossible to forecast the great day: observers have recorded it from February to April. Our late Editor, who used to take *hispidaria* in Richmond Park (Surrey), said ''About March 16th is the date . . . in Richmond Park. In some parts of the park in some seasons they are abundant, while in other parts not a specimen is to be seen.'' Our own expeditions have invariably been made to the wrong parts of the park even if at the right time.

Yet although there are plenty of records of *hispidaria* occurring in February and a few in April, March is undoubtedly the best month to search for it—from the 7th to the 16th according to the consensus of opinions. The female is of course wingless, and as she presses herself into the deepest of crannies she usually escapes notice by her predators. But if the lepidopterist chances to find *two* (perhaps more) males on the same bole, recollecting the maxim *cherchez la femme*, he sometimes obtains not only three moths but, subsequently, eggs.

Will some of our readers who live in Monmouthshire or Glamorganshire make an effort to re-discover *Graptolitha furcifera* (*conformis*) this spring? This interesting moth was first taken at or near Llantrisant (or Llantrissent as it was sometimes spelt) by Evan John at ivy blossom

in October 1859. Thereafter it was taken repeatedly by the same collector and bred for some years, to the enrichment of many cabinets; but after John's death, sometime in the 'seventies, no further specimens seem to have been taken until 1907, when one was caught at sallow blossom in the Wye valley on March 31st, the identity being confirmed by Dr. T. A. Chapman. The eggs are laid in the spring, and Buckler gave an account of the larva (which apparently feeds only on alder) in volume 6 of his great work. It would be interesting to know if any specimens have been taken in recent years.

COLLECTING NOTES.

Moths in East Herts During 1950.—*Erannis leucophaearia*, *Alsophila aescularia* and *Theria rupicapraria* were not seen until 11th February, 15th February and 1st March respectively, all later than any relative date in my diaries for the past six years. Sallow bloom proved disappointing: only a very few *Orthosia gothica*, *O. stabilis* and *O. incerta* appeared. On 23rd March *Biston strataria* came to light in the town (Bishop's Stortford): next day *Polygonia c-album* was seen in the garden. On 7th April *Archiearis notha* was flying high among aspens in a wood across the county boundary in Essex and was as usual difficult to catch. *Bapta temerata* was taken at light on 3rd June.

Sugaring was started on 6th June and continued with fair regularity until 19th July. *Meristis trigrammica*, *Rusina umbratica*, *Apamea sordens*, *A. secalis* ab. *leucostigma*, *A. characterea*, *A. ophiogramma*, *Diarsia festiva*, *Procus furuncula*, *Polia nitens*, *P. nebulosa*, *Ceramica pisi*, *Thyatira batis*, *Habrosyne pyritoides*, and *Euplexia lucipara* were among the usual insects, but none appeared in any great number. *Macroglossum stellatarum* did not put in an appearance until 2nd July and only three were seen throughout the year. Usually it is very common at the red valerian in my garden—on occasion twenty have been counted at a time.

Sugaring was resumed on 7th August, but the late summer insects were forthcoming only sparingly, their numbers being no more than 5 per cent. of those seen in 1948. *Hadena suasa* was the best insect taken. *Catocala nupta*, usually so common here, did not appear until 10th August and only three were seen throughout the autumn, the third one in fresh condition so late as 30th October.

At the beginning of October a larva of *Herse convolvuli* was found in the town and several larvae, and about eight pupae, of *Acherontia atropos* were collected in the district. A solitary *Rhizedra lutosa* was noticed at rest on 13th October. The year was a disappointing one both in respect of the number of insects seen and of the number of species.—C. Craufurd, "Denny," Galloway Road, Bishop's Stortford.

The Increase in Range of Hyloicus pinastri.—It is very well known that this species has for some years past been increasing its range in the southern counties, and that it has been common in the New Forest and elsewhere in Hampshire. The following captures in 1950 may, therefore, be of interest.

1. On 15th July 1950 a female example came to light in my house, which is about 2 miles south of Godalming, Surrey.

2. During the same week my daughter found a female at Arundel, Sussex.

3. In September 1950 I obtained a full-fed larva in my garden at Godalming.

4. In the latter part of September a larva was obtained in the Oxshott district by Lt.-Col. L. E. Becher, of Godalming.—HAROLD B. WILLIAMS, Munstead Oaks, Godalming, Surrey, 10th February 1951.

THE 1950 SEASON.—Most collectors have hard things to say of the past year so far as concerns moths, and some have expressed in print their disgust at the shortage of butterflies. With moths I had little to do, but certainly had no cause to complain about butterflies. *A. hyperantus* was more common—in Essex, Herts., Beds., Northants and Warwick—than I have ever seen it before, in some places far outnumbering *M. jurtina*. *M. galathea*, too, was abundant in Northants, Hunts., Cambs. and Suffolk. *L. coridon* was in plenty in Herts., Cambs. and Suffolk. During a memorable visit to Mr. Castle Russell in Surrey I saw *L. bellargus*, *A. agestis*, *C. rubi* (also unusually common in Herts.), *H. lucina*, *P. megera*, *C. pamphilus*, *P. c-album*, *P. napi*, *P. malvae*, *E. tages*, *G. rhamni* (unusually plentiful this year), *A. cardamines*, *E. aurinia*, *A. euphrosyne*, *A. selene*, and *L. sinapis*. *M. athalia* was plentiful in an Essex wood and *A. paphia* was common in Hunts. and Essex. *V. atalanta* was much more common than usual in East Herts. and *S. semele* and *M. tithonus* appeared as usual at Newmarket. *C. minimus* (both broods) was quite common in places. *V. urticae* certainly did not occur in its usual numbers, *V. io* was only occasional, and *V. cardui* quite rare. *L. camilla* on the other hand was in profusion in many a Hertfordshire and Essex wood, and friends tell me that *H. comma* was abundant on the Bedfordshire downs. *A. iris* seems to have had a good year in Herts., too. Of *C. argiolus* I did not see a single specimen, though *S. w-album* and *pruni*, *L. phlaeas*, *T. sylvestris* and *O. venata* all seemed to be as common as usual in various places. Of *C. croceus* I saw only five—emerging on 27th July from a patch of lucerne at Newmarket. *P. brassicae* did not seem as common as usual, but recently I collected a hundred pupae from a row of trees fringing allotments and saw as many more. *Apanteles glomeratus* appears to have had a lean year, for its yellow cocoons are strangely rare, in East Herts. at all events.

Of moths there is little to be recorded—by me. *E. ochroleuca* was as common and widespread in East Herts. Cambs. and Suffolk as heretofore—I boxed one from Ragwort at Wicken Fen of all places. On the chalk in the same county I netted a yellow burnet (5-spot), which departed from the net while I was fumbling for a box. In May my friend Mr. W. Reid, of Sheffield, sent me twelve 1st-instar larvae of *L. solidaginis*, of which nine survived the postal authorities and two died within a week. The remaining seven were reared on hawthorn and seven fine imagines duly appeared (26th July-4th August). The pupating compost was, of course, peat. They were reared out of doors (in Hertfordshire) and the cocoons were left in the pupating-trough until the moths appeared.—P. B. M. ALLAN.

CURRENT NOTES.

MITTEILUNGEN DER SCHWEIZ. ENT. GES., XXIII, Heft 4 (9.xii.1950), contains, as usual, matters of interest to us. Charles Julliard writes (pp. 369-376, 4 figs.) on the nest of *Odynerus scoticus*, Curtis. This is the species which figures in our lists as *Ancistrocerus albotricinctus*, Zett., a coastal species with us, but I have taken it as far inland as Rodborough, Glos. Chas. Ferrière (pp. 377-410, 6 figs.), in Notes on *Eurytoma* spp., reviews the Types of Thomson and Mayr; we note that of the species listed in Kloet & Hincks' *Check-List* (p. 284) *arctica*, Thomson = *auricoma*, Mayr, and *morio*, Boh. = *ischioxanthus*, Ratz. H. Gisin (pp. 411-416) has Notes on Collembola, in which we find remarks on the genus *Dicyrtoma*, Bourlet 1842 (Kloet & Hincks, *Check-List*, p. 9), of which the genotype is stated to be *minuta*, Fab.—T. BAINBRIGGE FLETCHER, 18.xii.50.

THE INTERNATIONAL RULES OF NOMENCLATURE IN ZOOLOGY.—It is always surprising to come up against an unexpected point of view but to find an anarchist attitude with regard to nomenclature is outside normal probabilities. The trend in that direction, small at present, is the result of the lack of commonsense and the domineering methods of the International Commission, but rather than adopt Mr. Bainbrigge Fletcher's "everyone for himself" outlook, I shall continue to hope that the Commission will take warning from the signs as it would be much preferable that we continued to have one body for all zoology than that entomologists formed for themselves a nomenclature committee as has been rumoured.

On the question of genders of genera and species Mr. Fletcher must be placed with the grammarians who, in my opinion, are only adding to the confusion in nomenclature. I do not know why the homonym is defined and correctly declared impossible in Mr. Fletcher's last sentence as I have not raised the matter in the note to which he was replying.—FRANK BALFOUR-BROWNE, Brocklehirst, Collin, Dumfries, 8.i.51

AFTER reading Professor Balfour-Browne's note (above) and that by him in the *E.M.M.* for January, I think that we are not so far apart. Both of us consider that some of the Rules are nonsensical; even so, he is prepared to accept them whilst I do not acknowledge their validity as applied to Entomology. I will quote from Smithsonian Publication, 1938, p. 2:—"The Commission has no legislative powers. Its powers are restricted to studying questions of nomenclature, to reporting upon such questions to the International Congress [of Zoology] and to rendering opinions upon the cases submitted to it."—T. BAINBRIGGE FLETCHER.

PUBLICATION of this issue has been delayed owing to the death of our late Editor and the illness of our present one. Our next issue, MARCH-APRIL, will be a DOUBLE ONE and will also contain the SPECIAL INDEX for Vol. 62.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted.—I need specimens of *Lycaena* (*Heodes*) *phlaeas* from all parts of the world, particularly Scandinavia, Itussia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antiopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; Etudes les Mouches Parasites, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Lycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted this coming season—Ova, larvae and pupae of *Abraxas grossulariata* and *Abraxas ulmata* (*sylvata*), for cash or exchange.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Records of the following Butterflies from the New Forests: *crataegi, sinapis, iris, c-album, polychloros, cinxia, aurinea, galatea, betulae, semi-argus, lucina, lineola, actaeon.*—*S. C. S. Brown, 454 Christchurch Road, Bournemouth.*

All Communications should be addressed to the Acting Editor, T. BAINBRIGGE FLETCHER, Woodfold, Down Hatherley, near Gloucester, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Will our contributors please note that owing to the Editor's illness all material for the magazine should be sent, until further notice, to The Hon. Treasurer, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: April 4th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: March 14th, March 28th, 6.0 for 6.30 p.m. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7 *Birmingham Natural History and Philosophical Society—Entomological Section.* Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

Printed by T. Buncle & Co. Ltd., Arbroath.

l. LXIII.

Nos. 3-4

MAR.-APRIL 1951

ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

CONTENTS.

ALSO

NOTES AND OBSERVATIONS, PRACTICAL HINTS, COLLECTING NOTES, CURRENT NOTES, CURRENT LITERATURE, ETC.

Subscription for Complete Volume, post free,

TEN SHILLINGS.

To be sent to

The Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,

Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

This Number, Price FOUR SHILLINGS (net).

EDITORIAL.

Recently we came across a letter written a hundred and twenty-three years ago by one who was perhaps the finest field entomologist who has ever graced this country, a man of whom it was said that " his discoveries mark an era in the Entomology of this country ", who in one season had amassed " a collection of rarities I suppose never before equalled in Britain by one person in one year." The letter is dated " October 29th, 1828," and it begins as follows:—

" As I passed through Manchester i saw a bout 100 Davus teaken at Ashton moss this summer without one a proaching in collor on the under side to Iphis or Polydama i think they verey much differ from those teaken in Cumberland i teaken a nother Clifton Nonperiel".

What a moral there is in this letter! Its writer knew only too well his inexpertness with a pen; how irksome it must have been to him to sit down and compose it! But he considered that it was his bounden duty to pass on to his brother collectors every scrap of information which came to his knowledge. There was much of the recluse, the solitary, about him: he tramped the United Kingdom from the Fens to Valentia Island, from the New Forest to Sutherland, at a time when the only railway in England was the one from Stockton to Darlington, opened in 1825. Yet wherever he went he "found time" to write to a friend in London, bidding him make known to the brethren of the net the rarities he had discovered and the places where he had found them. So convinced was he of this duty that inexpertness with the pen did not deter him, any more than it deterred the correspondent who had to render his letters in academic English.

What stores of learning would have remained shut up for ever if the field workers of an earlier generation had been reluctant to commit their discoveries to paper! New species, the range and distribution of rarities, the knowledge of the habits, life histories and foodplants of scores of insects, a knowledge which has enabled our textbooks to be written—many of these things would have gone unrecorded.

The moral, then, is plain. It does not matter in the least *how* we convey our information so long as we *do* convey it. To the man in Sussex the insects of Yorkshire are as interesting as the South Coast species are to the northerner. It is our bounden duty, as members of the Good Fellowship of Entomology, to help our brethren in their need, even though that need be only for 'information'. We who conduct the *Record* for you rely upon you for our contents; let it be the aim of all of us to make our magazine as much part and parcel of the entomologist's equipment as are his store-boxes and his net.

EDITOR.

We have heard with much regret of the sudden death on 8.ii.1951 of Mr. H. Audcent, of Clevedon, who has worked especially at the Diptera of the Bristol District. The last Note which he sent to the *Record* appeared in March 1946, when he recorded a single specimen (male) of the scarce Syrphid *Pocota personata* Harr. (*apiformis* Schrk.) taken by himself in Bexley Woods on 16th May the previous year. Our readers will recollect the excellent paper on the mounting of Diptera which he contributed to these pages in 1942.

ABERRATIONS OF BRITISH MACROLEPIDOPTERA.

By E. A. Cockayne, D.M., F.R.C.P.

Plate II.

[The aberrations described and named in this paper are in the Rothschild-Cockayne-Kettlewell collection in the British Museum.]

Thyatiridae.

Tethea ocularis Linnaeus. Ab. **microphthalma** ab. nov. (Fig. 1.)

On the forewing the stigmata do not touch one another; they are much reduced in size and almost completely filled with dark scales, so that the characteristic figure of 80 mark is lost.

Type ♂: Cambridge, bred 15.v.1901. Rothschild coll.

Tethea fluctuosa Hubner. Ab. **albilinea** ab. nov. (Fig. 2.)

On the forewing the basal and marginal areas are dark, almost as dark as the median area, which is bounded internally and externally by a white stripe; the subterminal line shows faintly.

Type ♂: Auchnacraig, I. of Mull, 25.v.12. (N. C. Rothschild coll.)

Allotype ♀: Westerham, Kent, H. W. Barker. (R. Adkin coll.)

Paratypes 3 ♂♂: Auchnacraig, 5.vi., 6.vi., 25.vi.1912. (N. C. Rothschild coll.)

Asphalia diluta Schiffermüller. Ab. **omicron** ab. nov. (Fig. 3.)

Forewing—between the two dark transverse bands dark scales run along the costa; the centre of the median area is occupied by a circular mark like the letter O, from which two transverse lines run to the inner margin, where they meet. Hindwing—the transverse line is faint and nearer to the base than usual.

Type ♀: Rye, Sussex, Pollack. (C. A. Briggs, Vauncey Harpur Crewe, and Rothschild colls.)

Asphalia diluta Schiffermüller. Ab. **fuscofasciata** ab. nov. (Fig. 4.)

Forewing—the median area is filled completely or almost completely with dark scales forming a broad band; the basal and marginal areas are pale. Hindwing—in the type there is a transverse band and in the allotype the area from the base to the transverse band is dark.

Type ♂: Herne Bay, Kent. A. U. Battley. (H. B. Williams coll.) Cockayne coll.

Allotype ♀: (Rev. H. Stowell, C. A. Briggs, Vauncey Harpur Crewe, Rothschild coll.)

Paratype ♂: Loc. incog. (Howard Vaughan, L. Savile Reid coll.) Cockayne coll.

Asphalia diluta Schiffermüller. Ab. **angulata** ab. nov. (Fig. 5.)

Forewing—the postmedian line is bent at a sharp angle in the middle of the wing so as to unite on the costa with the antemedian and to approach it closely on the inner margin; the postmedian thus forms a conspicuous > shaped mark.

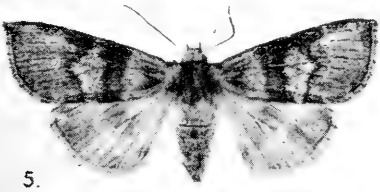
Type ♀: Loc. incog. (J. A. Clark, E. R. Bankes coll.)

1.

2.

3.

4.



5.

6.

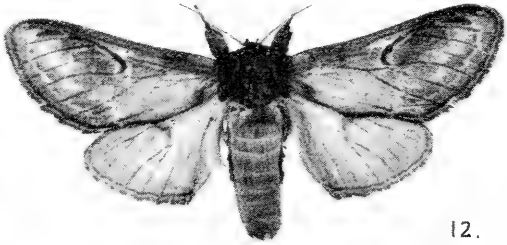
7.

8.

9.

10.

11.



12.

13.

Achlya flavicornis Linnaeus. Ab. **atrescens** ab. nov. (Fig. 6.)

Forewing—the whole of the surface is much darkened especially the median area in which the pale orbicular stigma stands out conspicuously. Hindwing—slightly darker than usual. Thorax and abdomen nearly black.

Type ♂: Rannoch, 6.iv.1918. (H. B. Williams coll.) Cockayne coll.

Allotype ♀: Rannoch, Perthshire, 1919. (Baldock.) Cockayne coll.

Paratype, 1 ♀: Rannoch, 1892. (W. M. Christy coll.)

Polyploca ridens Fabricius. Ab. **unicolor** ab. nov. (Fig. 7.)

Forewing—almost unicolorous and as dark as the normal median area. Hindwing—normal.

Type ♂: New Forest, Hants., bred 6.v.1905 by J. Greenwood. (Rothschild coll.)

Allotype ♀: Felixstowe, bred iv.1909 by A. E. Gibbs. (Rothschild coll.)

Paratypes, 1 ♂: Same data; 1 ♂, New Forest, bred 12.v.1904 by J. Greenwood. (Rothschild coll.)

NOTODONTIDAE.

Harpyia hermelina Goeze. Ab. **fuscomarginata** ab. nov. (Fig. 9.)

Forewing—the area between the two transverse lines is completely filled with blackish scales to form a blackish band and the dark subapical mark is darker than usual; the marginal area is uniformly grey with the nervures darker; internal to the subapical line and the festooned line that runs from it to the inner margin is a white stripe; the area between this and the blackish band is devoid of markings with the exception of a dark dot, which represents the discoidal spot; the black dots in the basal area are small.

Type ♀: Scarborough, Yorks., bred vi.1915. (Rothschild coll.)

Drymonia dodonaea Schiffermüller. Ab. **purpurascens** ab. nov. (Fig 10.)

Forewing—the ground colour is purplish black; the line starting near the base, running near the costa, and crossing the wing to the inner margin, is of the same colour but a little paler; the line bordering the postmedian is dusky instead of pure white, but is distinct; the subterminal line is only slightly paler than the ground colour. Hindwing—purplish brown and much darker than normal. Thorax, head, and legs purplish black and abdomen purplish brown. The underside of both fore and hindwings brownish purple and crossed by a slightly paler transverse line.

Type ♀: Romsey, Hants., bred by E. Buckell. (Bright and Rothschild coll.)

Notodonta ziczac Linnaeus. Ab. **diluta** ab. nov. (Fig. 11.)

Forewing—the ground colour is creamy white and all the markings are present but very faint; the discoidal mark and the two subapical marks near the costa are paler than usual but distinct. Hindwing—whitish. Thorax and abdomen pale greyish white.

Type ♂: New Forest, v.1912. P. Haig-Thomas.

Notodonta ziczac Linnaeus. Ab. **lunata** ab. nov. (Fig. 12.)

Forewing—the normal pale grey of the area bounded by the basal line, the discoidal spot, and the median nervure is replaced by dark reddish brown, somewhat darker than that of the area between the median nervure and the inner margin; the submarginal band is pale reddish brown; the semilunar discoidal mark is surrounded by a pale line and stands out conspicuously. Hindwing—dark purplish brown with the markings indistinct; fringes more nearly unicolorous than usual.

Type ♂: Kent, 1901, L. W. Newman.

Allotype ♀: Same data.

Paratypes 3 ♂♂ same data, 1 ♀ same data, 1 ♀ Bexley, bred 31.v.1904 by L. W. Newman. (All in Cockayne coll.)

Notodonta anceps Goeze. Ab. **fusca** ab. nov.

The pale scales on the forewing, and the hairs on the head, thorax, legs, and abdomen are replaced by blackish ones making the aberration much darker than normal; the stigmata in two examples are surrounded by whitish scales. The ground colour of the hindwings is normal, but the scales forming the markings near the apex are black.

Type ♂: Newby Bridge, 31.vi.1926.

Paratypes 3 ♂♂, 2 Witherslack, 4.vi.1923 and 10.v.1920; 1 Newby Bridge, 24.v.1946. All taken by R. C. Lowther. (Cockayne coll.)

Notodonta anceps Goeze. Ab. **clausa** ab. nov.

Forewing—the postmedian line is nearer to the base than usual, touching the discoidal spot, which is large and dark, and meeting the antemedian line at nervure 2, then separating from it slightly and meeting it again at a point between nervures 1 and 2 and at nervure 1.

Type ♂: New Forest. (Cockayne coll.)

Clostera curtula Linnaeus. Ab. **unicolor** ab. nov. (Fig. 8.)

The whole surface of both fore and hindwings is dark cream colour; there are no markings whatever, even the chocolate tip is absent.

Type ♀: Essex, bred 1897. (T. Maddison, Rothschild coll.)

LYMANTRIIDAE.

Dasychira fascelina Linnaeus. Ab. **albida** ab. nov.

Thorax, abdomen, legs, and wings whitish with a tinge of cream colour, basal, ante and postmedian lines narrow and yellowish grey in colour; discoidal mark and subterminal line only just visible.

Type ♂: St Anne's-on-Sea, 1909, T. H. Shepherd. (Rothschild coll.)

Dasychira fascelina Linnaeus. Ab. **nigricosta** ab. nov. (Fig. 13.)

Forewing—on the costa from base to the point where the postmedian line usually starts is a black mark widening to become triangular as it runs outwards, touching the black discoidal mark, and reaching the median nervure at its outermost point; the ante and postmedian lines are absent and the basal and subterminal lines are faint. Hindwing—dark grey and without markings.

Type ♂: Loc. incog. (Rothschild coll.)

EXPLANATION OF PLATE II.

Fig. 1. *Tethea oculatis* Linn. ab. *microphthalma*. ♂. Type.
Fig. 2. *Tethea fluctuosa* Hübn. ab. *albilinea*. ♂. Type.
Fig. 3. *Asphalia diluta* Schiff. ab. *omicron*. ♀. Type.
Fig. 4. *Asphalia diluta* Schiff. ab. *fuscofasciata*. ♂.
Fig. 5. *Asphalia diluta* Schiff. ab. *angulata*. ♀. Type.
Fig. 6. *Achlya flavicornis* Linn. ab. *atrescens*. ♂.
Fig. 7. *Polyploca ridens* Fab. ab. *unicolor*. ♂.
Fig. 8. *Clostera curtula* Linn. ab. *unicolor*. ♀. Type.
Fig. 9. *Harpyia hermelina* Goeze ab. *fuscomarginata*. ♀. Type.
Fig. 10. *Drymonia dodonaea* Schiff. ab. *purpurascens*. ♀. Type.
Fig. 11. *Notodonta ziczac* Linn. ab. *diluta*. ♂. Type.
Fig. 12. *Notodonta ziczac* Linn. ab. *lunata*. ♂. Type.
Fig. 13. *Dasychira fascelina* Linn. ab. *nigricosta*. ♂. Type.

LEPIDOPTERA COLLECTING NOTES, 1950.

By W. Reid.

(*Continued from page 22.*)

We left for home on the 1st June, to find the following taken in the moth trap by my son:—

May 27th. *Plusia gamma* L. (common).

May 29th. *Biston betularia* L. (Black common though type v. rare).

May 31st. *Phalera bucephala* L. (common), *Apatele rumicis* L. (common).

June 1st. *Apamea crenata* Hufn. (uncommon at light), *Spilosoma lutea* Hufn. (common), *Hadena thalassina* Hufn. (not scarce), *Hadena trifolii* Hufn. (common), *Hadena bicruris* Hufn. (not scarce), *Opisthographtis luteolata* L. (common) (this species fluoresces in the rays of a black M.V. lamp), *Lomaspilis marginata* L. (common), *Agrotis ipsilon* Hufn. (a late hibernated specimen).

June 2nd. *Eupithecia vulgata* Haw. (common).

June 3rd. *Apatele megacephala* Schf. (fairly common but black forewings rare), *Rusina umbratica* Göze (*tenebrosa* Hb.) (not uncommon), *Apatele psi* L. (common).

On June 3rd we paid a quick visit to Freshfield for larvae of *A. praecox* L., *Lasiocampa trifolii* Schf. and *Leucoma salicis* L. which we secured, thanks to Mr Fraser's help, in sufficient numbers, also a few *A. vestigialis* Hufn. and one *Zenobia retusa* L. from poplar. We returned to Sheffield the same evening.

A very warm, moist spell of weather was prevalent for the next three or four days, and was responsible for a large increase in the numbers of fresh arrivals at light.

June 4th. *Lophopteryx capucina* L. (not uncommon), *Laothoe populi* L. (common), *Hydriomena coerulata* Fab. (scarce), *Hadena lepida* Esp. (not common), *Caradrina clavipalpis* Scop. (common).

June 5th. *Pheosia tremula* Cl. (common), *Drepana falcataria* L. (not uncommon), *Cilix glaucata* Scop. (common), *Callimorpha jacobaeae* L. (scarce at light), *Apatele alni* L. (not rare this year!), *Agrotis exclamationis* L. (abundant), *Diarsia rubi* View. (not scarce), *Triphaena pronuba* L. (abundant), *Ceramica pisi* L. (fairly com-

mon), *Apamea sordens* Hufn. (common), *Apamea unanimis* Hb. (not common), *Selenia bilunaria* Esp. (rare at light), *Xanthorhoe montanata* Schf. (common).

June 6th. *Ochropleura plecta* L. (common), *Hadena bombycina* Hufn. (common on moors, rare in trap), *Bena fagana* Fab. (rare).

June 7th. *Thyatira batis* L. (only one), *Diarsia festiva* Schf. (common in great variety), *Diataraxia oleracea* L. (common), *Eupithecia centaureata* Schf. (*oblongata* Thun.) (common).

On this date, we took a moth which has every appearance of being a very pale *Amathes baia*, but the date is much too early for this species. The moth is most probably a *D. festiva*, but is of the colour, and about the size, of the *Lygephila pastinum* shown in volume II of South's *Moths*, first edition, except that it lacks the black collar and the black spots on the anterior margin of the forewings. It is quite unlike any *D. festiva* we take in Sheffield and considerably larger—nearly the size of *A. baia*. [In *L. pastinum* vein 5 hw. is well developed, in *D. festiva* vein 5 is weak.—Ed.]

June 9th. *Procus strigilis* Cl. (common), *Anarta myrtilli* L., flying on moors.

June 11th. *Agrotis segetum* Schf. (common).

June 12th. *Alcis repandata* L. All of black forms (very common in larval state on moor and in woods).

June 13th. *Caradrina blanda* Schf. (common).

June 15th. *Hepialus lupulina* (common, black sooty forms).

June 16th. *Deilephila elpenor* L. (common), *Eupithecia pulchellata* Steph. (not uncommon).

June 17th. *Hadena serena* Schf. (not common), *Apamea monoglypha* Hufn. (exceedingly abundant), *Caradrina morpheus* Hufn. (common), *Cabera pusaria* L. (common), *Dysstroma truncata* Hufn. (common).

June 18th. *Hadena conspersa* Schf. (not common, 7 in all).

On June 18th *Bupalus piniaria* L. and *Abraxas sylvata* Scop. were flying in Ecclesall Woods.

June 19th. *Meristis trigrammica* Hufn. (not common), *Eupithecia venosata* Fab. (not common).

June 20th. *Leucania comma* L. (common).

June 22nd. *Euphyia bilineata* L., *Orthosia incerta* (a very late arrival!).

June 23rd. *Graphiphora augur* Fab. (common), *Melanchra persicariae* L. (common), *Polia nebulosa* Hufn. (common in larval state), *Plusia chrysitis* L. (common), *Plusia pulchrina* Haw. (scarce), *Ortholitha mucronata* Scop. (not common).

June 24th. *Euplexia lucipara* L. (scarce).

June 25th. *Lycophotia varia* Vill. (common), *Procus fasciuncula* Haw. (not common), *Dyscia fagaria* Thun. (scarce, was flying at end of May at Aviemore), *Asthena albulata* Hufn. (rare).

June 26th. *Leucania pallens* L. (common), *Apamea obscura* Haw. (not common).

June 27th. *Scopula ornata* Scop. (one only).

June 28th. *Deilephila porcellus* L. (scarce), *Cryphia perla* Schf. (common), *Heliophobus anceps* Schf. (one only, worn).

June 29th. *Abrostola triplasia* L. (not common), *Hepialus humuli* L. (females only, common but rare at light).

On 30th June we took a portable M.V. light outfit to the Sherwood Forest. Working with a sheet, before we were rained off, we took *Apatele leporina* L., *D. elpenor*, *E. fasciaria* at light, among many other more common moths, and *Hadena contigua* Schf. at sugar. We returned home about 00.30 a.m.

July 2nd. *Sterrha aversata* L. (common), *Perizoma alchemillata* L (not uncommon), *Euproctis similis* Fues. (rare in Totley), *Plusia iota* L. (not uncommon).

July 3rd. *Lampra fimbriata* Schreb. (common in larval state, rare at light), *Leucania conigera* Schf. (common).

July 4th. *Itame wauaria* L. (common).

July 5th. *Polychrisia moneta* Fab. (common). *Petilampa minima* Haw. (a few).

July 6th. *Cucullia umbratica* L. (not rare), *Leucania lithargyria* Esp. (common), *Caradrina alsines* Brahm (common), *Apamea infesta* Ochs. (*anceps* Hb.) (two only), *Apatele leporina* L. (uncommon), *Geometra papilionaria* L. (uncommon at light in Sheffield), *Eupithecia icterata* Vill. ssp. *subfulvata* Haw. (common), *Abraxas sylvata* Scop. (very late), *Perizoma flavofasciata* Thun. (not common), *Eupithecia succenturiata* L. (not uncommon).

July 7th. *Abrostola tripartita* Hufn. (not common), *Tethea ocularis* L. (one only), *Amathes baia* Schf. (common—see previous note), *Diarsia brunnea* Schf. (much more common in larval state), *Apamea secalis* L. (common), *Eupithecia irriguata* Hb. (one only), *Entephria caesiata* Schf. (common on moor).

July 8th. *Arctia caia* L. (common), *Ortholitha chenopodiata* L. (*limitata* Scop.) (very common).

On this evening, a further trip to Sherwood Forest brought the following to light:—*H. contigua*, *Amathes ditrapezium* Schf. (a further example occurred in the trap at Sheffield, very worn, on the 12th August!), *Amathes triangulum* Schf., *Agrotis vestigialis* Hufn., *Geometra papilionaria* in large numbers.

July 9th. *Phalaena typica* L. (not common), *Apamea lithoxylaea* Schf. (not rare), *Ourapteryx sambucaria* L. (common. This is another species which fluoresces under an M.V. black lamp).

On July 11th I visited Erdlington Wood, near Doncaster, in company with Mr G. Hyde. This well-known collecting wood is still not spoiled, although nearly encircled by industrial developments, and it is hoped that it will retain its natural Lepidoptera for years to come. *E. similis* was in abundance, and others taken included *G. papilionaria*, *A. triangulum* (mostly worn), *P. gnoma*, *H. trifolii*, *T. pronuba*, *P. strigilis*, *L. varia*, *O. plecta*, *A. repandata*, *L. lithargyria*. The evening was not too good, sky clearing with a falling relative humidity.

July 12th. *Plusia festucae* L. (not uncommon), *Triphaena ianthina* Schf. (common).

July 15th. *Nola cucullatella* L. (not common).

We were at Kendal on this night after a very wet day, and little appeared at light, except one *Apamea ophiogramma* Esp. in Dr

Birkett's moth trap, and numerous *Eilema lurideola* Zk. and *Pelurga comitata* L.

July 18th. *Zeuzera pyrina* (two only), *Triphaena comes* Hb. (common), *Abraxas grossulariata* L. (not common at light), *Pelurga comitata* L. (common).

July 19th. *Eupithecia nanata* Hb. (common), *Calostigia didymata* L. (not common).

July 21st. *Apamea scolopacina* Esp. (scarce), *Bombycia viminalis* Fab. (scarce, and all dark), *Euxoa nigricans* L. (common), *Parastichtis suspecta* Hb. (not uncommon).

July 22nd. *Cosmia trapezina* L. (common), *Euxoa tritici* L. (rare).

July 23rd. *Crocallis elinguaria* L. (common), *Euphyia unangulata* Haw. (rare), *Horisme tersata* Schf. (rare).

July 24th. *Lygris mellinata* Fab. (*associata* Bork.) (scarce), *Apamea ypsillon* Schf. (*fissipuncta* Haw.) (not common).

July 25th. *Campaea margaritata* L. (scarce).

July 28th. *Cerapteryx graminis* L. (common), *Pseudoterpna pruinata* Hufn. (common).

(*To be continued.*)

COLLECTING IN NORTH DEVON AND CORNWALL, 1950.

By S. Wakely.

On the 24th June 1950, I was invited to join Canon T. G. Edwards who was on holiday at Bucks Mills, North Devon. The prospect of visiting the West Country for the first time appealed to me greatly and I had hopes of observing *Maculinea arion* L., *Aegeria muscaeformis* View., and other local insects in their natural habitats.

At Bucks Mills the windows of the house where we were quartered commanded a grand seascape with Lundy Island in the foreground (when not obscured by mist) and the well-wooded cliffs with the houses of Clovelly straggling down to the beach to the left.

Dusking was tried the first evening along the rocky path leading to the shore, and three specimens of *Bomolocha fontis* Thunb. were netted. Strangely enough we did not come across this insect again, although the local woods were full of bilberry plants.

One of our early trips was on foot to Clovelly, which was approached by a lovely walk along the Hobby Drive, a private and very picturesque road about three miles in length winding along the top edges of deep chines descending in S bends to the cliff top at Clovelly. The weather was rather showery, and no insects were on the wing. At one place in the Drive a number of larval webs were collected from oak. These contained many pupae of a large form of *Euzophera consociella* Hübn., which started to emerge a week later. Unfortunately only a few of these were set, which caused us some disappointment later when it was realised how they differed in size and depth of colouring from our Surrey specimens of this species. Another insect which was exceedingly common here (and also at Bucks Mills) was the larva of *Elachista magnificella* Tengst. which was in extreme abundance in leaves of *Luzula sylvatica*, a plant which grew very luxuriously in these parts.

On our rambles near Bucks Mills we soon found the larvae of *Eupithecia pulchellata* Steph. to be fairly common in the flowers of foxglove, but all those I collected were parasitized. Many of the foxglove flower-stems were withered and drooping, caused by the presence of larvae of *Gortyna flavago* Schiff., a species which must be very abundant in this part of the country.

Several trips by car were made over the border into Cornwall, and I was greatly excited to see my first *M. arion* on one of these. This species is still well established along the coast, but sunshine is essential to bring it on the wing. The frequent sea mists usually spoilt our chances of seeing either the Large Blue or the Thrift Clearwing. The latter we did find, however, towards the end of our stay. These were mostly netted at flowers of thrift growing on stone walls at the top of some very high cliffs.

One very pleasant memory is of having lunch in the sunshine near the sea with *M. arion* occasionally drifting by and *Macroglossum stellatarum* L. darting about over the broken cliff below us. A large raven was posted like a sentinel at the top of a high perpendicular cliff; and the return of a pair of kestrels to an adjacent cliff with four fully-fledged young ones flying to meet them with eager little cries was something never to be forgotten.

Buzzards were to be seen every day, sometimes on telegraph poles by the roadside, or sailing out from a cliffside as one approached the edge, and occasionally hovering in the wind in the manner more often associated with the kestrel.

An interesting botanical find was a plant of *Anthyllis vulneraria* with bright pink flowers (var. *coccinea*). This was growing on a steep slope by the sea at Marsland, N. Cornwall.

An incident that interested me was when I spotted a fine fox ahead of me on the top of a cliff. I kept still and it trotted calmly to a thicket ahead, where it turned round and gave me a look for several seconds before disappearing into the undergrowth. During this time an anti-aircraft battery was blazing away at practice about a mile away, and the crash of the guns and the crump of exploding shells were making a terrific din, but the fox was absolutely unperturbed at the noise though suspicious of me.

In the hope that some of our captures may be new county records I append a list of the more interesting species met with.

LEPIDOPTERA.—*Hadena conspersa* Esp.—Canon Edwards netted a fine specimen of the dark local form while it was hovering over a clump of sea campion at Bucks Mills. *Procus latruncula* Schiff.—One at sugar, Bucks Mills. *Bomolocha fontis* Thunb., *Schrankia costaestrigalis* Steph., *Scopula imitaria* Hübn., *Perizoma affinitata* Steph., *P. alchemillata* Linn., and *Scoparia cembrae* Haw.—Bucks Mills. *Ortholitha mucronata* Scop.—Marsland, N. Cornwall. *Pyrausta cingulata* Linn., *Rhodaria cespitalis* Schiff., *Dioryctria fusca* Haw. and *Crambus pascuellus* Linn. —Hartland, N. Devon. *Perinephela terrealis* Treits., *Homoeosoma saxicola* Vaugh., *Amblyptilia punctidactyla* Haw., *Platyptilia calodactyla* Hübn. and *Alucita tetradactyla* Linn.—Bucks Mills. *Aegeria muscaeformis* View., *Cacoecia rosana* Linn., and *Argyroploce purpurana* Haw.—Hartland. *Tortrix forsterana* Fabr., *T. paleana* Hübn., *T. viburniana* Fabr., *Cnephasia conspersana* Dougl., *Olindia ulmana* Hübn.,

Endothenia antiquana Hübn., *Eucosma solandriana* Linn. and *Hemimene acuminatana* Zell.—Bucks Mills. *Polychrosis dubitana* Steph.—Marsland. *Eucosma penkleriana* F.R.—Coombe Valley, N. Cornwall. *Eucosma costipunctana* Haw., *Laspeyresia aurana* Fabr. and *Depressaria chaerophylli* Zell.—Braunton (the latter insect was subsequently bred from a larva taken on flowers of *Chaerophyllum temulum*). *Aristotelia tenebrella* Hübn., *Batia lambdella* Don. (two beaten from gorse), *Elachista luticomella* Zell., and one pupa of *Orthotaenia sparganella* Thunb., found in stem of Sparganium—Hartland. *Elachista magnificella* Tengst., *Plutella annulatella* Curt. and *Lampronia luzella* Hübn. —Bucks Mills. *Sythris grandipennis* Haw. and *Teichobia verhuellella* Staint.—Bucks Mills—the latter also at Morwenstow, N. Cornwall.

COLEOPTERA.—The only beetle of interest noted was *Cassida murraea* L., of which about a dozen were taken on *Inula dysenterica* at Hartland. The larvae were in abundance and of all sizes. The coloration of the larva matches the leaf, but the cast skin is attached to the last segments and suggests a spider.

NEUROPTERA.—*Osmylus fulvicephalus* Scop.—Several taken at Bucks Mills.

TRICHOPTERA.—*Hydropsyche instabilis* Curt.—Hartland.

HYMENOPTERA.—*Schizoloma capitum* Desv. and *Blaptocampus nigricornis* Wesm.—Bucks Mills. *Ancistrocerus pictus* Curt.—Braunton Burrows. *Blepharipus* (*Crabro*) *dimidiatus* F., *Halictus smeathmanellus* Kirby, *Anthophora bimaculata* Panz. and *Megachile centuncularis* L.—Hartland (the latter also at Bucks Mills).

DIPTERA.—*Beris morrissi* Dale—N. Cornwall. *Nemotelus pantherinus* L.—Braunton. *Oxycera pulchella* Mgn.—Coombe Valley. *Tabanus distinguendus* Verr.—Bucks Mills. *Thereva nobilitata* F.—Coombe Valley. *Philonicus albiceps* Mgn.—Braunton Burrows. *Empis livida* L.—Coombe Valley. *Chilomyia illustrata* Harris—Bucks Mills and Coombe Valley. *Epistrophe* (*Syrphus*) *diaphana* Zett.—Bucks Mills. *Tephritis conjuncta* Liv. (*nesii* Wied.) and *T. vespertina* Liv.—Bucks Mills. *Actia crassicornis* Mgn.—Marsland. *Ernestia rudis* Fall., *Lucilia sericata* Mgn. and *Dasyphora cyanella* Mgn.—Bucks Mills.

I should like to express my thanks to Mr Coe, Mr Benson, and others at the British Museum for naming many of the diptera and hymenoptera.

THE INTERNATIONAL RULES OF ZOOLOGICAL NOMENCLATURE.

By E. A. COCKAYNE, D.M.

In the new Rules names have been placed in two categories, a higher category containing specific and subspecific names and a lower category containing infra-subspecific names, the latter applied to aberrations, ♀-forms, seasonal forms, and " minority elements of all kinds within a species." Different laws have been made for each of these categories. This is a great advance and gave the Commission a wonderful opportunity, which has been completely missed. One hoped they would legalize what workers have been doing for years, the giving of the same name to parallel forms even in congeneric species. It has been suspected for many years that parallel forms were often determined

by the same chemical change occurring in a gene at the same locus of the same chromosome. This has actually been proved in one case. A parallel form occurring in two species of *Drosophila* was tested by hybridization. Individuals heterozygous for what was thought to be the same recessive character were crossed and the recessive appeared in the ratio of 1 : 3 in the offspring, one recessive to three normal flies. This proved conclusively that the gene determining the aberration was identical in the two species. Had the recessive character been determined by a different gene in each species, all the offspring would have been normal. Actual proof that parallel forms are determined by identical genes can rarely be obtained, but similar cases are probably not uncommon. One may cite as an example the white forms of the female in many species of *Colias* of which *Colias croceus* ab. *helice* Hübner is the best known. I think the genetics of only two of these female forms are known, but both are sex-controlled dominants, a very unusual mode of inheritance. To give the same name to the same thing is the only scientific way of dealing with such cases, and it has the additional advantage of being a great aid to memory. The new Rules, however, say that " the Law of Priority and Homonymy applies to infra-subspecific names." In fact, they expressly forbid the use of the same name for parallel forms in species in the same genus, though, if they are in different genera and therefore less likely to be determined by the same gene, they are permitted. One expects international legislators to show both common sense and scientific knowledge, but could anything be less sensible and less scientific? Evidently the atmosphere of the museum and the committee room is not conducive to clear thinking or to the acquisition of scientific knowledge.

Not content with this they make provision for breaking their own law of priority and homonymy, and at the same time they introduce an element of permanent instability into the nomenclature of aberrations. Under the new Rules " Specialists can establish technical designations to be applied to infra-subspecific forms, such designation to be exempt from invalidation under the Law of Homonymy." Specialists, a class of dictator above the law, are created and under license from the Commission they will be able at any time in the future to make a clean sweep of all the aberrational names in common use and substitute "technical designations" of their own. They may sink a name like that of *Colias croceus* ab. *helice* in their revision of the genus, and call all the parallel female forms " pallida " or some other technical designation. It would be a great pity if names like these were lost, for they are used in general biological literature. It must be admitted that a few groups are well suited to such treatment such as the *Lycaenidae*, for which Courvoisier devised a special terminology. The aberrational names for the *Lycaenidae* are, however, largely based on this, but many of them are now rendered invalid under the new Rules. Is it logical to make a special law obviously based on Courvoisier's Genfer Schema, which overrides the Law of Homonymy, and at the same time renders invalid some of the names given by Courvoisier himself or based on his terminology? Evidently logic is not the strong point of our legislators.

Workers who followed Prout's lead, such as Lempke, Heydemann, and others, including the writer, who have been giving the same name to parallel forms, are still forbidden to do so, if the species happen to

be congeneric. They have been using some of these names for *Geometridae*, *Noctuidae*, *Thyatiridae*, and *Lasiocampidae*, and cannot claim to be specialists in all of these, so they are not eligible to become specialists licensed by the Commission. For them there is now a choice between obedience to the Rules and obedience to the Laws of Nature. There is little doubt what their choice will be. They will break the Rules of Nomenclature, until a more enlightened Commission amends them and so legalizes their transgressions.

8 High Street, Tring, Herts.

CURRENT NOTES.

THE amelioration of climate in our corner of Europe during the last few decades is well shown by three photographs in the February issue of *Weather*. These depict a well-known glacier in Norway in 1903, 1937 and 1946. In the first photograph the glacier is seen to be a wide sheet of ice filling the valley. By 1937 a tongue of land had divided the glacier, the surface of which had fallen to a much lower level. The third photograph is most striking, for it shows that the glacier has almost disappeared, a thin ribbon resembling a mountain torrent being all that remains. This glacier (the Mjölkevollsbre, one of the northern outlets of the Jostedalsbre, near the North Fjord) is in Lat. 61° 39′ N. and Long. 6° 49′ E.—about the latitude of the Faroe Islands and only some 300 miles east of the Shetlands.

STRANGE things have been happening to the weather in other parts of the earth. In Australia the winter rain-belt has been displaced to the northward and if the change is a permanent one it will mean "a revolution in the southern part of 'arid' Australia". Lake Eyre, 40 feet below sea-level, became full for the first time since 1890. "Vast floods of water have been pouring into the lake from the usually sun-smitten steppes to the north-west". Farther north, round about Alice Springs, five inches of rain fell in July—more than those parts normally receive in a year. "The country is one vast field of grass and colourful native wild flowers" (*Weather*, 6: 28). We wonder what effect these happenings will have on insect life.

WE look forward to hearing what insects, if any, were found by the recent Danish Pearyland Expedition. Pearyland, north of Lat. 80° N., is the northernmost ice-free part of Greenland and the northernmost land area on the earth. On account of overshadowing rocks the sun did not reach the fjord on which the Expedition was based until April 9th, and thereafter it shone continuously until September 5th. The abundance of light fostered quite a rich flora and fauna. Ninety species of flowering plants were collected and more than 300 mosses and lichens. Presumably some at least of these flowering plants would be fertilized by insects. To their surprise the Expedition found that over a period of two and a half months during the summer there was not a single night's frost and that the average temperature for July was several degrees Centigrade above that registered in north-east Greenland, where there is a night frost more or less throughout the summer. Fossil trees were found, showing that the climate of those regions was at one time very much milder than it is to-day.

What think the prophets, the entomological prophets, of our prospects during the coming months? October was unusually dry, particularly in the south-east, and apart from a cold spell during the last week the month was "rather mild" (we quote from *Weather*). November was "decidedly wet", rainfall in the S.E. being "about twice the average"; but the mean temperature for the month was "generally close to the long-period average". December, in many places, was the coldest for seventeen years, and there was a good deal of snow, which in sheltered places lay for some weeks. January "was what one might call average", mean temperatures and sunshine figures being close to the long-period average, though rainfall was above the norm. February was abnormally wet—in at least one part of the Home Counties it rained on every day of the month, sunshine being virtually nil. It is no part of *our* business to prophesy, but we shall not expect great things, entomologically, in 1951—though conditions *may* be a little better than they were in 1950. They could not very well be worse!

We have received an account of the lady whose name is associated with *Melitaea cinxia*. It turns out that she was not a "Lady Glanville", as is commonly suggested, but Mrs. Elizabeth Glanvile, a close friend of James Petiver, the correspondent of Ray and writer of books on Entomology. Mrs. Glanvile was not only an ardent entomologist but a botanist as well and sent Petiver many species which were unknown to him. We hope to print this article during the coming months.

"I not being at home, and so long neglicting to clean my butterflys", Mrs. Glanvile writes to Petiver in a letter which fortunately has been preserved, "being almost 2 years, ye mites have done me much michefe", and she goes on to say "I rejoice to find by yr Catalogue you have got Mr. Charltons blistered buterfly, it being my perticular favorit". Meanwhile we leave our readers to speculate on the identity of this species. For our part we incline towards *Melanargia galathea*. [At a guess, I would suggest *Vanessa c-album*.—T.B.F.] But who was Mr Charlton?

Dr. Walter Charlton, who died in 1707, at the age of 88, was physician to Charles I and Charles II and seems to have been somewhat versatile, as he wrote tracts on medical, philosophical and antiquarian subjects. Was he also a lepidopterist and did he discover the "blistered butterfly"? For those who are interested in the history of our science there is still much work to be done on the English entomologists of the seventeenth century. Mrs. Glanvill's letter to Petiver is dated 1702.

THE INEVITABLE MATCHBOX.

By Cartwright Timms, F.R.E.S.

The well-known Birmingham entomologist, the late J. H. Grant, often used to complain, half-humorously, that people were always bringing him insects in what he called "the inevitable matchbox." There can be few of us who have not, at one time or another, been presented by a well-meaning friend with a battered *Arctia caja* in one of these useful containers. But before we condemn the matchbox out of hand, it is worth while to consider its many virtues.

It has always been my intention to live up to the most sound advice given by An Old Moth-Hunter in the January issue of *The Entomologist's Record*. I always determine never to go out without a pill-box, yet how often do I grope for one and find it isn't there! On one occasion I was walking along a road not ten minutes away from my home, when I saw a perfect specimen of *Apatele leporina* resting on someone's front gate. This moth is by no means common, and occurs chiefly in woodlands. I certainly did not expect to see it within three miles of the centre of a big industrial city, so at once I felt for the pill-box. It wasn't there—but fortunately the inevitable matchbox was.

I pass along this road fairly frequently, and about a year later there happened one of those coincidences that must never occur in fiction. yet do in fact happen in real life. On a fence, not many yards from the spot where I had captured *leporina*, a further *leporina* was sitting—but a *leporina* with a difference. Its forewings were darkly suffused and its thorax was black, so that the moth was undoubtedly var. *melanocephala* Mansbridge. Once again history repeated itself. I had no pill-box, but the useful matchbox enabled me to add this insect to my collection.

So now I treat the matchbox with respect. For the butterflies and larger moths it is useless. For the others it has many advantages and for the capture of insects resting on fences, walls and tree trunks it has few equals. It is best held between thumb and second finger, opened and then placed over the insect. The box is then closed with the fore-finger. Care should be taken not to close the box completely or legs or antennae may be trapped. Leave the box slightly open and blow in any protruding legs, then the box may be closed.

In the same way, it is easy to drop insects from the matchbox into the killing bottle. The matchbox has the great virtue that it can be manipulated with one hand only, and is ideal for the capture of lively insects when in the net.

For the past ten years my main interest has been the Diptera, and I find the matchbox most useful on those occasions when I "bring 'em back alive." Many Diptera are flower lovers, particularly Syrphids and Tachinids, and it is possible to capture some of these directly in the matchbox, when the flies are busy with the nectar. This is most useful in public parks or gardens, where the production of a butterfly net might cause a mild sensation.

So now matchboxes form a regular part of my field equipment. They pack closely, they are cheap—no small consideration in these days—and they have many uses. We may, therefore, look with kindly eyes on the friends who during the next few months will surely bring us insects imprisoned in the "inevitable matchbox." They are much to be preferred to those irritating people who come along and say, "I saw a curious insect in my garden yesterday. It had wings and legs and was brown in colour. Can you tell me what it is?"

QUESTIONS WITHOUT ANSWERS.

By P. B. M. Allan.

Looking back, probably every lepidopterist whose seasons in the field exceed the half century can remember an occasion when he saw some moth or butterfly which he failed to catch and which left him

wondering. "What on earth could it have been . . . ?" These apparitions appear at sugar, in grassfields, on the moors, in the depth of woods, on the open downs—wherever the lepidopterist plies his trade. Only last year my friend Mr Craufurd and I saw and pursued twice, on successive days, in a lucerne field, a Noctuid which neither of us could identify. Certainly it was not *Plusia gamma*, though it buzzed about somewhat in the way *gamma* does and was the same size. As it seemed to be of a pinkish colour I inclined to *Periphanes delphinii*, the Pease-blossom moth of our ancient authors, extinct nearly two hundred years ago; my friend, wiser than I, reserved his judgment. Even now we have not the slightest idea what it was.

A year or two ago, motoring about Devonshire towards the end of June, I lunched at a small village on the western fringe of Dartmoor. Looking at the map after lunch I saw that there was a by-road which—if it were motorable—would cut some four miles off my journey. My companion was dubious, but eventually we resolved to try it. The lane was so narrow that at first the herbage on the banks brushed the wings of the car on either side, but after a mile or so of this we came out upon open heathland. The track wound about among small low hills; gravel showed on either hand, with sallow bushes growing among the heather. Presently we came to a little valley through which a burn chattered amid green sward and rushes. It was such a pretty spot that we drove the car on to a patch of grass and got out to inspect. "Take the net with you," said my companion.

After walking along the burn for a few yards a lepidopteron rose out of the herbage beside the stream and went away fast on the strong wind that was blowing down the valley. It was chiefly red, rather a light red, and as I know the Scarlet Tiger as well as I know my hat you can take it from me that it most certainly was not *Panaxia dominula*. I stared after it till it was lost to view, and whether it was a butterfly or a moth I just don't know. Ten paces further another one got up, and though I leapt at it the wind bore it away at such a speed that pursuit was hopeless.

I walked back to my companion. "Yes, I saw it," said she. "There's another one gone down over there." I trod as delicately as Agag towards the spot she indicated and when I was twenty feet away the third unknown flew up into the wind and was off. . . . No, I have not the slightest idea what they were. In size they seemed about halfway between *P. dominula* and a Cinnabar; but the red was much lighter than in either of those species. The date was June 20th.

And that was not the only apparition which presented itself to me that year in that locality. Knowing that *Melitaea athalia* occurred on the fringes of Dartmoor I searched for it, unsuccessfully, in several woods where cow-wheat grew. Then one day—it was July 7th—right up on the tableland, in a bare, bleak, wind-swept spot where no cow-wheat grew and herbage was scanty among the granite crags, I came across a small colony of *dark brown* fritillaries which have left me wondering ever since. As is so often the case on that elevated ground it was blowing half a gale, and my eyesight being now so restricted by spectacles that any fast-flying insect passes out of my range of vision in a moment, I failed to catch one. They were the size of *M. athalia* but seemed to be the colour of a Ringlet and that they were fritillaries is beyond ques-

tion. Next year I saw and netted *M. athalia* in an Essex wood, and their colour when seen on the wing was as different from the Dartmoor insects as chalk is from cheese. Moreover these *athalia* were flying in a shady wood where one would expect them to look darker than they would in the open, and the Dartmoor insects were flying in the open sunshine. What were they?

PRACTICAL HINTS.

During the first three weeks of April *Xylocampa areola* should be looked for on tree-trunks, fence-posts and, in some places especially, farm gates and their posts. Females so taken, and fed, will readily lay eggs, which hatch in 11 days. The larvae prefer honeysuckle but will eat snowberry for a day or two.

Selenia tetralunaria is usually out about the middle of April. It sometimes rests by day low down on a large tree-trunk (*e.g.* sycamore, ash) and occasionally one finds it on a lamp-post or nearby telegraph-pole. But more often it is seen inside an alder or hazel bush, occasionally high up, its unmistakable outline, seen against the sky, serving to distinguish it from a dead leaf.

Females of *Selenia bilunaria* and *S. tetralunaria*, found in April, should be kept for eggs. But they must be watched on the evening of capture, and if they show signs of 'calling' should at once be placed in an assembling-cage out of doors.

Earophila badiata, on the wing from about the third week of March, is common in some years and then apparently absent for several. Search fences, early in the morning, where wild rose grows in profusion. Eggs are laid readily and the larvae can be reared on any kind of garden 'rambler' rose. Use dry peat for pupation.

Anticlea derivata, which feeds on honeysuckle as well as rose, is usually on the wing a month later than *E. badiata*. It is fond of resting in the morning on split-oak palings, usually where there is a good growth of the larval foodplants. At dusk it can be netted flitting along hedges.

From April 10th to the end of the month keep an eye on split-oak fences enclosing orchards. *Eupithecia insigniata* is probably more common and widespread than is supposed and we have found it more than once at rest under the top rail of such fences as well as at the overlap of a slat. It is not at all conspicuous, nor is it when it rests on the trunk of an old apple-tree, as it sometimes does.

Sometimes a group of birches will yield several *Nothopteryx carpinata* during the first fortnight of April. The moths rest, at various angles, on the trunk, from two to three feet above ground, and often take wing as one approaches. Have the net ready, for they sometimes fly up at once out of reach.

Lithina chlorosata (*petraria*) is often on the wing in mid-April. Although accounted a common moth it does not occur wherever bracken

(the larval foodplant) grows, and very few lepidopterists have seen the larva. Barrett mentions a pale straw-coloured form of the imago from Ranworth Fen and we once took, in Surrey, a handsome specimen that was light yellow flushed with pink.

Eupithecia abbreviata occurs on oak trunks in April. It is usually confined to a small area; therefore mark the spot and return in mid-June with your beating-tray.

As soon as privet hedges are in leaf they should be searched at night for young larvae of *Apeira syringaria*. When not feeding, the young larva swings about at the end of a silken strand, just like a spider, and is then of course easily found. This is only at night.

Bapta distinctata (*pictaria*) is perhaps more widespread in the south and east of England than is supposed. It should be sought with a lantern, at least an hour after dark, among blackthorns in full bloom—not in hedges but growing on open ground and at the edges of woods. After searching the blossoms for feeding moths stir the bush gently and net the moths that fly out. Late at night it comes freely to light.

Those who wish to take and breed *Panolis flammea* (*piniperda*) should sugar fir trunks for it during April. The emergence extends from the last week of March (even earlier in some years) throughout April until (in late years) almost mid-May. It is widely distributed and probably to be found in any heather-and-pine district.

NOTES AND OBSERVATIONS.

LITHOCOLLETIS MINING ALNUS AND ACER.—I have recently received from Dr. Dalibor Povolny and Dr. F. Gregor another of their Lithocolletis studies entitled: "Members of *Lithocolletis* Hb. mining *Alnus* and *Acer*". It appears in FOLIA ENTOMOLOGICA, XIII, 1950, pp. 129-151. While the text is of course in the Czech language, the authors have given a very full summary in English. The paper contains four fine coloured plates illustrating fourteen species and subspecies by large figures; there is an uncoloured plate illustrative of wing pattern schemes, and six pages giving seventy-eight figures of genitalia dissections.

This paper forms one of a series of studies, mainly of the Czechoslovak species, but including also related species from Central Europe, in which not only the biology and systematics of the species are considered, but also an attempt is made to study the relationship between food-plant and phylogeny, and also to assess how members of the various morphological groups into which the family is divided may come to feed on the same plant, as in the case of *Quercus*, where three or four distinct groups meet, whereas in the case of the Roseaceae-feeding species, with the exception of *L. corylifoliella* Hw., they all belong to the same group. If continued, these studies should form a very valuable work when collected together.

The first portion of the paper deals with the *Alnus*-feeding species, and deals firstly with the species of the group whose wing-pattern is mainly composed of transverse bars, namely *L. froelichiella* Z., *L. klee-*

manella Fab., and *L. stettinensis* Nic, as species attached to the various species of *Alnus* indiscriminately, adding *L. tristrigella* Haw. as a species sometimes found on Alder although its normal foodplant is *Ulmus*; this is interesting in that it belongs to the same morphological group as the first three. Of the group exhibiting single costal strigulae, *L. strigulatella* Hw. is mentioned as being peculiar to *Alnus incana* L. and the three forms of *L. alnetella* Z. (=*alnifoliella* Dup.), *hauderiella* Rbl., *alpina* Frey, and the species vera. *L. strigulatella* is pointed out to be morphologically more primitive than the *alnetella* complex. Here I would interpose a personal note to the effect that last summer in the Chamonix district, the *Alnus incana* was indeed loaded with the mines of this species; some leaves bore as many as seven mines while there were few leaves which had not even a single mine. The insects were, however, heavily parasitized, and out of about 150 mines only one imago emerged.

The species mining *Acer* follow, and the two species native to Czechoslovakia, *L. acernella* Z. (=*geniculella* Rag.) and *L. acerifoliella* Z. (=*sylvella* Hw.), are mentioned first. *L. joannisi* Le March. is sunk by the authors in *L. acerifoliella* on the ground that if the foodplant be unknown, there is no morphological distinction between them; *L. acerifoliella* is considered by some to be peculiar to *Acer campestris* while the species mining *Acer platanoides* was considered to be *L. joannisi*, which is here termed a subspecies. The authors point out that Lithocolletis bred from mines in *Acer palmatum* Thb. from Brno, and in *Acer tartaricum* L. from South Slovakia are both identified as *L. acerifoliella*.

The authors have also made a comparative study of two other species in this wing-pattern group; *L. fiumella* Kr. and *L. ochreojunctella* Klim., with the result that the latter has been sunk in the former. The fourth Central European species, *L. monspessulanella* Fuchs., peculiar to *Acer monspessulanum* L. and localized in the Rhineland, belongs to an entirely different wing-pattern group, namely the *L. quercifoliella* Z. group.

Finally, mention is made of *L. helianthemella* H.-S. which bears some wing-pattern resemblance to the *L. acerifoliella* group, but morphologically reveals itself to stand alone in the family, and the authors consider it to be a tertiary relict from Central Europe: as the name indicates, it mines *Helianthemum*.

Keys, unfortunately only in the Czech language, are given for the *Alnus*- and for the *Acer*-feeding species, besides a bibliography and explanations of the plates.—S. N. A. JACOBS.

A GYNANDROMORPH OF MELANTHIA PROCELLATA SCHIFF.—Amongst a long series of specimens in the Rothschild collection I found a gynandromorph labelled "Lewes, 1908." The left side is ♂, ab. *signata* Lempke, and the right side ♀, normal. The left side is considerably smaller than the right and has numerous fine black transverse lines on the forewing; on the right side there are very few lines, but the species is sexually dimorphic and ab. *signata* is confined to the male sex. Genetically there is probably no difference on the two sides. The species is not in the list of palaearctic gynandromorphs compiled by Oscar Schultz, and I have seen no record since his final list was published in 1911.—E. A. COCKAYNE, 8 High Street, Tring, Herts.

CHLOROSIS AS A NAME-BASIS.—Our old friend *Panagra petraria* Hübner is now disguised as *Lithina chlorosata* Scopoli. The original description reads "albida, seu colore eodem fere ut vultus in Cachexia virginea." Cachexia virginea or Morbus virginea is the form of anaemia usually called chlorosis, the green sickness, which was formerly common in adolescent girls, but was rarely seen after the first world war. The word is derived from χλωρός green with the secondary meaning pale, but there is no trace of green in the ground colour of *chlorosata*, even in bred specimens, and it is difficult to understand why Scopoli gave it this name. He was a Doctor of Medicine and that explains why he compared the colour of the moth with that of the complexion in chlorosis, a greenish pallor, but he must have forgotten that few of his readers were likely to be medical men and that the comparison would not be very helpful.—E. A. COCKAYNE, 8 High Street, Tring, Herts.

THE COLOUR FORMS OF COLIAS CROCEUS AB. HELICE HÜBNER.—A certain amount of confusion exists regarding the named forms of *Colias croceus* ab. *helice* so that the following may be of interest. The ab. *pallida* of Tutt, which seems to be the chief bone of contention, is unfortunately only a synonym of *helice*. Tutt judged *helice* to be a pale yellow form, no doubt from the particular copies of Hübner's work he saw and which vary to some extent, and so named the creamy-white one "*pallida*." The original figure by Hübner, now in the British Museum, shows it to be also creamy-white so that Tutt's *pallida* falls and may not be used for other forms.

Many collectors use "*pallida*" for specimens of *helice* which have a white discoidal spot on the upperside of the hindwings instead of an orange one. This is incorrect; they are ab. *albissima* Ragusa.

The name for the yellow-tinted specimens is ab. *helicina* Oberthür. These colour forms are therefore:—

ab. *helice* Hübner. Eur. Schmett., 1, fig. 440, 441, 1799.
=*pallida* Tutt. British Butterflies, p. 259, 1896.
With the ground colour creamy-white.

ab. *helicina* Oberthür. Bull. Soc. Ent. France, p. 145, 1880.
With the ground colour pale yellow.

ab. *aubuissoni* Caradja. Iris, 6, p. 171, 1893.
With the ground colour pale orange, between the colour of *helice* and typical *croceus*.

ab. *alba* Lempke. Lambillionea, 33, p. 39, 1933.
With the ground colour dead white, with no trace of creaminess.

ab. *albissima* Ragusa. Elenco dei Lep. Sicil., p. 20, 1916.
=*oberthürii* Braun. Amat. Pap., 1:2, p. 177, 1923.
Specimens of *helice* form which show a white discoidal spot on the upperside of the hindwing, instead of orange.

—A. L. GOODSON, 26 Park Road, Tring, Herts.

PUPAE OF HEODES PHLAEAS L. IN WINTER.—The late summer broods of the Small Copper were scanty in numbers in 1950, and few specimens were seen during September. However, on 1st October a sheltered hollow was found where one or more *phlaeas* females had been carrying on their normal duties. A dozen ova and almost as many first instar larvae were obtained from small plants of Sheep's Sorrel (*Rumex acetosella*).

Incidentally, how often are *phlaeas* larvae found on any other plants of the Dock group? Twice only have I found larvae on Common Sorrel (*R. acetosa*), and never yet on Broad-leaved Dock (*R. obtusifolius*). *Acetosella* is in this district the true foodplant, and not only are *phlaeas* females particular about the species but also about the individual plants. They seem, especially in autumn, to prefer small seedlings, and often isolated little plants are chosen as hosts for several eggs, whilst a few yards away luscious clumps of foodplant are ignored. In captivity, *phlaeas* larvae seem to care little which *Rumex* food is supplied to them, and personally I find *acetosa* to be most convenient. When Spring comes a *phlaeas* larva can eat a tiny sorrel plant as fast as it can grow, and I have often found larvae eating the stalks of such plants, the only food left.

To return to my ova. They quickly hatched when brought indoors, and the larvae began to feed with avidity. Before the end of October I had a dozen fine pupae. As an experiment these were kept exposed to outdoor temperatures. November was very wet and generally cold. December brought heavy snow, and cold weather with much frost continued to the end of the year. On 18th December several of the pupae were showing white opalescence on the wing-cases and were brought into a warm place indoors. In three days the first emergence occurred, and this was quickly followed by others. From six pupae six imagines were obtained, but only three of these were free from crippling. One of the specimens, a female, and fortunately not crippled, was a very nice variety having bright copper streaks along the veins of the hindwings. Emerging on 23rd December, this specimen was a very acceptable Christmas present! The remaining pupae, left in the cold, have since died.—T. D. FEARNEHOUGH, 25 Ramsey Road, Sheffield, 10.

VANESSA ATALANTA L. IN MARCH.—On the 4th March, while strolling through a beechwood at Mickleham in Surrey with Mr W. H. Spreadbury, we were surprised to see a specimen of the Red Admiral butterfly on the wing.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey.

AGLAIS URTICAE IN FLEET STREET.—During one of the short sunny intervals on March 13th, about 12.30, I was walking past " Prince Henry's Room " in Fleet Street when I saw a specimen of *Aglais urticae* L. flying a few feet in front of me. It seemed a strange place to see this insect. In connection with the Vanessa tribe many of the country folk call them " Spanards," a corruption of " Spaniards " I suppose; but can any reader say why they should be designated by this name?—LEONARD TATCHELL, Rockleigh Cottage, Swanage, 15th March 1951.

[*A. urticae* not infrequently haunts the flowerbeds in the Temple gardens, a short distance from Fleet Street. Many years ago there was a discussion in *The Times* on the country names of the Red Admiral. It was suggested, if we remember rightly, that the Devon and Cornish appellation of " Spaniard " was derived from the black scarlet-lined cloaks of Spanish officers brought ashore from the wreck of an Armada vessel. " The Alderman " is another country name for *V. atalanta*.—ED.]

REARING LARVAE OF AEGERIA SPHECIFORMIS SCHIFF.—Of several batches of larvae of *A. spheciformis* collected last Spring and kept under

a variety of conditions the following were most successful. The cut sticks of Alder containing the larvae were placed upright in some 4" of wet sand in a rectangular glass " battery jar " and covered with a sheet of glass. The jar was placed in a sun-heated conservatory which at times became very hot. Although considerable condensation occurred, care was taken to keep the sand wet. The adult insects emerged without a single casualty, in one case four from a single small stick barely 3" in circumference. It is perhaps interesting to note that, in spite of the " forcing " conditions, the insects emerged only a little earlier than those from sticks kept in much cooler conditions.—A. C. R. Redgrave, 14a The Broadway, Portswood, Southampton.

Occurrence of Mompha nodicolella Fuchs in Surrey.—It is pleasing to be able to confirm the occurrence of this species in Britain. The only previous British record was of three specimens taken in June 1915, by Mr. Buxton at Westerham, Kent.

While out with the South London Entomological Society at Oxshott, Surrey, on 2nd September 1950 I was lucky enough to find a gall on rosebay (*Epilobium angustifolium*) which could be caused only by the larva of this rare species. With the help of other members about twenty galls were found, all on a few plants growing within a yard or two of the first one found, and further subsequent searchings in the vicinity failed to bring any more to light.

A great disappointment was the fact that all the galls opened were untenanted by larvae, although frass present showed where the late occupants had been feeding. With one exception there was a small hole in each gall and it was then realised that, unlike *Mompha decorella* Steph. which makes a somewhat similar gall on *Epilobium montanum*, the larva of *nodicolella* leaves its feeding place to pupate. The one gall found with no visible hole was placed in a small glass tube with a piece of muslin over the mouth secured in place with a rubber band. Two days later I noticed a neat hole in this gall, but a careful search failed to locate any larva, either spun up in the leaves or in the stem.

At this stage I began to doubt if my original examination had been as thorough as had been intended; but on scrutinising the hole with a lens it was noticed that it was very clear-cut and fresh looking, while the others had a distinct rim caused by the galls growing again after the larvae had emerged. However, the larva had disappeared, and I could only hope to be more successful next season.

About a fortnight later, quite by chance, I found a small pupa under a leaf in a rubbish tin kept adjacent to my breeding jars. This pupa was placed in a tin for observation, but at the time I did not give it a thought that this could have been the missing *nodicolella*. However, I am glad to say that there emerged from it on 5th October a very dark *Mompha*, since identified as *nodicolella*.

This specimen bore little resemblance to *M. subbistrigella*, a species which is said to be difficult to distinguish from *nodicolella*. This was probably due to the fact of it having been bred, and it is very desirable to get further specimens for comparison.

The galls were mostly in the flowering portion of the stem, and all were in the terminal shoots. Late July and August are the months to look for the galls on the rosebay, and allowance must be made for the fact that the larvae leave the feeding place when full fed. It is also

said to feed in the roots, and it would be interesting to verify this if correct. To the writer this seems very improbable.

The single bred specimen is now in the British Museum collection.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

FEEDING HABITS OF THE LARVAE OF STAUROPOS FAGI L.—According to the textbooks the Lobster Moth larva for its first meal devours only the eggshell from which it has emerged. It is also stated by South that it is not until after moulting the first skin that it eats any other food. In 1944, however, I had a young *fagi* larva which proved to be the exception to the rule in this matter of feeding, and started its life on quite independent lines.

On the 15th June of that year I was searching some birch saplings and was fortunate enough to find a single ovum of this species. The little larva hatched out ten days later (25th June), having eaten away just sufficient of the eggshell to enable it to escape to the outside world. From then onwards the shell was untouched and, as may well be understood, I began to fear the worst. I need not have worried, for on the 28th the larva fed a little on birch, as it again did on the 29th, making its first change of skin on the following day. No complications arose and I bred out a female moth in May 1945.

At a Meeting of the South London Entomological and Natural History Society on the 23rd May 1940, Mr H. A. W. Harris recorded somewhat similar behaviour on the part of members of a brood which he had under observation. It is possible, therefore, that the tendency for newly-hatched larvae of this species to depart from their generally recognized initial feeding habit may be more widespread than is supposed. It would be interesting to hear the experience of others on this point.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey.

[Mr P. B. M. Allan, who bred *S. fagi* for several consecutive years, writes:—" Mr Finnigan is right in his surmise that departure from the eggshell-eating habit of *S. fagi* is widespread. Moreover, the first moult is sometimes on the *third* day after eclosion. For instance, of twelve larvae which emerged between 6 a.m. and 7.30 a.m. on 19th June four moulted on 22nd June, having eaten nothing of their eggshells beyond the amount ingested in the process of eclosion. The following day they began to eat hawthorn. In most broods which I have reared there have been some of these ' precocious ' larvae. If twelve eggs are placed in a three-inch larva-tin the emergent larvae, which are very active, disturb each other to such an extent that often hardly any of the eggshells are eaten. Possibly the eggshell contains an essential principle, and since the act of eclosion necessitates the ingestion of some of it a subsequent meal off it is not absolutely necessary."]

" OTHER " VISITORS TO SUGAR.—During the past six years an old pear-tree in my garden has been daubed with sugar on most favourable nights in the hope of meeting with *zollikoferi*, *vitellina*, *lunaris*, and in order to offset these disappointments some interest has been taken in the welcome (and unwelcome) visitors (other than Lepidoptera) which have come to the scene *after dark*. It is hoped that the following notes may " start something."

MAMMALIA. Hedgehog: *Erinaceus e. europaeus.* On two occasions a sow has come along with her family, probably as predators, or it may be just incidentally. Field Mouse: *Apodemus s. sylvaticus.* Once seen to take a moth low down. Noctule Bat: *Nyctalus noctula.* Far too frequent!

AVES. Little Owl: *Athene noctua vidalii* Brehm. Occasionally.

AMPHIBIA. Common Toad: *Bufo bufo.* Will take insects low down soon after dark.

ANNELIDA. Gilt-tailed Worm: *Dendrobaena rubida.* Sometimes climbs the tree in wet weather, but this is probably incidental.

MOLLUSCA. *Clausilia rugosa* Drap.; *Theba cantiana* (Mont.); *Cepaea hortensis* (Mull.); *Helix aspersa* Mull.; *Limax maximus* L. All these appear to imbibe the sweetmeat—the last two most certainly do, and are frequent visitors.

ARACHNIDA. *Ciniflo ferox* Walck.; *Aranea sexpunctata* L.; *Zygiella litterata* Oliv.; *Z. atrica* C. L. Koch; *Oligolophus* sp. (probably *agrestis*).

CRUSTACEA. *Oniscus asellus* L. is a pest which arrives in such numbers as completely to cover the sugar-patch. *Philoscia muscorum* Scop.; *Porcellio scaber* Latr.

MYRIAPODA. *Julus albipes*; *Geophilus linearis*; *Lithobius tricuspis.* Lithobius comes to catch moths, and is an adept. It will walk away with moths the size of *Amathes xanthographa.*

INSECTA—ORTHOPTERA. *Philidoptera griseoaptera* (Deg.); *Tettigonia viridissima* L.

DERMAPTERA. *Forficula auricularia* L.

HEMIPTERA. *Philaenus leucophthalmus* L.; *Palomena prasina* (L.); *Pentatoma rufipes* L.

COLEOPTERA. *Dorcus parallelipipedus* (L.); *Sinodendron cylindricum* (L.).

DIPTERA. *Mesembrina meridiana* (L.); *Calliphora erythrocephala* (Meig.). I suspect these two are simply lured from their resting-places on the bark of the tree by the scent. *Tipula paludosa* Meig.

HYMENOPTERA. *Vespa crabro* L.; *Vespula sylvestris* (Scop.). A female of this species came very late at night.—A. H. TURNER, Bickenhall, Somerset.

COLLECTING NOTES.

NONAGRIA SPARGANII SCHIFF AND N. TYPHAE THUNB. IN THE NEW FOREST.—While examining stems of *Typha* for pupae of *N. tpyhae* in a very restricted locality near Brockenhurst I was struck by the fact that some of the pupae were head upwards in the stems and somewhat smaller in size. When the moths emerged these proved to be *N. sparganii.* Unfortunately, at the time I found them I was not acquainted with the reputed feeding habits of this species and I made no attempt to identify the species of *Typha* from which I took them. Of 17 specimens of *N. typhae* bred from this locality three were of the dark form (v. *fraterna* Treit) and most of the remainder distinctly darker than the type.—A. C. R. REDGRAVE, 14a The Broadway, Portswood, Southampton.

SCARCITY OF ARGYNNIS PAPHIA L. IN THE NEW FOREST IN 1950.—In July 1947 I found a small locality in a much frequented part of the New Forest where *A. paphia* was abundant and v. *valezina* nearly as common as the type. I have visited this spot each year since and found *paphia* plentiful until last year, when I only saw three. I have heard that this butterfly in common with most summer species was exceedingly scarce in the Forest in 1950 and wonder if this has been so in other parts of the country.—A. C. R. REDGRAVE, 14a The Broadway, Portswood, Southampton.

EARLY SPRING MOTHS AT WESTON-SUPER-MARE.—After an unusually cold December the months of January and February have been mild and wet on the whole with only a few cold days. The following is a list of some common early Spring species with the dates set against them on which I first observed them in the wild state:—

Theria rupicapraria, 15th January; *Phigalia pedaria*, 2nd February; *Alsophila aescularia*, 10th February; *Erannis leucophaearia*, 24th February; *E. marginaria*, 25th February; *Ectropis bistortata*, 4th March; *Earophila badiata*, 5th March.

It will be observed that the above dates with one exception are all on the early side, though they are, in fact, by no means as early as some dates that I have for the first appearance of these moths in some past years. The exception is, of course, *Erannis leucophaearia*, the 24th February being a late date for observing it for the first time; but I think in all probability this species had been out for some while before I noticed it.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare, 7th March 1951.

NOTES ON LEPIDOPTERA IN THE TETBURY (GLOS.) AREA, 1950.—I imagine there have been few occasions in our history when the contrast in weather between two consecutive summers was so sharp as that between 1949 and 1950. The latter, so far as the Gloucestershire area was concerned, was fairly good up to the end of June, particularly at nights, when I had some successful collecting at flowers; but for the rest of the year rainy dull weather became literally the order of the day.

Immigrant butterflies were scarce and I saw only a single *Colias croceus* on 10th June. *Vanessa cardui* appeared on 11th May, when they were flying as late as 8.0 p.m. (B.S.T.), but this was the last I saw of the species in this area. I saw several *V. cardui* and *V. atalanta* on the Yorkshire coast in mid-August.

On 22nd May I was interested to note a *Celastrina argiolus* deposit an egg on a flower-bud of Dogwood (*Cornus sanguinea*).

It is generally recorded that with the exception of bugle, flowers have little attraction for *Hamearis lucina*. However, this year I saw the species feeding at flowers of wild strawberry and hawthorn, and wood spurge (*Euphorbia amygdaloides*) seems to be a particularly strong attraction. The flower which seems to appeal to the species *Strymonidia w-album* in this area is the rosebay (*Epilobium angustifolium*).

I reared a few *Limenitis camilla* this year and I was interested to find one larva parasitized. A cluster of small yellow cocoons appeared round the larval remains, similar to that familiarly seen in *Pieris brassicae*, and I sent this to Mr. Claude Morley for identification. He kindly informed me that the species is *Apanteles ganopterygis* Marsh.

P. J. Burton bred the same species in June of this year from the same host in Suffolk. All ten cocoons from my specimen and also from all of Mr. Burton's produced females. Mr. Morley informs me that the male is still unknown!

Valerian in my garden attracted some uncommon moths this year including *Cucullia umbratica*, *Deilephila porcellus*, *Plusia pulchrina*, *P. iota*, *Polia nitens*, *Rhyacia simulans*, *Heliophobus anceps*, and *Hadena serena*. Later, in September at buddleia I took *Plusia festucae* (my first in this district) and *Peridroma porphyrea*. Also, at ivy, I took a few *Aporophyla lutulenta* on 18th September and a single *Lithophane semibrunnea* on 13th October. At sugar on 5th July I took *Polia nebulosa*.

In June one of the specimens of *P. nitens* which I took at valerian gave me a large batch of ova. I fed the larvae on a mixed diet of dandelion and lettuce, though they preferred the latter. In late September they ceased to feed and settled down to hibernate. They have reappeared this year and are now (March 5th) feeding again on dandelion, preferring the roots to the leaves. The fact that hibernation was in the larval stage fully supports what Mr. A. V. Hedges says of the species (*Proc. and Trans. S. Lond. Ent. and Nat. Hist. Soc.*, 1947-48, p. 75).

In *The Entomologist* (**83**: 28) I reported the taking of a female *Apatele tridens* in this area and the subsequent rearing of 150 specimens to the pupal stage. Most of these produced moths this year and after setting a large series I am quite unable to note any feature which consistently differs from *A. psi*. Most of them were certainly darker than any *A. psi* I have ever seen, but not all of them. I had looked forward to putting to the test the suggestion made by Mr. A. G. B. Russell that in *A. tridens* the joint between femur and tibia in the forelegs is closely locked (*The Entomologist*, **77**: 163). This I found to be true in a large majority of my specimens, but in a few the joints appeared to be quite free.—J. Newton, 11 Oxleaze Close, Tetbury, Glos., 5th March 1951.

Nola albula Hubn. and Anania nubilalis Hubn. in Hampshire.—A single specimen each of *N. albula* and *A. nubilalis* were taken last year at mercury vapour light in a semi-built up area at Houndsdown, between Southampton and the New Forest.—A. C. R. Redgrave, 14a The Broadway, Portswood, Southampton.

Notes from the Purbeck District.—It may be of interest to lepidopterists visiting Dorset to know that *Augiades* (*Hesperia*) *comma* L. has been largely on the increase during the last three years and appears to be well established on the chalk ridge near the coast at Swanage, and is spreading westwards towards Corfe Castle. Previously, so far as I know, Hodd Hill, by the charming village of Stourpaine, was its great stronghold in the county.

Adopoea (*Thymelicus*) *actaeon* Esp. is greatly extending its range, and since 1948 I have observed it in a number of fresh places, even quite near the town (Swanage). By the cliff edge near my cottage *Ononis arvensis* grows in profusion and during this past summer was the haunt of numbers of "Lulworths," and a pleasing sight it was to watch them displaying on and around the blossoms.

Limenitis sibylla (*camilla*) L. is holding its own well, and I discovered three new localities in 1950.

Scores of *Pyrameis* (*Vanessa*) *atalanta* L. hibernated here last autumn, but up to the present I have only seen one flying in the garden, so different from the early spring of 1950 when they were common and some spent the winter in my unheated garage and came through successfully.—LEONARD TATCHELL, Rockleigh Cottage, Swanage, 12th March 1951.

ORTHOPTERA, &c.

THE COLORATION OF GRASSHOPPERS.—In the Biological Station at Baltaliman on the Bosphorus, near Istanbul, Dr Saadet Ergene* has been conducting a series of careful experiments on the factors controlling the change of colour in grasshoppers. The material used was *Acrida turrita*, of the form defined by Dirsh as *A. mediterranea bosphorica*. After breeding large quantities of larvae and keeping imagines in cages of different colours, with green food and dried food, she describes her results in detail, illustrated with statistics. Dr Ergene finds that the great majority of the larvae and imagines are capable of selecting their background, choosing the most favourable for concealment: that there is intimate connection between colour-change and moulting, that yellow larvae fed on green grass in green environment become green, but remain yellow if kept in yellow environment, the change occurring upon change of skin: similarly yellow ones turn green: individuals can thus change colour repeatedly, according to background: the colour of the food has no influence upon the colour of the insect: dryness and moisture had no influence upon the changes: the reaction occurs through the eyes, as specimens with lacquered eyes do not change: imagines on variegated background do not change.—M. BURR.

MANTIDS AWARE OF THEIR BACKGROUND.—In Angola I found a small wingless Mantid that was an extraordinary case of assimilation to its background. It lived upon thick lichens, and the marbled greenish-grey and black colouring was identical with that of the lichens, while the lobes of the body, head and limbs produced the effect of their structure. When standing upon lichen the insect was virtually invisible and remained motionless. But when placed on white sand, it showed every sign of agitation and scuttled about as though hunting for a piece of lichen, upon which it sat motionless directly I presented it with a suitable piece. It appears to be a new species of a new genus, but as the unique specimen is immature, it cannot be described.—M. BURR.

THE COMMON EARWIG DOUBLE-BROODED.—Mr B. K. Behura has published a note in *Nature*, vol. 166, p. 74, 1950, that *Forficula auricularia* is double-brooded, laying a second batch of eggs in the spring. This has not been recorded before in Europe, but has been observed in America, where the species has been introduced and established itself in certain localities.—M. BURR.

*Untersuchung über Farbenpassung und Farbwechsel bei *Acrida turrita*, von Saadat Ergene. (*Zeitschr. f. vergl. Physiologie*, Bd. 32, pp. 530-551 (1950).)

MITE INFESTATION OF COMMON EARWIG.—Mr Behura also has a note in vol. 165 of *Nature*, p. 1025 (1950), recording heavy infestation of *F. auricularia* by a Tyroglyphoid mite, *Histiostoma polypori* (Oud.), the third valid species of the genus to be recorded from England. Infestation by the hypopi was so heavy round the region of the head that feeding and locomotion by the earwig were impeded.—M. BURR.

DIPTERA

DIPTERA COLLECTED IN 1950.

By E. C. M. D'ASSIS-FONSECA.

The year 1950, from an entomological standpoint, is considered to have been one of the worst for many years, so that a record of the less common species of Diptera which I took between February and September, together with notes relating to their capture, may be of interest. In spite of the generally adverse weather conditions, it was usually possible to find sheltered habitats where, even though there was no sun and more often than not it was actually raining, the temperature was not greatly below the normal for the time of year.

Collecting was mainly confined to the West Country (Gloucestershire and Somerset), but occasional visits further afield, including three weeks at Deal (E. Kent) in August, produced a rather more varied catch than might otherwise have been the case. In the west of England at least the season started auspiciously with warm, sunny weather about the middle of February and during most of March.

The first flies were collected on February 18th when a few specimens of the tiny Dolichopodid, *Achalcus cinereus* Walk., were swept from a small boggy reed-bed at Coombe Dingle, near Bristol (Glos.). Further odd specimens of this species were swept from the same patch at different times up to April 1st.

Between March 11th and 25th I found two species of *Lispocephala* quite plentiful in Blaise Woods, a stretch of woodland adjacent to Coombe Dingle—*L. brachialis* Rond. and another species very like *L. alma* Mg. *L. brachialis*, easily recognised by its entirely red abdomen, was found resting in small groups of three or four on the thinner branches overhanging a stream. The second species had been taken in odd specimens in previous years in the same woods, but this time the males at least were quite abundant, mostly settling on the smooth trunk of a large sycamore. The females, much less plentiful, were without exception taken on the rough bole of a Box tree growing a few yards from the sycamore. The species runs down to *Lispocephala alma* Mg. in the keys of Karl, Séguy and Ringdahl and had been placed under this name in my collection. Mr H. W. Andrews, however, to whom I sent specimens, expressed a doubt as to the correctness of this identification owing to the very indistinct clouding of the cross-veins, a doubt which was confirmed in February this year (1951) when Mr J. E. Collin, after examining the male genitalia, wrote to me that the specimens did not belong to *alma* Mg. but to a closely allied species, possibly as yet un-

described. Other specimens of the same species, taken in Cheshire in April, 1942, by Mr H. Britten, had previously been examined by Mr Collin.

Females of *Syntormon macula* Par. were as numerous as in previous years along the almost dry stream bed in Blaise Woods, the first specimens being seen on March 19th and the last on May 5th. In the same stream bed, in the woods and further downstream in Coombe Dingle, both sexes of *Prosalpia pilitarsis* Stein were seen in some numbers between April 30th and May 12th, sitting on the light-coloured, dry stones. *P. billbergi* Zett., usually fairly common in this district, was not seen in its usual haunts, but on May 13th was found in fair numbers along a grassy path in Leigh Woods (Som.), together with considerable numbers of males of *Cynomyia mortuorum* L.—a species hitherto seen only in odd specimens. On the same day, in Leigh Woods, males of *Pegomyia interruptella* Zett. were seen hovering, or "cruising," much after the manner of *Fannia* species, in the deep shade beneath a huge Yew tree. The upper branches of the tree descended almost to the ground, forming a kind of canopy beneath which it was so dark that only brief glimpses of the flies were caught as they crossed the few shafts of light which penetrated to the interior. It was my first experience of a *Pegomyia* behaving in this manner, but a few days later similar behaviour was observed in the same species underneath a large willow at Filton (Glos.). *Pegomyia rufina* Fall. and *P. dentiens* Pand. were also taken in Leigh Woods in May. The latter species, although not included by Kloet & Hincks, was recorded as British by Mr J. E. Collin in the *Victoria County History*, Vol. I, Cambridgeshire, 1938, p. 204.

The Easter holiday (April 7th-11th, inclusive) was spent in London, chiefly with the object of visiting Bookham Common (Surrey) in the hope of finding the rare Tachinid *Meriania puparum* F. In spite of the worst Easter weather for many years, I took a nice series of males and a single female of *Meriania*, largely thanks to my friends Messrs C. N. Colyer, L. Parmenter and C. O. Hammond, whose knowledge of the locality and previous experience of the species were invaluable. It seems that my female, which was not actually seen until caught but appeared in the net after capturing a male from some long grass, is only the third specimen of this sex recorded for Britain, the first two falling to Messrs Parmenter and Hammond (Parmenter, 1949, *Lond. Nat.*, p. 128). The only other species of interest taken at Bookham was a single female of *Palloptera neutra* Pand., recently recorded as British by Parmenter (*ibid.*, p. 120).

On April 29th, when visiting Clevedon (Som.) on a rainy Sunday, I found the striking little Muscid, *Dialyta atriceps* Lw., abundant in a rush-grown, marshy patch. The flies were resting on the rush stems about a foot above the water and, in continuous and heavy rain, a good long series of each sex was taken. This species, which is seldom recorded, appears to be extremely local, but is usually abundant where it occurs.

As might be expected with so little sunshine, Syrphidae were much less in evidence than usual. A few species, however, were taken which are worth mentioning. On April 16th and 22nd several males of a rather large species of *Brachyopa* were noticed hovering near and settling on a large white stone close to the stream in Blaise Woods,

and the three specimens captured appeared to be *B. pilosa* Coll. This species from its description, however, seemed to resemble *B. bicolor* Fall., and I therefore sent the specimens to Mr Collin, who confirmed them as *pilosa* and also very kindly presented me with two pairs of *bicolor*. Comparison of the two species shows the differences very clearly, the much longer aristal hairs and the all-yellow scutellum of *pilosa* making it easily distinguishable. This Gloucestershire record considerably extends the range of the species which was hitherto known only from four males taken at Lyndhurst (Hants.) (Collin, 1939 *Ent. mon. Mag.*, **75**: 107). Males of *Sphegina clunipes* Fall. were also taken in Blaise Woods on May 12th. These were seen hovering a few inches away from the terminal leaves of a hazel branch overhanging a part of the stream where the shade was particularly dense. It was so dark at this spot that the capture of these small motionless insects was difficult. I re-visited the same spot on several other occasions but without success.

On May 30th, when collecting in Leigh Woods in company with Mr J. Cowley, I caught a male of *Brachypalpus bimaculatus* Macq. which was flying close to the base of a gnarled oak. This catch prompted us to examine all the large trees in the vicinity, resulting in the capture of five more males, three to Mr Cowley and two more to myself. One of these was taken at the same gnarled oak and the other four were flying round or settled near to the bases of giant yew trees, now almost the only large trees remaining in what was once a fine oak wood.

During May and beginning of June males of *Phaonia cincta* Zett. and both sexes of *P. trimaculata* Bché. were discovered visiting sap exuded from a pair of wych-elms at Coombe Dingle. Amongst the *P. trimaculata* taken were several specimens with almost entirely black legs and darkened scutellum. This dark form, which I had tentatively placed under *trimaculata*, is now recognised by Ringdahl (*Ent. Tidsk.*, 1945, **66**: 4), having been earlier described by him under the name of *P. servaeformis*.

On June 11th Mr Cowley and I had a very successful day's collecting at Berrow (Som.). The golf course, sand-hills, salt-marsh and muddy creeks at the lower edge of the marsh provided a rich variety of habitats, and during a day of exceptionally good weather we took the following species: *Oxycera trilineata* F., *Macrodolichopus diadema* Hal., *Hydrophorus litoreus* Fall., *H. viridis* Mg., *H. praecox* Lehm., *H. bipunctatus* Lehm., *Orthoceratium lacustre* Scop., *Thinophilus flavipalpis* Zett., *T. ruficornis* Hal., *Porphyrops consobrina* Zett., *Melieria crassipennis* F., *Anacampta urticae* L.—all these from the salt-marsh. A few specimens of both sexes of *Vanoyia tenuicornis* Macq. were also swept from the vegetation on the upper fringe of the marsh, and towards late afternoon Mr Cowley noticed the males hovering in small clouds 8 or 10 inches above some bramble bushes at the back of the sandhills. In the sandhills themselves, on which sea-spurge (*Euphorbia paralias* L.) grew abundantly, we found *Phthiria pulicaria* Mikán, *Thereva annulata* F., *Scaeva pyrastri* var. *unicolor* Curt., *Tephrochlaena oraria* Coll., *Chaetomus confusus* Wahlg., *Leria dupliciseta* Strob., *Xanthocanace ranula* Lw., *Chamaemyia flavipalpis* Hal., *C. juncorum* Fall., *Leucopis griseola* Fall., *Oedoparea buccata* Fall., *Tethina grisea* Fall., *Wagneria carbonaria* Panz., *Sarcophila latifrons* Fall., *Sphixpata conica* Fall. and *Helina*

protuberans Zett. The presence of *S. pyrastri* var. *unicolor* in numbers would suggest that an abnormally wet year is favourable to this melanic form. This is further borne out by the fact that later, in August, when on the road to Deal, I found *S. pyrastri* abundant on a great patch of wild parsnip (*Pastinaca sativa* L.) on the Hog's Back (Surrey), the black var. being more numerous than normal females!

On June 24th I again joined Mr Cowley on a visit to the peat moors at Sharpham (Som.). Abnormal rains had caused a good deal of flooding, and the day being very overcast we were not likely to see such species as *Odontomyia argentata* F. or *Microdon mutabilis* L., both of which had been taken at Sharpham in the previous year. In the dykes, or 'rhines' as these ditches are called locally, both sexes of *Dichaeta caudata* Fall. were quite abundant, accompanied less numerously by *Ochthera mantis* Deg. and occasional specimens of *Dolichopus picipes* Mg., *D. lepidus* Staeg., and, in greater numbers, the striking, steel-blue *Gymnopternus chalybeus* Wied. with its blackish wings. Rain had been threatening for some while and by the time we had located the habitat of *Diaphorus oculatus* Fall., it was actually raining. In spite of these uncomfortable conditions a good series of each sex of *D. oculatus* was obtained, the flies resting on the upper surface of the leaves of young alder bushes. It was necessary to retire to shelter from time to time to wring out the soaking nets! An interesting Muscid which I took for the first time on the same day was *Pseudocoenosia longicauda* Zett.

The holiday at Deal (E. Kent), from a collector's point of view, started very encouragingly with the capture, on August 2nd, of two fine females of *Volucella zonaria* Poda. These were taken on *Heracleum* in a sheltered lane near the village of Sholden, about two miles north of Deal. Later, on August 8th, an exploratory visit to the same lane led to the discovery of a *zonaria* colony in a private but uninhabited estate on the outskirts of Sholden, and on this occasion twelve more of these fine insects were taken, including one male. The females were found to be extremely 'tame' and, although they appeared to avoid all heads of *Heracleum* which were not well concealed by other vegetation, it was possible to examine them quite closely before capture. By this means only those specimens which appeared quite perfect were taken, a large proportion of those seen already showing signs of raggedness. Both sexes of *V. inanis* L. were even more plentiful than *zonaria*.

In the Sholden district, also, a small patch of common chamomile (*Anthemis nobilis* L.) was attracting large numbers of the curious little Tachinid *Weberia pseudofunesta* Villen. Males predominated but several females were found amongst the catch, the first I had seen of this sex.

The weather in East Kent, although probably better than in most parts of the south, was not always conducive to collecting, the frequent cold winds keeping the temperature rather below the normal for August. This did not, however, appear to discourage the Diptera and, as I have described elsewhere (*Journ. Soc. Brit. Ent.*, **3**: (5), 246-7), rare or uncommon Tachinids such as *Gonia capitata* Deg., *Mystacella majuscula* Rond., *Medoria anthracina* Mg., *Linnaemyia compta* Fall. and *Estheria cristata* Mg. were all taken in the most unlikely weather conditions.

As in the previous year, *Ptilocerina atramentaria* Mg. was again plentiful on wild parsnip, which grew in abundance in a sheltered corner of a field at Ringwould, between Deal and Dover. This species appears to be confined mainly to East Kent, as although generally considered rare, it was encountered feeding on wild parsnip, wherever this plant occurred, over a very wide area between Folkestone and Ramsgate. With *P. atramentaria* were also found, though much less numerous, *Aplomyia confinis* Fall., *Lydina aenea* Mg., *Bigonicheta spinipennis* Mg., *Parafeburia maculata* Fall. and *Ravinia pernix* Harr.

The weather in the west, after my return on August 19th, was consistently poor, but on August 26th a trip was made to the Bridgwater district, again with Mr Cowley, who knows this part of the country well. We first visited some clay-pits at Chilton Trinity (Som.), where I took a single male of *Poecilobothrus ducalis* Lw. before rain drove us back to the car. From there we proceeded to Hawkridge, at the foot of the Quantock Hills (Som.) and, during a comparatively fine period, took a number of *Wiedemannia rhynchops insularis* Coll. and *Hercostomus cretifer* Walk. which were resting together on the partially submerged stones in a small, swift-running stream. On vegetation growing near the stream I took two females of *Sphegina kimakowiczi* Strobl, and in a similar situation Mr Cowley took two males of the tiny *Teuchophorus simplex* Mik, a species neither of us had seen before. In a narrow woodland path Mr Cowley also captured a male of *Arctophila fulva* Harr., which he kindly gave me, later sending me 3 more males of this species which he took at Bin Combe (Som.) on September 1st. A fine growth of ragwort (*Senecio jacobaea* L.) on a grassy slope above the stream had been examined several times without much success, but in the late afternoon, when heavy rain-clouds had again rolled up, it was noticed that the flowers were attracting numbers of males and a few females of *Myocera carinifrons* Fall.

During September only two week-ends offered any chance of collecting. On the 3rd, on Felton Common (Som.), males of *Fannia mutica* Zett. were taken flying beneath a large holly tree in company with *F. armata* Mg., *manicata* Mg. and *coracina* Lw.; on the 9th, considerable numbers of both sexes of *Fannia pretiosa* Schin. were seen, together with less numerous *Lophosceles cristatus* Zett., on two or three flower heads of *Angelica*, which were growing beside the Abbott's Pool at Failand (Som.). After this the weather deteriorated so rapidly that collecting was necessarily though reluctantly abandoned.

18 Grange Park, Henleaze, Bristol.

March 3rd, 1951.

FLIES ON THE STINKHORN FUNGUS, PHALLUS IMPUDICUS PERS.

By L. Parmenter, F.R.E.S.

Only on two occasions have I noted the flies on this fungus which makes its presence in the autumn obvious by its smell. The capture of all the Diptera on the fungus was not achieved at either time and in view of the superficial similarity of the species present, it was unwise to attempt to identify the flies other than those actually taken.

I made but one visit to the fungus each time, taking as many flies of those present as I could and passed on.

However, in view of Dr A. Collart's report of his captures, during two hours, on a specimen of this fungus and his expressed desire of further details of my captures at Limpsfield when referring to my 1947 note in this Journal, I have submitted this note in the hope that other entomologists who find the fungus will capture the flies upon it and record their names, numbers, sexes and habits.

On 7th November, 1937, in the woodland at Limpsfield Common, Surrey, I captured on this fungus:—

4♂♂ *Dryomyza flaveola* Fab. var. *zawadskii* Schum.
1♂ *Helomyza notata* Mg. var. *hilaris* Zett.
1♂ *Helomyza affinis* Mg.
1♂ *Helomyza humilis* Mg.
1♀ *Phaonia variegata* Mg.

On 3rd October, 1948, in woodland at Bookham Common, Surrey, I captured on the fungus:—

1♂ *Neuroctena anilis* Rond.
2♂♂ 1♀ *Dryomyza flaveola* Fab.
1♂ 2♀♀ *Calliphora vomitoria* L.
2♂♂ *Calliphora erythrocephala* Mg.
1♂ *Lucilia ampullacea* Vill.
1♂ 2♀♀ *Phaonia variegata* Mg.

Of these species, *Phaonia variegata* Mg. is the only one common to all three lists, for Dr Collart captured 3♂♂ 13♀♀ on 27th September, 1946, at Lustin, Belgium. He makes a very interesting point, however, and that is that his captures of 13 species totalled more females (81) than males (23), and suggests that the attraction for ovipositing is stronger than that for feeding. The fact that only one female fly was present in my November captures supported this theory, for the season was too advanced for much egg-laying. My October captures, 8 males to 5 females, suggest the change from the September female dominance takes place before November. The numbers involved are still too few and more and closer observation should show whether, and to what extent, eggs are actually laid on the fungus. Examining the Bookham toadstool some days after I found no sign of any larvae but considerable damage by feeding, and all the damage appeared to be by flies and not by mollusca.

REFERENCES.

COLLART, A., 1950, Notules Dipterologiques. II. *Bull. Inst. roy. des Sciences Nat. Belg.*, XXVI, no. 46, 8 pp.

PARMENTER, L., 1947, Notes on the *Helomyzidae* (Diptera), *Ent. Rec.*, LIX: 15-17; 1950, The Diptera of Bookham Common, *Lond. Nat.*, **29**: 98-133.

94 Fairlands Avenue, Thornton Heath, Surrey,
21st February 1951.

COLEOPTERA

THE COLEOPTERA OF A SUBURBAN GARDEN—I, ADEPHAGA.

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

The object of these contributions is to give some idea of the beetle fauna of a fairly typical garden in the metropolitan area, as exemplified by that of the writer at Blackheath. This locality is now a good deal built up and can no longer boast of a position in the north-west corner of Kent as at one time—being well within the confines of Greater London. The soil is clay, with some gravel. The garden, half an acre in extent, was a bare grass field up to 1926 when the house was built; it is now bounded on two sides by other gardens and on a third by a piece of rough grassland. Lawns, vegetable plots and flower-beds occupy most of its area and there are no large trees. Entomological claims, when in conflict with horticultural ones, have usually (alas!) had to give way—weeding and general tidying-up, removal of rubbish and other natural or semi-natural cover, etc., sadly reduce the collector's potential *loci*. However, a certain number of stones, bricks, planks and so on have been allowed to remain, and some weeds manage to defy even the stoutest-hearted of gardeners. Then there are nearly always two or three heaps of grass-cuttings, compost, rotting vegetation or the like; but beyond these (an unfailing source of material) no effort has so far been made to add to the list of species by setting special traps. In any case, many of those that might be attracted to artificial baits could hardly be claimed as normal inhabitants of the garden. Collecting, though spread over a period of two decades, has of necessity been neither intensive nor systematic; and in some years scarcely any has been done, owing to long absence from home or other causes.

It might appear, then, that given such limitations and such unpromising conditions, the results would be scanty and devoid of interest. Scanty they may be, and indeed a small much cultivated area as the garden above described could not support a rich coleopterous fauna. Apart from the number of species overlooked—probably considerable—some groups are certainly poorly represented. On the other hand, ten species of *Amara*, ten of *Cercyon*, and twelve of *Acrotrichis* (respectively about a third, a half, and a half of the total known as British) are unexpectedly high proportions; and the list includes three species new to Britain at the time of capture and others of more than ordinary interest. The list will at any rate serve as a fair sample of what almost any beetle-collector living in the suburbs, with perhaps few opportunities of going far afield but often having an hour or two to spare, might find " on his own doorstep "—possibly not without profit to his collection, besides advancing the knowledge of his local fauna. Up to a point, I doubt whether the actual size of the garden is of great importance; one of less than half the area of that in question would probably, other things being equal, yield as many species.

In general, it is almost useless to try to draw a distinction between permanent residents and visitors from outside. Breeding on the spot

can rarely be proved, and some of the chance visitors may stay to breed if conditions favour them; the fauna is never static. Twenty years of even sporadic collecting is long enough to show up some of the trends of change. Thus among the ground-beetles (the only group well worked in the first few years) a number of mostly common species have not recurred since about 1929 and may have disappeared through cultivation, etc.; while some have made their appearance much more recently, and others found again after a long interval. Certain of these may, of course, have been present but overlooked earlier. Some of the more difficult groups, notably the BRACHELYTRA, have not as yet been sufficiently studied and will therefore be left to the last. Of those that are well represented, probably only the ADEPHAGA are now tolerably complete, and here but few additions can be expected. It is intended to publish the other groups at intervals after further collecting and work on them, and finally a list of addenda if required. The nomenclature used is substantially that of Kloet and Hincks, 1945, *A Check List of British Insects*: 143-218, but synonyms are added for names likely to be still unfamiliar.

In the list of CARABIDAE, which follows, some species are remarkable by their absence, notably *Carabus monilis* F., *Leistus ferrugineus* L., *Notiophilus palustris* Duft. (not specially fond of damp places, despite its name, and to me the commonest of the genus after *biguttatus* F.), *Ophonus seladon* Schaub., *Amara aulica* Panz., *Stomis pumicatus* Panz., *Feronia cuprea* L. or *F. caerulescens* L., *F. diligens* Stm., *Pristonychus terricola* Hbst., *Trechus 4-striatus* Schrk. or *T. obtusus* Er., *Dromius linearis* Ol., *D. melanocephalus* Dej., *Risophilus atricapillus* L., and *Microlestes maurus* Stm. Some of these one would certainly expect to occur, and indeed a few may yet turn up in course of time. The soil is insufficiently light for *Cicindela campestris* L. and likewise for many Carabids.

CARABIDAE.

Carabus violaceus L.—By far the commonest *Carabus* in the district; odd specimens have been noted in the garden from 1927 to 1950, under stones, on paths, etc.

Carabus nemoralis Müll.—Very scarce; one under a clod, July 1929.

Nebria brevicollis F.—Common generally, and at most times of the year.

Leistus spinibarbis F.—Often plentiful under stones, etc., but apparently almost restricted to the area surrounding the house, and commonest about a spot where coal is dumped from time to time. More numerous from April to June, when many are soft and immature. Has been seen in most years.

Leistus fulvibarbis Dej.—With the preceding in spring and early summer, but a great deal less common and not found before 1949.

Notiophilus biguttatus F.—Common from spring to autumn, at roots of grass, under weeds and rubbish, or running in the sun. Seen nearly every year.

Notiophilus substriatus Wat.—Under the same conditions as the last and sometimes with it, but very much more sparingly; first noticed 1946.

Notiophilus rufipes Curt.—Taken on three or four occasions in the last two years in company with *biguttatus* by pulling up chickweed on path. This species is supposed to be rare, but I do not consider it so at any rate in the South-East.

Loricera pilicornis F.—One under a stone or clod in autumn, 1928.

Clivina fossor L.—Sparingly under clods, June 1927, and a few more in subsequent years, but not seen at all recently.

Badister bipustulatus F.—One under a stone close by the house, June 1949.

Perigona nigriceps* Dej.—One found in a heap of refuse (consisting of old roots, cut grass, and soil) on 25th July 1949, is apparently the only British specimen on record. The species is not a native of Europe, but is established in parts of France. See *Ent. mon. Mag.*, **86: 89-90 (1950).

Bradycellus verbasci Duft.—Not uncommon from spring to autumn, but usually found singly; under stones or rubbish, etc. The first was taken indoors on a lamp-shade, Sept. 1927.

Acupalpus meridianus L.—As the last, but only in spring and early summer; once in some numbers in cut grass (April 1946). First taken April 1928.

Harpalus aeneus F.—Rather frequent from May to August 1927 and also, I believe, in the two or three years following, under clods, stones, etc. Odd specimens have been noted since at intervals, the last in April 1949.

Pseudophonus rufipes Deg.—In the same situations, from June 1927, but only occasional and not noticed for many years past. This species, like *Pterostichus madidus*, has more than once found its way into the house at night.

Amara ovata F.—Not common, under clods; first noted September 1928. Chiefly from June to August. No records for recent years.

Amara similata Gyll.—Like the preceding, but commoner; first taken June 1927. Several under chickweed on cinder path, June-July, 1949-50.

**Amara eurynota* Pan. (=*acuminata* Payk.)—One running on a path, August 1931.

Amara familiaris Duft.—Generally rather common throughout the summer in most years since May 1932, at grass-roots, under weeds, etc. Why I failed to find it before this, though on the look-out for it, is something of a mystery.

**Amara anthobia* Villa.—In some numbers by pulling up chickweed growing on a cinder path and searching among the debris at the roots; very local; May 1949, Aug.-Sept. 1950. It feigns death, and can easily be overlooked.

Amara aenea Deg. (=*trivialis* Gyll.).—As for *A. similata* above; and rather often running amongst grass or in the open on hot spring days.

**Amara vulgaris* L. (=*lunicollis* Schdt.).—Under stones or rejectamenta, rare; ♀, April, 1931; ♂, March 1949. Not a common British species, despite its name.

Amara convexior Steph.—At intervals under clods, etc.; quite infrequent, and not found in recent years; first taken April 1931. In the South it seems much commoner than *A. communis* Panz.

*An asterisk denotes a generally uncommon, very local, or rare species.

Amara plebeja Gyll.—Less uncommon than the last, and in similar places, up to about 1930; since when it has not been seen.

Amara apricaria Payk.—As a specimen was found on a mattress in a bedroom of the house in August 1927, this species may perhaps be included provisionally among the inhabitants of the garden.

Feronia (=*Pterostichus*) *melanaria* Ill. (=*vulgaris* auct. Brit.).—Two or three specimens under pieces of boarding in June 1927 are all that have occurred.

Feronia madida F.—General, and found throughout the whole period but much less common of late (only a single example during the last two years!). Under stones, clods and planks, spring to autumn.

Abax parallelopipedus Pill. & Mitt.—Occasionally, under the same conditions; October 1936; in rotten wood, with the next species, July 1948.

**Platyderus ruficollis* Marsh.—Under stones, etc.; one in May 1930, another in June 1933; next found in a piece of rotten wood lying on a path, July 1948, several specimens. During the last two years this rather rare beetle has occurred somewhat freely at times between March and October under stones close to the house, often with *Leistus spinibarbis* or *Bembidion ustulatum*.

Calathus fuscipes Goeze (=*cisteloides* Panz.).—Formerly not uncommon, under clods, boards, etc.; first found in June 1927; not noticed in late years.

Calathus melanocephalus L.—Taken with the preceding, and not rare, though seldom seen recently; the last were a pair caught in July 1949.

Calathus piceus Marsh.—Scarce, and only found in the last two years, under stones near the house; one in July 1949, another in September 1950.

**Synuchus nivalis* Panz.—One under old sacking in August 1930.

Agonum mülleri Hbst.—Also very rare; one under stone, April 1931.

Anchomenus dorsalis Pont.—One under a piece of tile, June 1949; another at roots of chickweed, May 1950.

Bembidion obtusum Serv.—Singly at intervals, chiefly running in the sun on bare ground; March 1933, August 1938, May 1943.

Bembidion guttula F.—At grass-roots and under rubbish; first recorded Sept. 1930, and not found in recent years.

Bembidion lampros Hbst.—As for the two preceding, but more frequent and found from August 1927 at intervals up to the present time.

Bembidion ustulatum L.—First taken in June 1927, but not seen again until the spring of 1949, since when it has been common under some stones at the base of a wall of the house, in a spot where the ground is kept permanently moist by a drainage overflow from the kitchen sink outlet.

Asaphidion flavipes L.—Occurs near the last-mentioned spot, but where the ground is distinctly drier, under stones or old sacking, etc.; also under chickweed on path; always near the house, and mainly in the last two years, in early summer, by single specimens.

Metabletus foveatus Fourc. (=*foveola* Gyll.).—The sole example hitherto was found under a piece of sawn-off apple branch lying on bare earth, March 1950.

DYTISCIDAE.

Agabus bipustulatus L.—A pair of this common water-beetle occurred in a large puddle resulting from prolonged heavy rain in September 1927.

(To be continued.)

FIFTY YEARS AGO.

(From *The Entomologist's Record* of April 1901.)

On February 17th I found *Hybernia rupicapraria* on a pond covered with ice nearly an inch thick. I broke the ice and put the piece containing the moth in a box; it must have been there about two days, and there was quite a quarter of an inch of ice over it. I dissolved the latter when I got home; the moth was quite perfect, and I was surprised when I looked at it two hours later to find it alive.—T. L. HOWE, Beaufort House, Penarth.

It has often been a puzzle to me, as I dare say it has been to other entomologists also, how it is that when one comes across a privet, sallow, or other bush, almost entirely denuded of leaves as the result of recent feeding by larvae, it is seldom possible to find the pupae in the earth beneath the bush . . . The following observation tends to show that in many instances the larvae will travel a very considerable distance before deciding finally where to go down. Last autumn I had a couple of *Sphinx ligustri* larvae feeding under gauze on a small privet bush in the garden. One Sunday afternoon I noticed that one of the larvae had changed colour preparatory to pupation. I undid the gauze covering, and allowed the larva to escape . . . After reaching the ground the larva crawled 4 ft. in a north-easterly direction, and arrived at what appeared to be a suitable spot to go down to earth . . . This, however, did not seem a favourable location to the larva, which retraced its steps in a westerly direction for about 4 ft. Then it travelled 9 ft. in a north-westerly direction, 15 ft. due west along a gravel path, and finally crawled another 27 ft. in a north-westerly direction before arriving at the favoured spot for going down, which was under a rose bush. It met with some slight difficulty in going under, but persevered, and disappeared. It will be noticed that the larva had travelled a distance of 59 ft. altogether, and the time occupied by it in doing so was 50 minutes.—A. RUSSELL, Southend, near Catford.

At a meeting of the Entomological Society of London, March 6th, 1901, Mr H. J. Elwes moved " that a committee be appointed to consider the question of uniformity in nomenclature for the guidance of specialists contributing to the Victoria County Histories." After discussion, a resolution was carried that the appointment of a committee should be undertaken by the council of the society. All this is very interesting and one will await with some interest the selection of the members of the committee. Those, as a rule, who talk most about nomenclature, know least, as a rule, of its intricacies, and there are,

in our opinion, only three men now in this country who have sufficient knowledge of the literature and facts to constitute such a committee so far as lepidoptera is concerned. If Messrs Durrant, Kirby, and Prout could be persuaded to act for lepidopterists, the result could not help being satisfactory, but we suspect vested interests and personal considerations would make the selection of such an ideal committee impossible.—(J. W. TUTT.)

CURRENT LITERATURE.

ENTOML. NEWS, LXII, No. 1, Jan. 1951, consists of an Anniversary part on the occasion of Dr. Philip P. Calvert's Eightieth Birthday. It is therefore of special interest to Odonatologists.

THE CANADIAN ENTOMOLOGIST, LXXII, No. 12, Dec. 1950, contains an article (pp. 250-252, maps A, B) on the occurrence of *Acentropus niveus* in N. America.

BULL. ANN. SOC. ENT. BELGIQUE, LXXXVI, parts 11-12, 28.ii.1951, contains (pp. 236-255) an article by S. S. Kiriakoff on the Classification and Phylogeny of the Notodontidae.

THE PAN-PACIFIC ENTOMOLOGIST, XXVI, No. 4, 1950, has a paper (pp. 161-172, map) by C. H. Abbott on 25 years of migration of *Vanessa cardui* in S. California. There were special migration periods in the Spring of 1924, 1926, 1941 and 1945. The rate of flight is stated to be between 9 and 10 m.p.h.

PRACTICAL METHODS AND HINTS FOR LEPIDOPTERISTS (*The Amateur Entomologist*, vol. IX, 1951: price 5s.). A copiously illustrated handbook to methods of collecting and rearing immature stages of Lepidoptera.

BULL. AMAT. ENT. SOC., X, No. 122, Feb. 1951. Short notes on breeding Psychidae and on Common Wing-patterns in Butterflies.

JL. SOC. BRIT. ENT., III, pt. 5, 12.i.1951, price 3s. 6d. Col. F. C. Fraser has an interesting article (pp. 225-235) on the Neuroptera of the New Forest; K. G. V. Smith notes (pp. 242-244) additions to the Dipterous Fauna of Herefordshire and Warwickshire, and (pp. 244-246) a note on some Insects from Skokholm and Grassholm in early June; Major Murray Marsden has a note (p. 247) on an albino *Vanessa cardui*; and E. C. M. D'Assis-Fonseca has an interesting record (pp. 246-247) of the occurrence of *Salmacia capitata* (Larvaevoridae) at Deal.

THE ENTOMOLOGIST, LXXXIV, No. 1052, i.1951, has an Experiment in marking Migratory Butterflies (pp. 1-6) by J. L. Campbell, where the marking was done with celluloid paint and the individuals were not distinguishable; J. D. Bradley (pp. 9-10, figs. 1, 2) shows that *Eriocrania chrysolepidella* Zeller is the same species, with priority of name, as *kaltenbachii* Staint.; D. E. Kimmins writes (pp. 19-21, figs.) on the Females of the British species of Beraeidae (Trichoptera).

——, LXXXIV, No. 1053, ii.1951. J. F. D. Frazer (pp. 25-29), Notes on a Colony of *Colias crocea* (*croceus*); A. L. Goodson, New Varieties of British Butterflies (p. 31); C. Haggett, Further Observations on *Zeuzera pyrina* (pp. 30-33); N. L. Birkett, Notes [on Lep.] in S. Westmorland (pp. 34-35); H. M. Darlow, Insects taken at Sea in the Mediterranean (pp. 31-39); N. MacNeill, Separation Characters for Nymphs of *Lestes dryas* and *L. sponsa* (pp. 40-42, figs.); M. Niblett, New Gall-causing Cecidomyidae, VII (pp. 45-46).

Trans. Soc. Brit. Entom., X, pt. 7, 21.i.1951. F. Balfour-Browne, The Aquatic Coleoptera of Wood Walton Fen (pp. 233-268).

Ent. mon. Mag., LXXXVII, (19), i.1951. A. W. Stelfox and M. W. R. de V. Graham, Notes on *Aspilota* (Braconidae) (pp. 3-7, 11 figs.); G. H. Hardy, The Courtship of *Euploea corinna* (pp. 8-9); A. M. Eason, *Meligethes bidentatus* and its specific status (pp. 10-13, 10 figs.); E. S. Brown, Variation and Polymorphism in *Lampetia equestris* (Syrphidae) (pp. 16-18); J. Green, The Food of *Cylindronotus laevioctostriatus* (p. 19); M. I. Crichton, Hippoboscidae from Tristan da Cunha (pp. 21-22); F. Laing, *Chermes* versus *Psylla* (pp. 23-27); H. E. Goto, A Species of Collembola new to the British List; H. A. Allen, Colour-variation in *Agrilus viridis* (Buprestidae) (pp. 29-30).

——, LXXXVII, (13), ii.1951. G. H. L. Dicker, *Agonum dorsale*, an unusual egg-laying habit and some biological notes (pp. 33-34, tab.) (Carabidae); F. C. Fraser, The Early Nymphal instars of *Oxygastra curtisii* (pp. 35-40); L. Parmenter, Notes on the genus *Empis* in Britain (pp. 41-44); D. W. Hall, Distribution, Habits and Life-history of *Piezostethus galactinus* (Anthocoridae) (pp. 45-52, figs.); D. Verdcourt, D.D.T. Impregnated Paper (pp. 53-55); G. H. Hardy, Evolutionary Trends in Diptera (pp. 56-59); W. E. China, *Placotettix taeniatifrons* (Cicadellidae) new to Britain (pp. 60-62, figs.).

Entom. Berichten, XIII, No. 308, 1.ii.1951. S. Leefmans, Obituary Notice of Dr. L. O. Howard (pp. 209-210); J. P. van Lith, On the Biology of the genus *Psenulus* (Sphecidae) (pp. 211-217); B. Theowald, Some Scarce Diptera (p. 218); J. Paclt, A New Family Name in Lepidoptera. —T. Bainbrigge Fletcher.

Zts. der Wien ent. Ges., LXI (35th year), No. 7/10 (15.x.1950) contains a paper on Migrant Lepidoptera in Europe by G. Warnecke (pp. 100-106). H. Skala writes (pp. 111-114, tt. 3-4) on case-bearing leaf-mining Lepidoptera of the genus *Eupista* = *Coleophora*, and also (pp. 115-116, t. 5) on mining Gelechiidae.—T. Bainbrigge Fletcher, 18.xii.1950.

Turkish Lepidoptera.—The literature of the Lepidoptera of Turkey is growing very slowly. Gustaf de Lattin, who is to-day no doubt our best authority on the subject, has published an article which gives one to hope that it is the first of a series, entitled *Türkiye Kelebekleri Hakkinda*, that is, Concerning Turkish Lepidoptera, I. Although the title is in Turkish, the text is in German. It is an account of a collection of over 2000 specimens, representing 380 species, from numerous localities, but mostly from the neighbourhood of Istanbul. A certain

number of new subspecies is described, as *Zerynthia hypsiphyle* ssp. n. *tristis, Hipparchia aristaeus turcica, H. fatua* ssp. n. *kosswigi, Melitaea cinxia* n. ssp. *burri, Strymon lynceus* ssp. n. *anatolicus.* The paper is published in the *Révue de la Fac. Sci., Univ. Istanbul,* Series B., Tome XV. Fasc. 4. 1950.—M. BURR.

SOCIETIES.

AT the 79th Annual General Meeting of the South London Entomological and Natural History Society, held on 24th January 1951, the retiring President, Air Marshal Sir Robert Saundby, paid a moving tribute to the memory of Henry Jerome Turner, " a member of the Society for 63 years, during 57 of which he held office, a wonderful record which, perhaps, may never be beaten."

In reviewing the work of 1950 the President remarked that although not a good year for Lepidoptera it had nevertheless seen the addition of two macro-Lepidoptera to the British List—*Diarsia florida* Schmidt and *Luceria virens* L.

He took the opportunity of appealing to members to give more support to the Wicken Fen Fund. His address dealt with the importance of local museums and local lists.

The Treasurer reported that the revenue of the year was no less than £103 short of the expenditure. This was met out of past years' surplus; but such a process could not, of course, continue and the cost of the *Proceedings* would have to be reduced.

The Council's report was read. It disclosed an active and successful year with an increase of membership to the record number of 491.

The new President is Mr T. G. Howarth, B.E.M., F.R.E.S., F.Z.S.

THE Meeting of the above Society held on 28th February 1951 was devoted to exhibits and communications.

It seemed to be an evening for new species. First Mr J. O. T. Howard showed a series of *Diarsia florida* Schmidt. This is a species recently added to the British List, the insects having been taken at Askham Bog in Yorkshire. But Mr Howard had taken his in the North of Scotland at Kinlochewe in Wester Ross, " at sugar on the edge of a boggy field sloping down to a stream." This was in the first week in July, 1949. The new species is close to the very variable *Diarsia rubi* View. and one wonders if more examples of *florida* will not be found if the long series in many collections are carefully examined.

Mr H. R. Last brought two new Staphylinid beetles. The first was *Philonthus confinis* Strand taken in Jersey in October 1950. It was first recognized in 1941. So far it has not been noted in Britain but as it occurs in Norway, Denmark, Siberia and Mongolia there seems no reason why it should not be found here. His second new species, *Leptusa norvegica* Strand, also first described in 1941, has been taken in Scotland but so far not elsewhere in Britain.

Lastly came a plant bug, *Lygus pubescens* Reut. This was exhibited by Mr D. Leston, who had taken it in many localities in Surrey. It has been included with the common *Lygus pratensis* L. and is no doubt widespread.—T. R. EAGLES.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted.—I need specimens of *Lycaena* (*Heodes*) *phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antiopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Melin; A Contribution to the Knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923. Fraenkel and Gunn; Orientation of Animals, 1940, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Lycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Larvae in May next and live females of the imago in June of *Melitaea athalia*, The Heath Fritillary, to put out in two suitable localities here in the New Forest, with a view to establishing new colonies of the insect which is becoming scarce in its old haunts in Kent, Sussex and Essex. For cash or exchange. Will someone very kindly help?—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted this coming season—Ova, larvae and pupae of *Abraxas grossulariata* and *Abraxas ulmata* (*sylvata*), for cash or exchange.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Records of the following Butterflies from the New Forests: *crataegi, sinapis, iris, c-album, polychloros, cinxia, aurinea, galatea, betulae, semi-argus, lucina, lineola, actaeon.*—*S. C. S. Brown, 454 Christchurch Road, Bournemouth.*

Changes of address and "Exchange" Notices should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Will our contributors please note that owing to the Editor's illness all material for the magazine should be sent, until further notice, to The Hon. Treasurer, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: May 2nd, June 6th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1. April 25th, May 9th, 6.0 for 6.30 p.m. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7 *Birmingham Natural History and Philosophical Society—Entomological Section.* Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, E. A. B. Stanton, 86 Wednesbury Road, Walsall, Staffs.

TO OUR READERS.

Short Collecting Notes and Current Notes. Please, Early.—Eds.

We must earnestly request our correspondents NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

REPRINTS of articles may be obtained by authors at very reasonable cost if ordered at THE TIME OF SENDING IN MS.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

Printed by T. Buncle & Co. Ltd., Arbroath.

Vol. LXIII.

No. 5

MAY 1951

ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

CONTENTS.

Subscription for Complete Volume, post free,
TEN SHILLINGS
To be sent to
The Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,
Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

This Number Price TWO SHILLINGS (net).

EDITORIAL.

An editor who is worth his salt is never satisfied. This is as it should be; for he has, as it were, a fiduciary position as regards his contributors. It is his duty to secure for them as wide a circle of readers as possible. So that pregnant word *circulation* must ever be to the forefront of his mind.

At the moment, there is an additional reason why the circulation of the *Record* ought to be very much larger. In these unhappy times through which we are passing there is always a spectre in the background: the matter of pounds, shillings and pence. None of us wishes to see the annual subscription raised. Yet costs of production are constantly rising, and both ends must be made to meet. If the *Record* is to be kept up to the standard of this present issue the only alternative to an increased subscription is an increased circulation. It would be tragic if, having recovered some of the lost ground, we were to lose it once more.

How can we increase our circulation? In this way. If every one who reads these lines will secure *one* new subscriber the thing will be done. There must be many good and keen entomologists who would take in the *Record* if their attention were drawn to it. Although practically every magazine in this country has gone up in price the Annual Subscription to the *Record* still remains at its pre-war figure—*Ten Shillings*. Will you help to make the *Record* known among your friends and correspondents?

A certain number of "overs" of each issue are usually available. If you will send us—a postcard will do—the name and address of some friend or acquaintance to whom you have recommended the *Record* and who would like to see a specimen copy, one shall be despatched to him by return of post.

EDITOR.

WHY?

By Harold B. Williams, K.C., LL.D., F.R.E.S.

During recent reflection on the experiences of fifty years as a collector and student of lepidoptera I have remembered many problems, so few of them answered, and have wondered whether the word "why", so much discouraged in early youth, ought not to be more in our thoughts. Perhaps it may help, or at least interest or amuse, younger entomologists if I try to pass to them some of the questions I have not been able to answer.

Fifty years ago one turned to books. In truth, to very few books, to Newman, to Tutt, especially if the problem was associated with variation, and after a time to South's three helpful volumes. And to the Magazines, not then too numerous for study. We now have many books and long series of magazines, but it is doubtful whether knowledge has been advanced in proportion to the number. We know more than we knew in 1901, but how much more? Books are now read and accepted by thousands, but for that very reason authors and editors ought to spare no pains to ensure accuracy. I read and enjoy the "New

Naturalist" series, and I think of the joy, and of the help, those books would have given me fifty years ago. Problems of variation, heredity and distribution are explained in a way which would have seemed, and, indeed, was, beyond possibility fifty years ago. Yet I open "Mountains and Moorlands" and find that Plate 29, with the title "Northern eggar moth (*Lasiocampa callunae*), caterpillar" portrays a caterpillar which no entomologist of two years' experience could possibly mistake for that of *callunae* or any other form of *Lasiocampa quercus* whether elevated to the rank of a species or not. Why? Imagine the beginner with a large haul of Fox Moth caterpillars from some southern down or moor identifying them from Plate 29 and subsequently attempting to rear the moths.

To become more serious, how much better-informed we are! We know quite a lot about genetics, a little about distribution (though I sometimes wonder why more is not published), something about gynandromorphism and hybridity and a little about a number of curious structural and developmental abnormalities which we might have passed over not so long ago. But a real understanding of these things eludes us. For example, Bateson, in "Materials for the Study of Variation" (1894) introduced us to the study of Homoeosis and gave a few examples in insects. Dr Cockayne subsequently described numerous examples in insects, and particularly referred to lepidoptera in which a part of one or more wings presents markings appropriate to the corresponding member of the other pair. Very many of these forms are now known, but we do not yet understand the phenomenon. There is good reason to believe that the condition is hereditary, but why is its manifestation so varied? Why have nearly all the known examples in *Melitaea athalia* small patches of the pattern of the underside of the hind wing reproduced on the fore wing? Why is the condition (apparently) so much more frequent in some species (e.g., *M. athalia*, *Coenonympha pamphilus*) than in others, and yet known to occur in so many species of lepidoptera? Why is it only in the "Blues" (apparently) that examples are found with the markings appropriate to one surface of the wings reproduced on the other surface? Why in British examples in *Papilio machaon* do we find the markings of one or both fore wings reproduced on the corresponding hind wing or wings (I have seven, and have seen others) while the only example so far recorded from the continent (Ugrjumow) has hind wing markings on the right fore wing? Only by the accumulation of a considerable mass of material and records can we hope to advance towards a solution of such problems, and it is not easy in the lifetime of one entomologist to accumulate such a mass of material. One human lifetime is, we may hope, of little account in the lifetime of a museum, and it may be that if material could be accumulated in, for example, the National Collection, a useful review could be achieved in time.

These fifty years have seen the birth and rapid growth of the science of genetics. Knowledge expands so rapidly that questions are being answered almost as soon as they can be formulated. But have we exhausted the problems which first exercised our minds when we watched the members of an F2 generation segregate into 1 DD, 2 DR and 1 RR? Why do we sometimes find that we have too many heterozygous insects? I remember breeding *Boarmia rhomboidaria* for thirteen consecutive

years, during which I reared a number of broods annually, crossing light forms with the melanic ab. *rebeli* Aign., and endeavouring to distinguish the homozygous and heterozygous melanics, only to find, at the end of the experiment that I possessed one single very worn female (the parent of a brood) which I could assert to be proved to be homozygous. Over and over again did I select the very darkest melanics, almost without markings, and breed from two of these, only to find light forms segregating in the progeny. I am conscious that I have not recorded these occurrences with sufficient regularity and that they ought to be recorded systematically and as a matter of routine, if later entomologists are to be assisted to discover why such things happen.

There exist, unrecorded, in British collections, very numerous gynandromorphs, lepidoptera showing major or minor peroneural defects (sometimes limited to one wing or even part of a wing) examples of homoeosis and very many other structural abnormalities, a more detailed knowledge of which would be of advantage. May they be recorded, so that our successors may try to know why they occur?

AT HERA'S SHRINES.

By Surgeon Lieutenant Commander H. M. Darlow, F.R.E.S., R.N.

O Hera! Goddess of marriage and children, wife of the omnipotent Zeus! Sacrilege, indeed, is it that the unlovely name *quadripunctaria* should have been foisted upon you and your enchanting descendants who still haunt those cool Grecian glades where once you were worshipped by a noble race. The Greeks gave you a fitting name, and in honour of your divinity you shall be *hera* throughout this brief paper.

Kyrenia is the gem of the north coast of Cyprus and looks enchanting from the sea with its little white churches and mosque and magnificent background of precipitous mountains topped by the castle of Saint Hilarion. It is pleasant ashore, too, and the choicest spot of all is a little valley which I discovered in the Spring of 1948 and in which I spent several enchanted days catching *Thais cerisyi*. I earmarked it for a future visit, which came to pass on the last day of June.

It was very hot. Gone was the Spring freshness and the streambed was as dry as a bone. A score of cicadas screeched from every olive tree as I made my way to my valley with many a wistful backward glance at the cool sea, where shipmates were enjoying the temperate breezes, unfettered by that strange madness which we entomologists consider our duty to science. The cicadas were everywhere. My satchel felt very heavy, so I sat down under a Carob tree and felt for my flask. And I was not the only thirsty individual under that tree, for, as I approached, a rustling swarm of *Satyrus hermione cypriaca* took off from the trunk and flew rather jerkily to the next tree. They sat in great profusion on every tree-trunk in that valley, but their astonishing agility defeated exhausting efforts at capture.

So I left them and advanced up the valley. At one point there is a sandy precipice which has to be negotiated to avoid a long detour. I was half way along the face of this when another insect got the better

of me. My foothold gave way, and to save myself from a tumble I grabbed a tuft of grass, all unaware that *Vespa crabro* was enjoying a mid-day siesta in the middle of it. . . .

It was at this moment that Hera came to my rescue. There in a little glade ahead of me fluttered a large and vividly coloured moth. My heart jumped, and so did I: oblivious of pain and precipice I landed in a heap of brambles. The moth led me a dance round the bushes, but I caught it in the end at the bottom of the stream-bed, and there were all the tribe, *hera* everywhere. The bushes were full of them, but although I captured and released about three score I found no sign of variation. I spent the rest of that day and both the next two afternoons worshipping at this shrine of Hera; but she vouchsafed me nothing more than a series of normal specimens. And so I departed, little knowing that we were to meet again in no uncertain way a year later.

Early in June the following year my ship visited Rhodes. The local authorities were hospitable and offered a variety of amusements. Would I like to visit the Valley of Butterflies? Yes, I would, indeed. So on the fourth of the month a car duly arrived on the jetty and things began to look interesting as we spun through the countryside towards the mountains past rows of little Turkish windmills with their white sails flashing in the sunshine. At mid-day we stopped at a small inn where the driver parked the car and went to sleep.

It was whilst I was taking in the lie of the land that I saw them, a hundred and fifty of them and all sitting on the same tree-trunk. But this was nothing. Behind the inn stood a little gate through which I passed into an enchanting hidden ravine arched over by magnificent trees and filled with lush vegetation in vivid contrast to the arid hillsides on either hand. A clear stream babbled amongst the tree-roots and in the cooler air of that ravine flew thousands of *hera*. They were almost as thick as snowflakes, and every one of them had red hind-wings. They were not even taking any interest in each other, but just flapping about looking incredibly beautiful. Afterwards the innkeeper, typically anxious to please the visitor and make sure of a return visit, said that this was nothing and that at the end of July there would be many times more.

A week later I met Hera for the third time at Navarin in the extreme south-west corner of Greece. It was very hot and dusty as I sauntered up towards the old Turkish fortress that stands on a hill overlooking the entrance to the Bay. Along the lane came a local youth, keen to practise his English. He said it all in one breath: "Cigarette Captain." Feeling flattered at my unexpected promotion I made the fatal mistake of offering him one. Alas! a cigarette in Navarin is like a virgin female Oak Eggar. Greeks popped up on every side and were not to be satisfied until I had been persuaded to photograph them smoking my cigarettes, after which they vanished as mysteriously as they had arrived. To avoid any further inroads on my tobacco ration I left the road and wandered into a dismal little pinewood, stripped of undergrowth by the village goats. But dismal and goat-ridden though it was that wood was another sacred grove, for *hera* was congregated in swarms in the darker cooler corners. They were slightly larger than those in either Rhodes or Cyprus, but otherwise exactly similar and again showed no tendency to vary.

And now to make an end of this odyssey. It would appear that *hera* times things badly and emerges during the hottest and driest parts of the year. In order to survive, the moth seeks out the shadiest spots and there congregates in fantastic numbers, good shady spots being hard to come by. Once congregated it can afford to sit exposed in serried ranks on the tree-trunks, safe from the attacks of predators, who must surely be deterred by the massed warning colouration. Presumably the swarms break up and disperse when the autumn rains arrive, for the local vegetation could not possibly support the larvae of so many moths. Indeed, the absence of local variation between the colonies at Cyprus, which is three hundred miles east of Rhodes, and Navarin, which is three hundred miles in the opposite direction, almost suggests that the species migrates, though for various reasons I do not think this is so. But why that lamentable absence of those colour forms which are a feature of our own local race?

WISHFUL THINKING.

By An Old Moth-Hunter.

If anybody were to say to me "What do you consider to be the commonest form of frailty manifested by lepidopterists?" I should answer at once "Credulity". And I should add, immediately, "But so far from credulity—in a lepidopterist—being a fault I consider it to be a virtue. For a readiness to believe postulates singlemindedness and enthusiasm". And when you come to think it over it is plain that our credulity arises, simply and solely, from *wishful thinking*. We have a specimen of *Peradventure* in our cabinet which we *believe*—for it has no label—was caught by our grandfather. Surely we are justified in considering it an *Undoubtedly*?—'Tis true that Grandfather must have made at least one trip to the Continent, for his collection contained specimens of *orbitulus*, *belemia*, *cleopatra*, *maturna*, and two Apollos. But *Peradventure* has been caught in Sussex several times, and Grandfather always spent his holidays at Brighton . . . . Surely——

And so, egged on by Wishful Thinking, our credulity becomes a concrete thing, and Grandfather's *Peradventure* is accorded an honoured place in the cabinet, being duly adorned with a label " From the Coll. of B. Hunter-Bugge".

These reflections have been prompted by a Clifden Nonpareil, an aged dis-antenna'd *fraxini*. Recently I was given a cabinet which contains a mite-infested collection of butterflies and moths formed by a dilettante lepidopterist a hundred and more years ago. There are Indian species and Continental species and English species. There are two *boeticus*, a brace of *semiargus*, a ditto of *podalirius*, two Queen of Spain fritillaries, three *Lycaena virgaureae*, and a Clifden Nonpareil. The only label in the collection is worn by a seedy-looking *atropos*, announcing its capture "among the bee-hives".

What shall I do with the Clifden Nonpareil? It might quite well have been caught in England (*Wishful Thinking rearing its head*). In fact it probably was (*W.T. getting down to it*). All the other Continental species in the cabinet are butterflies, so apparently the Old Fellow never spread sugar in France or Switzerland or wherever he went;

therefore the odds are greatly in favour of this *fraxini* being English (*W.T. well under way*). I don't think there can be any possible doubt that it was caught in England, probably in Sussex (*W.T. winning hands-down*). I shall therefore label it "From the Coll. of W. Thinker" (*triumph of W.T.*).

And then when I die and my cabinet comes into the auction-room? . . . . "*Catocala fraxini*. From the collection of W. Thinker. Probably caught in Sussex. An early English specimen of this fine moth, in fair condition. Shall we start at One Pound? . . . ."

I never bungle an unrecognized Noctua at my sugar but I brood over it for days. Without a doubt it was a var. of something quite common: but—"I'm as certain as one can be of anything that it was *Calophasia lunula*, or some very similar Central European species". I go through the coloured plates of European, even North African, Noctuae in my books, egged on by W.T., doing my level best to second, and confirm, that deceiving and insidious phantom. Oh, I'm not the only one, not by a long chalk. Even Reverend lepidopterists, the most holy of lepidopterists, have been, and probably still are, beset by W.T.

Recently, browsing on old issues of our trade journals, I came across the following in the *Ent. mon. Mag.* for 1870:—"*Suspected occurrence of Notodonta trilophus near Exeter.*—On August 25th, I was beating some alder bushes . . . . for larvae, when amongst several common things the larva of a *Notodonta* fell into my umbrella. At first I took it for *dromedarius*, but, after looking at it again when I got home, I fancied it *zic-zac*, but could not quite make it out; and, as it was but small, I put it in a tin box, and fed it for a day or two to see what it would prove to be. Unfortunately, however, before long it got itself into such a position, that in opening the box I injured one of its legs, and it bled to death. It would have been well for my peace of mind, could I have forgotten all about it; but its figure would stick in my memory, and at last I was forced to the conclusion that it must have been *trilophus*; the colour was a light tint of reddish-brown, and on one side there was a patch of light green near the tail, but the point most to be observed was the row of *three dorsal humps*. Since the discovery of my misfortune, I have thrashed every alder I can get at, and have taken many larvae that at other times I should have prized . . . . but not another *trilophus* . . . . J. HELLINS."

What a magnificent specimen of W.T.! Absolutely unrubbed, fringes perfect, in mint condition! How well I know that "figure" which "would stick in my memory" so that "at last I was forced to the conclusion . . . ."! What a fellow-feeling I have for that admirable lepidopterist to whom we owe so much! And yet—

From 1936 to 1945 I bred *N. dromedarius* every year (see a Note by me in this JOURNAL, vol. 55, p. 102), and whether they arose from eggs laid in my cages or from eggs or caterpillars found in the wild, from Essex to Cardigan Bay, every blessed larva had three humps. Most of them had four; but the fourth hump (counting from the head) is usually small and sometimes, especially in a very young larva, it is little more than a tubercle. And the colour of the vast majority has been "a light tint of reddish-brown" with a "patch of light green near the tail". This young Devonshire larva beaten from alder was, without any doubt or shadow of doubt, *N. dromedarius*, the Iron Prominent. There are

one or two assertions, at second or third hand and probably copying from each other, that *N. tritophus* has been found in Europe, on birch; but no one has ever reported it as feeding on alder. *Populus* is its foodplant wherever the larva occurs. I have never reared it, and since it is an extremely rare event—I might even say an excessively rare event—for a species whose foodplants are normally confined to *Populus* and *Salix* (for instance *A. megacephala*, *C. fraxini*, *C. vinula*, *P. tremula*, *N. ziczac*, *P. palpina*, *C. curtula*, and many others) to eat alder I very much doubt if it *could* be reared on *Alnus glutinosa*.

Now mark the sequel. W.T. not only followed Mr. Hellins to his grave but afflicted those who came after him. Said Barrett (1896), dealing with *tritophus*, "The Rev. J. Hellins beat out a larva from an alder near Exeter in August 1870, which he was convinced belonged to this species, but unfortunately it died; and another recorded by the Rev. J. Greene as beaten out of hazel in Gloucestershire proved to be ichneumoned". (Greene's larva also of course was *dromedarius*—hazel is a foodplant upon which I myself have found that species, and a great pupa-digger must needs be a great optimist). Barrett's words are the more surprising because William Buckler had bred *tritophus* in 1882 and painted the larva's portrait, which shows that its ground-colour was not "a light tint of reddish-brown" but *lavender* and Barrett himself gives the ground-colour as "pale grey or brownish-grey".

Was that the end of the matter? By no means. Both Hellins's and Greene's Wishful Thoughts are given in the latest edition of South's *Moths of the British Isles* as genuine British records of *Notodonta tritophus*!

Wishful Thinking is a charming and romantic thing, and I am as chronic a victim of it as anyone ever was. But it ought not to be allowed to become coin of the entomological realm—at least not in books.

THE PROTECTION OF BRITISH INSECTS.

The Protection Committee of the Royal Entomological Society of London was instituted in 1925, as a result of many complaints in the entomological journals of that time, concerning the wanton damage that was being caused by a certain number of unscrupulous collectors, which was actually threatening the very existence of particular species. Since its institution the Committee has met with considerable success, and those insects most threatened in 1925 are now considered to be firmly established in their particular habitats.

At the end of the war the Committee was able to resume its full activities, which had been curtailed during hostilities, and in 1947 it was decided to emphasise the importance and representative character of the Committee by inviting the principal entomological societies to nominate one of their members to serve thereon.

Modern agricultural practices, the heavy programme of forestry now in being, and sometimes the generally well intended activities of local authorities often involve threats to rare or local species through the alteration and sometimes the destruction of existing conditions.

The Committee has taken an active part in endeavouring to minimise the risks that have arisen from such causes, and has been careful

to co-ordinate its activities with other organisations interested in the preservation of the fauna and flora of the country. With the advent of the Nature Conservancy, with which the Committee has established close relations, and of the International Union for the Protection of Nature, to which the Committee is linked, it may prove possible to do even more in the future to preserve those natural conditions essential to the existence of particular insects.

The success of these endeavours should be sufficient to safeguard rare or local insects of the lesser known Orders, but in the case of the Lepidoptera it is also necessary to guard them from extinction at the hands of avaricious collectors.

It is with great regret that the Committee must record that from time to time reports are still received of most reprehensible activities by collectors, which may well cause the extermination of rare and local species.

The following is a list of the species in which the Committee is at the moment particularly interested:

Swallow Tail	*Papilio machaon* Linné
Glanville Fritillary	*Melitaea cinxia* Linné
Heath Fritillary	*Melitaea athalia* Rottenburg
Large Blue	*Maculinea arion* Linné
Blair's Wainscot	*Sedina buettneri* Hering
Clifden Nonpareil	*Catocala fraxini* Linné
Lunar Double-stripe	*Minucia lunaris* Schiffermueller
Lesser Belle	*Colobochyla salicalis* Schiffermueller
Rest Harrow	*Aplasta ononaria* Fuessly
Sussex Emerald	*Thalera fimbrialis* Scopoli
Lewes Wave	*Scopula immorata* Linné
Netted Carpet	*Eustroma reticulata* Schiffermueller
Dark Bordered-Beauty	*Epione vespertaria* Thunberg
Rose Plume	*Euenaemidophorus rhododactylus* Schiffermueller
Fiery Clearwing	*Aegeria chrysidiformis* Esper

All collectors are most earnestly requested, therefore, to use the utmost restraint at all times in taking any of the above species, in any of their stages, and particularly when adverse factors have reduced their numbers. The indiscriminate capture of large numbers of these species not only may endanger their existence in this country, but also renders more difficult any negotiations being carried out by the Committee in the endeavour to preserve them and their natural habitats.

After mature consideration and full realisation of what it entails, the Committee would beg entomologists to report direct and at once to its Honorary Secretary any thoughtless collecting of this kind, which may come to their personal notice, giving the fullest particulars.

The Committee is glad to report that one well known dealer has already given an undertaking to have no dealings whatever in a number of the insects on the Committee's list in any living stage. It is hoped that similar co-operative undertakings may be secured from other dealers, who are hereby invited to communicate with the Honorary Secretary.

The Committee would be glad at all times to receive practical suggestions from entomologists. In particular it would urge entomologists to notify the Committee at the earliest possible moment of any observed

threat to a rare or local species or to its habitat, giving all the information obtainable, so that its support and experience may be made available in framing measures necessary for their protection.

N. D. Riley, Hon. Secretary,
Committee for the Protection of British Insects.
Royal Entomological Society of London,
41 Queen's Gate, London, S.W.7,
30th March 1951.

LEPIDOPTERA COLLECTING NOTES, 1950.

By W. Reid.

(*Continued from page 36.*)

On 29th July, in company with Mr. G. Hyde, I made an evening trip to Sandburn Wood, near York, hoping to find *Enargia paleacea* Esp. Although conditions were apparently favourable on leaving Sheffield, during the early part of the night conditions changed, skies cleared with a bright nearly full moon, shining unobscured. We only saw one *paleacea*, a very worn specimen, which must have been out for a considerable time, but prior to the clouds clearing, the sugar patches were covered with very fresh *P. suspecta*. We also took a fresh male *Epione vespertaria* Fab. at light, together with one *Habrosyne pyritoides* Hufn. (*derasa* L.). By midnight, even the *pronuba* had disappeared, so we packed up and came home.

July 30th. *Amathes xanthographa* Schf. (common); *Lygris populata* L. (common).

On August 1st we left for Dunstable where we spent two days. *Lysandra coridon* Poda and *Hesperia comma* L. were flying at Ivinghoe, and Mr. Fraser took a very fine *Aricia agestis* Schf. with the black spots on the underside merged into heavy radial streaks. At sugar and light near Tring we took *Mythimna turca* L., *Eremobia ochroleuca* Schf., *Drepana binaria* Hufn. and *Drepana cultraria* Fab., but here again the moon was bright and atmosphere clear and cold. A trip to a wood near Northampton on the Wednesday was spoiled by rain, but we saw *Limenitis camilla* L. flying in the short bursts of sunshine. On that evening *H. pyritoides* and *Amphipyra pyramidea* L. were taken at sugar.

Aug. 3rd. *Plusia interrogationis* L. (scarce); *Amathes sexstrigata* Haw. (common).

Aug. 4th. *Hydriomena furcata* Thun. (common), *Amphipyra tragopogonis* Cl. (common), *Phragmatobia fuliginosa* L. (not common), *Eilema lurideola* Zk. (only one), *Tethea duplaris* L. (black forms common).

August 5th and 6th were again spent with the Frasers at Freshfield. Amongst other things at light were *L. trifolii*, *Philudoria potatoria* L., *A. praecox*, *A. vestigialis*, *E. tritici*, *Agrotis puta* Hb., *T. duplaris*, *Thalpophila matura* Hufn., *Nycterosea obstipata* Fab. and *E. cursoria* Hufn.

Back at Sheffield on the 7th August.

Aug. 7th. *Luperina testacea* Schf. (common), *Hydraecia micacea* Esp., *Celaena leucostigma* Hb. (one only).

Aug. 9th. *Alcis rhomboidaria* Schf. (common), *Calothysanis amata* L. (common).

Another trip to Sandburn on the 12th, where conditions turned out to be worse than before! But soon after dusk two *Catocala nupta* L. and one *Scoliopteryx libatrix* L. were taken at sugar. We also took a series of very fine freshly emerged *Dysstroma citrata* L. sitting on posts, and amongst the very few insects at light was an *Amathes castanea* Esp. of the light grey form. The only other item of interest was a very fine display of the Aurora Borealis, which commenced at about 11.30 and continued until our patience gave out at 12.45 a.m.

Aug. 10th. *Deuteronomos alniaria* L. (common), *Hydraecia oculea* L. (*nictitans* L.) (common, in great variation).

Aug. 12th. *Antitype chi* L. (common on walls), *A. ditrapezium* Schf. (very worn and uncommon), *Chloroclystis coronata* Hb. (not common), *Lygris testata* L. (common).

On August 14th, a trip with Mr. Hyde of Doncaster, to Laughton Wood, near Gainsborough, produced the following at light and sugar: *E. paleacea* Esp. (only one, but very fresh, in contrast to the one taken earlier at Sandburn), *C. nupta*, *Amphipyra pyramidea* L., *A. ipsilon*, *Pterostoma palpina* Cl., *A. leporina*, *E. tritici*, *A. puta*, *A. vestigialis* and *T. matura*.

Aug. 18th. *Amathes glareosa* Esp. (common and many var. *rosea* Tutt), *Tholera cespitis* Schf. (uncommon).

At this date *Antitype chi* and *Lithomoia solidaginis* Hb. were common on the walls on the moor, and the latter was taken at heather bloom. *H. furcata* and *P. comitata* were also present in abundance.

Aug. 22nd. *Zenobia subtusa* Schf. (one only, very worn).

Aug. 23rd. *Anchocelis litura* L. (common).

Aug. 24th. *Cirrhia icteritia* Hufn. (*fulvago* L.) (common).

On August 26th, a grey *A. castanea* Esp. was taken on the moor, but the red form predominates.

Sept. 4th. *Arenostola pygmina* Haw. (not common).

On the afternoon of Sept. 8th, we made a trip to Holyhead, and fortunately the gales which had been blowing endlessly ceased for the two days we were there. The following were taken at light:—*Aporophyla lutulenta* Schf. (common and about half of them taken were var. *sedi*, the others being of the black form), *Aporophyla nigra* Haw., *Omphaloscelis lunosa* Haw. (in great variety), *Stilbia anomala* Haw. (common but mostly worn), *Gortyna flavago* Schf., *Rhizedra lutosa* Hb., *Trichiura crataegi* L. (one only); *T. cespitis* and *L. testacea* were both abundant.

At the Sychnant Pass, on the evening of Sept. 9th, *Ammogrotis lucernea* L., *A. nigra*, *S. anomala* and *Chloroclysta miata* L. were taken at the Tilley Lamp, with many other common species present.

Sept. 9th. (Sheffield) *G. flavago* Schf. (not common).

Sept. 14th. *Allophyes oxyacanthae* L. (common), *Agrochola lychnidis* Schf. (common in great variety).

Another night trip Laughton Wood, in company with Dr. Birkett and Mr. Hyde, was made on Sept. 15th. Here *T. cespitis* was abundant at light, and we also took *Deuteronomos erosaria* Schf., *C. nupta*, *Peridroma porphyrea* Schf. (*saucia* Hb., very fresh), *A. pyramidea* and *Asphalia diluta* Schf.

Sept. 19th. *N. obstipata* Fab. (rare, evidently 2nd or 3rd brood).
Sept. 21st (1949). *Hydraecia petasitis* Dbld. (rare) *not* taken in 1950.
Sept. 22nd. *S. libatrix* L.
Sept. 23rd. *Thera cognata* T. (not common).
Sept. 29th. *Oporinia dilutata* Schf. (common).
Sept. 30th. *Conistra ligula* Esp. (not common), *Calotois pennaria* L. (common).
Oct. 5th. *Conistra vaccinii* L. (v. common), *Agrochola lota* Cl. (common).

On October 7th, a last trip was made to Laughton Wood; nothing came to sugar, but the following appeared at light, amongst the more common species:—*R. lutosa*, *C. nupta*, *Episema caeruleocephala* L., *Chesias legatella* Schf., *Dryobotodes protea* Schf., *Erannis defoliaria* Cl.

Oct. 12th. *Agrochola macilenta* Hb. (not common this year), *Agrochola circellaris* Hufn. (not common this year).
Oct. 13th. *Eupsilia transversa* Hufn. (very common, mostly very dark brown).
Oct. 15th. *P. porphyrea* Schf. (only three in Sheffield).
Oct. 18th. *C. legatella* Schf., *E. defoliaria* Cl.
Oct. 19th. *Deuteronomos fuscantaria* Haw. (only one).
Oct. 20th. *Erannis aurantiaria* Hb. (common).
Nov. 7th. *Operophtera brumata* L.
Nov. 11th. *Oporinia christyi* Prout.
Nov. 28th. *Poecilocampa populi* L. (rare, only one and very late).

Entries in my diary show that we had our first heavy frost on 26th October. Thereafter frost at night was almost continual until Christmas, with the exception of three or four days, of which November 28th was one. The trap was not much in use during this period, and was only used in the hope of recording *P. populi*, which eventually appeared, although fully a month later than it did in Kendal, Westmorland.

In considering these notes, it should be appreciated that the light trap is at a height of 600 feet.

(*Concluded.*)

CURRENT NOTES.

A WRITER in the March issue of *Weather* (**6**: 67) has made an attempt to correlate annual rainfall with the weather of the succeeding summer and has arrived at a conclusion which he expresses in two generalizations:—(*a*) In the *first* half of the year, hot spells follow dry years, and cold spells follow wet years; (*b*) In the *second* half of the year, hot spells follow wet years and cold spells follow dry years. "The increased westerly winds and rainfall during the period 1901-40", says this writer, "explain peculiar changes in our spring and autumn climate. Spring has deteriorated and autumn improved. The cooler springs were noted by Gordon Manley (1941) when he wrote of the period 1906-35

'. . . our Aprils have become cooler, and both April and May have in late years given frosts comparable with any during the preceding century'."

Our readers will probably find that these conclusions are borne out, in general and in most years, by the weather records in their entomological diaries. So it would seem that the May and June butterflies are in for another bad year. The winter we have just passed through much resembles that of 1934-35 and the weather during the present spring also reminds one of the latter year. It is interesting, if a little depressing, to find in our diary under the date 28th June 1935 "It was strange to walk the fields in bright sunshine and not seen a single butterfly . . . . Walked about four miles and the only butterflies seen were one *Pieris brassicae* and two Meadow Browns". *Absit omen*! However, on 2nd July following our diary notes: "Sugared in B—— Wood. Swarms of moths at the sugar". *Adsit omen*! July, August and the first half of September were hot and dry, that year.

The moral of all this seems to be that we entomologists should arrange our holiday, this year, to begin on or after 1st July. Long-range weather forecasting is a notoriously dubious business; but the abundance of careful records, in all parts of the Kingdom, which have been kept during our own lifetimes do certainly indicate that "there is something in it". Probably it will always be impossible to forecast with any degree of certainty what the weather will be on any particular day a week ahead; yet we in this island are accustomed to take the rough with the smooth, and a day's rain in a fortnight's holiday is not of much account. Also it enables one to get on with the setting. It is the rest of the fortnight that matters.

The Zoological and Botanical Society of Vienna is holding its Centenary celebrations on the 7th, 8th and 9th of June this year. On the 7th there is to be an official session at the University, followed, at 7 p.m., by a Supper at the 'Zum Silbernen Brunnen' restaurant. Next day there will be visits to Biological institutions in Vienna and lectures in the afternoon. On the 9th there is to be an all-day excursion to Neusiedler See. The Committee invites the attendance of entomologists and botanists of all countries and the Secretary General's address is 1. Burgring 7 (Museum of Natural History), Vienna. If any of our readers attend we should like to receive subsequently an account of the proceedings.

Sexes of Two Genera of Strepsiptera Adopting Different Orders as Hosts.—Hofeneder (Ent. Z., 1939, **53**, 75) has written a paper on a strange case of parasitism in South American Strepsiptera. Males of two genera of Myrmecolacidae, *Myrmecolax* Westwood and *Caenocholax* Pierce, are parasites of ants, but no females have been found. On the other hand females of two genera of Stichotrematidae are parasites of Orthoptera (mantids and crickets) but no males have been found. This led Oglobin to suspect that the females of the Stichotrematidae were the missing sex of the Myrmecolacidae. Comparison of the first stage larvae of the former with exuvia of the triungulin larvae found in the

bodies of ants showed that they were identical. Thus in two genera one sex is a parasite of Hymenoptera and the other sex is a parasite of Orthoptera.

It would be interesting to know whether the active triungulin larvae, resembling those of Stylops, can recognize the correct host, the males choosing ants and the females mantids or crickets, or whether they fail to develop if they choose the wrong host.—E. A. Cockayne, 8 High Street, Tring, Herts.

A Natural Hybrid of Zygaena filipendulae L. and Z. lonicerae Schev.—Alberti (Ent. Z., 1939, **53**, 173) took a male *Zygaena* in a very restricted locality in Mecklenburg where both *Z. filipendulae* and *Z. lonicerae* were common. It was intermediate in many respects between the two species. The genitalia, of which he gives a line drawing, were also intermediate and proved that his surmise was correct In *The Entomologist's Record*, 1941, **53**, 113, I wrote a short paper in collaboration with H. M. Darlow and we proved by means of the genitalia that a similar male taken in Bedfordshire was a natural hybrid. The photographs we gave on Plate VI agree perfectly with Alberti's drawing.—E. A. Cockayne, 8 High Street, Tring, Herts.

NOTES AND OBSERVATIONS.

Moths in 1950.—On 20th July I received a slightly worn specimen of *Hyloicus pinastri* L. which was found sitting on a telegraph pole in Balcombe. This occurrence of the moth is rather unusual, as outside its Suffolk haunts the species is found only sparingly in pine-clad districts of southern England. There are several plantations of coniferous trees among the extensive oakwoods of this district, with a fair sprinkling of Scots pines, so the moth was no doubt of local origin.

I had a number of larvae of *Cerura vinula* L. which pupated last September, but two of them escaped from the cage, and later I found their cocoons inside an old boot! One larva had actually chewed out a hollow in the leather inside the boot and had used the chewed-off particles to cover the outside of its cocoon. It was a remarkable piece of work and says much for the strength of the larva's jaws!

When collecting foliage from some poplar trees for these *vinula* I discovered several young larvae of *Notodonta ziczac* L. feeding on them. They were in the usual hunched-up attitude with the claspers raised, and as each larva was clinging to the edge of the leaf on which it had been feeding it gave exactly the impression of a damaged leaf with withered and curled brown edges. No doubt this habit gives effective protection from the eyes of birds, at least when these larvae are small.—R. J. R. Levett, Balcombe, Sussex.

Mompha nodicolella Fuchs in Surrey.—With respect to the Note printed under this heading on page 49 of our last issue Mr. S. Wakely writes to say that the authorities at the British Museum (Natural History) have been investigating the occurrence of this species and its allies in England and have made important discoveries. Apparently the

previous *nodicolella* records (three specimens only, from Kent) have been found to be wrong, the species so described being in fact *M. subbistrigella*. Mr. Wakely's capture therefore appears to be the first record for Britain. We hope to print a further note on this subject by Mr. Wakely in our next issue.

PAIRING POSITION OF ALSOPHILA AESCULARIA SCHIFF.—May I be allowed to ask a question; I cannot find anything about it in the literature in this town, and my fellow-collectors here have not paid any attention to it. When I have seen the March Moth (*Alsophila aescularia*) in copulation they have always been sitting, both of them, head upwards, the male covering the female on the tree-trunk. The abdomen of the female has been curved upwards to meet the male's. Is this the case during the whole act? Is it always the case? And if so, does the same thing occur in other Lepidoptera? If it is the usual way it would explain the curious fact that *aescularia* females which have deposited their eggs usually have their abdomens curved upwards. Thousands of collectors must have seen this moth *in copula*, so it must be easy to get my question answered.—DR. SKAT HOFFMEYER, D.D., Aarhus Bispegaard, Aarhus, Denmark.

[In most districts of England this species is a hedgerow insect, and when the female emerges from the pupa probably she does not climb very far from the ground, perhaps only a few inches. Thus pairs *in cop.* are unlikely to catch the eye of the field lepidopterist. After pairing the female apparently ascends the stem of the foodplant and then out along a branch, laying her eggs in a 'bracelet' round an outermost twig. If some of our readers have paired the species in captivity we shall be glad if they will send us a note of their observations.—ED.]

LEPIDOPTERA SEEN FROM 1ST JANUARY TO 31ST MARCH, 1951.—When I retired from business in April 1944 I was at leisure to take my dog for a walk every morning round a private estate within five minutes' walk of my house. There is an oak overlap fence about five feet high round part of the estate. It faces north for 240 yards and west for 200 yards. For the past seven years I have taken note of the moths settled on this fence and have entered the results daily in my diaries, except when I have been from home on holiday. That this fence is much favoured by moths is shown by the fact that during the twelve months of 1946 there were 300 moths of 52 different species noticed on it.

In 1947, from 1st January to 31st March, 178 moths of seven different species were noticed; but this year only 23 moths of 5 species were seen up to that date.

The number of specimens, and first dates of appearance for seven years, of the following species are listed below:—*Erannis leucophaearia* Schiff., *Alsophila aescularia* Schiff., *Theria rupicapraria* Schiff., *Operophtera brumata* L., *Erannis defoliaria* Clerck, *Erannis marginaria* Fab., *Phigalia pedaria* Fab. and *Orthosia cruda* Schiff. Other species were sometimes observed elsewhere during those years but only those on the fence are included in the list. About 75 per cent. of the moths rested on the fence facing north.

In the first three months of this year the only other moths seen in the neighbourhood were one *Biston strataria* Hufn. on the trunk of a limetree, two *Erannis marginaria* Fab. at a lighted window of my house,

and one *Orthosia gothica* L. and one *O. stabilis* Schiff. at the sallow catkins in my garden. These observations seem to presage that 1951 will be as poor a year for the lepidopterist as 1950. The commonest early moth in East Herts. is *E. leucophaearia* Schiff. and I presume this is the case in most districts in southern England.—Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford, Herts.

SPECIES	1945		1946		1947		1948		1949		1950		1951		Total No. seen
	No. seen	First seen	No seen	First seen	No. seen	First seen	No. seen	First seen	No. seen	First seen	No. seen	First seen	No. seen	First seen	
E. leucophaearia	15	10.ii	97	30.i	117	3.i	36	27.i	21	15.i	17	11.ii	5	3.ii	308
A. aescularia	8	25.ii	20	8.ii	34	18.iii	19	1.iii	8	9.ii	1	15.ii	8	11.ii	98
T. rupicapraria	1	12.ii	1	28.i	2	13.iii	4	25.i	7	27.i	3	23.ii	4	6.ii	22
O. brumata	—	—	4	7.i	7	4.i	2	2.i	1	1.i	3	3.i	3	3.i	20
E. defoliaria	—	—	5	9.i	7	9.i	2	2.i	2	1.i	1	13.i	—	—	17
E. marginaria	—	—	—	—	4	21 iii	1	3.iii	3	22.iii	1	6.i	3	24.ii	12
P. pedaria	—	—	5	2.ii	7	27 ii	3	30 i	—	—	—	—	—	—	15
O. erada	—	—	—	—	—	—	3	15.iii	3	29.iii	—	—	—	—	6
Total No of Moths on Fence in 3 months	24		132		178		70		45		26		23		

Larvae of Saturnia Pavonia on Alder-Buckthorn.—On the 11th June, 1950, at Byfleet in Surrey, Mr. W. H. Spreadbury and myself had the unusual sight of a large batch of the larvae of this species feeding on a sapling of alder-buckthorn (*Rhamnus frangula*), the ova having been deposited low down on the main stem.

The few larvae I transferred to a breeding-cage at home ignored the buckthorn when they had the choice of bramble and sallow.—W. J. Finnigan, 87 Wickham Avenue, Cheam, Surrey.

PARARGE EGERIA L. IN BIRMINGHAM PARKS.—Three summers ago *Pararge egeria* L. appeared in two of our Birmingham parks, and has been seen each year since. This butterfly is common in the woods around the town, but its presence inside the city boundaries is rather unusual. I have been unable to find any evidence that it has been introduced.—CARTWRIGHT TIMMS, 524 Moseley Road, Birmingham, 12.

BREEDING CUCULLIA VERBASCI L.—I have just bred a small batch of this common species from larvae collected last year on the chalk downs near Winchester. A high percentage of the larvae were parasitized and failed to pupate. Of those that pupated normally I removed a few of the pupae from the cocoons and in each case the moths reached maturity but dried up before emerging, while those that were left undisturbed in their cocoons emerged successfully. All were kept through the winter on dry peat moss indoors. I have noticed this happen on previous occasions when breeding this species, although other species taken out of their cocoons and kept similarly dry have not been affected.—A. C. R. REDGRAVE, 14a The Broadway, Portswood, Southampton.

LARVA OF LASIOCAMPA QUERCUS L. RACE CALLUNAE ATTACKED BY CARABUS PROBLEMATICUS (COL. CARABIDAE).—While holidaying in the island of Jura I picked up half a dozen full-grown Northern Eggar Larvae (*Lasiocampa quercus* L. race *callunae* Palmer) which soon pupated. The following year six fine imagines duly emerged but strangely enough all six were females. Although I would have liked a male or two from Jura I contented myself with the thought that I could get a good selection of local males by assembling. Unfortunately time and weather did not combine favourably and the last female died unmated, although I was aware that the species was not unknown in the nearby hills.

The following year in late June I took the opportunity of making a search on the local moor and sure enough a fine full-grown larva was seen on one of the first clumps of heather I came across. I would not say they were as common as Fox Moth larvae in a good year, but one turned up every hundred yards or so. I decided to rear another half dozen. About an hour later I had collected five well-grown specimens and was looking out for a sixth to complete my quota. After walking a few yards I spotted it, but at the same moment there was a flash of black and purple and my sixth specimen lay writhing on the black peat below the heather with a monster violet Ground Beetle gripping it with its jaws just behind the forelegs on its less well protected underside. The fight was fast and furious and I am afraid I must instinctively have felt that my larva would be the loser, for I did not give the combatants time to fight it out but collected both before more damage was done.

The sequel is of course that the larva lived to pupate satisfactorily and reward its benefactor by producing the much needed male imago, which duly took its place in the cabinet next to the Jura females. The beetle was relegated to that odd drawer which the lepidopterist keeps for Coleoptera.—A. M. MACLAURIN, Oldhall House, Kilmalcolm, Renfrewshire.

VARIATION IN LYCAENA PHLAEAS L.—For many years I have bred *Lycaena phlaeas* and have found that they do not vary greatly—in, say, three hundred emergences there may not be one major variety. It is

always possible to see the wing-markings of the future perfect insect through the pupal case and sometimes one can see that a pupa would produce a striking variation, only to find that the imago fails to emerge.

I decided to try in-breeding and on the 23rd May a female was placed on sorrel. Her issue started emerging on the 8th July, and a female and some males were placed on sorrel with some flowers. The female soon began laying and the eggs hatched in the usual way.

This third generation started emerging on the 24th August and of 21 emergences 18 were perfectly normal and healthy. Three were striking variations, all of the same type. The black borders were greatly enlarged, the spots outwardly placed and coalescing with the border. The discal spot was enlarged into a bar which streaked into that at the base. The spot at the base was also enlarged (*basi-juncta* on the underside). The colouring was dull and the usual clarity of the markings absent, that is to say they gave one the impression of being slightly blurred. All three emerged late and had to be kept very warm; they had hardly the strength to expand their wings.

It seems probable that the third generation of in-bred specimens would usually show some striking variations. But specimens of striking variations in nature are often not only healthy but notably so. I took two very large and beautiful *phlaeas* in 1948—one with *radiata* hindwings and one with *obsoleta* hindwings—in both of them the copper is brilliantly red and lustrous and the black pigment is jet black. Both stand right out in the cabinet and are extremely beautiful, whereas the in-bred variations look faded and unhealthy. I should think that in-breeding is seldom the cause of variation in nature.—F. H. Edwards, Rockfield, Abbey Road, Worthing.

[Mr. P. Siviter Smith writes: "In respect of the actual form of the three specimens described by Mr. Edwards, it is a combination of several types of variation that, separately, are found reasonably often in *L. phlaeas* but is rare in such a peculiar combination. The species is notable for its capacity to produce complicated varieties, in which the various phases making up the whole frequently appear to show contradictory tendencies. If we use Leeds' system of naming, the form for the upperside would be termed *inframarginata-antidiscreta-anticentri-juncta*; it is probable that the name *transformis* should be added to that analysis to cover the 'blurred' aspect, but I would have to see the specimens to be sure about that because a 'blurred' effect can be of several different types. That would give us an analysis label of 11+57+93+22d for the upperside. The underside appears, from the description, to be *antibasijuncta-transformis*, or 93c+22d, the names and numbers being taken from Leeds' Addenda (on *L. phlaeas*). The older nomenclature shows a combination of the following:—*latomarginata* Tutt; *remota* Tutt; and *discojuncta* Tutt.

"There are also one or two other points of interest. Mr. Edwards has shown us the three broods in the year, with approximately a six weeks' cycle in each case. I presume the conditions were very favourable or they were reared indoors. (See my query *re* the number of broods per year for this species, *Ent. Rec.*, **61**: 1 (1949)).

"It would also appear that if Mr. Edwards had been able to pair two of these varieties together he would have founded a 'pure' strain of this variety. I will not go into all the details of this—the

genetic aspects are so clearly outlined in E. B. Ford's interesting book *Butterflies* (1945), and in particular references are to be found on pp. 199-200, 218 and 260. Ford explains the genetic reasons for this and also deals with the bad effects sometimes caused by in-breeding. He shows that the third in-bred generation can be expected to produce varieties—certainly if a parent shows a variation—and that it may be possible to continue the strain.

" In-breeding to the stage of ' grandchildren ' in natural conditions is not likely to be at all common except sometimes perhaps in the case of a very small and isolated colony. There is no reason why varieties should be weak and unhealthy unless they are in-bred or because of some defect in their life circumstances, such as shortage of food, and I agree with Mr Edwards that most major varieties appear strong and healthy. In normal circumstances there is no reason why this should not be so. Ford says (p. 247):—' It will now be evident that variation may be due to either of two causes: to changes (mutations or recombinations) in the genes, or to changes in the environment affecting the *action* of the genes. Normally, these two agencies both contribute to produce the diversity of living organisms which we find in nature.' Any unfavourable effects are gradually ' filtered ' into recessive genes, and favourable ones into dominant genes; in-breeding as performed by Mr Edwards brings out the recessive gene effects, that is the unfavourable and therefore possibly ' unhealthy ' ones. This is the opposite to what is usually found in a state of nature.

" It is not difficult to get *L. phlaeas* to lay in captivity, nor to rear them; but it is not easy to get pairings. If Mr Edwards could say how pairings can be obtained most easily I should be interested and so would other readers, as I have had several enquiries on this point."—P. Siviter Smith.

[The majority of the names given by Leeds are either synonyms or are used with a meaning different from that of the original author. The use of the numbers in the key is to be discouraged.—Ed.]

A Note on Hyloicus pinastri L.—Recently I came across some notes on *Hyloicus pinastri* L. which I made while rearing this species some years ago, and as a certain conclusion which suggested itself at the time does not appear to have been dealt with by others I give the gist of my notes herewith.

In 1936 my friend, Mr. C. Craufurd, was given a few eggs of this species which had been laid by a female moth caught in the New Forest. From these eggs five moths were reared, all females. Fortunately, the day after the last female emerged Mr. C. Mellows of this town found a male at rest on a pine bole at Aldburgh in Suffolk and brought it home alive. Hearing of this the same evening, Mr. Craufurd borrowed this male and put it in a breeding-cage with the last of his females. The moths paired at once and the female subsequently laid 170 eggs. Some of these he kindly gave to me.

The eggs began to hatch late in the evening of July 11th (1937). Emergence was at the side, and from one-quarter to three-quarters of the eggshell was eaten. The newly emerged larvae were yellow, with black legs. The horn on the tergum of the 8th abdominal somite is bifurcated at the tip. Until the eggshell had been eaten the horn was

transparent greenish and it turned black about an hour after the shell had been eaten. The prothorax was much swollen and resembled a collar. Each epicranial plate is marked with a brown S not unlike a printer's mark of interrogation. When placed on conifer shoots the larvae wandered about for a time and then came to rest. I saw none feeding until about an hour after eclosion when most of them began to eat, nibbling the side of a pine " needle " from the tip for about an eighth of an inch, and then demolishing the tip downwards; so that presently it appeared that they had eaten the " needle " down to a blunt stump.

I watched one about to emerge from the egg. A hole was eaten in the chorion, and after half an hour's activity inside, the young larva remained motionless for an hour, presumably to digest its meal. Then it resumed and at last, when it had eaten a hole sufficiently large, it put its head out, had a look around, and crawled out slowly. It was very feeble when just emerged but moved about slowly and restlessly. Colour yellow, the dorsal line darker, the primary setae on each somite being clearly visible. At this stage the last two abdominal somites and horn were much paler than the other somites, and the horn was small and semi-transparent, the tip of each bifurcation being surmounted by a seta. The markings on the epicranial plates were as described above. I placed the eggshell close to this newly emerged larva, but although it rested its head on the shell it did not eat. The larval antennae were very distinct. At this stage the legs were black, prolegs yellow. The swollen prothorax was very noticeable. I then placed the larva close to a pine " needle," but although it crawled a short distance on it the " needle " was not to its liking, and it returned to crawl about its eggshell. Another newly emerged larva returned of its own accord to its eggshell and ate it with avidity. It devoured about three-quarters of the shell, taking an hour to do this, and by this time its horn was beginning to turn black. Later I found that this was the usual procedure. It seems therefore that the young larvae should not be transferred to the foodplant until their horns are black; for it appears that the horn remains green until the eggshell has been eaten.

Two larvae were prevented from eating their eggshells after eclosion. One of them died the following day, its horn remaining green; the other survived but did not " do " well for some days; its horn, however, became darker if not black. The saying *post hoc, ergo propter hoc* may have been applicable to both these larvae: they may have been constitutionally weak: there are weaklings in most large batches of eggs. But there is certainly a suggestion that this colour-change of the horn is associated with ingestion of the chorion and that the chorion contains some active principle necessary to the larva. It is hoped that other observers who have a large number of eggs of this species at their disposal will conduct further experiments; for clearly no conclusion should be based on a solitary observation.—P. B. M. Allan, No. 4 Windhill, Bishop's Stortford, Herts.

Citria lutea is very exact in the matter of oviposition. When the leaves fall from the outer stems of a sallow bush in autumn a 'shoulder' is left on the shoot whence each leaf has fallen (at the spot where the petiole joined the stem). On this little platform one sometimes finds a pair of eggs, matching their background very accurately in colour.

If the eggs are left *in situ* and the stem visited a few weeks later it will be seen that two little red spots have appeared alongside the eggs. A little later still these red spots will have declared themselves to be flower-buds (catkins), into which the emergent larvae in due course will eat their way. A very pretty example of adaptation. [IDEM]

When collecting eggs of the yellow 'Sallow' moths in wintertime it is often astonishing to find how many of these eggs have been eaten by predators. In autumn the little strings of five or six eggs tucked alongside the buds, or rather in the groove between bud and twig, are easy to find; for they remain white until nearly the second week of November, when they change to a dull greyish-brown and consequently are not so easy to see. But if left where they are until December most of them are found to be squashed and half-eaten. Is this the work of earwigs; if not, what predator is on the prowl in December? The work is done at night. [IDEM]

The larva of *Achlya flavicornis* provides a good example of what has been called 'the plasticity of instinct'. When small, the larva constructs a retreat by neatly folding over one side of a birch leaf as far as the midrib. When larger, it folds a leaf in half, the fold being along the midrib, the opposite edges of the leaf being fastened together with silk. But sometimes, when the egg has been laid on a small-leaved birch, the larva finds, when in its last stadium, that a folded leaf is too small to contain it. When this happens the larva adjusts its habit of folding a leaf in half and, instead, spins two or even three leaves loosely together to form a retreat. [IDEM]

Larvae which spend the daylight hours in a retreat constructed by spinning together leaves or a single leaf, such as *Dicycla oo*, *Polyploca ridens* and *Achlya flavicornis*, lay down a single strand of silk as they emerge from their retreat and proceed to their feeding place at night. It is by means of this silken strand that they are able to find their way back to their retreats at dawn. Unfortunately observation on the manner in which they use this 'guide-rope' on their retreat is exceedingly difficult. Watching *P. ridens* it has seemed to me on each occasion that contact with the 'rope' is kept by some part of the larva's head, but whether the labial palpi or the maxillary palpi or the antennae are called into play I have been unable to determine. Certain it is that the larva's head is kept lowered and thus close to the twig along which the insect is progressing, but no lower than is usual with any other kind of larva. Progress is rather slow and occasionally the head is tossed up or swung from side to side as though contact with the silk had been lost. On these occasions there is always a temporary halt. A light strong enough to enable the observer to use a high-powered lens, and the necessary proximity of the lens, cause abnormal behaviour. Can any readers enlighten me on this point? [IDEM]

THE EFFECT OF 'CROWDING' ON THE COLOURATION OF LARVAE.—Dr. Ergene's experiments on the factors controlling the change of colour in grasshoppers, described by Dr. Burr in our last issue (page 54), are of interest to lepidopterists no less than to orthopterists. About thirty years ago Uvarov brought forward the "phase" theory of locusts and showed that the young hoppers when crowded together developed

differences in colour, structure, behaviour and physiology from similar larvae kept individually separate. In 1943 Faure announced the discovery of "phases in larvae of two South African Noctuids, *Laphygma exigua* and *L. exempta*, with the possibility of its occurrence in a third species, *Spodoptera abyssinia*. During last year Drs. C. B. Williams and D. B. Long carried out experiments on the larvae of *Plusia gamma* (in each case from a single batch of eggs), some of the larvae being crowded and others kept solitary. It was found that all the solitary larvae remained pale green while the crowded larvae changed from a green darker than that of the solitaries to an extremely dark colouration. These experiments were prompted by the observation, made in the field, that unusually dark larvae were associated with mass outbreaks. It is interesting to note also that with the exception of *Spodoptera abyssinia* all the Lepidoptera in which "phases" have been demonstrated are migratory species. Further experiments are in progress (see *Nature*, vol. 166, No. 4233, 16.xii.1950).

FIELD NOTES.

There are few occupations more delightful to the entomologist than "dusking," and this may be started in May and carried on throughout summer and autumn. It is indeed pleasant to amble along a lane or by the edge of a wood on a tranquil evening, and the unexpected in moths sometimes happens. Numbers of the "Pugs" may be captured this way, including *Eupithecia pulchellata*, *E. linariata*, *E. irriguata* (in its right localities) and several others. Although, of course, the best way to obtain the "Pugs" is by breeding.

I find that the Geometers are usually the first moths on the wing after sunset, and among the early fliers are *Iodis lactearia*, *Scopula ornata*, *Ligdia adustata* among others. While the sallows are still in bloom they will always repay a visit and this is the best way of capturing moths belonging to the genus *Orthosia*. In the Midlands the sallows were not out in full bloom until mid April, and the heavy rains, I am afraid, spoiled them for the moth hunters; by the time these lines appear in print they will be past their best. Still, there is always dusking and on one of the really good nights, boxes will be filled quickly. —Cartwright Timms, 524 Moseley Road, Birmingham 12.

So far as the southern half of England is concerned May is usually a poor month for the sugarer. The sallows are finished and unless it be an exceptionally early year none, or almost none, of the summer Noctuae has yet appeared. Most of the Prominents are on the wing, so trunk and paling searching is worth while; some of the common hawkmoths also are to be found at rest; and of course there are plenty of Geometers a-wing at dusk. It is still larva-hunting that occupies the lepidopterist's time, and indeed there is so much in the larval line to be had during May that one hardly knows which way to turn.

During May, wrote our Founder in one of the early issues of this magazine, "larva-searching is at its height and large numbers of rare

and local species are to be obtained." So unless one has a range of fifty or more larva-cages it is wiser to leave the beating-tray at home and search by night with a lantern. And of all lanterns for finding larvae by night in May (or in any other month for that matter) the best is an acetylene bicycle lamp. Why, we know not; but the beam of an acetylene lamp makes larvae 'stand out' in a remarkable way. Against this *pro*, there is the *con.* that it is very trying for the eyes. It is also very trying for gamekeepers and village policemen . . .

If one prefers an electric torch it is wise to carry in the haversack not only a spare battery but a spare bulb. On one never-to-be-forgotten occasion when larvae were in quite amazing profusion we dropped our torch early in the proceedings and broke the bulb. Feverishly we searched in our haversack for the spare bulb that *ought* to have been there but was not . . . It was a weary walk home that night, with nearly empty boxes when probably a couple of hundred could have been filled.

We used to wonder what it was that ate one side of the birch catkins, in Spring, eating the whole of one side only, from petiole to tip. Then one night our acetylene lamp disclosed, hard at work on a catkin, a small and rather thick-set brown larva which, never having seen its like before, puzzled us considerably. After a day or two it spun a cocoon among the debris of catkins in its box, whence in due course *Herminia barbalis* appeared.

A number of butterfly larvae can be collected, by day as well as by night, in May. On chalk downs *Hesperia comma* and *Lysandra coridon* are to be had. At the edges of fields, glades in woods, the fringes of woodlands, and other places which they frequent one can take *Polyommatus icarus*, *Coenonympha pamphilus*, *Ochlodes venata* and *Thymelicus sylvestris*. In woods, *Limenitis camilla*. By searching grasses at night one can usually obtain as many as one requires, in their known haunts, of *Pararge megera*, *Melanargia galathea*, *Maniola tithonus* and *M. jurtina*, *Coenonympha tullia* and *Aphantopus hyperantus*. One night in May, high up in the hills, we defied the icy blasts and collected *Satyrus semele* in plenty from Tufted Hair-grass.

Some lepidopterists prefer to collect larvae in Spring as late as possible in order to avoid the trouble of feeding up young larvae which may prove later to be parasitized. But some parasites do not disclose their presence until a larva is full-grown, and every day the numbers of Spring larvae decrease. The rule is: "Early, little, plenty; Late, large, few."

Tiliacea citrago seems to occur wherever there are lime-trees, both in town and country, thoughout the United Kingdom. When young the larva usually inhabits the lower trunk-shoots, spinning a retreat among the leaves, and when half-grown can sometimes be found with a torch at late dusk ascending the trunk. It is much more easily obtained when full-grown, about mid-May (not later) by beating the lower outermost branches after midnight.

It pays to search the twigs of birch bushes at night in May. So many good larvae which start the autumn by eating herbaceous stuff

require something more solid in Spring and therefore climb the nearby birch bushes as soon as their predators have retired to rest. *Amathes ditrapezium*, *Anaplectoides prasina* and *Polia hepatica* (*tincta*) are among the many species commonly found in this way. We have found the larvae of *Trichiura crataegi* more often on birch than on any other foodplant, though it is probably a general feeder on trees and shrubs. Incidentally, for some reason which we know not the half-grown larvae of this species sometimes display great activity at midday, when feeding on birch, crawling rapidly about the twigs. On these occasions of course they readily catch the eye of the lepidopterist. Have any of our readers noticed this trait in this species?

A few years ago, in the course of a walk early in July across some hills in the West Country, we noticed two or three small black Geometers—*Odezia atrata*—flitting in the sunshine about a patch of some Umbelliferous plant in a sheltered hollow. With the aid of Bentham & Hooker we identified the plant as *Conopodium denudatum*, one of the three known foodplants of this moth. Early next May we went again to the spot, and shaking the flower-heads of the plants over a beating-tray were embarrassed by the number of larvae that rewarded our effort. Unhappily there was the usual sequel that attends a profusion of any species—it became evident a few days later that we had not been the first predator to visit that colony! Still, we reared quite a good series.

The *Cosmia* genus is to the fore, in the larval stage, in May, and although both *affinis* and *diffinis* sometimes occur in the same locality *diffinis* is much the scarcer species. In our district it is confined to the large elms that grow at the edge of two adjoining watermeadows, whereas *affinis* occurs on elms both large and small, on high ground as well as low, throughout the district. Years ago we had the same experience in the Kennet valley, seeing *diffinis* in plenty at our sugar night after night on one particular row of elms also bordering watermeadows. Perhaps this has been the experience of other collectors too. *Pyralina* has been beaten as a larva not only from elm but from oak, blackthorn, wild plum, orchard apple, crab apple, hawthorn and even lime. *Trapezina* is a general feeder which is said to eat, in captivity, "cold cooked mutton." All these species occur on saplings and trunk shoots as well as on the lower branches of large trees.

Probably *Dicycla oo* is much more widespread than most lepidopterists think. The larva cannot be beaten, because it seals itself up in an oak leaf so securely that only a 'direct hit' can dislodge it —squashed. The pupal stage usually lasts only three weeks—from the first to the third week of June, when most lepidopterists have other things to do than go pupa-digging; and eclosion occurs almost simultaneously throughout a wood, the imagines living for little more than a week. The moth comes to light and it often comes (to our knowledge) from a considerable distance, so its habitat may be far removed from the lamp. We have found the larvae in quite small oakwoods in open, sparsely wooded country, where indeed it was quite unexpected. The larva is easily—or fairly easily, for considerable patience and perseverance are required—found by slow, careful, and persistent scrutiniz-

ing of spun-together leaves on the lowest branches of oaks *inside* a wood, often on the northern half-circle of the tree. There is no other British oak-eating larva like it, for it is as black as coal, with a white dorsal line.—Incidentally, should the lepidopterist find, similarly spun up in an oak leaf at the end of May, a *white* larva with a black dorsal line he will know that *Asphalia diluta* has fallen to his lot.

PRACTICAL HINTS.

The only way to obtain fine specimens of *Phytometra viridaria* Cl. is to breed them; for the colours seem to fade quickly after the imago first takes wing. Bred specimens look very bright and handsome. Captured females will lay eggs on milkwort (*Polygala vulgaris*) or lousewort (*Pedicularis sylvatica*) *if fed*, and the larvae will eat either of these plants. Best reared in tumblers or tins. The cocoon is spun among debris (in captivity, peat) on the surface of the ground.

Beating the seed-clusters of elm this month usually brings down a shower of larvae. Most of these will be *Agrochola circellaris*, but some may (and often do) prove to be *Cirrhia gilvago*. The larvae of these species are very much alike: the ground colour of *gilvago* is greyish-brown, that of *circellaris* yellowish-brown, and the dark markings of the tergites of *circellaris* are more uniformly 'solid' than in *gilvago*, in which these markings are usually lighter and more 'sketchy.'

Catkins collected from beneath black poplars in the Breck district of Suffolk this month may yield a series of *Cirrhia ocellaris*. The range and distribution of this species are not yet known; a search in quite other places might reveal its presence. The larva feeds on the catkins until within three or four days of pupation, when it eats leaves—either of poplar or herbaceous stuff.

Although so common where it occurs *Pseudopanthera macularia* is always worth breeding; for the imago varies considerably and by selection one can rear interesting forms. Captured females lay eggs freely on wood sage—probably also on *Stachys* and *Lamium*, which are natural foodplants in some places. The larva is easy to rear.

The gregarious larvae of *Orthosia miniosa* are readily beaten from the lowest overhanging boughs of oak this month; but it is little use beating for them unless it is a *good gall year*. They should be collected as soon as possible as the proportion parasitized is usually very large. In the last two instars they must be given galls as well as young leaves —preferably the small red currant galls (*Spathegaster baccarum*), but they will also eat oak apples (*Teras terminalis*).

In mid-May imagines of *Aethalura punctulata* are sometimes to be had in plenty from tree-trunks in Epping Forest. The moth does not take wing when disturbed and is therefore easily boxed. Probably occurs in most large birchwoods in the southern half of England.

Although *Euproctis chrysorrhoea* is usually associated with the coasts of Kent and Sussex it occurs freely on the Essex coast, *e.g.* at Clacton and its neighbourhood. Towards the end of May nests of larvae are to be seen there on hawthorn hedges and occasionally on fruit trees.

On the Essex salterns larvae of *Malacosoma castrensis* are often abundant in May, their 'nests' occurring on a variety of herbaceous plants. In confinement they do well on garden chrysanthemum and indeed will eat almost anything that is offered to them! Spray the foodplant with weak brine occasionally and give all the fresh air and sunshine possible.

Towards the end of May full-grown larvae of *Catocala promissa* can be beaten from oak in large woodlands. Occurs in most of (probably all) the big woods of Kent and Sussex as well as in those of the south Midlands.

Agriopis aprilina, though a pest in some places is not common everywhere. Those who want it should search the trunks of big oaks, fairly low down, on the north and north-west sides, at the end of May. Oaks in hedgerows are often patronised, as well as those on the banks of rivers and in glades in woods. The full-grown larva squeezes itself into quite small crevices, whence it has to be prised out with a match-stick, and is not at all conspicuous.

COLLECTING NOTES.

NOTES FROM SURREY.—The persistent cold and rainy weather we have so far experienced this year will doubtless have prevented a number of observers from getting out and about. My own excursions have certainly been curtailed, but the following few notes may be of interest.

On the 13th March *Alsophila aescularia* and *Erannis marginaria* were fully out and on the same day *Achlya flavicornis* was seen. Three days later, on the 16th, *Panolis flammea* and *Ectropis bistortata* appeared while the 18th produced *Biston strataria* and *Orthosia incerta*. A solitary specimen of *Brethos parthenias* was flying lazily round a birch tree on the 8th April. *Xylocampa areola* and *Ectropis consonaria* were noted on the 14th, a rather early date for the latter moth.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey.

NOTES ON EARLY SPRING LEPIDOPTERA.—Because of cold wet weather this year's early Spring collecting has been most disappointing. We ventured out on a few evenings in February to find *Theria rupicapraria* Schiff. in the hedgerows and in three evenings we found two pairs and two males.

Sallow catkins were late in coming out. April 3rd was the first mild dry evening and we paid a visit to the famous sallow swamp at the Brickfields near Brockenhurst. Only a few sallow bushes were actually in full bloom and only five species were seen:—*Orthosia gothica* L. and *miniosa* Schiff. (a single specimen of each!), *O. cruda* Schiff. and *stabilis* Schiff. fairly commonly, and *Conistra vaccinii* L. in some numbers. We worked two lamps but the only visitors to the sheets were *O. cruda* and *stabilis*, *Xylocampa areola* Esp., *Nothopteryx carpinata* Bork. and *Earophila badiata* Schiff. We were surprised not to see any specimens of two usually common species at sallow in this locality —*O. incerta* Hufn. and *munda* Schiff. Even our powerful new mercury vapour lamp at Houndsdown failed and all that came to it were

a few specimens of *O. gothica* and *Biston stratarius* Hufn.—A. C. R. REDGRAVE, 14a The Broadway, Portswood, Southampton.

MOTHS AT SALLOWS AT WESTON-SUPER-MARE.—In a previous note (page 52) I mentioned the first occurrences of some early Spring moths in Weston-super-Mare and intimated that at any rate up to the beginning of March the season was not backward. During the last five weeks, however, the weather has been exceptionally wet and cold for the time of year, with the result that collecting has been virtually at a standstill. Up till last night (11th April) only occasional common moths had been seen at sallow, which was in fact not out till after Easter. Last night, however, *Orthosia stabilis*, *O. cruda*, *O. munda*, *O. incerta* and *O. gothica* were common and there were odd specimens of *O. miniosa* and *O. gracilis*, and it is hoped that the next few days may be prolific at sallow. It would be interesting to hear how other collectors have fared. Last year sallow was virtually over before the beginning of April in these parts.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare.

EARLY LEPIDOPTERA IN SOMERSET.—In common with the rest of Great Britain meteorological records have been broken during the first three months of 1951 in the amount of rainfall and low barometric pressures, although temperatures have been about average. Up to 31st March the barometer has been persistently low, with an all-time record low reading of 956 mbrs. on 4th February. Rainfall has totalled 14.34 inches, nearly 5 inches above the average. It may, therefore, be interesting to see how the early Lepidoptera have reacted to these conditions.

Around Christmas *Poecilocampa populi* L. and *Operophtera brumata* L. came to the lighted windows spasmodically, when the weather was reasonable. The last *P. populi* appeared on 11th January, but *O. brumata* persisted until 28th January—a very late date. *Exapate congelatella* Clerck and *Erannis defoliaria* Clerck each came to light on 5th January, and nothing has been seen of them since. A single *Orneodes hexadactyla* L. came out of hiding on 7th January—it is usually abundant. *Depressaria applana* Fab. has been very common as always, but *D. arenella* Schiff. did not show up at all until 11th April. One *D. yeatiana* Fab. was drowned in the bath on 10th February. On 8th February several *Peronea schalleriana* L. and one *P. cristana* Schiff. came to light, and on 24th February *Alsophila aescularia* Schiff. came to the trap in force and continued to do so for several days: this is remarkable as I have not seen the species here for four or five years.

'Sallow' has been a miserable waste of time; only *Orthosia cruda* Schiff. and *O. gothica* L. have been noted; but these two species, together with *O. gracilis* Schiff., *O. incerta* Hufn., *O. miniosa* Schiff., *Cerastis rubricosa* Schiff., *Conistra vaccinii* L. and *Graptolitha ornitopus* Hufn. have appeared in the trap from time to time. Other single records from the trap are *Xylocampa areola* Esp., *Lycia hirtaria* Clerck and *Diurnea fagella* Schiff.

Scoliopteryx libatrix L. came out and appeared on the breakfast table on 2nd March, and intermittent 'dusking' has produced *Earophila badiata* Schiff., *Colostygia multistrigaria* Haw., *Peronea hastiana* L. and *Tortricoides tortricella* Hub., but *Biston strataria* Hufn. has

proved so far to be the commonest moth, appearing nearly every night and caring little what the weather was like.

Of the butterflies, only a solitary *Nymphalis io* L., a few *Aglais urticae* L. and one *Gonepteryx rhamni* L. have been seen.—A. H. Turner, Bickenhall, Taunton.

Pycnocryptus director Thun. (Hymen. Ichneumonidae) in Lancashire.—On 9th July 1949 I took three specimens of this Ichneumon fly, 2 ♂♂ and 1 ♀, by sweeping at Woolston, Warrington, Lancashire. According to Mr Harry Britten (who very kindly identified my specimens) this is a new fauna record for Lancashire.—William Ritson, 12 West Street, Winwick Road, Warrington, Lancs.

DIPTERA

DIPTERA (STRATIOMYIDAE AND TIPULIDAE) IN BEDFORDSHIRE.

By B. R. Laurence.

The following notes and records were mostly obtained whilst working (1944-49) a small area at Fancott, Bedfordshire, for *Syrphidae* (1950, *Ent. mon. Mag.*, 86: 351-353). The area is about half a square mile in extent and is mostly grassland, with three small woods, a large pond and a gravel-pit.

Verrall (1909, *Brit. Flies*, 5: 199) gives no indication of differences in the adult habitats of species of the genus *Beris* but says that the perfect insects occur on shrubs in the vicinity of water. The following records from Fancott indicate that *B. chalybeata* Forst. and *geniculata* Curt, as adults live in rather different places from *B. vallata* Forst. and *clavipes* L. and suggest that the larvae have rather different requirements. Szilady (1932, *Tierwelt Deutschlands*, 27, V: 13) gives a key to the larvae of *clavipes*, *fuscipes* and *vallata* and states generally that the larvae live mostly in moist earth, presumably referring to these three species. According to Verrall (1909: 210) and Szilady (1932: 14), Curtis records *chalybeata* as bred from moss (*Brit. Ent.*, pl. 337); but Lundbeck (1907, *Dipt. Danica*, 1: 69) ascribes this record to Walker (*Dipt. Brit.*, I: 12).

Beris clavipes L. (12.v.46, 23.v.47). Recorded from three localities; two of these are damp pastures and one a flooded gravel-pit.

Beris vallata Forst. (4.vi-5.viii). Recorded from eight localities; five are damp pasture and vegetation in streams, one a flooded gravel-pit and two are on nettles in open areas of woodland. Verrall notes that this species appears to mimic certain *Tenthredinidae*. In the gravel-pit it has been found flying at the same time as *Athalia cordata* Lepeletier (det. V. H. Chambers).

Beris chalybeata Forst. (1.v-11.vi). Recorded from two localities, both woodland, beneath trees on sycamore, nettle and *Mercurialis* leaves.

Beris geniculata Curt. (3.vii-31.vii). Recorded from one locality, on willows in a tall hedge surrounding a pond. The only other record

of this species in Bedfordshire is of a similarly small colony in part of an overgrown lane near Sundon (2.vii-8.vii.48, 8.viii.49).

Additional Stratiomyids obtained from the area, which lies on gault and consequently is rather marshy, are:—

From shrubs in woodland:—*Microchrysa polita* L., 2.vi.46; *Geosargus cuprarius* L., 12.vii.47; *G. iridatus* Scop., 31.v.47, 12.vii.47, also from hedge 31.vii.46; *Chloromyia formosa* Scop., 1.vi-3.viii, also from hedges; *Stratiomys potamida* Mg., 12.vii.47, 1 ♂, 1 ♀ only; *Oxycera pulchella* Mg., 12.vii.47; *Pachygaster leachii* Curt., 30.vii.49, also from hedge, 31.vii.46; *P. atra* Panz., 6.vii.46, 12.vii.47.

From flowers of *Heracleum sphondylium* L. and *Anthriscus sylvestris* Hoffm. in woodland:—*Chloromyia formosa* Scop., 1.vi-3.viii; *Stratiomys potamida* Mg., 1.vi.47, 1 ♂, 23.vi-12.vii, ♂♂, ♀♀, one ♀ specimen found outside woodland, on *Heracleum* by pond.

From damp pasture and vegetation in streams:—*Solva marginata* Mg., 8.vii.44 (1945, *Ent. Rec.*, 57: 72); *Chloromyia formosa* Scop., 11.vi-3.viii; *Odontomyia viridula* Fab., 3.vii.47, 12.vii.47; *Nemotelus pantherinus* L., 23.vi.45; *Oxycera trilineata* Fab., 3.vii.47; *O. analis* Mg., 16.vi.45; *O. pulchella* Mg., 3.viii.46.

From flooded gravel-pit:—*Microchrysa polita* L., 2.vi.46; *Odontomyia argentata* Fab., 24.iv.44, 26.iv.44 (1945, *Ent. Rec.*, 57: 91); *O. viridula* Fab., 18.vii-5.viii; *Nemotelus nigrinus* Fall., 5.viii.45; *Oxycera trilineata* Fab., 18.vii.47; *O. pulchella* Mg., 31.vii.46.

Of these species only *C. formosa*, *S. potamida* and *O. viridula* were found in numbers in more than one year.

In addition *Pachygaster atra* was found on 31.vii.47 in large numbers (♂♂, ♀♀) under hazel leaves in a small clump of trees (ash, oak, poplar) surrounding a spring. This spring is one of three thrown out by gault underlying glacial gravel, and the springs form discrete boggy areas, each about ten yards square, within a much drier pasture. Two of the springs are used by cattle but the other is much better preserved and contains *Caltha palustris* L., *Valeriana dioica* L. and *Eriophorum angustifolium* Roth. The following *Tipulidae* were found around the springs:—

Tipula fulvipennis Deg. (newly emerged adults), *T. maxima* Poda, *T. pabulina* Mg., *T. oleracea* L., *T. lateralis* Mg. (ovipositing in mud), *T. melanoceros* Schummel, *T. luna* Westhoff, *Limonia maculipennis* Mg., *Pedicia immaculata* Mg., *Limnophila lineola* Mg., *L. discicollis* Mg., *L. nemoralis* Mg., *Gonomyia lateralis* Macq., *Erioptera lutea* Mg. var. *taenionota* Mg., *E. fuscipennis* Mg., *E. maculata* Mg.

In contrast a list of *Tipulidae* found in the three small woods includes only three of these species:—*Tipula maxima* Poda (damp wood only), *T. variipennis* Mg., *T. pabulina* Mg., *T. oleracea* L., *T. vernalis* Mg., *T. flavolineata* Mg., *T. selene* Mg., *T. fascipennis* Mg., *T. lunata* L., *Nephrotoma flavescens* L., *N. quadrifaria* Mg., *Cylindrotoma distinctissima* Mg., *Limonia nubeculosa* Mg., *L. flavipes* Fab., *L. tripunctata* Fab., *L. chorea* Mg., *L. sericata* Mg., *L. maculata* Mg., *Pedicia rivosa* Mg., *Epiphragma ocellaris* L., *Gnophomyia lugubris* Zett. (damp wood only). *T. pabulina*, *T. variipennis*, and *T. vernalis* were also found on dry grassland and in the gravel-pit, and *T. maxima*, *T. lunata* and *Gnophomyia lugubris* (1945, *Ent. Rec.*, 57: 72) on vegetation in streams. In addition *Tipula unca* Wied., *Limonia nigropunctata*

Schummel, and *Ormosia hederae* Curt. were found in the hedgerows, and *T. paludosa* Mg. in the gravel-pit and on damp pasture.

Other records of *Tipulidae* from Bedfordshire are *Tipula fulvipennis* Deg., *T. nigra* L., and *Dictenidia bimaculata* L. from Flitwick Moor, the largest *Phragmites* marsh in the county, while *T. vittata* Mg. occurs in woods on the greensand (Wavendon and Ampthill) and has been found (10.v.47) ovipositing in wet moss fringing a pool in the former locality. Also found round this pool were *Prionocera turcica* Fab., *Ula sylvatica* Mg., and *Limnophila meigeni* Verrall. *Tipula rufina* Mg. and *Limonia didyma* Mg. were found resting on a lock wall of a disused canal at Broom, and *T. hortulana* Mg. and *Limonia masoni* Edw. were found by Mr B. Verdcourt near the River Ouse at Bromham.

Dates for *Tipulidae* are omitted as most fall under the flight periods given by Coe, 1950, *Handbooks for the Ident. of Brit. Insects*, 9: 2, Family *Tipulidae*. Exceptions are *Limnophila discicollis*, 16.ix.46, *Gnophomyia lugubris*, 19.viii.45, and *Gonomyia lateralis*, 11.vii.46.

It is a pleasure to place on record my thanks to the late Mr H. Audcent for his help in determining a large number of the *Tipulidae*.

Cynomya mortuorum L. in the Midlands.—During the war when leisure was limited and travelling difficult, I did a great deal of collecting on some derelict allotments about ten minutes' walk from my house. It was here that I caught a solitary specimen of *Cynomya mortuorum* L. This is a northern insect and is most abundant in Scotland. However, the late C. J. Wainwright took a specimen in his Birmingham garden (*Trans. R. ent. Soc.*, 1928), so this handsome fly may be more common in the Midlands than is suspected.—Cartwright Timms, 524 Moseley Road, Birmingham 12.

NOTES ON COLEOPTERA.

Foodplant of Baris scolopacea Germar.—Little seems to have been published about the foodplant of this saltern species. *Atriplex portulacoides* has been mentioned as a probable pabulum chiefly because the beetle has been taken most frequently when sweeping that plant. Some years ago I found larvae of the micro-lepidopteron *Phthorimaea obsoletella* F.R. feeding in the stems of *Atriplex littoralis* (or an allied species). The plant in question grows plentifully along the sea wall (but not on the actual salterns) at Benfleet and Canvey Island. It is an annual, and the old stem is very woody and hard. When first breeding the moth I noticed several weevils which were later identified as *Baris scolopacea*, a very local and uncommon species. Since then I have several times collected these stems in April or May, from which the beetle has always emerged later. My earliest date of its appearance is 1st June, with 27th July as the latest date. I would like to know if anyone has ever bred this beetle from *A. portulacoides*. Possibly it feeds on both plants. —S. Wakely, 26 Finsen Road, Ruskin Park, London, S.E.5.

Aulonium trisulcum Fourc. (Col., Colydiidae), etc., in South London.—In October 1949 this interesting species was found in plenty in the larval stage in the bark of a dead trunk of elm (*Ulmus procera* Salisb.) recently felled and lying by the roadside near my house, where it had

grown. The tree had been heavily attacked by *Scolytus scolytus* F. (=*destructor* Ol.), and the *Aulonium* larvae were nearly all ensconced in the soft, rather moist inner layers of the thick bark. They seemed to be full-grown and to have devoured most of the *Scolytus* larvae—to judge by the very few of these seen. Rearing them proved difficult; they could not be left *in situ*, the tree being due for removal shortly; a few adults were reared but most failed to pupate owing to drying of the bark, while others were found dead, attacked by mould, on opening up the bark. Pieces of this containing larvae, if kept in closed vessels, promptly and invariably went mouldy. The mature larvae hibernate; pupation takes place in the spring or early summer and eclosion a few weeks later; but apparently the beetles do not emerge from their cells until late June or early July. A number of *Hypophloeus bicolor* Ol. (our other chief *Scolytus*-predator) occurred under the same bark, with a few of its larvae. *Phloeopora testacea* Mannh., *Quedius maurus* Sahlb., and *Laemophloeus ferrugineus* Steph. were found singly under thinner bark. The larvae of *Ctesias serra* F. are sometimes frequent under loose dry thin bark on a standing elm nearby.

The British distribution of *Aulonium trisulcum* was studied by Verdcourt, 1947, *Ent. mon. Mag.*, 83: 185-6 (addenda, *ibid.*: 283). The recorded occurrences to date are there listed and the question of its increase in this country discussed. It is known from the following counties:—Middlesex, Surrey, Berks., Kent, Essex, Beds., Suffolk, Norfolk, Northants., Warwicks., Worcs., and Glos.—to which can now be added London. On 31st July 1935 I met with the beetle freely in Windsor Great Park; under a small piece of thin bark on a bough fallen from an elm (*U. procera*) about a score were clustered. (Mr Donisthorpe had discovered it in this area in 1926.) Since that occasion I have often worked fallen branches and trunks of elms in the same place without finding more than a few odd specimens.—A. A. Allen, The Tiled House, 63 Blackheath Park, London, S.E.3.

A Melanic Specimen of Axinotarsus ruficollis Ol. (Col., Malachiidae).—Towards the end of June 1942 I captured a female example of this local beetle by sweeping grasses in a lane near Windsor (Berks.) which differed strikingly from the numerous typical specimens accompanying it. By contrast with these the insect appeared entirely black; but the thorax and apex of elytra, normally clear red, are here actually of a dark pitchy-brown, only the latero-basal margins of the former remaining paler. I must have seen some hundreds of specimens up to the present time, without having encountered any other that was abnormally coloured or even had the red parts slightly darkened. Nor have I seen any reference in the literature to a melanic form of this species. —A. A. Allen, The Tiled House, 63 Blackheath Park, London, S.E.3.

FIFTY YEARS AGO.

(From *The Entomologist's Record* of May 1901.)

Egg-Laying of Cymatophora octogesima.—A ♀ *Cymatophora octogesima* was captured at Hazeleigh rectory on June 29th, 1900. She was kept alive for ten days in a cardboard box with living sprays of black,

white, and balsam poplars and weeping willow. An analysis of eggs laid on each leaf results as follows:—On weeping willow, 8, 2, 5, all on uppersides of leaves; on black poplar, 7, 7, 3, 1, of which 8 (including a batch of 7) were on undersides of leaves; on white poplar, 16, 10, 5, 1, 1, all on upperside except one; on balsam poplar, 2, 2, all on upper side except one.—Total 70. The eggs sometimes touch one another (as in one batch of six), but are sometimes laid singly. Five eggs were laid on one tiny white poplar leaf.—G. H. Raynor.

Stridulation of Smerinthus Populi.—One evening after dusk, a few years ago, I was walking with a friend up a lane when I heard the sound of some strong-winged insect humming through the air. I put up my hand and it flew right into the curved palm held to receive it. I closed my fingers over it, the third finger very firmly holding the wriggling body, and it repeatedly uttered the very same sound as *A. atropos* only weaker. I carried it 200 yards, and I found it to be a very fine specimen of *Smerinthus populi*.—Mrs E. M. Cowl.

At the meeting of the Entomological Society of London, held March 20th, 1901, Mr G. T. Porritt exhibited specimens of an almost black form of *Cuspidia menyanthidis* from Skipwith Common, near Selby, and stated that the same form was also common on Strensall Common, near York . . . The chief interest in the exhibit consisted in the fact that in both the districts where the melanic *C. menyanthidis* occurred, melanism was not a common feature; whereas in the Huddersfield district, where only the pale form of *C. menyanthidis* was taken, melanism was a conspicuous feature in many species, even in, and close to, the grounds where only pale *C. menyanthidis* could be found.

OBITUARY.

The death of Mr. H. AUDCENT on 9th February 1951, at Clevedon, in his 75th year, will be deeply regretted by two generations of entomologists to whom he had endeared himself by his friendliness, his sincerity, his reliability and his readiness to place freely at their disposal his wide knowledge of the British Diptera.

Louis Felix Henri Audcent was born at Keynsham (Somerset), on June 7th, 1875, of French parents. Being awarded a botanical bursary, he entered Bristol University College, but the need to earn a living prevented his completing the course for a science degree. In 1907 he obtained an appointment at Fairfield Secondary School where he remained for over 25 years, for the greater part of which time he was Biology master. In 1939 the University of Bristol conferred on him the Honorary Degree of M.Sc. in recognition of his scientific achievements.

It is not known precisely when he turned from Botany to Entomology and took up the study of Diptera, but he soon established a reputation as a dipterist and amassed a first-class collection, including not only British but many Continental species, each one being most carefully card-indexed.

Audcent made a special study of the Tipulinae and Liriopeidae, and his papers on these groups were published in *Trans. ent. Soc. S. Engl.* and *Trans. Soc. Brit. Ent.* in 1932 and 1934 respectively. They estab-

lished his reputation as a dipterist, both in this country and abroad. Later he turned his attention to the Tachinidae, a family of flies for the most part parasitic. In 1942 he published a paper in the *Trans. Soc. Brit. Ent.* entitled "A preliminary list of the hosts of some British Tachinidae (Dipt.)", which contains the results of an immense amount of observation and research.

Apart from the systematic papers referred to above, he started, in 1910, the local list of "Bristol Insect Fauna (Diptera)" for the Bristol Naturalist Society, this first list being followed by several supplements, and in 1948 and 1949 the whole series was revised and published by that Society. This "list" will long remain a model of what a local list should be.

It is hoped that his collection of Diptera, consisting of some 3,000 species, as well as his library of Dipterological literature, will become the property of the Bristol University and be available there for study.

Mr. Audcent left a widow and three sons to whom we tender our respectful sympathy.

I am indebted to Dr. E. E. Lowe and Mr. E. C. M. d'Assis-Fonseca for the above details. H. W. A.

We regret to announce the death, on April 22nd, of Mr. H. St. J. K. Donisthorpe, who had been a member of the advisory board of this magazine since 1899. Mr. Donisthorpe was well known both as a Coleopterist and as a specialist in the Formicoidea (Heterogyna: Ants), and contributed a large number of papers on these subjects to the scientific journals.

As we go to press the sad news reaches us of the death of our learned and respected EDITOR, Fleet Paymaster T. Bainbrigge Fletcher, R.N., F.L.S., F.Z.S., F.R.E.S.

He passed away on the 30th April after a long illness.

SOCIETIES.

At the Meeting of the South London Entomological and Natural History Society on March 14th, Mr. L. G. Hulls read a paper on "Entomology during the early years of the Royal Society". Not only was the paper interesting but it was also appropriate that the members should be reminded of the great service to Science of the illustrious body on whose premises they meet. Nowadays when every branch and section of science has its own special society one is apt to forget the early days, when the Royal Society was almost the only learned society.

The chief exhibits were by Dr. W. Peters. He first showed mature and immature males and females of *Hemimerus talpoides* Wlk. These insects belong to the Order Dermaptera and are thus allied to our earwings. Their habits differ greatly, however, for they live as ectoparasites on a species of rat in Sierra Leone. His second exhibit dealt with seasonal dimorphism and geographical variation in African butterflies. He showed six forms of *Precis octavia* Cr., a Nymphalid. The western race has three forms—the dry season form *amestris* Dr., the wet season form *octavia* Dr. and the intermediate form *intermedia* Wichgraf. In the eastern race the respective forms are *sesamus* T. (dry season), *natalensis* St. (wet season) and *transiens* Wichgraf (intermediate).

DIPTERA

THE BRITISH SPECIES OF THE GENUS PALLOPTERA FALLEN (DIPTERA).

By J. E. Collin, F.R.E.S.

The genus *Palloptera* Fln. (in which is included the one species of *Toxoneura* Mcq.) is composed of greyish, reddish-yellow, or yellow, Acalyptrate Muscids with maculated wings and yellow legs, which might by the inexperienced be mistaken for Trypetids or Sapromyzids. In both these families however there are practically always *at least* two pairs of orbital bristles on frons, and in the latter family a distinct preapical dorsal bristle to all tibiae, whereas in *Palloptera* there is always only one (reclinate) pair of orbital bristles, and no tibial preapical bristle. Female Sapromyzids may also be distinguished by their simple normal type of ovipositor: in *Palloptera* it is a dorso-ventrally flattened, strongly chitinized, telescopic organ resembling that of the *Trypetidae*, *Lonchaeidae*, and *Otitidae* (*Ortalidae*). British species of *Lonchaeidae* are also all shining black, or blue-black, in colour, and the *Trypetidae*, in addition to the more numerous fronto-orbital bristles (three to five pairs with some front ones incurved), resemble the great majority of the *Otitidae* in having small bristles on the upper surface of the subcostal vein (r^1 of some authors), while this vein in *Palloptera* is always bare.

Toxoneura Mcq. is not now generally accepted as generically distinct from *Palloptera*, the characters supposed to distinguish it occurring in different degrees of development in different species of *Palloptera*.

Some species of *Palloptera* are distinguished by the possession of certain characters which in some families would be considered of generic importance, such as the bare or bristly mesopleura, and presence or absence of a distinct strong propleural bristle. The mesopleural character would separate the two otherwise very similar species *umbellatarum* F. and *parallela* Lw., and the presence of a propleural bristle would bring together the very dissimilar species *ustulata* Fln., *saltuum* L., and *scutellata* Mcq., while none of them can be correlated with other characters to form natural groups. In 1936 Enderlein used similar unsatisfactory characters such as the varying degree of development of dorso-central bristles, prescutellar acrostichal bristles, and anal vein, for dividing the species of *Palloptera* into no less than six genera. Two of his new genera were monobasic, *Alasia* for *ambusta* Mg., and *Temnosira* for *saltuum* L.; he used a name *Sira* for *umbellatarum* F. and three other (unspecified) species, which name besides being preoccupied was proposed for the type species of *Palloptera*; and lastly *Hemisira* for *costalis* Lw., and two other unspecified species. In 1937 a subgeneric name *Pallopterella* was proposed by Hendel for *P. ustulata* Fln., the species to which Enderlein had incorrectly restricted the name *Palloptera* Fln.

Three species, *umbellatarum*, *usta*, and *parallela*, have been bred from the flower heads of certain *Compositae*, *trimacula* from the stem of an Umbellifer (*Angelica*) and *saltuum* from the stem of *Heracleum*. *P. usta* has also been recorded from under bark with *Ips typographus* L.

TABLE FOR DISTINGUISHING THE BRITISH SPECIES

1 (6) Mesopleura (in front of vertical suture below wing-base) bare.

2 (5) A strong upcurved propleural bristle above front coxae. Hind femora without a distinct strong anteroventral bristle a little beyond middle.

3 (4) Small dark clouds on wing, at end of radial vein (but not including wing-tip), on both crossveins, and on stigma. Frons distinctly dark-haired in front. Jowls below eyes about as wide as third antennal joint ... *scutellata* Mcq. (*neutra* Pand.).

4 (3) Crossveins quite clear, a dark cloud about tip of wing only. Frons microscopically pale-haired. Jowls much narrower than third antennal joint ..... *ustulata* Fln.

5 (2) Only a very small propleural bristly hair above front coxae. Hind femora with a distinct strong anteroventral bristle a little beyond middle. Distinct clouds, at end of wing, on both crossveins, on stigma (often connected at least faintly along costa with apical cloud), *and on anal vein beyond anal cell*, radio-cubital node also darkened. Jowls below eyes much narrower than third antennal joint. Frons microscopically pale-haired ..... *umbellatarum* F.

NOTE.—*P. costalis* Lw. belongs to the above section. It is mentioned here as a reputed British species with a record based upon a statement published by Becker in 1895 that he had seen a specimen in Siebeck's Collection bearing a label "England". No proof was offered that this was a locality label. It is otherwise recorded only from Central Europe. While the other three British species of this group have a dull grey thorax, *P. costalis* is a yellow species having a narrow brownish streak on costa connecting stigma with an apical wing-cloud, and both crossveins darkened.

6 (1) Mesopleurae bristly, at least on hind margin.

7 (10) Thorax dull grey. Jowls below eyes about as wide as third antennal joint.

8 (9) Mesopleura with one long strong bristle in addition to numerous short ones. Only the outer crossvein as well as stigma and tip of wing distinctly clouded. No propleural or stigmatical bristle above front coxae. Frons distinctly dark haired ..... *usta* Mg.

9 (8) Only short bristles or hairs on mesopleurae. Both crossveins, as well as stigma and tip of wing, distinctly clouded. A very small propleural, and a slightly longer forwardly directed stigmatical bristle above front coxae. Frons microscopically pale-haired. A distinct bristle in front of middle femora, but (as in *usta*) no distinct anteroventral bristle on hind femore ..... *parallela* Lw.

10 (7) Thorax reddish-yellow or yellowish and sometimes shining.

11 (14) Thorax dull yellowish and without darker stripes.

12 (13) Middle crossvein distinctly clouded, the cloud on stigma *not* spreading downwards to this crossvein; radio-cubital node, outer crossvein, and tip of wing also clouded. Jowls much wider than third antennal joint. Aristal pubescence very short, shorter than in *trimacula*. Tarsi darkened towards tip ..... *quinquemaculata* Mcq. (*arcuata* (Mg.) Lw., *campta* Cz.).

13 (12) Middle crossvein not clouded except when cloud on stigma spreads downwards to this crossvein and backwards to radio-cubital node; outer crossvein and tip of wing also clouded but in a variable manner according to maturity. Jowls not wider than third antennal joint. Aristal pubescence longer than base of arista is thick. Tarsi all yellowish ..... *trimacula* Mg.

14 (11) Thorax shining, or if slightly dusted *with* darker stripes. Jowls narrower than third antennal joint is wide.

15 (16) Wings with only costal vein thickened and darkened, and cloud at tip of wing. Stigma darkened in female only. All pleural hairs and bristles, and short hairs on disc of thorax, pale. A strong but yellowish upcurved propleural bristle, and a strong yellowish bristle, as well as pale hairs, on mesopleurae ..... *saltuum* L.

16 (15) Not as above, and wings with more numerous and extensive dark markings.

17 (18) Thorax without dark markings. Whole length of costa broadly clouded down to the (more darkly clouded) middle crossvein, and connected to apical cloud; outer crossvein broadly clouded, the cloud extending backwards for a short distance along postical vein. Two anterior pairs of dorsocentral bristles on thorax shorter and finer than the two posterior pairs, only prescutellar pair especially long and strong. Frons distinctly black-haired in front ..... *laetabilis* Lw.

18 (17) Thorax *with* dark markings, and wings not as above.

19 (20) Posterior longitudinal half of wing with a dark cloud on outer crossvein only; apical wing cloud not continued backwards along costa beyond a point opposite outer crossvein. Thorax with four narrow dark stripes, outer pair interrupted at suture, with the presutural portion short, and broader. Only posterior pair of dorsocentral bristles strongly developed. *No presutural bristle* (above anterior notopleural bristle) ..... *ambusta* Lw.

20 (19) Wing markings connected together so as to form a continuous mottled band of fairly even width extending whole length of costa and round tip of wing, returning in a more undulating line along last section of discal vein, across outer crossvein, and underneath postical vein, to base of wing. Thorax with two broader dark stripes, one on each side, lying outside each row of four equally strong dorsocentral bristles. A very long strong presutural bristle. Section of discal vein lying between crossveins curved downwards at base and diverging very widely from cubital vein above it ..... *muliebris* Harr.

NOTES ON THE SPECIES.

P. scutellata Mcq. (*neutra* Pand.)—This very distinct species which has the general appearance of an Helomyzid has been taken in Hampshire (New Forest), Dorset (Studland), Kent (Tunbridge Wells), Surrey (Bookham Common), and Sussex (near Balcombe). I am convinced that Macquart's description of his *Sapromyza scutellata* (1835) applies better to this little known species than to *P. usta* Mg., because of his reference to the dark cloud "un peu avant l'extremité de l'aile", and *both* crossveins infuscated. The former character is very distinctive of this species, and in *usta* only *one* crossvein is distinctly infuscated. Pan-

dellé did not mention the somewhat darkened stigma, and recorded his specimens as taken in October and December, whereas my specimens (all females) were taken in April, May, and June. The species may prove to be one which hibernates as an adult. Czerny in Lindner's *Lonchaeidae* mistakenly translated Pandellé's reference to "*Episternum du prothorax aiguillonné*" as "Mesopleura beborstet". The mesopleurae are quite bare in *scutellata*, and Pandellé was evidently referring to the strong propleural bristle above front coxae. This is one of the three British species having distinct *black* hairs on front part of frons.

P. ustulata Fln.—A common and widely distributed species often found on windows.

P. umbellatarum F.—Also a widely distributed species recorded as breeding in the flower-heads of thistles (*Carlina vulgaris* on the Continent, and *Cnicus lanceolatus* by Mr. Niblett in this country). It was originally described from British specimens found on the flowers of *Umbelliferae*, not in 1794 as given in Kertész' *Katalog*, but in 1774 (*Syst. Ent.*, p. 785). Fabricius nowhere states that the British type specimen was in the Bosc Collection, and the suggestion by Séguy in 1932 (*Encyl. Ent. Dipt.*, VI, 182) that a specimen in that Collection should be regarded as the "type" cannot be accepted. Until Loew in 1859 discovered that two species were confused under the name *umbellatarum*, and described his *P. parallela*, both species were no doubt often identified as *umbellatarum*. It is indeed known that the species named *umbellatarum* in Meigen's Collection in Paris is *parallela*. In the absence of any authentic type specimen, Loew's choice of the species which answered better to Fabricius' description in having the costal stigma and cloud above middle crossvein much more in the form of a "macula transversa" must be accepted as correct. Moreover this species is well known as one frequenting the flower-heads of *Umbelliferae* both in this country and elsewhere, and this fact coupled with agreement with Fabricius' description of the wings as having "maculis duabus transversis apiceque fuscis" and "thorax et abdomen cinerea. Anus rufescens, stylo atro" afford ample confirmation of the correctness of his choice. Fallén described this species as *P. gangraenosa* Panzer, but Panzer's species was certainly *not* a *Palloptera* (though so listed in Kertész' *Katalog*), but an Otitid (Ortalid), and probably a *Meliera* (*Ceroxys*).

P. usta Mg.—This is one of the three British species with distinct dark hairs on front part of frons, and the only British species with a long strong *black* bristle on mesopleurae as well as numerous much shorter and smaller ones. (*P. saltuum* has a strong mesopleural bristle but it is a yellow one). My specimens are mainly from Scotland, but one male was taken by myself on Blakeney Point (Norfolk) in July 1920, and I have seen another taken near King's Lynn in the same county by Mr A. E. Atmore. It has been bred on the Continent from flower-heads of *Carlina vulgaris* (Lindner's *Lonchaeidae*, p. 36) in company with *P. umbellatarum* F., as well as from under bark as noted in an earlier paragraph.

P. parallela Lw.—Another widely distributed species which has been bred in this country from flower-heads of *Carlina vulgaris* gathered at

Folkestone (Kent) by Mr W. Rait-Smith in 1935, and at Walton Heath (Surrey) by Mr M. Niblett in 1945. Czerny recorded it as having been bred from *Carlina acaulis* on the Continent.

P. quinquemaculata Mcq. (*arcuata* Mg. *nec* F.; *campta* Cz.).—This species has usually been known under the name of *arcuata*, sometimes with Fabricius as author, at other times Fallén or Meigen. The last two authors both professed to recognize the original *Musca arcuata* of Fabricius, in the case of Fallén as a *Palloptera*, and in the case of Meigen (who did not consider *Palloptera* a distinct genus) as a *Sapromyza*. The original description of Fabricius was, however, clearly that of a Trypetid as pointed out by Loew in 1844, and the same author in 1859, when dealing with the genus *Palloptera*, again called attention to this fact, stated that the *Sapromyza arcuata* F. of Meigen (1826) was a *Palloptera* (since proved by an examination of the type by Becker), and that he considered the *Sapromyza quinquemaculata* Mcq. (1835) to be the same species. Instead, however, of using Macquart's name for the species he adopted the name of *arcuata* Mg., ignoring the fact that Meigen had *not* published that name as a new name for a species requiring one. Czerny in 1934 rightly pointed out that under these circumstances the use of the name *arcuata* was impossible under the Rules of Nomenclature, and, stating that he considered the synonymy of *S. quinquemaculata* Mcq. doubtful, gave the new name of *campta* to the species. Now we know that Macquart included the species of *Palloptera* under the name *Sapromyza*, and while there is *no known species* of *Sapromyza* answering to Macquart's description of *quinquemaculata*, the only species of *Palloptera* which *does answer* to that description is the very common and widely distributed *P. arcuata* F. of Meigen. Under these circumstances it would appear necessary to accept the use of the name *quinquemaculata* Mcq. for this species instead of the new name of *campta* Cz. (1934).

P. trimacula Mg.—Another common species which has been bred in this country by Mr A. H. Hamm and Mr M. Niblett from the stems of *Angelica*. Kertész' "*Katalog*" quotes only *arcuata* Zett. *nec* F. as a synonym of this species, but Fallén's description of *P. arcuata* F., and Zetterstedt's statement about Fallén's specimens, render it quite certain that *arcuata* Fln. *nec* F. is also a synonym. *S. arcuata* F. of Mcq. which is not quoted in Kertész is also certainly another synonym. It should further be noted that Séguy in his "*Acalypterae*" appears to have figured the wing of *basimaculata* Cz. as that of *trimacula* Mg.

P. saltuum L.—A very distinct species both in colour and wing-markings, with the peculiar sexual distinction of having a darkened "stigma" (the space between the ends of mediastinal and subcostal veins) in female only. The costal vein is thickened and darkened in both sexes. It is the only British species with hairy and bristly mesopleurae which has one (or two) distinct strong propleural bristles, is variable in colour, even sometimes having dark markings on thorax, and is common and widely distributed. It has been bred from the stems of *Heracleum* by Meijere.

P. laetabilis Lw.—Apparently a rare species both on the Continent and in this country. It has been taken in Herefordshire by Dr J. H.

Wood, and I captured a female at Wormsley Park (Oxfordshire) on 12th July 1907. It is the third British species with distinct dark hairs on frons.

P. ambusta Mg.—A very distinct species owing to its quadrivittate black markings, and absence of presutural bristle, on thorax. Also only the posterior pair of dorsocentral bristles are strongly developed, the others being weak and irregular. This last characteristic is, however, foreshadowed in the previous species (*laetabilis*). It appears to be rare in Britain, being known to me only from specimens taken by Dr J. H. Wood in Herefordshire. It seems to be found principally in mountainous districts on the Continent.

P. muliebris Harr.—Very distinct in its wing-markings and venation, but these characters are only extreme developments of what is indicated in other species. In my experience it is more often found on windows than elsewhere, and when so found it will be seen to carry its wings outstretched at right angles to its body, and to wave them about as it walks (in a very stately manner) about the window-pane.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted.—I need specimens of *Lycaena* (*Heodes*) *phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Sivitter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antiopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Melin; A Contribution to the Knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923. Fraenkel and Gunn; Orientation of Animals, 1940, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Lycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Larvae in May next and live females of the imago in June of *Melitaea athalia*, The Heath Fritillary, to put out in two suitable localities here in the New Forest, with a view to establishing new colonies of the insect which is becoming scarce in its old haunts in Kent, Sussex and Essex. For cash or exchange. Will someone very kindly help?—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted this coming season—Ova, larvae and pupae of *Abraxas grossulariata* and *Abraxas ulmata* (*sylvata*), for cash or exchange.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Records of the following Butterflies from the New Forests: *crataegi, sinapis, iris, c-album, polychloros, cinxia, aurinea, galatea, betulae, semiargus, lucina, lineola, actaeon.*—*S. C. S. Brown, 454 Christchurch Road, Bournemouth.*

Will our contributors please note that until further notice *all* material for the magazine must be sent to the *Assistant Editor*, P. B. M. ALLAN, No. 4 Windhill, Bishop's Stortford, Herts.

TO OUR READERS.

The Entomologist's Record is published on the fifteenth day of each month.

Articles and Notes for any particular issue must reach the Assistant Editor not later than the 15th of the preceding month.

We must earnestly request our contributors not to send us communications identical with those they are sending to other magazines.

Articles that require ILLUSTRATIONS are inserted on condition that the Author defrays the COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, &c., but the Editors cannot hold themselves responsible for any loss or damage.

If reprints of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Changes of address. To facilitate the prompt receipt of each issue, proofs, &c., subscribers are requested to notify the TREASURER immediately of any change of address.

Printed by T. Buncle & Co. Ltd., Arbroath.

VOL. 63 No. 6 JUNE 1951

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

ANNUAL SUBSCRIPTION 10s. POST FREE
Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,
Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

PUBLISHED MONTHLY PRICE 2s NET

Editorial

Going through some old letters and papers recently we came across one that caused a smile. It was an oblong slip of blue paper headed 'Memorandum,' and at the left side was printed "From E. G. Meek, Naturalist, 56 Brompton Road, S.W. A Large assortment of British Insects—Entomological Apparatus of every description." On the right-hand side Mr. Meek had written "June 12th 1879. To editors E mo mag." Those of our readers who have perused Mr. Allan's entertaining book *Talking of Moths* will remember the account there given of the battle which E. G. Meek fought with Charles Stuart Gregson, the famous Liverpool entomologist, about *Hadena compta* Schiff.

Mr. Meek's memorandum to the Editors of *The Entomologist's Monthly Magazine* was as follows:—

> "Your memo to hand. have you not overcharged me on advt in no. 171. 12/- is a very long charge I only Paid 7/6 for same advt elsewhere. Please correct invoice & I will send Cheque by return. Yours tly E. G. Meek."

We have every sympathy with Mr. Meek in his endeavour to reduce the cost of living; but we wonder what the Advertisement Manager of *The Times* would remark to a customer who averred that the "same advt" cost much less in, shall we say, *The Puddletown Courier*, therefore "please correct invoice." Whether Mr. Meek "got away with it" we know not. Perhaps he deserved to; perhaps he didn't. Seeing that the financial manager of the *Ent. mon. Mag.* at that time, to wit Robert McLachlan, came from north of the Border it is probable that Mr. Meek was obliged to content himself with Mr. George Robey's famous soliloquy "Something attempted . . . Nothing doing."

We have no doubt at all that our own advertisers do not consider our charges "very long," for they have supported us through thick and thin, thereby deserving the gratitude no less than the custom of all our readers. For the *Record*, like all other magazines, has to make both ends meet. But we wonder sometimes whether our subscribers realise the "very long charge" which we are obliged to incur in order to keep the *Record* going for them. Only the other day an old friend asked us what fee the Editor was paid. Frankly we were astounded. Of course, no payment of any kind is made to any of us who run this magazine for you. We give up so many hours of our leisure to your service that some of us have virtually no time left for field work; we write innumerable letters, and if there is sufficient left in the till to pay our postage bills we consider ourselves lucky.

We ask for no thanks; but we do ask you to support us by sending material for our—your—pages and by doing all in your power to obtain additions to your ranks in the shape of new subscribers. We could give you 48 pages of reading matter every month of the year but are obliged to confine ourselves to one-half of that amount owing simply to lack of support. Give us the subscribers and we will give you full measure. Surely it is worth while making the effort.

Editor.

Aberrations of *Abraxas grossulariata* Linnaeus *(Lep. Geom.)*

By E. A. Cockayne, D.M., F.R.C.P.

Plate III.

The following aberrations of *Abraxas grossulariata* Linn. are in the Rothschild-Cockayne-Kettlewell collection in the British Museum. They are all rare and in some cases only single examples are known to me. I consider that even when only one specimen of an outstanding aberration is known it should be named, so that when others are taken they can be recorded and appear in the indexes of British and continental periodicals. In this way a knowledge of their frequency and distribution becomes known. Until such forms are named we shall continue to get records such as " a wonderful aberration of *A* was exhibited by Mr. *X*," which conveys nothing to the reader.

I believe that most of these aberrations are recessive. Some are very local. Apart from one specimen bred from a Surrey larva and four or five from Lancashire all the examples of ab. *melanozona* Raynor came from one garden in Pitcaple. One ab. *nigrovelata* Cockayne is from Huddersfield and all the others from St. Anne's-on-Sea; two ab. *aurivestita* Cockayne were taken in the North of England and the rest, four or five in number, in London. The original ab. *melanoneura* figured by Mosley and Barrett must have been bred or caught before 1879 and no more were taken until Mr. Huggins caught two along the same hedge in successive years about 1911, and, so far as I am aware, it has not been found since. Even the well-known ab. *varleyata* Porritt only occurs naturally in a small part of Yorkshire.

The mutation, which is responsible for each of these rarities, must occur again and again, however infrequently, throughout the range of the species, and it is remarkable that they often appear to be so localized. The constitutional disability of the mutant is such that it dies out as fast as it arises by fresh mutation, and for each mutant the average frequency in the population remains constant, perhaps one in a thousand, one in ten thousand, one in a hundred thousand, or one in a million. The rarer it is the less often do two heterozygotes pair, and even when they do the whole brood or a large part of it may perish, and the homozygotes that reach maturity may never come under the eye of an entomologist. On the other hand in an isolated locality such as an old garden in a town, if the gene happens to be present and conditions are favourable, inbreeding is so close that the recessive mutant may recur year after year.

Ab. **venusta** ab. nov. (Fig. 1.)

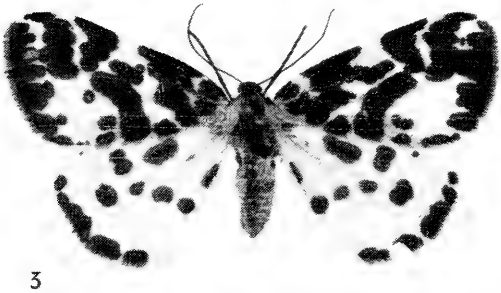
On the forewing the basal black markings are large; in the median area there is a large black mark on the costa united to the discoidal spot and two or three spots nearer to the inner margin; the black fascia internal to the orange fascia is broad and only broken at one point, the orange fascia is broad and clear, and external to it there is only a single black spot near the inner margin; there is an elongated subapical black mark on the costa and the black spots on the margin are

1

6

2

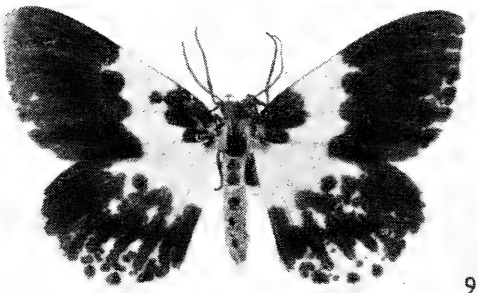
7



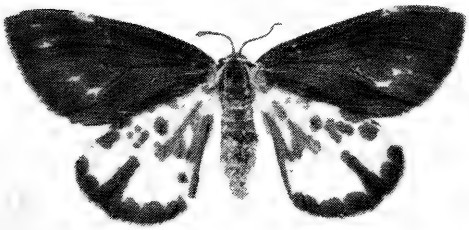
3

8

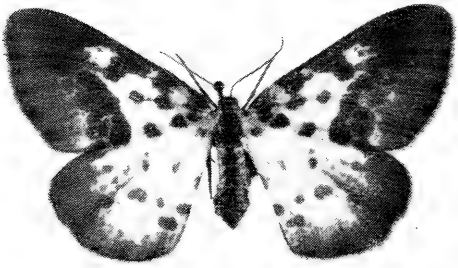
4



9



5



10

all united to form a continuous band; on the left forewing there is an additional black spot internal to and touching the last marginal spot but one from the anal angle. On the hindwing there is a large discoidal spot, a complete row of black spots, and the spots on the margin are large and united to one another. The paratypes are less extreme; there are a few small spots outside the orange fascia and the marginal spots are not all confluent.

Type ♀ : Ravensknowle, Huddersfield, bred 20.v.1946 by E. A. Cockayne. This was the only one out of 1045 bred that year from wild larvae from the same garden.

Paratypes 2 ♀♀ : 1 ♀ : Bristol, bred by the Rev. Joseph Greene. Bankes coll. 1 ♀ (Rev. J. Greene coll.) Bankes coll.

There can be no doubt that this form was combined by the Rev. G. H. Raynor with the lightly marked wild form of ab. *albipalliata* to produce the beautiful forms of ab. *fulvapicata*, ab. *albipalliata*, and ab. *flavipalliata*, which are heavily marked, but with the spots external to the orange fascia small or absent, and with large or confluent marginal spots.

Ab. **sebaria** ab. nov. (Fig. 2.)

On the forewing there are two black spots at the base and external to these is an orange fascia, but the usual black fascia outside it is absent; there is a conspicuous round black discoidal spot in the median area, but no other marking; the orange fascia is present, but the usual black fascia internal to it is absent; the row of black spots external to the orange fascia is present, and the marginal spots are normal. On the hindwing of the type there is a black subapical spot and an incomplete row of marginal spots, but no other markings are present. In the paratype there are five very small spots internal to the orange fascia on the left forewing and none on the right. On the hindwing there is a large discoidal spot and some small marginal spots, but no others except an apical spot on the right and one near the anal angle on the left. The most notable feature of this aberration is the complete or almost complete absence of the black fasciae, which normally form the boundaries of the median area.

Type ♀ : Loc. incog. (Rev. Joseph Greene coll.) Rothschild coll.

Paratype ♀ : Alderley Edge, Cheshire, vii.1924, A. E. Tonge. Rothschild coll.

A specimen of this aberration with more spots in the hindwing is figured by Albertus Seba in his *Thesaurus*, 1765, vol. 4, Pl. 63, fig. 3.

Ab. **formosa** ab. nov.

The head, thorax, and abdomen are orange with no black markings. On the forewing the base is orange with two black dots external to it, there is a large black mark on the costa in the median area and an orange discoidal spot; just internal to the broad orange fascia is a black spot on the costa and a black dot near the inner margin but no other markings; there are no black spots external to the orange fascia on either wing and no black marginal markings on the right forewing, but there is a small irregular black mark on the margin of the left forewing near nervures 3 and 4. On the hindwing there are no black markings except a spot about the middle of the inner margin on each side.

Type: Loc. incog. The specimen was in the collection of Alfred Owen of Maghull near Liverpool and afterwards in that of S. J. Capper. Rothschild coll.

It is figured by S. L. Mosley, *Ill. Var. Brit. Lep.*, Abraxas Pl. 3, fig. 3; *Nat. journ.*, 1895, 4, 32, fig. 8; Barrett, Pl. 322, fig. 1b.

Ab. **ovalidisca** ab. nov. (Fig. 3.)

On the forewing the basal black spots are very large; the black antemedian fascia is very broad and forms an unbroken band; the postmedian fascia lying internal to the orange fascia is also unusually broad and is only narrowed at one point; there is no black spot on the costa in the median area and the discoidal spot is elongated and oval; the submarginal fascia which lies external to the orange fascia is unusually broad in the first five interneural spaces, there is small black dot in the seventh, and two rather large black spots in the last two spaces near the inner margin; the marginal spots are large and confluent and the third and fourth are united to the submarginal fascia. The normal orange of the thorax, abdomen, and fasciae is replaced by pale yellow. On the hindwing there is an elongated oval discoidal spot, a row of postmedian spots, and a single rather large spot on nervure 4 belonging to the submarginal row; some of the marginal spots are confluent.

Type ♀: Loc. incog. (J. A. Clark coll. 1910.) Cockayne coll.

Paratype ♀: same data.

The type and paratype resemble one another closely and probably formed part of the same brood. The aberration has a facies unlike that of any other form of *grossulariata* that I have seen. The distinctive feature is the oval elongated discoidal spot on all four wings.

Ab. **melanoneura** ab. nov.

The aberration is rather heavily marked and all the nervures on both fore and hindwings are black; the black lines so formed are thick in the proximal part of the wing, but become thinner distally and disappear towards the margin on both fore and hindwing.

Type ♀: Loc. incog. Bred by C. S. Gregson (Bright coll.) Rothschild coll. The specimen is figured by S. L. Mosley, *Ill. Var. Brit. Lep.*, Abraxas, Pl. 2, fig. 1; *Nat. Journ.*, 1895, 4, 113, fig. 4; Barrett, Pl. 331, fig. 1e.

Mr. H. C. Huggins records two examples (*The Entomologist*, 1911, **44**, 230), one of which he kindly brought to Tring to compare with the type. The resemblance is very great. Mr. Huggins caught the two specimens in successive years along the same hedge, but has never seen another. I do not know of any other record.

Ab. **radioreversa** ab. nov. (Fig. 4.)

On the forewing the black fasciae on either side of the orange fascia are united to form a broad band obliterating the orange fascia and sending out a row of tooth-like processes towards the termen; there is a broad black band along the costa running from the middle of the wing to the apex and the inner end of this is united to the discoidal spot and continued below to join the broad black fascial band enclosing an irregular white area; there is a black spot in the median area; the marginal spots are normal. On the hindwing the discoidal spot

is very large and black; the spots of the postmedian row are greatly elongated, increased in width proximally but becoming narrower distally, and almost reaching the margin; the marginal spots are normal.

Type ♂: Loc. incog. (Bright coll.) Rothschild coll.

The aberration has a radiated appearance, but the radiation runs from within outwards instead of from without inwards and is the reverse of normal.

Ab. **leucomelaina** ab. nov. (Fig. 5.)

The forewing is entirely black with the exception of a very small mark two-thirds of the way along the costa and a still smaller one at the apex and a few white dots parallel with the termen, the remains of the white marginal area. The hindwing has a black discoidal spot, irregular elongated black markings in the basal half and a long black streak along the inner margin; the marginal spots are large and confluent forming a complete black border and the third spot from the apex extends inwards as a thick black streak. The thorax and abdomen are normal.

Type ♀: Fulham, bred 1896 by H. McArthur. R. Adkin coll.

Ab. **nigropalliata** ab nov.

With the exception of one or two insignificant white or orange dots the forewing is black from the extreme base to the outer black fascia, which is included in the black area.

Type ♂: Loc. incog. (Gregson coll., S. Webb coll.) Rothschild coll.

Allotype ♀: Loc. incog. (Gregson coll.) Levick coll. B.M., 1941, 83.

The type has a minute speck of white and an orange speck on the left forewing and three minute orange specks on the right forewing. The allotype is figured by Barrett, Pl. 321, fig. 1g.

The aberration belongs to the *hazeleighensis* group.

Ab. **aureopicta** ab. nov. (Fig. 6.)

The ground colour of the forewing from the base to the orange fascia is deep orange; there is a large black band at the base, a broad black band along the costa, which includes the discoidal spot, and a large pear-shaped mark on the inner margin; there are also two or three small black spots in the median area; a fascia formed by a single row of large elongated black spots separates the orange part of the wing from the white marginal area; the marginal spots are normal. The hindwing is normal with a single row of black spots evenly spaced.

Type ♂: Lancs. (ex. no. 35, 15), bred 5.vi.1916 by G. H. Raynor. Levick coll. B.M., 1941, 83.

Allotype ♀: Lancashire, bred 1911 from a wild pupa. R. Adkin coll.

Paratypes 3 ♀♀: 1 ♀ Liverpool, T. Acton. (Bright coll.) Rothschild coll. 1 ♀ Loc. incog. Cooke, 1890. (Vauncey Harpur Crewe coll.) Rothschild coll. 1 ♀ Loc. incog. (Bright coll.) Rothschild coll.

This aberration differs from ab. *aurivestita* Cockayne in having normal hindwings instead of hindwings with spots elongated and irregularly arranged, and sometimes forming long broad black streaks

Ab. **sexstrigata** ab. nov. (Fig. 7.)

On the forewing there is a black basal fascia with an orange fascia external to it and another black fascia bordering the orange one exter-

nally; there is a complete and conspicuous black median fascia running through and including the discoidal spot starting at the costa and ending at the inner margin; the black fascia internal to the orange fascia is complete, and external to the orange fascia there is a row of rather large black spots; the marginal spots are large. Thus there are six fasciae in this aberration and it resembles what I believe to be the ancestral pattern of the species more closely than any other I have seen. In the hindwing there is a large black spot at the extreme base, then a broad and complete black fascia, and distal to this a row of black spots with an orange fascia external to it; the marginal spots are large.

Type ♀: Loc. incog. (Bright coll.) Rothschild coll.

Ab. **postfimbriata** ab. nov. (Fig. 8.)

The forewing is normal but for a black line running out from the base to the discoidal spot as in ab. *nigrolineata* Raynor. On the hindwing there is a discoidal spot and an incomplete outer row of black spots; the marginal spots are very broad, elongated, and confluent with the exception of the two nearest to the apex and form a broad black border. The fringe is black and white.

Type ♂: Huddersfield, bred 1913 by C. F. Johnson. Cockayne coll.

Ab. **nigralbata** ab. nov. (Fig. 9.)

On the forewing there is an orange spot at the extreme base and then a broad black fascia, which almost entirely obliterates the orange basal fascia; external to this there is a narrow white median area, extending out to the discoidal spot; the whole of the outer part of the wing including the discoidal spot is black with the exception of one or two insignificant white dots and the white lines separating the marginal spots. The hindwing has the basal part white as far out as the discoidal spot; from this point to the margin the wing is for the most part black, the apical part is entirely black and on the rest of the outer part of the wing there are broad black radiations coalescing about the middle and not quite reaching the margin; the white spaces between them are partially filled by black dots and spots; the marginal spots are fused near the apex and normal elsewhere. The thorax and abdomen are normal.

Type ♂: Worthing, Sussex, 8.viii.1894. (B. W. Neave coll., Vauncey Harpur Crewe coll.) Rothschild coll.

Ab. **latilimbata** ab. nov. (Fig. 10.)

The forewing from the termen to the black fascia is entirely black or dusted with black and black extends along the costa to the orange spot near the base; the discoidal spot is united with the black costa and a black line runs from it to the inner black fascia; the two black fasciae are to a great extent fused so that the orange fascia between them is almost obliterated. On the hindwing the discoidal spot is small, the inner row of black spots is represented by three dots and the spots of the outer row are small; there is a broad black band along the whole of the border broadest near the apex, on the inner side the band is ill-defined ending in small black speckles which tend to form thin streaks.

Type ♀: Leyton, Essex, 9.vii.1898, taken at rest by G. R. Garland. Bankes coll.

Notes on Tortricina and Tinaeina found in Cheshire

By H. N. Michaelis.

Records of species of these families have been published in G. O. Day's List of Lepidoptera found in Cheshire and North Wales and in the *Lepidopterous Fauna of Lancashire and Cheshire* by J. W. Ellis (1890) revised by Wm. Mansbridge 1940. An increased interest in the smaller Lepidoptera has been taken, in recent years, by members of the three entomological societies of Lancashire and Cheshire. As a result, records of many species new to the existing county lists have been received. The Lancashire and Cheshire Fauna Committee publishes annually records of Lepidoptera, and indeed of all orders of insects, new to the respective counties. I give here a few observations on some of the new records of Tortricina and Tinaeina taken in 1949 and 1950.

Evetria purdeyi Durrant. A single specimen was taken at Dunham near Altrincham on 28.vii.1950. Another was taken at Formby, Lancashire, by Mr. S. Charlson on 31.vii.1950. This species was first taken in Kent by Wm. Purdey in 1911, and was presumed to be imported with *Pinus*. All subsequent records appear to be from the south of England.

Eucosma mercuriana Hübn. Not previously recorded from Cheshire, this pretty moth was found commonly on the high moors between Macclesfield and Buxton in late July 1949. The moth flies low over *Calluna* and *Vaccinium* at sunset and may be found resting on the herbage later in the evening. None was seen nor disturbed during the late morning and afternoon. *Peronea caledoniana* Stephens was plentiful in the same area in the evening.

Eucosma turbidana Treits. This species was first taken at Gatley on 17.vi.1950 and was subsequently found in other places where its foodplant, the Butterbur (*Tussilago petasites*) is established. No doubt the secretive habits of the moth have caused it to be overlooked. The moth is said to rest on the underside of Butterbur leaves during the day. This may be so, but my experience is that it rests on the stem a few inches from the ground. It flies just before sunset, earlier on a dull evening, and continues its flight until dusk, rarely rising a few inches above the Butterbur leaves; more often it prefers to thread its way between the tall leaf-stems.

Aristotelia suffusella Douglas. The moth was first seen on the Wilmslow Mosses on 11.vi.1949 and later found in plenty on a moss at Delamere in mid-June 1950. On 17.vi.1949 the moths were flying among Cotton-grass (*Eriophorum*), *Juncus* and moor grasses in the late evening sunshine. Frequently they settled on the stems of rushes and grass growing in the pools. At first sight, the moth may easily be mistaken for the common *Coleophora* which feeds on the flowers and seeds of *Juncus*, until it is noticed that the antennae are not porrected when resting. On a dull evening in mid-June 1950, when a slight wind was stirring the grass and rushes, the moths rested on the grass-stems and none was seen to fly. In no instance were moths seen flying or at rest

before 2100 hrs. (B.S.T.), nor were they found in the merely damp parts of the moss but always where the ground was wet. The presence of Cotton-grass is a good guide to their habitat. I can find no description of the larva or any account of its habits or foodplant.

Lithocolletis geniculella Rag. First recorded in the early 1940's from Alderley Edge and the Goyt Valley by Mr. H. L. Burrows and from Frandley near Northwich by Maj. A. W. Boyd, this insect is widely distributed in east Cheshire. The mines of the larvae are frequently seen in Sycamore leaves in September and early October.

Lithocolletis anderidae Fletcher has been bred from mines in Birch leaves gathered on the Cheshire Mosses in September and October 1948-1950.

10 Didsbury Park, Didsbury, Manchester 20.

Experiments with Light in Yorkshire

By W. Reid.

Wednesday, April 25th, was an excellent night for light in Mid. Yorkshire. Three really warm sunny days in succession persuaded many of the macro-lepidoptera that Spring had really come, and if the subsequent wintry conditions belied this belief, the warmth certainly penetrated deeply enough to coax many moths out of their winter quarters, either from hibernation or from their pupae.

We worked with three sources of light in a road passing through a wood near York—a Tilley lamp on a sheet about 60 yards from the car headlights, and just off-side of the beams, in front of which was also a sheet, and behind the car a mercury vapour black lamp with a portable trap about 40 yards away. This combination produced results which somewhat surprised us. Having had experience last year of the " drawing " power of the black M.V. lamp, we did not pay much attention to the trap, believing that whatever we might take at the other lights the same insects would also be present in the trap in considerably greater numbers. This belief was not altogether justified, especially in the case of the special insect we hoped to take—*Gypsitea leucographa* Schf., and which duly arrived. A total of 42 was taken of this species, all in mint condition, but of this 42, only 5 were present in the trap —the remaining 37 coming to the Tilley and headlights in about equal proportions. All the following appeared at all lights:—

Conistra vaccinii L., *Panolis flammea* Schf., *Cerastis rubricosa* Schf., *Orthosia incerta* Hufn., *Orthosia munda* Schf., *Orthosia gracilis* Schf., *Orthosia stabilis* Schf., *Orthosia cruda* Schf., *Orthosia gothica* L., *Xylocampa areola* Esp., *Biston strataria* Hufn., *Selenia bilunaria* Esp. (including one dark smoky brown form), *Ectropis bistortata* Goze, *Anticlea derivata* Schf., *Earophila badiata* Schf., *Colostygia multistrigaria*.

It is interesting to wonder why the M.V. lamp trap did not take more than about an equal share. It was sufficiently close to the car headlights (although these were pointing in the opposite direction) to have swamped them, even though they were very bright, had the mercury vapour lamp been sufficiently attractive. I well remember a case last year when the black M.V. lamp was placed in the direct rays of the headlamps and insects could be seen flying along the rays of the

headlamps directly to the M.V. lamp. Sallows may have had some influence, even though we saw no moths on *any* of the sallows visited by us that night—the wind was easterly and it was cold outside the shelter of the wood. There were isolated sallows close to both the Tilley and the headlights, but not near the M.V. lamp.

It may be that the moths did enter the trap and escape again. Although the cone on the top is 26″ diameter, and the hole in the centre is 3½″ diameter, the diameter of the inside of the trap is only 14″, so that moths in the trap flying directly upwards would stand rather a better chance than 1 in 15 of flying straight out. This chance would, of course, be greater if the moths flew, in the trap, towards the rays from the lamp entering the trap through the bottom of the cone (the cone itself being opaque), and the trap would probably have been more effective with a cone of celluloid or perspex. But this could hardly be a complete cause for the apparently poor results in the case of *G. leucographa*, but it all seems to point to the use of a clear M.V. lamp used in conjunction with a sheet on the ground when it can be *watched* and worked in conjunction with a Tilley, say 150 yards away. And the exercise of walking between the two would at least keep the operator warm on the chilly nights we have been experiencing of late.

Butterflies at Hong Kong

By Col. V. R. Burkhardt, D.S.O., O.B.E.

The Crown Colony of Hong Kong lies within seventy miles of the tropic of Cancer, and with all due deference to J. C. Kershaw, who compiled the standard work on its Rhopalocera in 1907, its butterflies are palaearctic rather than tropical. Of the thirteen *Papilionidae* met with on the island itself eleven are illustrated in Seitz's Palaearctic Butterflies, and only a small number of the species I have encountered during the past two seasons are not figured in that work.

The climate of the island is peculiar, in that it appears to be a focus for fog, whilst the surrounding country, only a few miles away, is immune. During the spring Victoria Peak is shrouded in mist down to the 800 foot level for weeks together, whilst Kowloon, three-quarters of a mile to the north, may enjoy uninterrupted sunshine. Macao, forty miles to the west, and one of Kershaw's great hunting grounds, enjoys a totally different climate, and has a far greater proportion of sunshine.

When the British occupied the island a century ago it was a barren rock, much like the near hills of Kowloon at the present day, for the Chinese are the natural enemies of vegetation, and have rendered about a third of their country desert through the ruthless extermination of every form of tree and shrub. In many districts it is only near the Buddhist temples that trees are protected, and the urge for fuel is so strong that it was impossible to conserve the willows planted to retain the dykes of the Yellow River, whose overflow destroyed entire provinces. Thanks to the firmness of an alien rule the island of Hong Kong and much of the New Territories are now green with shrubs, small pines, and every sort of flowering tree from scarlet azalea to Flame of the Forest. On the slopes of Victoria Peak houses rise in tiers to the 1,200 foot level, and the spaces between buildings are closely planted and con-

served. On the slopes facing the harbour gardens are rare, but every house has its yards and verandahs filled with flowers and shrubs in pots.

A favourite shrub with the Chinese is the orange, a traditional New Year present, and this forms the foodplant of several of the larvae of the *Papilionidae*, especially *polytes* and *helenus*. Hence it is not an unusual sight to see these large black butterflies on the wing in the streets of the city, the females often hovering round the flower-stalls seeking the foodplant of their larvae in the orange and lemon trees offered for sale. Since the advent of motor transport there has been a tendency for the rich merchant to desert the Peak and make his home near the golf courses on the east and south sides of the island, where the terrain, being less mountainous, the English form of garden is possible. This has led to the introduction of many flowers and trees new to the Colony, which may encourage the immigration of insects either on the wing or as stowaways on the thousands of merchant vessels which converge on Hong Kong from all parts of the world.

Kershaw's *Butterflies of Hong Kong* was published in 1907, and in the interval of forty-three years some of the species he describes as rare have established themselves well, and might now be classified as common. *Lethe dyrta* he does not even mention, but it is on the wing throughout the year, even in the month of January when most species are in hibernation in pupal form. The Danaids are certainly commoner than in his day, for I have taken all the eight he mentions within a quarter of a mile of my house in the suburbs. *Euploea midamus* absolutely swarms, and in certain localities the air is thick with them. *Ilerda epicles*, with its canary yellow underside rimmed with carmine, is now quite a common insect throughout the year, for it is on the wing on a sunny day in January.

The *Papilionidae* are, perhaps, the commonest of our insects, and the larvae are easiest to find. Most of them run five overlapping broods during the year. *Papilio paris* var. *chinensis* Rothschild is the earliest to emerge. In 1950 the first were flying during the last week in January, and the larvae were available in the first week in February. The cycle was then two months and the next brood appeared on the wing in early April. *Papilio sarpedon* and *P. helenus* were almost simultaneous, but the pupae of *P. polytes* and *P. clytia* did not emerge until the second brood of *paris* were on the wing, that is to say at the end of March and beginning of April. The last and strongest brood of the year is in October/November, when an abnormal number of eggs seem to be laid, possibly in anticipation of a high mortality rate during the longer period in pupa in the winter. The larvae are apt to feed up slower than during the warmer weather, and the last of the batch was in larval form at least a month after the first had pupated. Losses in breeding were practically negligible during the season of 1950, and there were very few cripples. *Papilio paris* has a nasty habit of committing suicide by drowning, even when nearly full grown, but once this tendency is known it is easily prevented. Ichneumons were no trouble as the larvae were collected either in the egg, or very young.

The climate in Hong Kong is sharply divided into a wet season, corresponding with the south-west monsoon, which blows steadily from April to October, and a dry period with the north-east monsoon from October to March. During the winter the deciduous trees shed their

leaves, and those butterflies accustomed to rest on the ground modify the underside for the purpose of camouflage. The summer form of *Micalesis mineus* is decorated with large yellow-ringed black spots centred with white, with a white line varying in breadth as a border on the side nearest the body, across both wings. The dry season form is practically obsolete and is named var. *confucius* by Leech. A series of figures of insects taken from the beginning of October to the end of November shows a gradual diminution in the size of the spots, with the white border changing to yellow, and ending with its fading into obsolescence. The summer form of *Precis almana* also is furnished with large ocelli on the underside, and these grow smaller in October and vanish in the following month.

There has been considerable argument about the identity of *Iraota timoleon* (Stoll) and *I. maecenas*. In both the ground-colour is black with varying sized patches of Prussian blue. The underside of *timoleon* is however chocolate, with very distinctive white markings, particularly on the upper wing. In *maecenas* the underside is chestnut, and though the markings on the upper wing resemble those of *timoleon*, the lower wing is practically obsolete. By figuring insects from July to November transitional stages are apparent, and it is almost certain that *maecenas* is merely the seasonal form of *timoleon*.

Though so many of the local butterflies belong to the Palaearctic range, few of them are found in Europe. Of those included in the British list only *Vanessa cardui* and *Limenitis camilla*, with that rare migrant *Polyommatus boeticus* are common to both regions. Of the *Pieridae*, *P. canidia* and *P. nerissa* bear a great family resemblance to *rapae* and *napi*. The former swarms in gardens, and is as devastating to the cabbages and nasturtiums as *P. brassicae* is at home. *Pieris nerissa* is larger than the British Green-veined White, but has similar underside markings, and is far stronger on the wing. *Vanessa atalanta* has its counterpart in *V. indica* and is on the wing all the year round. There being no nettles in the Colony its larva feeds on the castor oil plant, *Ricinus communis*, which grows freely on waste ground.

Butterflies are out in almost any weather, but a long spell of cold north wind appears to be fatal to them, for they are scarce for some days afterwards. Many are not discouraged by rain, or even typhoon winds, and they seem to survive the hardest blows and almost horizontal rain which accompanies a hurricane.

The most attractive plant from the butterfly point of view is undoubtedly *Lantana*, a tropical bush which is in flower all the year round. It flourishes to such an extent as to have become a veritable pest in choking out more desirable forms of vegetation.

Forming a collection is not to be recommended as the climate is inimical to the preservation of specimens. During the wet season the insects are attacked by every sort of parasite, and are apt to suffer from mould on account of the high humidity. In the dry season antennae and legs fall off at the slightest jar, and in both the brilliance of the colours in insects like *P. sarpedon*, *P. paris*, and *P. demoleus* disappears. With the advent of air conditioning most of these disadvantages will vanish, but for the time being it is preferable to paper specimens and send them home for setting, or only take life when it is desirable to figure an insect.

Field Notes

We do wish somebody would sugar, nightly throughout June, in some extensive waste place where orache, goosefoots and persicarias run riot. *Trachea atriplicis* might reward his efforts. For although this fine moth used to be taken only (so far as records have come down to us) on the fringes of the fenland, on the Breck and in one or two other Suffolk localities, there seems no reason why—if it still inhabits our island—it should not occur in other places in England where the foodplants grow in plenty and where the 'lie of the land' and the surrounding vegetation conduce to a microclimate similar to that of its ancient haunts. On the Continent *atriplicis* is a farmyard insect, inhabiting waste places round about farms where the foodplants are normally abundant, and usually it is as common as a barndoor fowl. The foodplants, in addition to *Atriplex patula*, are Chenopodia of various species and the common spotted persicary, as well as knot-grass. All these plants flourish in many waste places in England and it is possible that *atriplicis* still exists in unsuspected parts of the country. Who would have thought that *Carterocephalus palaemon* would be found some day in Inverness-shire, of all places? We have not heard of any authentic capture of *atriplicis* in this country since 1915.

Apatele strigosa is another species which we rarely hear of nowadays. Like *Trachea atriplicis* it used to be taken on the fringes of fenland but was by no means confined to such places: it occurred also in several localities far removed from the fens—Whittlesford for example; also in Worcestershire before that county was drained, when much of it was one great morass. We have reason to believe that *strigosa* is not extinct; its habits are recondite and in no stage is it a conspicuous insect. The imago comes to sugar in June; but it must not be expected in places, however suitable in appearance, which do not provide the requisite ecological conditions and microclimate. If diligently—and intelligently—searched for it might well be discovered to exist in other places than those already recorded. We shall be glad to hear of recent captures even if not for publication.

Has *Isturgia limbaria* left us for good? It used to be plentiful, even abundant, in Suffolk, Essex, Surrey and Kent—but chiefly Suffolk where it could be taken round about Stowmarket by anybody who wanted it. The larva is monophagous: *Cytisus scoparius* (which the botanists now place in the genus *Sarothamnus*) was the only food, and, says Barrett, "its destruction seems to have been in part caused by the ploughing up, and burning off, the large broom fields which formerly existed". But there must be more in it than that: broom still grows in plenty in all these counties; yet *limbaria* is heard of no more after 1911.

A year or two ago, motoring through rather a dreary part of West Suffolk, we passed such a patch of *Cytisus* in bloom as we have never seen elsewhere. Some three or four acres were a solid mass of glorious yellow. There was a wood at one side, the other sides were arable with crops of vegetables. Why was this broom growing there? In days gone by, broom was rated highly for its medicinal value. Seeds, leaves.

flowers, roots, each had some peculiar virtue, and decoctions were used for curing dropsy, gout, ague and many another ill. The oil expressed from the green stalks was held to be an infallible cure for toothache. When burnt the plant supplies a rich store of potash (good for soap-making), and housewives used its stems to sweep floors and carpets. But who uses Broom nowadays? Perhaps this Suffolk acreage supplied blooms for Covent Garden; but that would be only for a short season each year.

It was early in May—too early for *limbaria* to be on the wing; but often we have thought of that golden field and wished that we could go back there in early June and beat the bushes for *limbaria* . . . Will somebody have a try?

Graptolitha furcifera Hufn. and Evan John of Llantrissant.—In the February 1951 number of this journal, under the heading ' Field Notes,' it is suggested that Evan John died " sometime in the seventies."

In 1909 I was appointed to a Cardiff hospital and the Vicar of Whitchurch, Glamorgan, who was chaplain to the hospital, said he would like me to meet a friend of his who was interested in moths. Accordingly an appointment was made and I was taken to Llantrissant to Evan John's house, where we had tea with John and his daughter one day during the summer of 1910. It was soon evident that John was interested in other forms of life, for during tea a mouse came out from behind the fireplace to be fed out of his hand. Later, a hen walked into the room and joined us at tea. On leaving, John gave me two fine specimens of his *Graptolitha furcifera*, and two *Apatele alni* which he had bred from local larvae.

Between 1910 and the beginning of the first war, with my friend Mr. E. U. David, several attempts were made on the sandhills of the Glamorgan coast to find *furcifera* at sallow blossom, between Llantwit Major and Port Talbot, but without success. On one occasion we took several well-marked specimens of *Orthosia advena* Schiff. (*opima* Hub.). —E. Barton White, St. Merryn, Braunton, N. Devon.

Notes on Life-Histories.

During our Founder's lifetime a page or two of each issue of this magazine was devoted to *Notes on Life-Histories, Larvae, etc.* We should like to receive more Notes of this Nature. There is still so much work to be done on the bionomics of British insects of all Orders, not excluding the Lepidoptera, and too few entomologists who concentrate on this most interesting and important part of field and observational work. The very foodplants of several macro-Lepidoptera are still unknown. Surely it is a reproach to us that the foodplants of no less than twelve species in one sub-Family, the *Lithosiinae*, have still to be described as " lichens " or " algae " and that nobody knows what is the natural food of such a common Noctuid as *Heliophobus anceps* Schf. (*saponariae* Bork.).

The name of Tutt's coadjutor, Dr Thomas Algernon Chapman, who died in 1922, springs to mind whenever this subject—the bionomics of Lepidoptera—is mentioned; for he devoted a great part of his life to rearing and studying some of the species whose life-histories had baffled all entomologists. Working on the clue that ants entered into a symbiotic relationship with *maculinea arion* he cleared up the mystery of another 'Blue,' *M. alcon*, a species which no Continental entomologist had succeeded in rearing from the egg. By patient observation, first in the natural haunt, where he watched how and where the females oviposited, then at his home in Herefordshire, he discovered that until the third instar the larva of *M. alcon* feeds inside the flowers (in the ovaries) of the foodplant (Gentian), sometimes mining into the succulent stems. After the second moult it leaves the plant and wanders until it is found by ants and carried by them to their nest. Using a nest of one of the species of ant which nourishes *M. arion* he was the first to rear *M. alcon* from egg to imago. Those of our readers who possess complete sets of this magazine will have read Dr Chapman's masterly articles on *The Genus Acronycta* and his acute observations of the way in which the imago of *Hoplitis milhauseri* cuts its way out of its *vinula*-like cocoon. Surely there must be someone among our younger readers upon whose shoulders the mantle of Dr Chapman will, presently, fall.

A few years ago a correspondent asked in one of our contemporaries what is the foodplant of *Tholomiges turfosalis*? No answer was forthcoming and so far as we are aware the larva of this insect is still 'unknown to science.' It is a northern species, occurring in Finland, the Baltic countries, North Germany and Denmark, being unknown in France or anywhere else south of Silesia. Richard Weaver discovered it at Killarney in 1848 and it is still common there. In England it occurs from Dorset to Cumberland, being usually plentiful in its haunts. When a correspondent, describing some Swiss butterflies, wrote in this magazine " One must not forget that our knowledge only applies to one stage, the imago, and that we English . . . are almost if not absolutely ignorant of them in the ova, larva and pupa stages " our Founder commented " That this is so is simply a disgrace to our English collectors." What would he have said had he known that the larva of a not uncommon English moth would be still unknown sixty years later? Surely someone can net a dozen female *turfosalis*, confine them in a breeding-cage with a 'salad' of plants plucked in the habitat and thus discover the plant upon which eggs are laid? Even the egg of *turfosalis* is still undescribed, and so is the pupa! Who of our readers will hand his name down to posterity as being the first to rear *Tholomiges turfosalis* from egg to imago?

Schranckia costaestrigalis is another species of this sub-Family (*Hypeninae*) of which the foodplant is still unknown, though from eggs laid in captivity the larva has been reared on the flowers of *Thymus serpyllum* and *Mentha aquatica*. Nor is the foodplant, in England, known of the four small 'Waves' *Sterrha sylvestraria* Hb. (*straminata* Tr.), *S. fuscovenosa* Göze, *S. degeneraria* Hb. and *Scopula emutaria* Hb., though here too the larvae of all these have been reared to the imago on various plants. Having obtained eggs from captured females,

reared the larvae on known substitute foodplants, and observed the larval habits closely, it should not be beyond the ability of some of us to search for and find the larvae of these species in their habitats.

Notes and Observations

PHRAGMATOBIA FULIGINOSA L. ON THE DERBYSHIRE MOORS.—On March 27th about two inches of snow lay on the Derbyshire moors. The day was lovely with deep blue sky and glorious sunshine, but a north wind kept the air temperature at freezing point. At the bases of some of the larger rocks, where there was shelter from the piercing wind, the sunshine cleared the snow in patches of varying extent. On several of these, larvae of *P. fuliginosa* were detected, sunning themselves for probably the first time after their winter sleep.

A few of the larvae were brought home and placed in separate pill-boxes. The indoor warmth had its usual effect, and next day the larvae were all spinning their blackish cocoons. This task they soon completed and now, April 15th, the emergence of Ruby Tigers is an expected event.—T. D. FEARNEHOUGH, 13 Salisbury Road, Dronfield, Derbyshire.

MORTALITY IN LARVAE OF MACROTHYLACIA RUBI L.—In the autumn of 1950 Fox Moth larvae were abundant on one of the moorland slopes near Ashopton, Derbyshire. On the sunny morning of 12th October over one hundred larvae were counted on a few hundred square yards of moor. Over the whole hillside there must have been some thousands of the larvae.

The locality is difficult of access to one who relies on public transport, for buses run within striking distance only on favoured days. However, three visits were made during March to look for the reappearance of *rubi* larvae. Only a single specimen was found, so it seems that this species will be no commoner during the coming season for its brief larval exuberance.—T. D. FEARNEHOUGH, 13 Salisbury Road, Dronfield, Derbyshire.

GYMNOSCELIS PUMILATA HUB. FEEDING ON BUDDLEIA DAVIDII.—On 24th July 1950 I took a female *Gymnoscelis pumilata* Hub. at the flowers of *Buddleia davidii*. She provided a few ova, which duly hatched and the larvae were fed upon *Convolvulus arvensis*, the only foodplant named in Allan's *Larval Foodplants* locally available at the time.

The sacrifice of some of the sprays of Buddleia in the cause of floral decoration, however, provided a just reward. The appearance of frass on the table centre gave a clue to the presence of larvae, which proved identical with those of *G. pumilata*. These were found in some numbers, feeding on the withered flowers, not only by the writer but by two other local collectors. The moths are now emerging, confirming the identity of the larvae.

This would appear to be an instance of the rare phenomenon of the presence of lepidopterists in an area being favourable to the insects of the district.—F. H. LATHAM, 26 Hollie Lucas Road, King's Heath, Birmingham 14. *16th April 1951.*

THE LARVA OF LITHINA CHLOROSATA.—The writer of ' Practical Hints ' asks on page 45 of last April's issue whether many entomologists have seen the larva of *Lithina chlorosata*. Most entomologists regard the moth as a pest and I don't suppose many have looked for its larva. On one occasion I searched for it in vain and beating was little more successful. I knocked three or four on to the tray, but only managed to box one of them. The others threw themselves about with such violence that they bounced out of the tray before I could get it level. When I bred them from the egg in 1924 I was able to observe them and found that at the least disturbance they fell off the food and bent themselves into a curve, crossing the anterior and posterior ends first one way and then the other way with great violence. They threw themselves out of the lid of a glass-bottomed box with great ease and behaved much more like the larva of *Cucullia gnaphalii* than a geometer. The larva is brown and I suspect that as a rule it rests by day on the dead brown fronds and stems of the previous year and that only a few remain on the green fronds.—E. A. COCKAYNE, 8 High Street, Tring, Herts.

DELAYED EMERGENCE IN SATURNIA CARPINI SCHIFF. (PAVONIA L.).—I think it has been recorded that this species sometimes passes more than one winter in the pupal state, though I cannot at the moment find a reference. On 8.v.1948 I found a female on a window-frame at my house at Bramley, Surrey, and obtained a few ova. I sent some of these to a friend, and ultimately had about a dozen pupae, of which I retained seven with the object, which was not realised, of pairing a moth with an Irish example.

On 10.v.1949 one female emerged. No more imagines appeared in 1949, and I retained the pupae for another year. None appeared in 1950. During the present year I have bred a male on 26.iv.1951, a female on 27.iv.1951, and one of each sex on 29.iv.1951, these examples having passed three winters in the pupal state.—HAROLD B. WILLIAMS, Munstead Oaks, Godalming, Surrey. 30.iv.1951.

MOMPHA NODICOLELLA FUCHS IN SURREY.—Since writing my note on this species (p. 49 of the March-April issue) the specimens of the three species *Mompha decorella*, *subbistrigella* and *nodicolella* in the British Museum have been re-examined and some interesting facts brought to light. Of the three examples of *nodicolella* reported as taken at Westerham in 1915, one of these is in the museum collection and this has been re-determined as *subbistrigella*. It seems likely, therefore, that the other two, wherever they are now, are also this species. Of particular interest, however, is the fact that there is another distinct species. This is allied to *subbistrigella*, and all the museum specimens were taken in Norfolk. It is early yet to say more on the matter, and Mr. Bradley's paper on his findings should be of great interest when published. —S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

MOTHS AND BATS.—How does the little pipistrelle bat catch a Noctuid as large as *Triphaena pronuba*? One sees the "wee beastie" flapping to and fro across the garden, doing a regular sentry-go, flying on level keel at perhaps eight miles an hour. Every now and then it wheels suddenly to right or left, up or down, making a quick turn

which ends, usually, in a swoop; then it comes back to its previous line of flight and resumes its sentry-go. Yet the moths which it catches can fly twice as fast as the bat and can swerve and turn no less adroitly. Is the bat's flight deceptive and does it really fly much faster than it appears to do? A year or two ago a pipistrelle rested by day in a stable loft wherein I kept some larva-cages, and every morning I inspected the wings of the Noctuae which lay on the floor beneath the flittermouse, hanging head downwards from a rafter. The species included *Apamea monoglypha* (many), *Triphaena pronuba* (several), *Amphipyra pyramidea* (quite a few), *Agrotis exclamationis* (a great many), *Dasychira pudibunda* (one male), *Plusia iota* (two), *Plusia chrysitis* (several), *Mamestra brassicae* (eight or nine), *Hada nana* (many) and *Phlogophora meticulosa* (several).

Had the wings been those of *Geometridae*, most of which are incapable of rapid flight, one would not have been surprised. But all the above species—especially *Hada nana*—can fly much faster than a pipistrelle. How, then, did the bat manage to overtake and catch them? Moreover, the moth must be able to "hear" the bat approaching; for even the little pipistrelle has by no means a silent flight. The hawk can fly faster than the bird it pursues and kills; with the bat, on the other hand, the odds seem to be on the moth.

The answer to this query appears to be that unless they are alarmed or stimulated by light or a female's scent the Noctuae fly quite slowly. They potter with deliberation about bushes and herbage and at times are almost stationary in front of a bush for a couple of seconds. All lepidopterists who have been 'dusking' in the garden in summertime must have noticed this. Even when flying fifteen to twenty feet up in the open air, which they usually are when the bat catches them, they fly in a most leisurely way—as indeed one may see when they pass in the light of an upper window, when they are not near enough to become dazzled.

Twice last year a pipistrelle pursued a moth into my bedroom during the small hours. On the first occasion the victim was a *P. meticulosa* and I found its wings next morning on the carpet at the foot of my bed. For some time the bat was unable to find the window, either when the room was in darkness or when the light was switched on. Eventually, perhaps after four or five minutes, during which time it flew rapidly about the room, passing as close to my head as it could without actually touching me, it escaped the way it had come. On the second occasion the moth was not caught and the bat was unable to find the window again. At last I threw a towel at it and brought it down. It remained silent and motionless while I removed the folds of the towel from it, and when uncovered made no attempt to fly. When the towel was gently skaken outside the window, however, the bat at once made off, doubtless to its great relief. Here at least was proof that the bat reckoned on being able to outpace the moth, and certainly the moth would not have flown into the room (which, of course, was in darkness) had it not been alarmed. Surely it must have been *trying* to escape from its predator and therefore flying as fast as it could? So on balance it would seem that the pipistrelle can fly a good deal faster than we think.

There was more than a month's interval between these two incidents: was it the same bat on both occasions? Probably the fright emotion is not retained by a bat for long; but do bats have definite 'territories' as birds are said to have?—P. B. M. Allan.

Practical Hints

Wherever there is a plentiful growth of *Salix repens* (or other species of dwarf willow) on swampy ground the larvae of *Clostera pigra* can sometimes be collected in plenty this month. The larvae spin together the terminal shoots, and these retreats are easily seen. The species is common at Wicken Fen (indeed all over the Fen country) and we have collected it on marshy ground high up in the Welsh hills.

It is often profitable to search the leaves on the little trunk-shoots on *young* oaks, from two to four feet above the ground, during this month. Resting on the undersides of the leaves the young larvae of *Notodonta anceps* are sometimes to be found, as well as those of *Chaonia ruficornis*. Leaves loosely spun together may contain *Polyploca ridens*. Trees facing *west* (*i.e.* sheltered on the other three sides) seem to be favoured.

The larvae of *Sarrothripus revayana* can be beaten from oak this month. It is a handsome larva, emerald green thickly clad with long white hairs—not unlike a small *Apatele leporina*. Usually on the west and north sides of young oaks growing in sheltered spots.

Female *Drepana falcataria*, netted as they fly about birches, will usually lay eggs in captivity. The eggs are prolate, canary, speckled with vermilion at the micropilar end. Not easy to rear: the young larva requires sunlight and judicious use of the mist syringe.

Cidaria fulvata is sometimes common in rose-gardens this month and is easily netted at dusk. Females lay freely in captivity and the larvae are easy to rear. They seem to do best on small-leaved roses.

The undersides of the leaves of poplar, aspen, birch and *Salix atrocinerea* should be scrutinized for eggs of *Pheosia tremula*, *P. gnoma*, *Notondonta ziczac*, *N. dromedarius*, *Lophopteryx capucina*, and *Pterostoma palpina* this month. The eggs of these species are all very much alike—hemispherical, almost white to the palest sea-green, with a matt surface. They are usually laid in pairs.

Zenobia retusa is a local species but plentiful where it occurs. It inhabits the sallow bushes growing on the banks of the Severn above Shrewsbury for many miles. During the first half of June (not later) pluck or snip off with scissors the spun-together terminal shoots. Many of these retreats will contain *Bombycia viminalis* (of which one can thus breed some nice forms) and *Agrochola lota*; but plenty of *Z. retusa* should also occur: we have collected forty in an afternoon. The larvae of these three species are easily distinguished: that of *A. lota* is brown,

the other two green. *B. viminalis* has two pairs of whitish dots on the back of each somite, *Z. retusa* has none.

Collecting Notes

Panaxia dominula L. in Cardiganshire.—On one of my many fishing trips, some years ago, I had the pleasure of seeing this insect for the first time in Cardiganshire. Last June I visited the same area with a friend, after a lapse of over half a century. When making our way to a local bog he asked if I could tell him where I had found the insect. Before I could answer his question I observed that he was just about to plant his foot on one. There they were, within a mile of the old spot. I sent notice of this isolated colony to Mr. Gordon Smith, who was including Cardiganshire in his list of the Lepidoptera of North Wales.—G. B. Manly, 72 Tenbury Road, Birmingham 14.

Microlepidoptera Taken at Light at Sway, Hants.—Mr. C. B. Antram of Sway, which is situated just south of the New Forest border, worked a light trap on every suitable night from April to November, 1950. The lamp used was a 200-watt and the trap a home-made one. From early June until November he kindly sent me weekly consignments by post of all the Microlepidoptera taken. The following is a list of the most interesting species:—

Dioryctria abietella Fab., *Euzophera pinguis* Haw., *Homoeosoma cretacella* Rossl., *Eurhodope marmorea* Haw., *Diasemia ramburialis* Dup. (one 24.vii.50), *Perinephela lancealis* Schiff., *Pyrausta verbascalis* Schiff., *Phlyctaenia ferrugalis* Hub. (abundant in October), *Loxostege palealis* Schiff. (one specimen), *Pyralis glaucinalis* L. (several), *Synaphe angustalis* Schiff. (very common), *Phalonia dipoltella* Hub., *P. hybridella* Hub., *Peronea hastiana* L., *Argyroploce purpurana* Haw. (three specimens), *A. ochroleucana* Hub., *Polychrosis littoralis* Curt.—S. C. S. Brown, 454 Christchurch Road, Boscombe, Bournemouth.

Spring Lepidoptera at Aviemore and Struan.—A visit paid to this favourite Scottish locality (Aviemore) during the first half of April was unusually unproductive. Nothing was seen on the wing except a few *Colostygia multistrigaria* Haw., which indeed was hardly surprising in view of the blizzards and sharp frosts at night. No *Brachionycha nubeculosa* Esp. had been taken up to 14th April, though normally it is common and well out at this time. Mr. P. Harwood of Kincraig usually takes this species in his garden and in the birch wood adjoining, but he too reported a blank up to that date. Tree trunk searching produced a few very red *Orthosia incerta* Hufn.

At Struan, however, we took a few *Poecilopsis lapponaria* Bdv., including a pair *in cop.*, the female subsequently providing eggs, with two very nicely marked *Nothopteryx carpinata* Bork. Some nice large violet tinted *Achlya flavicornis* L. were also taken from the posts. That completed our bag—hardly a lucrative one; but collecting seems to have been poor everywhere this Spring.—W. Reid, 46 Totley Brook Road, Sheffield.

DIPTERA

The Resistance of Certain Species of Diptera to Killing Agents

By E. C. M. d'Assis-Fonseca.

The late Dr. F. W. Edwards, in an article in which he described the occurrence and habits of species of the Platypezid genus *Microsania* (*Journ. Soc. Brit. Ent.*, **1** (2), 31-33, 1934), remarks on the resistance which these minute flies have to the fumes of cyanide, and compares the times required to produce a state of immobility in these and other species of similar size.

It is not altogether surprising to find that insects, which are not only resistant to but even attracted by an atmosphere polluted with wood-smoke, should be less affected by the fumes of killing agents than species not possessing similar habits. It is therefore interesting to note that there are other species which, although not otherwise associated with noxious fumes, nevertheless have, to a greater or less degree, this remarkable resistance to some killing agents.

The species of the family Coelopidae, at least all those of which the writer has experience, possess this character, in particular the robust, horny *Orygma luctuosa* Mg. In December 1949, on the beach at Southsea (Hants.), in an icy wind and a temperature not greatly above freezing, *Orygma luctuosa* Mg., *Coelopa frigida* F., *C. pilipes* Hal. and *Oedoparea buccata* Fall. were discovered swarming amongst the seaweed and other debris along the high-water line, *O. buccata* being the most active and making flights of up to ten feet. Fairly long series of all four species were taken and, although several good cyanide bottles were in use, the abnormal length of time required to produce unconsciousness made the collecting of these flies very tedious.

Again, flies of the tough, horny build of these Coelopids, whose resistance to low temperature is evident, could perhaps be expected also to resist, to some extent, the fumes of cyanide. There is, however, a species of Cordyluridae, namely *Scatophaga calida* Hal., whose remarkable resistance to laurel fumes merits special mention. On June 18th last year (1950) this species was found quite plentifully on bramble leaves at Clevedon (Som.), and as they did not fly but merely crawled round to the underside of the leaves when disturbed, a good series of each sex was easily taken. It was immediately noticed that the flies remained active in the laurel tubes much longer than normally required for immobilisation and at first it was thought that the laurel had lost its strength. A trial or two with specimens of *Sarcophaga*, however, proved that this was not so. Ten to fifteen minutes in the laurel was therefore allowed for each specimen of *S. calida* before transferring it to a dry tin to prevent 'wetting'. Some hours later, when transferring other specimens to the same tin, the majority of the *Scatophaga* escaped! About a dozen specimens were saved and these were replaced in the laurel tube where they remained during the half-hour drive home. In spite of being subjected to laurel fumes for almost three-quarters of an hour, nearly all the specimens still showed signs of life when turned out for pinning and they were finally left in the killing tube over-night.

Some of them became 'wet' as a result and it is thought that a spirituous killing agent, such as carbon tetrachloride, may be preferable in such cases. It is hoped that, should *calida* appear again this June, there will be an opportunity to test this.

It may be noted here that the first example of this interesting character was observed by the writer in 1923, when collecting Lepidoptera in Brazil. Species of the Danaid genus *Actinote*, butterflies with a conspicuously weak flight, were found to be almost impossible to kill by means of a cyanide bottle. It is well known also that species of the genus *Zygaena* (Burnet moths) are fairly resistant to cyanide fumes.

The question as to whether this character, possessed by such widely diverse species, is the result of some form of antitoxic secretion, or simply a matter of the rate of 'breathing' of the insect (either normally low or automatically reduced in the presence of poisonous fumes) does not come within the scope of this note. It nevertheless appears significant that, with the exception of the Smoke-flies (*Microsania*) and perhaps the Burnets (*Zygaena*), the examples mentioned have all been species which are particularly weak fliers, or, as in the case of some Coelopids, of almost entirely terrestrial habits.

It would be of interest to read of similar experiences by other collectors, either in this country or abroad, in connection with insects of any of the Orders.

I am indebted to Mr. J. E. Collin for the determination of *Scatophaga calida* Hal.

18 Grange Park, Henleaze, Bristol, April 14th, 1951.

DERMAPTERA

On the Dermaptera of Palestine

By Malcolm Burr, D.Sc., F.R.E.S.

I am indebted to Dr. Goldschmidt and Dr. Wahrmann of the Hebrew University, Jerusalem, for an opportunity to see a small collection of earwigs from Palestine. It includes only four species, but the details are worth recording. The total number of species of earwig recorded from Palestine by Bodenheimer is thirteen. It is possible, but I think hardly probable, that additions may be made to this list.

The species are:—

1. *Labidura raparia* Pall.
   Raanana, 31.viii.49, 4 males, 1 female and larvae: Tel-Aviv, 4.x.49, 1 female (Goldschmidt). Typical forms.
2. *Anisolabis maritima* Bon.
   On the shores, both of sea and freshwater (Bodenheimer).
3. *An. annulipes* Luc.
   Cosmopolitan. Recorded by Bodenheimer.
4. *Euborellia moesta* Serv.
   Recorded by Bodenheimer. A Mediterranean species.
5. *Labia minor* L.
   According to Bodenheimer, occurs in enormous numbers over dung-heaps on summer evenings.

6. *Anechura bipunctata* Fabr.

Dr. Wahrmann informs me that this species is included by Bodenheimer in a paper in his *Prodromus Faunae Palestinae* (1937), but I have not seen that work. It is not mentioned in his bigger book *Animal Life in Palestine*. It is surprising that this alpine species with palaearctic distribution should extend as far south as Palestine. I have recorded it from the Taurus (*Ent. Rec.*, **57** (1945), p. 18).

7. *Forficula auricularia* L.

Recorded by Bodenheimer. I have not seen a specimen, but one is never surprised at its occurrence anywhere.

8. *F. lurida* Fisch.

This is the common Levantine earwig, which seems to be abundant in Palestine. There are specimens in the collection from various localities: Meneiye, Negev, 1.ii.50, nymph (Wahrmann): Jerusalem, female and nymphs in April, males from June to October (Goldschmidt): Kiryath Shmuel, male, 25.x.49 (Goldschmidt): Aquabella, Judaean Hills, 2 males, 1.iv.49, and one female, 9.v.50 (Goldschmidt): Qataman, males, Sept.-Dec., 1949: one female, November/49 (Goldschmidt): Montefiore, Jerusalem, 5 males, 3 females, 2 larvae, 24.ix.17, xi.49 (Goldschmidt).

9. *F. decipiens* Géné.

Bodenheimer records this Mediterranean earwig, but in the eastern portion it is not so numerous as the preceding. In the Goldschmidt collection there is a brachypterous female from Rehania Monastery, which may be referable to this species.

10. *F. pubescens* Géné.

Jerusalem, one male, 6.x.49 (Wahrmann): Aquabella, Judaean Hills, 1-9.v.49, 2 males (Wahrmann). A Mediterranean species, generally replaced in the eastern portion by *F. aetolica* and *F. hincksii*.

11. *F. smyrnensis* Serv.

Jerusalem, larvae, iii-iv.50: 2 males, autumn/50: (Goldschmidt and Wahrmann): Qataman, female in May/50, males and females, July-Sept./49 (Goldschmidt): Jerusalem, males in autumn/49, larvae in March and April/50 (Wahrmann).

This is an east Mediterranean species, that is common in eastern Anatolia.

12. *F. lucasi* Dohrn.

Bodenheimer records this from the eastern wadis of Jericho and western Arabia, in his paper on the Orthoptera of Palestine in *Archiv fr. Naturgeschichte*, pp. 145-216, 88-142, 1935, which I have not had an opportunity of studying. For the particulars I am indebted to Dr. Wahrmann's courtesy.

13. *F. barroisi* Bol.

Recorded by Bodenheimer from wadis near the Dead Sea.

Both these handsome species occur in suitable spots along the North African coast. Bodenheimer gives distributional and ecological details.

Fifty Years Ago

(From *The Entomologist's Record* of June 1901.)

TRIMIUM BREVICORNE REICH. FROM CHIDDINGFOLD.—On March 15th last I captured a specimen of this very local little beetle in moss from Chiddingfold. The only other British locality where it has been taken since the time of Stephens is Scarborough. It was taken in some numbers there some years ago by Messrs. Lawson and Wilkinson, and all the specimens in collections come from that source.—HORACE DONISTHORPE.

THE ANTERIOR AND POSTERIOR LEGS OF INSECTS.—The writer of "Current Notes" in the *Entomologist's Record* for April, 1901, objects to my definition of the terms "anterior" and "posterior" in reference to the legs of insects. Does he not know that the comparative degree applies to the comparison of one thing against one other thing only, but that the superlative degree is a comparison against all others? To speak of the anterior or fore-legs of a horse is quite correct, but to speak of the anterior or fore-legs of a millepede is most vague. Does the writer contend that fore or anterior (Latin *anterior*) is the same as front (Latin *anticus*), and that posterior (Latin *posterior*) is the same as hind (Latin *posticus*)? The writer in his remarks causes confusion by speaking of fore-legs. What does he mean by that word? If he means front legs, why does he not say so? To me, fore-legs (*pedes anteriores*) and front legs (*pedes antici*) convey quite distinct meanings . . G. H. VERRALL.

[The front legs (*antici*) become more front (*anteriores*) by adding to them that which is behind them. The second pair of legs are also both anterior legs and posterior legs. Several similarly logical and lucid results follow from Mr. Verrall's definitions. Nevertheless, however absurd, logically and gramatically, any phraseology may be, it must be accepted if it has that amount of authority behind it which is involved in early, continuous, and general usage . . . ED. (J. W. TUTT)].

Current Literature

The *Bulletin de la Société Entomologique de France*, LVI, No. 2, contains, at page 30, a Note on the nomenclature of four of the *Lycaenidae* by G. Bernardi, three of which will interest those of our readers who collect Continental Rhopalocera.

1. *Lycaeides idas* L. The Corsican sub-species of *L. idas* is known as *bellieri* Obth. This name is used by all authors (*e.g.* Stampffer 1931, Beuret 1934, Forster 1936 and Nabokov 1949). But this sub-species should in fact be named *L. idas corsica* Tutt, 1909, of which *bellieri* Obth., 1910 (*Ét. Lép. Comp.*, IV, p. 190) is a synonym. It is remarkable that Tutt's careful description (*Ent. Rec.*, 1909, p. 58) should have been completely forgotten.

2. *Cyaniris semiargus* Rott. Verity (*Le Farf. diurn. de Ital.*, II, 1947, pp. 235, 239, and *Rev. fr. Lep.*, Suppl. 1949, p. 137) proposed to

use the name *acis* Den. & Schiff., 1775, to denote a sub-species of *C. semiargus* which occurs in, among other places, the Alpes Maritimes in France. This name is not valid, being a primary homonym of *acis* Drury, 1773.

3. *Lysandra pulchra* Shelj. This species from the Pamirs described by Sheljuzhko (*Ent. Anz., Lep. Rdsch.*, 1928, p. 44) under the name *Lycaena pulchra* is a primary homonym of *Lycaena pulchra* Murray (*Trans. ent. Soc. London*, 1874, p. 524). M. Bernardi proposes that in future this insect be known as **Lysandra pulchella.**

4. *Callophrys rubi* L. The name *virgatus* Vrty. was created by Verity (*Linn. Soc. Journ Zool.*, 1913, p. 187) to denote " the race commonly distributed in Central and part of Southern Europe." In 1943 (*Le Farf. diurn. Ital.*, II, p. 380) the same author proposed to restrict this name to the *C. rubi* of Central Europe. This procedure is not possible since Verity himself (*Ent. Rec.*, Suppl., 1923, p. 12) fixed " Florence " as the locality of the type of *virgatus*. This name is therefore applicable to the sub-species of Southern Europe and is a synonym of *intermedia* Tutt (*Brit. Butt.*, II, 1907, pp. 91-92). Fortunately one can avoid re-naming the Central European sub-species by using the name *caecus* Geoffroy (in Fourcroy, *Ent. Par.*, II, 1785, p. 245) described as of " Paris."

The neglect of our Continental friends to consult English authorities is of long standing and has been responsible for much confusion. Tutt protested against it fifty years ago (see *Ent. Rec.*, 13 (1901), p. 279), and it still goes on.

Eos (Instituto Espanol de Entomologia, Madrid), XXIV, Nos. 3 & 4 (July-December, 1950) contains at pp. 157-196 a paper (with 17 figures) by E. Morales Agacino on the Phasmids and Tettigoniids of Morocco preserved in the Instituto de Entomologia at Madrid. A review of this important paper, by Dr. Malcolm Burr, will appear in a subsequent issue of the 'Record'.

The Council for the Promotion of Field Studies.—We have received from the Central Office of this Council (10 Exhibition Road, South Kensington, London, S.W.7) a leaflet calling attention to the facilities for field study which it offers and a list of the Centres now open. These Centres are intended just as much for the individual 'nature lover' as for parties from training colleges, schools, etc.; in fact, one of the aims of the Council is to encourage and help the ordinary person who is interested in some branch of natural history and wishes to learn more of this or allied subjects. The Centres now open are at Flatford Mill, near Colchester, Essex; Juniper Hall, near Dorking, Surrey; Dale Fort, near Haverfordwest, Pembrokeshire; and Malham Tarn, near Settle, Yorkshire.

Although special courses are organized—bird study, freshwater and marine life, insects, plants, geology, etc.—those who attend the Centres are at liberty to arrange their own programmes if they wish. The usual period of residence is one week or more and the charge is £5 15s 6d per week. Information can be had from the Warden of each of the Centres or from the Central Office as above.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to the ASSISTANT EDITOR, No. 4 Windhill, Bishop's Stortford, Herts.

Wanted.—I need specimens of *Lycaena* (*Heodes*) *phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East countries, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antiopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Melin; A Contribution to the Knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923. Fraenkel and Gunn; Orientation of Animals, 1940, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

Wanted this coming season—Ova, larvae and pupae of *Abraxas grossulariata* and *Abraxas ulmata* (*sylvata*), for cash or exchange.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Records of the following Butterflies from the New Forest: *crataegi, sinapis, iris, c-album, polychloros, cinxia, aurinea, galatea, betulae, semiargus, lucina, lineola, actaeon.*—*S. C. S. Brown, 454 Christchurch Road, Bournemouth.*

Wanted—Information regarding the biology, ecology, and distribution of *Smerinthus ocellata, Laothoe populi, Mimas tiliae, Sphinx ligustri* and *Deilephila elpenor* in the London area; with special reference to foodplants, parasites, habitat and the effects of bombed sites.—D. F. OWEN, *3 Lockmead Road, Lewisham, London, S.E.13.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

Editor: E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S.
Assistant Editor: P. B. M. ALLAN, M.B.E., M.A., F.S.A., F.R.E.S.
Treasurer: H. W. ANDREWS, F.R.E.S.
Publicity and Advertisements: F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

The following gentlemen act as Honorary Consultants to the magazine: *Lepidoptera*: S. N. A. JACOBS, F.R.E.S., Dr. H. B. WILLIAMS, K.C., LL.D., F.R.E.S.; *Orthoptera*: Dr. MALCOLM BURR, D.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: E. C. M. d'ASSIS-FONSECA, J. E. COLLIN, F.R.E.S.

THE ENTOMOLOGIST'S RECORD is published on the FIFTEENTH day of each month.

CONTENTS

TO OUR CONTRIBUTORS

All material for the magazine should be sent to the *Assistant Editor* at No. 4 WINDHILL, BISHOP'S STORTFORD, HERTS.

We must earnestly request our contributors NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

If REPRINTS of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

Printed by T. Buncle & Co. Ltd., Arbroath.

VOL. 63 Nos. 7—8 JULY—AUG. 1951

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

ANNUAL SUBSCRIPTION 10s. POST FREE
Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,
Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

PUBLISHED MONTHLY PRICE 2s NET

Editorial

Our new cover seems to have met with approval and we are grateful for the commendation already received. This is the fourth time the *Record* has changed its outer garment. The original cover, which was printed on grey paper, bore a design by F. W. Frohawk. It depicted a flowering sprig of honeysuckle from which was suspended a pupa of *Limenitis camilla* L.; towards this a full-grown larva of that species was climbing, while a large bumble-bee (apparently *Bombus terrestris* L., though the venation is a trifle aberrant) was about to alight on the blossom. This cover, which was artistic and pleasant though the design was marred by a jumble of type, continued in use until January 1919, when it was replaced by a truly hideous concoction, the title being set in pseudo-gothic and no less than ten different founts of type being employed on the front page. The whole was printed on a green tissue paper which faded to a pinkish-brown. This printer's nightmare continued until January 1925 when the Frohawk cover on grey paper was resumed, the words " new series " appearing after the volume numeral.

Cover No. 3 appeared in March 1931: it is the cover which enclosed this magazine until our issue of last May. It was not attractive, but at least it was better than No. 2. Why a magazine founded primarily for British lepidopterists should have been adorned by an exotic orthopteron (in melanic and albino forms) is not clear, and we have sometimes thought that it might not *quite* have met with our Founder's approval . . . Still, a bumble-bee was a conspicuous feature of the original cover, and in the prospectus sent out prior to the publication of his first number Tutt announced that " well-known entomologists have kindly offered their assistance not only in Lepidoptera but also in other Orders." Indeed in his second number he wrote a leading article urging his readers to give attention to the Trichoptera and Neuroptera.

The front page of our present cover contains (apart from the marginal rubrics) only two types: the title is set in Imprint Open and the rest in Garamond. This is in accordance with modern usage; for printing practice to-day has moved far from the verbosity of nineteenth century covers and title-pages expressed in a multiplicity of types. *The Entomologist's Record* is an up-to-date journal catering for up-to-date entomologists; our cover must therefore march with the times.

Yet although times change and manners with them the principles which Tutt laid down for his magazine should endure as long as the science of Entomology itself. A change of cover denotes a break with the immediate past; but it does not indicate a departure from the standards which Tutt set up.

Editor.

Will the Editors of those entomological journals published overseas with whom we exchange copies of *The Record* please note that their publications should now be sent to the Assistant Editor, at the address given on the back of our present cover?—Ed.

The Genetics of *Cleora cinctaria* Schiffermüller ab. *submarmorinaria* Fuchs and ab. *schulzei* Heinrich

By E. A. Cockayne, D.M., F.R.C.P.

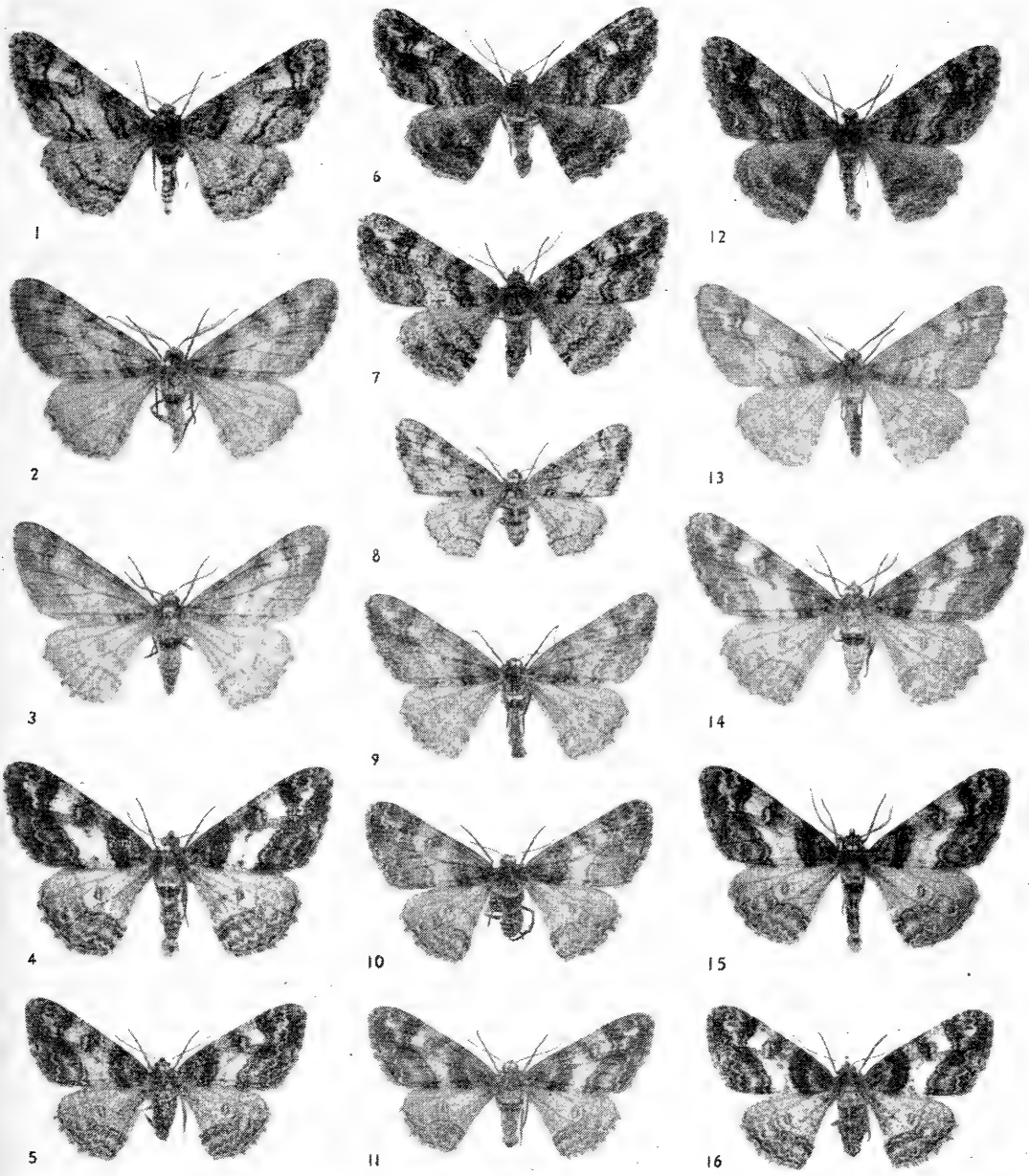
Plate IV.

On April 22, 1938, Mr. J. O. T. Howard and the late Mr. A. J. Bowes found a few *Cleora cinctaria* on some wet ground at Struan in Perthshire and in the following years the moth was common there, but in 1949 and the two subsequent years it was scarce. The colony is confined to the area where bog mrytle grows and the moth rests on the rocks. No doubt bog myrtle is the larval food-plant. A few albino or, to be more exact, dilute specimens were taken, which can be referred to ab. *schulzei* Heinrich (*Deutsch. Ent. Z.*, 1916, pp. 360, 531. Pl. 4, fig. 17). This was described from a slightly crippled male taken at Finkenkrug and had a dull yellowish grey ground colour with pale reddish yellow markings and no speckles. A female from Rempstone, Notts., caught in 1892, agrees fairly well with this description, though the transverse lines are more distinct. This is the only English specimen I have seen and I know no record of another. The Scottish albinos vary, showing the same range of variation as the race in which they occur. In one wild male all the dark scales are replaced by pale yellowish red ones. In many of them the ground colour is pure white and the markings pale grey, with a pale rufous tint in a bright light, but in one female rufous scales replace most of the grey ones. Others are more or less densely covered with pale grey speckles and the markings are indistinct, and one male is an albino ab. *consimilaria* Duponchel. The Scottish race has a whiter ground and blacker markings than English or Irish specimens, but within the race there is great variation. Some are heavily and others lightly speckled; some have a very thick median line, while others have a very clear white median area with only a trace of the median line. This form, which is uncommon, looks as if it might be the heterozygote of ab. *submarmorinaria* Fuchs (*Stett. Ent. Ztg.*, 1884, 45-367), but this is not so, though the beautiful black and white ab. *submarmorinaria* is found there.

Ab. *consimilaria* also occurs rarely in this race. Two or three attempts to breed from albino females failed, the larvae dying before they were full grown.

In the hope of obtaining an albino female I went to Struan in 1946 and was joined by Mr. E. J. Hare. On arrival I found a note from Mr. Austin Richardson saying that he had been the previous week and taken 1 albino in 79. Mr. Hare and I, collecting all we saw and releasing most of them the next day, took 6 albinos in 323, 5 males falling to my lot and 1 female to his. This gives a total of 7 albinos in 402, less than 2 per cent., but the albino is much more conspicuous at rest than the other forms and is probably scarcer than our figures show. We only took 2 *submarmorinaria* in 323.

Later in 1946 Mr. Alfred Hedges paid a short visit to try and get a female albino, but the moth was nearly over and he had to be content with a normal female, which had laid most of its eggs. Thirty eggs were obtained and shared with Mr. Quibell, who was there at the


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

same time. I am indebted to Mr. Hedges for permission to publish the results of his successful breeding experiment.

F1 generation, 1947.

13 (9 ♂♂, 4 ♀♀) normal *cinctaria* were bred, 8 (4 ♂♂, 4 ♀♀) being average specimens and 5 with white median area, looking as if they might be heterozygotes of *submarmorinaria*. A male of the latter was paired with a female of the former.

F2 generation, 1948.

63 moths were bred—42 (24 ♂♂, 18 ♀♀) normal *cinctaria*, of which 12 ♂♂ and 11 ♀♀ were average and 12 ♂♂ and 7 ♀♀ had the white median area: 10 (6 ♂♂, 4 ♀♀) *submarmorinaria* : 11 (6 ♂♂, 5 ♀♀) *schulzei*. Since the last two forms appeared in the F2 generation and were not present in the F1 generation it is probable that both are recessive to normal *cinctaria*, and since dilutes and albinos are usually, if not invariably recessive to fully pigmented forms, it is probable that *schulzei* is recessive to both. If this view is correct both parents of the F2 generation must have been heterozygous for both *schulzei* and *submarmorinaria*.

Assuming that this is correct the brood should have shown a ratio of *cinctaria* : *submarmorinaria* : *schulzei* : albino *submarmorinaria* = 9 : 3 : 3 : 1. Later results showed that the two albino forms are not always distinguishable and the ratio 9 : 3 : 4 must be adopted. The actual ratio was 42 : 10 : 11, which shows a slight deficiency of both recessives but is not far from the ratio expected 9 : 3 : 4 = 36 : 12 : 16.

The genetic constitution of the original female taken in 1946, the parent of the F1 generation is uncertain. She may have been heterozygous for *schulzei* and paired with a male heterozygous for *submarmorinaria* or she may have been heterozygous for *submarmorinaria* and paired with a male heterozygous for *schulzei*. If a is the gene for *schulzei* and A is its normal allelomorph and s is the gene for *submarmorinaria* and S is its normal allelomorph, the parents were AASs × AaSS or AaSS × AASs giving offspring AASS : AASs : AaSS : AaSs in equal numbers, one in four being heterozygous for both recessive genes. If so, Mr. Hedges was extremely lucky in his choice of parents. It is, however, possible that the male parent was a *submarmorinaria* and the female heterozgyous for *schulzei* or that the male parent was a *schulzei* and the female heterozgyous for *submarmorinaria*, AAss × AaSS or aaSS × AASs. Either of these pairings would give half the offspring heterozygous for both recessive genes and would make the probability of obtaining the right pairing much greater. Since Mr. Quibell's F2 generation consisted entirely of normal *cinctaria* the male cannot have been an albino *submarmorinaria* and the female a homozygous normal *cinctaria*. From this pairing all the offspring would have been heterozygous for both recessives.

In any case Mr. Hedges had most remarkable good fortune in taking the original female and in choosing the right pairing in the F1 generation. He deserved some good fortune for breeding an F2 generation when the prospect of obtaining either recessive was so small. That he obtained both was almost incredible luck. The breeding ex-

periment as a whole showed a combination of luck and skill, for *cinctaria* is not a very easy species to rear from the egg, and brother and sister matings add to the difficulties. From the F2 generation four pairings were taken.

A. *submarmorinaria* ♂ with one forewing unpigmented × *submarmorinaria* ♀.
B. *submarmorinaria* × *submarmorinaria*.
C. *schulzei* × *schulzei*.
D. *schulzei* × *schulzei*.

F3 generation, 1949.

A gave 12 (7 ♂♂, 5 ♀♀) *submarmorinaria* : 2 ♂♂ *schulzei*.
B gave 40 (19 ♂♂, 21 ♀♀) *submarmorinaria* : 7 (4 ♂♂, 3 ♀♀) *schulzei*.

The *schulzei* in both these broods must have been albino *submarmorinaria*. Both parents must have been heterozygous for *schulzei*, which is not surprising, since two out of three in the F2 generation would on expectation be heterozygotes. The expected ratio of *submarmorinaria* : *schulzei* is 3 : 1 and the actual ratios were 12 : 2 and 40 : 7. In both cases there is a deficiency of *schulzei*, but the difference from the ratio expected is not statistically significant.

C gave 13 (6 ♂♂, 7 ♀♀) *submarmorinaria* : 17 (6 ♂♂, 11 ♀♀) *schulzei*. The expectation is that all will be *schulzei* and it is evident that some mistake must have occurred. This brood is omitted from further consideration.

D gave 1 *submarmorinaria* : 23 (14 ♂♂, 9 ♀♀) *schulzei*. The expectation is that all will be *schulzei* and there can be little doubt that the *submarmorinaria* got in by mistake.

Five pairings were taken.

AA. *submarmorinaria* × *submarmorinaria*.
BB. *submarmorinaria* × *submarmorinaria*.
CC. *schulzei* × *schulzei*.
DD. *schulzei* × *schulzei*.
EE. *schulzei* × *schulzei*.

These were handed over to me just as the larvae were hatching and the inbred larvae proved to be very delicate, those of CC in particular grew slowly and some died at every change of skin. Some in the last instar lived for a long time, but grew very little and finally died. None of the broods developed any obvious infection. Some of the pupae died during the winter and rather fewer than half the living ones were handed over to Mr. Hedges in the spring.

F4 generation, 1950.

AA gave 18 (9 ♂♂, 9 ♀♀) *submarmorinaria* : 1 *schulzei*.
BB gave 11 (7 ♂♂, 4 ♀♀) *submarmorinaria* : 1 *schulzei*.

I have little doubt that the two *schulzei* were introduced accidentally while changing the food and belong to one of the other broods. The young larvae are very active and travel with considerable speed. One may climb on to one's sleeve and drop off while the next brood is being fed without being noticed. Mr. Hedges mixed his share of broods AA and BB before counting them. He bred 16 (4♂♂, 12 ♀♀) *submar-*

morinaria and 1 albino *submarmorinaria*, which no doubt belonged to one of the other broods and, like the other two, was accidentally introduced by me.

The result of the *schulzei* pairings was:—

CC. 8 (5 ♂♂, 3 ♀♀) *schulzei*.
DD. 19 (10 ♂♂, 9 ♀♀) *schulzei*.
EE. 8 (2 ♂♂, 6 ♀♀) *schulzei*.

Mr. Hedges also mixed these broods and bred 23 (16 ♂♂, 7 ♀♀) *schulzei*. He says that many of his *schulzei* bred in 1949 are less distinctly marked and more suffused in appearance than those bred in 1950, which have a whiter ground and more distinct markings. It is probable that many of the 1949 specimens are albino normal *cinctaria* (aaSS), since 10 out of 11 bred in 1948 would on expectation be albinos of this type. Those, however, in broods A and B bred in 1949 must have been albino *submarmorinaria* (aass), since all the pigmented specimens were *submarmorinaria* and there were no normal *cinctaria* in either brood. Nothing definite can be said about the albinos in broods C and D. Any pairings with members of broods A and B as parents must have given pure broods of albino *submarmorinaria*, and pairings with one or both parents from broods C and D may have given albino *submarmorinaria*. Thus it is clear that the chances of breeding this type of albino were much greater in 1950 than in 1949, but there are undoubtedly some albino normal *cinctaria* in all three broods. Many of the *schulzei* in broods CC and EE were more or less crippled and several pupae died. Brood DD did much better and no pupae died.

In 1950 two pairings of *schulzei* × *schulzei* and one of *submarmorinaria* × *submarmorinaria* were obtained, but all the eggs were infertile. If brood C is omitted altogether and the single *submarmorinaria* in brood D and the two stray *schulzei* in broods AA and BB are disregarded the results agree fairly closely with those expected on the assumption that *submarmorinaria* is recessive to normal *cinctaria* and that *schulzei* is recessive to both normal *cinctaria* and to *submarmorinaria*. I think this can be accepted. The heterozygotes of both recessives are indistinguishable from homozygous *cinctaria* and albino *submarmorinaria* cannot always be distinguished from albinos of the form of normal *cinctaria* with a white median area.

EXPLANATION OF PLATE IV.

Fig. 1. *Cleora cinctaria* ♂, normal, caught 1946.
Fig. 2. *C. cinctaria* ab. *schulzei* ♂, brood DD.
Fig. 3. *C. cinctaria* ab. *schulzei* ♂, brood DD.
Fig. 4. *C. cinctaria* ab. *submarmorinaria* ♂, brood AA.
Fig. 5. *C. cinctaria* ab. *submarmorinaria* ♀, brood BB.
Fig. 6. *C. cinctaria* ♀, normal, caught 1946.
Fig. 7. *C. cinctaria* ♀, normal, caught 1946.
Fig. 8. *C. cinctaria* ab. *schulzei* ♀, brood CC.
Fig. 9. *C. cinctaria* ab. *schulzei* ♀, brood DD.
Fig. 10. *C. cinctaria* albino *submarmorinaria* ♀, brood DD.
Fig. 11. *C. cinctaria* albino *submarmorinaria* ♀, brood DD.
Fig. 12. *C. cinctaria* ♂, normal, caught 1946.
Fig. 13. *C. cinctaria* ab. *schulzei* ♂, caught 1946.
Fig. 14. *C. cinctaria* albino *submarmorinaria* ♂, brood DD.
Fig. 15. *C. cinctaria* ab. *submarmorinaria* ♂, brood BB.
Fig. 16. *C. cinctaria* ab. *submarmorinaria* ♀, brood AA.

Lepidoptera in Renfrewshire

By A. M. MACLAURIN.

THE following species have been collected during the last nine years in the Kilmacolm district of Renfrewshire. The classification of incidence is roughly as follows:—

Uncommon: up to 5 specimens taken; *fairly common*: up to 20; *common*: from 20 to 100; *very common*: over 100. When *locally* is added this indicates that the species is concentrated in special habitats, such as peat mosses, pinewoods, etc.

P. brassicae. Common.
P. rapae. Common.
P. napi. Common.
C. croceus. 2 specimens, 1947.
A. urticae. Common.
N. io. Common the last 4-5 years.
V. cardui. Intermittent.
V. atalanta. Fairly common.
P. icarus. Fairly common locally.
C. rubi. Fairly common locally.
L. phlaeas. Fairly common locally.
C. pamphilus. Common.
C. tullia. Fairly common locally.
M. jurtina. Common.
A. selene. Fairly common locally.
L. populi. Fairly common.
H. convolvuli. Uncommon.
H. furcula. Uncommon.
C. vinula. Fairly common.
P. gnoma. Fairly common.
P. tremula. Fairly common.
N. dromedarius. Common.
L. capucina. Common.
P. bucephala. Common.
T. batis. Fairly common.
T. duplaris. Uncommon.
A. flavicornis. Uncommon.
O. antiqua. Fairly common.
T. crataegi. One specimen only.
L. quercus (*callunae*). Fairly common.
M. rubi. Common locally.
S. pavonia. Common locally.
D. falcataria. Uncommon.
S. lubricipeda. Very common.
P. fuliginosa. Fairly common.
P. plantaginis. Fairly common locally.
A. caia. Fairly common.
N. mundana. Fairly common.
A. psi. Fairly common.
A. menyanthidis. Fairly common locally.
A. rumicis. Common.
C. perla. Common.
A. segetum. Common.
E. nigricans. Common.
A. exclamationis. Fairly common.
A. ipsilon. Fairly common.
L. varia. Common locally.
P. porphyrea. Uncommon.
G. augur. Fairly common.
A. glareosa. Fairly common.
A. castanea. Only one specimen.
A. baia. Common.
A. c-nigrum. Fairly common.
A. triangulum. Uncommon.
D. brunnea. Fairly common.
D. festiva. Common.
D. dahlii. Uncommon.
D. rubi. Uncommon.
A. sexstrigata. Common.
A. xanthographa. Very common.
O. plecta. Common.
T. comes. Very common.
T. pronuba. Very common.
L. fimbriata. Fairly common.
T. ianthina. Fairly common.
M. brassicae. Very common.
D. oleracea. Common.
H. thalassina. Fairly common.
C. pisi. Fairly common.
H. nana. Fairly common.
H. bicruris. Common.
H. cucubali. Uncommon.
H. serena. Uncommon.
C. graminis. Common.
E. adusta. Fairly common.
C. haworthii. Fairly common locally.

A. obscura. Common.
A. sordens. Fairly common.
A. secalis. Common.
P. strigilis. Fairly common.
P. fasciuncula. Fairly common.
P. furuncula. Uncommon.
A. crenata. Very common.
A. lithoxylaea. Uncommon.
A. monoglypha. Very common.
A. nigra. Uncommon.
A. chi. Fairly common.
M. oxyacanthae. Fairly common.
E. lucipara. Fairly common.
P. meticulosa. Common.
M. maura. Uncommon.
P. typica. Fairly common.
H. oculea. Very common.
H. micacea. Common.
A. pygmina. Common.
L. pallens. Fairly common.
L. impura. Common.
L. lithargyria. Fairly common.
L. conigera. Fairly common.
C. clavipalpis. Fairly common.
P. minima. Fairly common.
R. umbratica. Common.
A. tragopogonis. Fairly common.
P. flammea. Fairly common.
C. rubricosa. Common.
O. gothica. Very common.
O. stabilis. Very common.
O. incerta. Very common.
C. trapezina. Fairly common.
A. lota. Uncommon.
A. macilenta. Fairly common.
A. circellaris. Common.
A. litura. Fairly common.
C. lutea. Fairly common.
C. icteritia. Fairly common.
C. vaccinii. Common.
E. transversa. Common.
L. solidaginis. Uncommon.
X. exsoleta. Uncommon.
X. vetusta. Fairly common.
C. umbratica. Fairly common.
A. myrtilli. Fairly common locally.
S. libatrix. Uncommon.
P. moneta. Fairly common.
P. chrysitis. Very common.
P. bractea. Fairly common.
P. festucae. Common.
P. iota. Fairly common.
P. pulchrina. Common.
P. gamma. Common.
A. tripartita. Common.
E. mi. Uncommon.
Z. grisealis. Uncommon.
H. proboscidalis. Very common.
G. papilionaria. Uncommon.
S. aversata. Fairly common.
S. biselata. Uncommon.
O. mucronata. Fairly common.
O. chenopodiata. Fairly common.
O. atrata. Common.
A. plagiata. Fairly common.
C. legatella. Common.
O. brumata. Very common.
O. fagata. Fairly common.
L. prunata. Fairly common.
L. testata. Common.
L. populata. Fairly common.
L. mellinata. Fairly common.
L. pyraliata. Fairly common.
C. fulvata. Common.
E. corylata. Common.
D. truncata. Common.
D. citrata. Common.
C. siterata. Uncommon.
C. miata. Uncommon.
T. obeliscata. Common.
L. suffumata. Common.
X. munitata. Fairly common.
X. unidentaria. Fairly common.
X. designata. Common.
C. pectinataria. Common.
C. salicata. Fairly common.
C. multistrigaria. Very common.
C. didymata. Very common.
O. dilutata. Common.
O. filigrammaria. Fairly common.
V. cambrica. Fairly common.
X. montanata. Very common.
X. fluctuata. Common.
E. alternata. Common.
E. tristata. Uncommon.
L. ocellata. Fairly common.
P. bicolorata. Fairly common.
P. alchemillata. Common.
P. flavofasciata. Common.
P. albulata. Common.
E. bilineata. Very common.
H. furcata. Very common.
H. caerulata. Fairly common.
E. badiata. Fairly common.

E. centaureata. Fairly common.
E. pulchellata. Fairly common.
E. linariata. Fairly common.
E. indigata. Fairly common.
E. assimilata. Common.
E. absinthiata. Common.
E. goossensiata. Common.
E. tripunctaria. Common.
E. castigata. Uncommon.
E. icterata. Common.
E. nanata. Common.
C. rectangulata. Uncommon.
O. lignata. Fairly common locally.
A. grossulariata. Fairly common.
C. pusaria. Common.
C. exanthemata. Common.
E. fasciaria. Fairly common.
C. margaritaria. Common.
S. bilunaria. Fairly common.
G. bidentata. Fairly common.
C. pennaria. Fairly common.
C. elinguaria. Fairly common.
O. sambucaria. Uncommon.
O. luteolata. Very common.
S. liturata. Fairly common locally.
E. aurantiaria. Fairly common.
E. marginaria. Common.
E. defoliaria. Common.
A. aescularia. Common.
P. pedaria. Fairly common.
B. betularia. Fairly common.
C. rhomboidaria. Fairly common.
C. repandata. Very common.
E. bistortata. Uncommon.
G. myrtillata. Uncommon.
E. atomaria. Common locally.
B. piniaria. Common locally.
I. wauaria. Fairly common.
L. chlorosata. Fairly common.
D. fagaria. Fairly common.
P. strigillaria. Very common locally
A. tipuliformis. One specimen only.
H. humuli. Common.
H. fusconebulosa. Common.
H. hecta. Common.

Notes on Sphingidae in the Tetbury (Glos.) Area

By J. NEWTON.

THESE brief notes are based on my observations during the period 1944 to the present time, June 1951.

Acherontia atropos L. The odd few, generally pupae, found in the home garden potato patch in most years. In 1949 I took a fresh ♀ as late as 14th November.

Sphinx ligustri L. Fairly common in this area. The larvae I find just as frequently on lilac as on privet.

Mimas tiliae L. Common. The pupae I find quite readily by digging around elm trees during the winter. Elm seems to be just as popular as lime with the species in this district.

Smerinthus ocellata L. Fairly common, especially as larvae on young apple-trees. In 1949 I bred a ♂ specimen which has pale yellow hind-wings instead of the usual pink.

Laothoe populi L. Quite common. The larvae I find generally on white willow (*Salix alba* L.) which must support much of the population here as poplar trees are not very numerous.

Hemaris tityus L. I found the larvae here for the first time last year (1950) on devil's-bit scabious.

Hemaris fuciformis L. I have taken a few this year (1951) feeding at bugle (*Ajuga reptans* L.) and succeeded in getting a few ova from one of them.

Macroglossum stellatarum L. Here in most years. The earliest date I have recorded is 15th April in 1945. Particularly numerous in 1949.

Celerio livornica Esp. A few larvae on spotted persicaria (*Polygonum persicaria* L.) in July 1949. I reported a description of an unusual form of the larva in *Entomologist*, **83** : 29.

Deilephila elpenor L. Frequent. Larvae in most years, chiefly, I find, on broad-leaved willow-herb (*Epilobium montanum* L.).

Deilephila porcellus L. Fairly common and comes readily in late evenings in June to valerian.

How I Discovered *Poecilopsis* (*Nyssia*) *lapponaria* Boisduval in the Rannoch District

By E. A. Cockayne, D.M.

In the *Entomologist*, 1901 (**34**, 255) I published a note saying, "I think many of your readers will be interested to know that last year I took two larvae of *Nyssia lapponaria* from which one imago, a female, emerged. Last July I again obtained larvae in the same locality in Perthshire. I believe Mr. Christy is the only other entomologist who has taken the insect recently in Britain."

The full story of the discovery has never been written. I was staying at Rannoch in 1900 and, young and optimistic, decided that I would try to find the locality for *Caenocalpe lapidata* Hbn. and look for the larva, which had never been found wild in the British Isles. I knew that the ground on which *lapidata* occurred was above the Aberfeldy road and belonged to a farmer called Greig, a big burly red-faced man, who used to drive a dog-cart and crack his whip at every entomologist he met, threatening to horse-whip him, if he trespassed on the farm. On 3rd August my mother and I set off on bicycles armed with a benzoline lamp, which had the advantage of weighing very little and never going out even in a high wind, but gave very little light. In a day-dream I forgot to turn to the right and had gone about a mile and a half along the Struan road before I discovered my mistake. It was then too late to turn back and we went on to a place 4½ miles from Kinloch Rannoch where there is a stone drinking-trough on the left side of the road and posts on the right. Below these the ground falls steeply and there is a shallow gully with a burn running down it, and bog myrtle, grass, cross-leaved heath, and ling growing on the sides. Almost at once we found two brown geometer larvae, which looked like those of *Lycia hirtaria*, but were too small and short. The place was a very unlikely one for *hirtaria*, but I thought there might be a small moorland form.

I filled a jam-pot with earth and put some moss on the top, and on the next day one of the larvae went down into the earth followed by the second one a day later. The following year, when I was at Oxford, my mother wrote and told me that a very hairy wingless female with an orange stripe down its back had emerged on April 25. There was no such insect mentioned in Newman's 'Moths', and I was completely puzzled. I went to the Hope Department of Entomology and was shown a plate with figures of the larva and both sexes of the moth (*Entomologist*, 1895, **28**, 257), and was told that I had found *Nyssia lapponaria*. I went to Rannoch again and between July 16 and 19

found 40 larvae, many of them nearly full grown. A note in my diary says that the younger larvae were usually on *Calluna* and the larger ones on *Erica tetralix*, eating both flowers and leaves. I did not find out that bog myrtle is the favourite food.

At Kinloch Rannoch the medical practitioner, Dr. McCallum, used to tell new-comers the localities for local species of Lepidoptera, making it clear that he expected a present such as a case of whisky. With some misgivings I told him about *lapponaria* under the solemn promise that he would keep the locality secret and would give me half the specimens he took in 1902. On April 12, 1902, I received a letter from the doctor saying he had found 6 *lapponaria*. He sent me some eggs and I heard no more.

Later on I saw an advertisement in which Dr. McCallum was offering *lapponaria* at 40 shillings for two males and a female. I was very angry and wrote asking for my share, but all I got was a worn male and a female. When I went to Rannoch to take the insect myself his wife told me that, in spite of the fact that a mouse ate a large number on the setting boards, the doctor had made £80 from the sale. This was a lesson I never forgot.

The Old Wives' Tale

By An Old Moth-Hunter.

Recently I thought I would write something about the status of *Vanessa antiopa* as a British insect; but after surveying the printed records of the species in this island I gave it up. It is impossible to sort out the genuine immigrants from imported stock. One cannot even be certain that the first two recorded in England, those captured in August 1748 in Cool Arbour Lane near Camberwell, were not imported as pupae. *Antiopa* is such a beautiful butterfly that it has appealed to English lepidopterists from the earliest days of collecting—especially in the 18th century when every (yes, every) British cabinet contained Continental species. " I have bred the perfect insect in this very parish from a caterpillar brought from Switzerland," wrote a Suffolk nature-lover a century and more ago. " They mostly went into chrysalis *en route* and many died from the difficulty of getting fresh food; still, I have several specimens.". She was one of many.

The dealers, of course, are known to have furthered the continual demand for this splendid insect. In the ' nineties ' an old ' professional ' confessed to a collector that in his younger days he had " done well by them," importing eggs from America and liberating the imagines which were surplus to trade requirements. He too was one of many. Pupae have been imported in bulk in order that the emergent butterflies might be released as advertisements; many thousands have been set at liberty to beautify gardens. I personally knew of a case, before the last war, of specimens being set free on a country estate for many successive years. Even to-day I doubt if one could find a dealer of middle age through whose hands *antiopa* has not passed.

More than a hundred years ago (1842) Edward Newman wrote in his magazine " the majority of specimens in our cabinets are German or

North American, the introduction of which is always to be regretted, more particularly in the case of the North American specimens, as doubt exists as to the identity of N. American with European species." Just previously he had announced the visit to London of Dr. Becker of Wiesbaden " with an immense collection of German Lepidoptera for sale or exchange; the specimens are in the finest possible condition, and do infinite credit to his skill and perseverance. This accomplished lepidopterist has long supplied the London dealers with those beautiful specimens of reputed British insects, which have become so abundant in all our cabinets. In making this statement it is but fair to add that Dr. Becker never suspected that these rarities would be retailed as British; and in conversation with him he seemed utterly unable to understand the absurd idea of value attached to them." The trade was and always has been a considerable one on account of the large profits which can be made: English locality labels bearing the name of some well-known deceased collector have but to be attached; and thus adorned, specimens which cost pence can be sold for pounds. Never a year goes by but hundreds of these Continental insects pass through the London sale-rooms.

And so any discussion about the status of the Camberwell Beauty as a ' British ' insect must needs be profitless; to catalogue the recorded specimens futile; for the great majority of data is totally unreliable in this respect. Even the few specimens recorded as hibernating successfully in our island may well have been imported and liberated a few months previously. Such records merely indicate that, given suitable climatic conditions, *antiopa* is capable of wintering in our island. Dr. Chapman once suggested that if our winters were colder and longer *antiopa* might be more successful in its possible attempts to repeople ancient haunts. It goes into hibernation late and requires a low temperature. Had there been an immigration into this country during the autumn of 1946 it is at least on the cards that a few specimens at all events would have found the severe winter which followed to their liking and would have been seen flying the following April.

Yet *antiopa* is a known gad-about and some at least—probably many—of the large number of specimens seen in England in 1872 may have crossed the sea; for *antiopa* was " very abundant " in the Netherlands that year. " There is no doubt," says Dr. C. B. Williams, " that the status of this insect in England is that of an immigrant which occasionally passes the winter hibernating in the adult stage. The immigrations appear to occur in late summer and autumn, and it is probable that they reach England from the east. Scandinavia has been suggested as the possible source." Dr. Williams has listed the recorded appearances of *antiopa* in our island and has provided us with a map which shows where the captures were made during that famous ' Antiopa ' year (*The Migration of Butterflies*, 1930, pp. 227-229).

The ' great invasion ' of 1872 caused many entomological pens to leap from their scabbards. The controversy (which can be read in the pages of our three chief entomological magazines of that and the succeeding year) was both interesting and amusing in the light of present-day knowledge. Stainton asserted that central European specimens of *antiopa* were yellow-bordered whereas north European ones had white

borders; therefore he was of opinion that " the recent invaders have come to us from Scandinavia." Doubleday at once challenged this and propounded a directly opposite view: he believed that every one of the butterflies was bred in this country and stated that there was " a peculiarity in the appearance of British specimens " which at once distinguished them from Continental ones. Barrett recorded that both yellow-bordered and white-bordered specimens had been caught, and balanced himself adroitly on the fence.

Dr. Buchanan White at first adopted Stainton's view, then took a header over the fence and declared roundly, " I have no hesitation in saying that I believe the majority of, if not all, the specimens are British born," and he went on to repeat the old, old fallacy " it is, one would think, impossible that a butterfly could cross 300 miles of sea, even under the most favourable circumstances, without showing some signs of wear and tear." Like many another he had not realised that a butterfly borne in a *steady* windstream is in a virtual calm though the windstream be travelling across the seas or over the land at 50 m.p.h. A glance at fast-travelling clouds would have shown him, had he given the matter a moment's thought, that although these are composed only of vapour they retain their shape in spite of the wind! A butterfly travelling in the same compartment with Dr. White from Inverness to London would have been in no more danger of losing a scale than the doctor would have been of having his hair ruffled, though the 'stream' they were both in (*i.e.* the train) was travelling over the face of the land at sixty miles an hour. The man in the balloon does not know he is moving until he looks at the earth below him though he be travelling in a gale, and he too does not have his hair ruffled. The swimmer pottering about lazily in the calm sea is sometimes surprised to find, when he swims to shore, that he has struck the beach a couple of hundred yards from the spot where he left it. Yet the sea was calm and the swimmer has not had his bathing-drawers torn off him by the current. The paint is not scratched off a waterlogged boat carried along in a stream however rapid. The clouds, the man in the train, the man in the balloon, the man in the sea, the waterlogged boat, the bird, the butterfly and everything else borne in a steady stream are in a calm, simply because when air-borne or water-borne or train-borne they become part and parcel of the medium they are in. They merely occupy a space in the stream which in their absence would be filled by the material of the stream itself.

In a steady wind 'air-pressure' on a wind-borne butterfly is virtually non-existent. ' Pressure ' on a flying insect can only arise in a gusty wind—through the inertia of the insect's body when there is a change in the velocity of the wind. The time-lag between a change of velocity of wind and a consequent change of velocity of a larger body such as an air-borne bird is of course greater because of the increased inertia. Yet the flying bird's feathers do not get ruffled in a wind, and an air-pressure which cannot ruffle a soft feather on a body weighing perhaps several pounds could hardly tear the scales from a butterfly's wings. Because of the manner in which they are attached to the wing-membrane scales cannot be *blown* off a lepidopteron's wings even when the insect is hanging on to a plant in a gale: they can only be *rubbed* off, *i.e.* by contact with a solid body such as a leaf or twig.

Let us hear no more of this Old Wives' Tale of Continental moths and butterflies 'proving' an English nationality by being 'unrubbed' of wing. Indeed the surest way for a lepidopteron to remain 'in mint condition' from eclosion to death would be for it to jump into a steady wind the moment its wings were dry and to remain air-borne until it died.

Current Notes

WHAT *is* happening to the climate of this island? It seems to be agreed that our climate is 'ameliorating' (whatever that may mean), and lepidopterists know that certain moths are moving north—*Catocala nupta* has now reached Yorkshire. On the other hand the Editor of *Weather* informs us (VI, 130, May 1951) that snowfall on the higher ground is increasing. "Professor Gordon Manley", he writes, "has frequently drawn attention to the considerable increase in the average annual duration of snow cover with altitude in Great Britain, amounting roughly to ten days with every two hundred and fifty feet increase in height. Because of this, conditions in the higher hills of Wales, northern England and Scotland may be extremely severe, even though little or no snow is seen in the Midland plain. This winter there has been a great depth of snow on these high lands, and experienced observers have said that they have never before seen so much on them . . . . From accounts which have appeared it is clear that during March conditions in the Snowdon range and, of course, the other ranges further north, matched those on many an Alpine peak, with snow- and ice-filled gullies, snow cornices, steep slopes of hard snow and ice, and even potential avalanches."

Although at Kew the rainfall in the first four months of this year was the highest on record, temperatures nearly everywhere, during April, were below normal and many of the hills in north Wales, the north of England, and Scotland retained a continuous snow-cover to the lower levels almost to the end of that month. All this makes one wonder what is coming next. It is only about twenty thousand years since the present Ice Age was at its climax and there is still a lot of ice to melt before our Earth resumes its 'normal' climate, which is a genial one. Are we in fact living in an interstadial period, with another climax developing, perhaps a more severe one than the last? We have thought so several times this last Spring, as we sat huddled over a fire in mid-May!

Two writers in the May issue of *Weather* sound a warning note about interfering with the weather in the way of causing rain to fall in a district where it is needed or driving away rain-clouds from a place where sunshine is wanted. "Experiments," say these writers, "have been carried out in many countries, and in some the subject is already being pursued on a practical level by farmers, commercial organizations, water-supply concerns, and others . . . . The effects of any attempt to alter the course of events in the atmosphere are unlikely to be restricted to the locality where the benefit is required, and these events may be quite unpredictable. Rain in one place may mean a deficit elsewhere."

Conversely, we suppose, sunshine in one place may mean a deficit of sunshine elsewhere. And so the field entomologist, arriving at his

favourite hunting-ground after an arduous journey on a long-awaited holiday, with the barometer at 'Set Fair', may suddenly find his hunting-ground blotted out by torrents of rain just because a film company a few miles away requires sunshine for its operations. One can even visualise a new form of "war in the air", the proprietors of two rival hotels a mile apart employing the resources of science to "wash out" each other and secure uninterrupted sunshine for themselves . . . . Truly life is becoming difficult.

Sixty Shillings a Pound for Weevils.—In Turkey hazel-nuts are an important crop. In fact they are the principal crop along the eastern corner of the Black Sea coast. Lately the newspapers have been giving accounts of the serious damage done by *Balanus*. As barnacles can hardly be expected to flourish on nut bushes, presumably the weevil *Balaninus* is meant. The Ministry of Agriculture has offered 30 liras a kilo for the larvae brought in, but as the result was not satisfactory they have now raised the price to 50 liras the kilo, which works out at about sixty shillings a pound. So far only 60 kilos have been reported, which hardly seems satisfactory or likely to have much influence.—M. B.

A New Name for Myelois cribrella Hubner.—In the third part of his *Die Microlepidopteren der Brandt'schen Iran-Ausbeute* (Arkiv for Zoologi, Bd. 1 nr. 36, p. 543, Stockholm, 1951) Dr. H. G. Amsel states that the male genitalia of the British Pyralid moth hitherto called *Myelois cribrella* Hubner, as illustrated and described by Pierce and Metcalfe, are so different from those of European *M. cribrella* Hubner (which Dr. Amsel describes and illustrates), as typified by examples from Wurzburg, that they must be considered a new species for which he proposes the name *britannicella*. Since Dr. Amsel does not designate any actual specimen as the type of this new species and, indeed, appears not to have actually examined a British specimen, I propose that the type of *britannicella* be considered the example which Pierce and Metcalfe depicted and described. Presumably Pierce's preparation can now be examined in the British Museum, and I think this should be done to establish that the differences in fact exist. When this is confirmed the possibility of the occurrence in Britain of a second species of this group, that is of the German species which Dr. Amsel selects as true *cribrella* Hubner, might well be looked into. According to that author the group contains several species, quite indistinguishable from one another superficially, but exceedingly easy to distinguish structurally (male genitalia).—E. P. Wiltshire, 7.vi.1951.

Field Notes

When freshly emerged surely *Lobophora viretata* must be one of the most lovely of all our smaller Geometers. But it must be bred, and set before it has made its first flight, if its full beauty is to be preserved. The imago can sometimes be found at rest on a paling and it can be netted in the daytime if beaten out of a holly bush or ivy covering a stump or, occasionally, a hedge wherein the foodplant grows in plenty. Captured females will lay eggs—though not, in our experience, too readily—if supplied with sprigs of the local foodplant. (If this is un-

known, supply an assortment of the listed foods). The best way, however, to obtain the species is to search for the larva about the middle of July. Examine the flowers (only) of privet, holly, dogwood, guelder-rose, wayfaring-tree, rowan, alder-buckthorn, sycamore and hedge maple: the larva has been found on all these. A thin web (not too attractive until one has 'got one's eye in') is spun among the flowers and within this the larva feeds. But when older it takes to the green berries and, later, to the leaves. It is easy to rear and spins its cocoon among the leaves of the foodplant. Allan (*Larval Foodplants*) suggests that "each biological race will eat only its individual foodplant". We should like to hear our readers' experiences of this.

The Leopard Moth is a most uncertain animal. Doubtless, like the poor, it is always with us—and indeed if the comparison is apt it must be a very common moth to-day! Yet it is not a species which one sees every year, or every other year for that matter: usually there are gaps of a decade and more between the records in one's diaries. Once or perhaps twice in a lifetime a number of imagines are seen at rest on the bole of an ash—which seems to be a favourite foodplant—and further specimens appear thereon for several successive days. Rarely a bird disturbs and chases one out of a yewtree. Orchard trees will sometimes yield a series, for *pyrina* is fond of *Pyrus*, and many a dead pear and apple tree in an orchard—and not necessarily old trees either—owe their demise to the larva. The moth is said to come to turpentine if soft-wood trees are 'sugared' with this; but we have never tried this dodge and know not wether it be the female (as we suspect) or male or both which come to the lure. Can any of our readers enlighten us on this point? The moth is on the wing until about the third week of this month.

Usually one associates *Cucullia verbasci* with the stately plant from which it takes its name—one of the noblest of our native flora, beautifying both woods and open country on (usually though by no means always) the chalk. And wherever *Verbascum thapsus* grows freely, there the spotted larvae are very often to be found. Once we caught sight of a tall mullein growing all forlornly in a meadow close to one of our great rivers. "No *verbasci* here," we thought. "There can't be another mullein for miles." Yet there they were, eight of them!—But Water Figwort grew in plenty nearby, so doubtless this was only a case of an alternative foodplant offering itself to a questing female moth.

A few years ago we wandered along a brook that wound through watermeadows and noted a clump of *Scrophularia* on the bank every hundred yards. And every clump, without exception if we recollect rightly, was inhabited by *C. verbasci*. The subsoil here was boulder clay, so the moth must have a wide range of physiological adjustment: the microclimates of chalk pits and downs, often at a considerable elevation, must differ not a little from those of riverbanks sometimes less than fifty feet above sea-level. The yellow-flowered *Buddleia globosa* of gardens is occasionally adopted as a foodplant.

At the end of this month an afternoon can sometimes be spent profitably by the lepidopterist who wears hedging gloves, arms himself with a gardener's pruning knife, and attacks the marsh thistles in some place—often at the edge of a wood—where these tall plants grow profusely.

The pupae of *Gortyna flavago* (or *Ochria ochracea* as it used to be called) will usually be found within six inches of the ground. But on more than one occasion we have found pupae in the stem a foot above ground, so it is wise to cut the stem at this height and carefully split it down. More rarely the pupa occurs right on, or even in, the crown of the root. Tip the pupae on to cottonwool in a box, and so home.

The books say that one can readily spot 'affected' plants since the flower-heads of these droop when a larva has been or is at work; but in our experience this is by no means an infallible guide. The holes in the stems whence moths have emerged, found in September, are the best indication of the insect's presence in any particular place. It is said that the imago does not come to either sugar or light and certainly we have never taken it at either though we have heard of it coming to a lighted window. It is a widespread species and only needs looking for.

Notes and Observations

A NOTE ON APAMEA CONNEXA BORK. (PABULATRICULA BRAHM).—[Recently we asked our contributor Mr. W. Reid of Sheffield if he could give us any news of this species, and he replied as follows.—ED.]

"I have not yet taken this species in the Sheffield district though keenly on the look-out for it and for any details concerning it. The last person to take it, so far as I am aware, is K——, who took a series only a few years ago in a neighbouring county, in a wood which has since been cut down. A collector in Sheffield, who left here three or four years ago and is now dead, took a number some years ago near Sheffield, and although I knew him slightly I did not myself collect seriously at that time, so would not have been interested enough to ask him even if I had known him better.

"I thought I had found a locality for it about three weeks ago. I was overlooking a wood near the city, with an eye to beating *Enargia paleacea* Esp. in June, and got into conversation with a man whose father was a bit of a collector and lived in a small cottage inside the boundary of the wood but who died last February at the age of 87. This old man had lived in the cottage all his life. In talking to the son, a man about fifty, and telling him what I was after, he said that his father had some cases of insects in the cottage but he had left the key (the cottage is now empty) at home. However, seeing and appreciating my interest, he went to his own house for the key.

"When we entered the cottage I saw just what I expected: a nicely arranged 'wall' case full of butterflies and moths arranged in a pretty (?) pattern, all faded and useless with, of course, no data. Just as I was about to leave he said there was some more small boxes upstairs, and away he went to fetch them. Mostly the insects in them were in a shocking state; mites had been at work on most of them, and some Eyed Hawkmoths and two *A. atropos* had almost dissolved or disintegrated into dust. No *paleacea* were among them, but—there were eight *connexa* of all surprising things, seven of them in very good condition, antennae, legs and fringes. I told him that these were most interesting, but he did not know where they came from. They were in a small collecting-box with a few other things, including *Catocala sponsa*; so it is

plain that the old man had been in the habit of exchanging specimens. The box had belonged to a person with an unintelligible name who lived near Sheffield in what is now a built-up area. My acquaintance insisted upon me removing the lot, saying that he would only burn them if I did not take them. So now you know someone who has taken *connexa* this year, and the locality!

"A pity there were no labels on these *connexa*, and you will note that once again I was too late to question the person who might have known where they were taken."

A Note on Tholomiges turfosalis Wocke.—I have just read in the June number of *The Entomologist's Record* a short Note on *Tholomiges turfosalis*. If this species is the same as *Schrankia turfosalis* Wocke it may interest your readers to know that it has been found in France by my friend, Mr. G. Adkin, who now lives here at St. Jean-de-Luz. He got four specimens, 2 taken at light on the 12th June 1936 and again 2, also at light, on the 12th August 1937, all four at the same place, namely Marais d'Orx, Landes. These marshes are about 15 km. north of Bayonne. These specimens were the first captured in France; but no egg and no caterpillar! The moths were identified at the British Museum and the captures were published in the *Revue Francaise de Lépidoptèrologie*, Vol. IX, p. 24.—Vera M. Muspratt, Aïce Choko, St. Jean-de-Luz, Basses Pyrenées.

Occurrence of Orthosia advena Schf. (opima Hub.) at Sheffield.—On 21st May I took a dark brown specimen, slightly rubbed, of this species at my light in Sheffield. This is a very late appearance. There seem to be no recent records of this insect in this district.—W. Reid, 46 Totley Brook Road, Sheffield.

Pupating Site of Argynnis paphia L.—Whilst beating the branches of oaks for the larvae of *Thecla quercus* L., I was much surprised to see a large ornamental larva drop with a heavy flop into the tray. It was a full-grown *Argynnis paphia*, evidently about to pupate, which incidentally it did two days later. Does this imply that the larva sometimes climbs from the ground even into trees to pupate? If not, how did this individual come to be on a branch at least six feet from the ground? It would be interesting to know if other collectors have found full grown larvae of *paphia* in similar situations.—A. L. Goodson, 26 Park Road, Tring, Herts.

Thymelicus acteon Rott. in the New Forest.—In W. Fassnidge's *List of the Macro-lepidoptera of Hampshire and the Isle of Wight*, reprinted from *The Entomologist's Record*, 1923-25, the following occurs under *Thymelicus acteon*:—"New Forest: one locality known to several entomologists; whether originally put down or not I cannot say. A. H. Jones." Can any reader give me any information about this locality, or about any entomologist who was supposed to have taken *acteon* in the New Forest?—S. C. S. Brown, 454 Christchurch Road, Boscombe, Bournemouth.

Breeding Lycaena phlaeas L.—I am grateful to Mr. P. Siviter Smith for his remarks on my Note (at page 85 *ante*) on in-breeding this species. With regard to pairings, perhaps I have been fortunate. I

put a female with five or six males into a frame covered with black netting, inserting a large plant of sorrel in a pot and a big bowl of flowers in the cage. As I have to be at my office every day I never saw pairing taking place. But I have used this method twice with success. I should add that the cage was kept on a wind-protected flat roof which gets very hot in summer. This explains why I was able to get two broods through in such a short space of time.

I have never succeeded in bringing *phlaeas* larvae through the winter to maturity. They always die, and if any are left in the spring they also mysteriously disappear. If Mr. Siviter Smith could give me any hints on this I should be very grateful.—F. H. EDWARDS, Rockfield, Abbey Road, Worthing, Sussex.

A FURTHER NOTE ON PARARGE EGERIA L.—I was interested to see the note by Mr. Timms on the appearance of *P. egeria* L. in Birmingham parks (*Ent. Rec.* **63**, 84). Several times during the past two years I have seen this species flying here in the main shopping centre of Portswood and on three separate occasions I have seen it fluttering against the glass inside shop windows. The nearest locality where it occurs is Southampton Common nearly a mile away.

Last June it was flying quite commonly on Compton Down near Winchester and although it was more frequent along the edge of the scrub growing on the lower slopes numbers were seen on the bare face of the down.—A. C. R. REDGRAVE, 14A The Broadway, Portswood, Southampton.

A LARVAL HABIT OF ORTHOSIA GRACILIS SCHF. AND XYLENA VETUSTA HUB.—On July 24, 1938, Mr. Ronald Demuth, Mr. R. C. R. Crewdson, and I went up a mountain side on the north shore of Loch Rannoch. It was clear and cold with a south east wind and few moths were flying, but at 1.30 a.m. G.M.T. the wind veered to the south, dark clouds came up, and the temperature rose. On the way down, about 100 feet above the level of the loch, we were passing a swampy place covered with bog myrtle just as the light of early dawn was breaking. It was almost light enough to see without a torch. We stopped to rest and turned the beam of a torch on to the bog myrtle and at once saw a couple of nearly full-grown larvae of *Orthosia gracilis*, stretched out and motionless, each near the top of a blade of grass growing through the bog myrtle. We were interested because large larvae of *gracilis* are difficult to find. They feed low down, often sitting on the underside of a leaf with little more than their heads visible. Indeed, we had found only two after half an hour's search a day or two before. We walked off the path into the bog myrtle and found *gracilis* larvae as quickly as we could pick them up off the grass growing amongst the bog myrtle. There must have been hundreds of larvae of *gracilis* replete after their night's feast, resting quietly head upwards before they went down to hide themselves for the day. Amongst them were a few large larvae of *Xylena vetusta* behaving in exactly the same way. We soon filled our boxes, but couldn't resist the temptation to walk on through the bog myrtle looking at the larvae. It was 4.30 a.m., and much too light to use a torch before we left, but the larvae were still motionless. To complete the observation we ought to have waited to find out at

what time the larvae began to move, but we were much too tired. Is this the usual behaviour of the larvae of *gracilis* and *vetusta* or was it an exceptional night? If it is their regular habit, it is probable that many other species rest high up after they have finished feeding, and it might be an easy way of finding elusive larvae such as those of *Triphaena sobrina* Bdv. and *Amathes depuncta* L.—E. A. Cockayne, 8 High Street, Tring, Herts.

Zygaena achilleae Esper ssp. scotica Rowland Brown.—The addition of *Zygaena achilleae* Esper to the British list, recorded in *The Entomologist's Record*, 1908, **20**, 73, led to my first conversation with our founder, J. W. Tutt. I shall never forget the way in which he told me he had seen hundreds of *Z. achilleae* and that whatever my specimens from Argyllshire might be they were not *achilleae*. When I asked meekly what they were, he paused and then said they must be *filipendulae*. I was sure he was wrong, but I went to the British Museum and looked at all the burnets again, and then sent specimens to F. N. Pierce with some continental ones which I had bought from Staudinger. When I met Tutt again and showed him Pierce's letter saying that the genitalia agreed with those of *achilleae* and not with *filipendulae*, he was very friendly and made ample amends to me both personally and later in the *Record*. He discouraged my suggestion that the Scottish form deserved a name and it did not receive one until H. Rowland Brown named it towards the end of a paper entitled "*Anthrocera achilleae* Esper in Scotland. Notes on its distribution and variation" (*Entomologist*, 1919, **52**, 225). In this he says "the form of West Scotland, which may be comprehensively denominated *scotica*, seems to me characteristic. The general poorness of pigment resembles that of *exulans vanadis*; in size, such as I have seen approximate to the *vanadis* of Braemar, and I have none so small, except perhaps one or two from the neighbourhood of Monnêtier-les-Bains, Htes-Alpes, taken by myself in 1914. In the Scots series under review, also, the tendency to confluence (=*anali-confluens* Vorbrodt) is decidedly pronounced."

Though Rowland Brown does not use the term, his name *scotica* apears to me to have the status of a subspecies. It was omitted from *The Zoological Record*. It does not appear in Seitz, *Macrolepidoptera of the World*, or in the *Catalogus Lepidopterorum*, and has been overlooked by all the authors who have made a special study of the genus. I think it is time Rowland Brown's name was rescued from oblivion. Verity (*Mem. Soc. Ent. Ital.*, 1930, **9**, 20) named the Scottish form ssp. *caledoniae* and Reiss (*Int. Ent. Z.*, 1931, **25**, 341) named it ssp. *caledonica*. Both are synonyms of *scotica* Rowland Brown.—E. A. Cockayne, 8 High Street, Tring.

Evan John of Llantrissant.—With reference to the Note on page 113 of the June number of *The Entomologist's Record* it will be seen by referring to *Proceedings* VI, 1931/2, Ent. Soc. Lond. that the death of Mr. Evan John at the age of 92 was announced at the Meeting of the Society on 4th February 1931. Up to then John had been senior Fellow, having been elected in 1865.—H. M. Edelsten, Department of Entomology, British Museum (Natural History), London, S.W.7.

DELAYED EMERGENCE OF SATURNIA PAVONIA L.—Dr. H. B. Williams (*Ent. Rec.*, **63**: 116) will find records of delayed emergences of *Saturnia pavonia* L. in Tutt's *British Lepidoptera*, **3**: 332, ". . . 2, 3 or 4 years, such pupae generally producing females . . ."; *The Entomologist*, **15**: 131 (one, two and three years); **56**: 65 (seven years); *The Naturalists' Journal* for 1895, page 137 (three years); whilst the *Proc. and Trans. S. Lond. Ent. and Nat. Hist. Soc.*, 1948-9, page 40, records two thinly-scaled 'ghosts' after two years in the pupa.—FRANK HEWSON, 23 Thornhill Drive, Shipley, Yorkshire.

A NOTE ON MOTHS AND LIGHT.—From the records one reads in the entomological magazines—especially those long lists of the year's captures shown on exhibition day—one would imagine that moths are just as common nowadays as they were in former years. But this cannot really be the case, except in very favoured districts. You can search palings and tree-trunks over a number of seasons and turn up very few things that are outside the very commonest of common game, whereas in former years all kinds of extra-ordinary insects used to be found. Some will think that this is a delusion but it is not the case.

It seems to have been forgotten that in recent years the lighting of our towns and suburbs, as well as the coast towns and pleasure resorts (formerly well known collecting sites) by great arc-lamps and all kinds of attractive snares to the poor moths, are the cause why countless thousands die every year. During the war the great beam-lights used for spotting aeroplanes were a great attraction as well as death traps. Recently a long series of very tall and powerful lights has been put up through parts of Epping Forest.

Now all these traps, to say nothing of the legitimate ones, must have a very considerable effect upon the moth population—taken over the whole country during recent years—since lighting has increased a hundredfold. In fact one fears that in years to come there will be no moths left or at least very few species. Nothing much can be done about it, but it is a factor to be taken into account.—D. P. MURRAY, Avisford School, Arundel, Sussex.

[We are not so pessimistic as our contributor about the harm which powerful lights do to our lepidopterous fauna. In a large majority of species only the males are attracted and many of these will have paired beforehand. Still, it is worth noting that the late Rev. Miles Moss found the Sphingid population in the neighbourhood of Lima, Peru, to be enormously reduced when that city was lit by arc-lights. Before the lights were installed the number of species and their profusion were remarkable; after the installation the moths swarmed at the lights and in a few years species once abundant were rare and many species no longer to be found.—ED.]

UNUSUAL ABUNDANCE OF EUCLIDIMERA MI CL.—On the chalk downs above Otford, Kent, on 2nd June, I was surprised at the large number of *Euclidimera mi* Cl. Within an hour and a half of arriving there at 4.30 p.m. I estimate having seen between 40 and 50 individuals. Normally the moth is disturbed by one's feet, when—if not carried out of sight by the wind—it may be seen to fly not very far and then settle. But of all those seen on June 2nd not one was flushed and in no case

did I see one alight. They were very active indeed and I am led to suppose that their behaviour on this occasion was perhaps induced by the weather conditions at the time:—Temperature, warm; wind, nil; sun, occasionally obscured; thundery. I also noticed that they flew even during the dull periods. Perhaps the year or this particular locality is abnormally suitable for the species, though I am more inclined to believe that the real explanation is to be attributed to other causes, *i.e.* weather. It would be interesting to hear from others on the subject. I personally cannot recall having previously seen the imagines so plentifully—perhaps in a whole day a dozen at most, usually fewer, and I have seen the moth season after season for the last twenty years.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent.

[Since the present season has been an unfavourable one for Lepidoptera generally it is unlikely that the unusual rise in the population density of *Euclidimera mi* in the district to which our contributor refers is due to weather. The fluctuation of insect populations is due to many causes, and the number of links in the chain of biotic factors in a habitat are sometimes many. For instance, an increase in the number of hawks in a locality would entail a decrease in the number of insectivorous birds. So the predators of an ichneumon-fly which parasitizes the larva of *Euclidimera mi* would increase in numbers and thereby reduce the population of the ichneumon-flies. Consequently there would be a rise in the population of *E. mi*.—ED.]

EUPROCTIS CHRYSORRHOEA L. AB. **fumosa** AB. NOV.—I have before me an aberration taken by my friend Mr. J. W. C. Hunt:—Fore and hindwings and legs tinged with smoke-grey, darker in the apical area of the forewing and along the nervures. The underside similarly aberrant.

Type ♂: St. Peter's, Isle of Thanet, Kent, 18.vii.1937.

—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent.

CELLULOID CAGES AND CAMPHOR FUMES.—Recently I told a friend that some larvae of *Melitaea athalia* which I had brought into my sittingroom at the end of February did well until mid-May, since when they had 'hung fire'. I mentioned that they were in a cage of the celluloid cylinder type. He asked me if I had put the cage in the sun during May and when I told him that I had he informed me that some kinds of celluloid give out camphor fumes when exposed to a hot sun. I then remembered that some larvae of *Melitaea aurinia* reared last year in a similar cage had also slowed down after their cage had been placed in the sunshine. Have other lepidopterists noticed the same thing?—P. B. M. ALLAN.

RESISTANCE OF INSECTS TO KILLING AGENTS.—Recently, browsing on the old *Entomological Magazine* for 1834, we came across an item which might serve as a footnote to Mr. d'Assis-Fonseca's paper on the resistance of certain species of Diptera to killing agents, printed in our June issue (page 120). It was a paragraph from an abstract of Straus-Durckheim's *Considerations Générales sur l'Anatomie Comparée des Animaux Articules* and was to the effect that of several gases into which various insects had been placed ammoniacal gas was the one which killed them most quickly. "In nitrogen they can live for several days, and although a *Melolontha vulgaris* was observed to fall motionless when

immersed in pure hydrogen for fifteen minutes, yet it returned to life after remaining fifty hours in that gas." We have not verified the quotation.

Practical Hints

FROM the end of July to the middle of August it is always worth while searching among the leaves on the little shoots which sometimes spring from the foot of an ash tree. Here a flimsy cocoon—little more than a "cat's cradle" of silk—containing a *green* pupa may occasionally be found—*Deuteronomos fuscantaria.*

Small sallow bushes (*Salix atrocinerea*) about 3 ft. to 4 ft. high growing in open waste places seem to be favoured by *Harpyia furcula.* The young larva, which usually hatches from the egg during the first fortnight of July, is brown with two broad whitish bars, and rests by day on the upper side of the leaf. The young larva of *Cerura vinula,* which often occurs in the same habitat as *H. furcula,* has no bars, being unicolorous brown.

The hemispherical palest sea-green eggs of *Pterostoma palpina* are easily to be found this month, usually in pairs, on *Salix atrocinerea,* white willow, aspen and poplar (both black and Lombardy). They are laid on the underside of the leaf. The larvae in all stages may also be found throughout July.

Although blackthorn and hawthorn are the usual foodplants of *Gastropacha quercifolia,* grey sallow (*Salix atrocinerea*) is frequently chosen in the eastern counties. The unmistakable egg—oval with a curious "snakey" green marking on the white background—is laid singly (occasionally a pair) on the underside of the leaf. Quite small bushes are usually chosen.

In clearings in birchwoods there is sometimes a number of small birch bushes scarcely two feet high. These little bushes are always worth searching: the larva of *Drepana lacertinaria* is found on them more often than on larger bushes. This larva rests on the upperside of the leaf, commonly on a topmost shoot, and resembles, to a remarkable degree, a bird's dropping.

Towards the end of the month larvae of *Eupithecia pulchellata* may be collected from foxglove flowers. The larva spins the "lips" of a blossom together, the flowers thus closed at the mouth being easily seen. Cut off the flower-spike and put it in a water-bottle (for there are usually several larvae on each spike), or pinch off (at the stalk) the inhabited blossoms and place these in a larva-tin, adding fresh flowers (and removing old ones) as necessary. Use dry peat for pupation.

Thalpophila matura (*cytherea* Fab.), formerly widespread, now seems to be quite rare in many places where once it was common. *Triphaena interjecta* also has disappeared from many of its former localities in East Anglia. Females taken at sugar (*matura* mid-July, *interjecta* mid-August) should therefore be kept for eggs. Both these

moths are extremely handsome when freshly emerged, and cabinet specimens of them should always be obtained by breeding.

Spaelotis ravida is most uncertain in its appearances in this country, sometimes twenty years elapsing between visits. In a year of plenty, therefore, the lepidopterist should remember the motto *Carpe diem*. The moth has a great liking for resting by day in outhouses and especially wooden garages. which should, therefore, be searched every day in July. It comes readily to sugar.

Collecting Notes

NOTES FROM TORQUAY.—Like many others I have found collecting, in the main, a record of negatives this year. The only thing that has kept me aware of any activity among lepidoptera has been my moth trap. Captures, though meagre indeed, did indicate that it was only the appalling weather that accounted for the fact that valerian in bloom in sheltered spots and sugar would not yield a single insect until May was out, and indeed these lures are still unprofitable.

The only point of any interest has been the long period over which emergence and awakening from hibernation has been spread. For instance, *Orthosia gothica* and *O. stabilis* were well out on 18th March, yet my last records are as recent as 8th June for the former and 28th May for the latter, and fresh specimens at that. *Lithophane socia* was taken first on 2nd April and again on 4th April, then on 4th May and the last on 3rd June, which surely must be a record.

I am sure the hibernating butterflies must have suffered badly. Throughout the past months I have looked in vain for *Polygonia c-album*, *Aglais urticae* and *Nymphalis io* when I have been out in the garden. I have notes of two *urticae* and three *io* seen in late April and early May; in other seasons they have all been on the wing whenever the spring sunshine has warmed things up.—F. H. LEES, The Gables, Maidencombe, Torquay, Devon. 10.vi.51.

NOTES FROM WESTON-SUPER-MARE.—I am glad to say that the numbers of insects in this district are now showing a distinct improvement, owing no doubt to the recent fine weather. The following dates of the first appearances of some of the more interesting species of Lepidoptera at light in my garden at Weston-super-Mare from 20th April to the end of May may be of interest in this rather backward season:—

April: 20th, *Coenotephria derivata* (*nigrofasciaria*), common later. 25th, *Polyploca ridens*, several later. 26th, *Panolis flammea*.

May: 3rd, *Selenia tetralunaria*. 5th, *Eupithecia dodoneata*, fairly common later. 11th, *Acasis viretata*, very common later. 13th, *E. tripunctaria*. 14th, *Mimas tiliae*; *Hadena trifolii*. 19th, *Drymonia ruficornis* (*chaonia*), one only, a female which laid a quantity of eggs the same night. 21st, *Celama confusalis*; *Cucullia verbasci*. 23rd, *E. venosata*; *E. indigata*. 24th, *Apatele megacephala*. 25th, *Chloroclystis coronata*. 28th, *Notodonta ziczac*; *Apamea sordens*. 29th, *Smerinthus ocellata*, a female which began laying eggs as soon as it was boxed.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 12.vi.1951.

NOTES FROM EAST ESSEX.—Lepidoptera in East Essex this spring have been scarcer than in 1950 and in the case of resident species later as well. Little collecting has been done, but a light-trap has been operating nightly from 20th April. Daytime observations have been made whenever possible in connection with the Insect Immigration Committees Migrant Recording Scheme.

Plusia gamma first appeared in the trap on 4th May as against 30th April for 1950. The total to date (12th June) has been only 66, compared with 1545 for the same period last year. There may have been a fairly general migratory movement about 24th May as *Vanessa cardui* and *V. atalanta* both arrived on that day.

On the morning of the 25th there were 13 *P. gamma* in the trap accompanied by an almost perfect male of *Minucia lunaris*, perhaps the first Essex record. Next day, 26th May, the trap produced three specimens of *Nomophila noctuella*, but only three more in single specimens have occurred since. In 1950 this species did not appear until 7th July.

On 27th May the catch included 16 *P. gamma* and a perfect female of *Nycterosea obstipata*.

No more *V. cardui* have been seen since the two on 24th May and only six *V. atalanta*. The only other migrant has been a single *Macroglossum stellatarum* flushed from a sunbaked earth bank on the afternoon of 1st June.

Between 20th April and 12th June 89 species of macro-lepidoptera have been recorded in the light-trap; up to the same date last year the total was 119. Perhaps the most interesting of those not previously mentioned were *Lithophane semibrunnea* and *Cucullia lychnitis* which have not been recorded before. Several specimens of the local *Bapta distinctata* occurred as in other years, as also did *Lithina chlorosata* for the third consecutive year, although there seems to be no bracken anywhere in the area.

The district probably compares rather unfavourably with many others in the south of England as to the number of species of butterflies resident in it, but the following have been noted to 12th June with date of first appearance added in most cases:—

P. megera, 28.v.; *C. pamphilus*, 28.v.; *A. urticae*; *N. polychloros*; *N. io*; *P. c-album*; *C. argiolus*, 26.iv.; *C. phlaeas*, 4.vi.; *C. rubi*, 4.vi.; *P. brassicae*, 10.v.; *P. rapae*, 24.iv.; *P. napi*, 12.v.; *A. cardamines*, 10.v.; and *P. malvae*, 19.v. *A. agestis* and *P. icarus* have not been seen yet, and all species except perhaps *A. cardamines* are scarcer than usual.

It may be worth mentioning that from a batch of about 50 *P. rapae* pupae all the earlier specimens emerging in early May either failed to get clear of their shells or, if they did, seemed too weak to expand their wings. The remaining 30 emerging in early June have been perfect specimens. They were reared in a large wood and perforated zinc cage standing under the roof of an open cart shed, thus being protected from direct rain. It is interesting to speculate as to whether a similar fate overtakes wild pupae when the final stages of development are unusually prolonged by the return of cold weather.—A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex.

NOTES FROM SHEFFIELD.—Weather conditions are very poor up here. Insects seem to be appearing at the usual times, though perhaps a little

late, but in nothing like the quantities of last year. We have had an almost unbroken spell of cold east winds—warm during the daytime but bitterly cold at night, with a very dry atmosphere. But we were rained out on Saturday night.

I picked up a few *Agrotis cinerea* in North Wales at light a week ago, and *Smerinthus ocellata* put in an appearance at Sheffield on Friday, the first I have seen here. And last night a black *Apatele megacephala*. —W. Reid, 46 Totley Brook Road, Sheffield. 11.vi.1951.

Notes from S.W. Kent.—The season so far has been disappointing and notably fewer insects than usual have been on the wing. I was unable to do 'sallowing' beyond my garden, but few insects appeared and I did not see *O. incerta*, and very little flew in to light. I spent the last few days of April at Camberley and saw no Lepidoptera on our outings. *O. luteolata* flew in to light on 15th May; *A. euphrosyne* was seen on 20th May, my latest date for many years; *P. aegeria*, which is increasing in this neighbourhood, 19th May. *A. selene* had not appeared by 5th June. *P. icarus* was seen for the first time by me at Brook on 8th June.

Larvae of *P. potatoria* are scarce in their usual haunts hereabouts: I took only two in my best locality after a long search. This may be due to the severe infestation a few years ago with *Apanteles* parasites.

Up to the time of writing I have seen no nests of *A. urticae* nor *N. io* larvae. Other dates in this district are: *L. phlaeas*, 22nd May; *P. megera*, 6th June; *C. pamphilus*, 6th June; *E. tages*, 4th June; *P. malvae*, 8th June.—G. V. Bull, White Gables, Sandhurst, Kent. 10th June 1951.

Notes from East Purbeck.—On 5th June in a walk of three miles around this part of Dorset the following species of Rhopalocera were observed, all in fresh condition:—

P. napi, *A. cardamines* ♂♂ and ♀♀, *A. euphrosyne*, second brood of *P. aegeria*, *P. megera*, *C. pamphilus*, *C. rubi*, *L. phlaeas*, *P. argus (aegon)*, *A. agestis*, *C. minimus*, *P. malvae*, *E. tages*, *T. sylvestris*, and *T. acteon*. Larvae of *M. galathea* were about half-grown.

One freshly emerged ♀ *V. atalanta* was noted on 7th June.

Last week *C. rubi* was swarming here and *P. brassicae* are coming in from the sea each day in fair numbers from a S.E. direction.—Leonard Tatchell, Rockleigh Cottage, Swanage, Dorset. 10th June 1951.

Notes from Surrey.—Fine weather of the 21st May prompted me to drop prearranged plans for gardening and send me off to the countryside for the day. There was little about, however—*Pararge aegeria* was common enough as was *Pieris napi*, a few *Pyrgus malvae*, *Anthocharis chira fascelina* and *Pseudoterpna pruinata*.

In a heathy area on the 22nd *Ectropis punctulata* was just coming out and a freshly emerged female *Saturnia pavonia* was noted. The weather was somewhat cold and, with little chance of seeing any insects on the wing, recourse was had to a search for larvae. In this direction the most interesting captures were those of *Lasiocampa quercus*, *Dasychira fascelina* and *Pseudopanthera pruinata*.

Opisthograptis luteolata was flying on the evening of the 2nd June.

The following day, 3rd June, was fine and warm, and butterflies were much more in evidence. *Argynnis euphrosyne*, *Coenonympha pamphilus*, *Hamearis lucina*, *Erynnis tages* and *Callophrys rubi* were all out in one favoured locality, the latter insect predominating. *Polyommatus icarus* was beginning to appear on the downs where, among the moth tribe were *Chiasmia clathrata*, *Euclidimera mi* and *Zygaena trifolii*, including some very nice confluent examples. *Colostygia pectinataria* had obviously been out some little time and *Drepana cultraria* was plentiful enough in the beechwoods.

Celastrina argiolus was noted on the 5th June. On the 10th a visit to some woodland and heath in the Oxshott area produced *Euphyia bilineata*, *Pseudopanthera macularia*, *Epirrhoe alternata*, *Bapta bimaculata*, *Ematurga atomaria*, *Bupalus piniaria*, *Macrothylacia rubi* and *Anarta myrtilli* (only one). *Lithina chlorosata* was abundant and some forty specimens of *Ectropis punctulata* were counted at rest on various trees. A *Cabera pusaria* was found drying its wings after emergence and a few small larvae and ova of *Gonepteryx rhamni* were discovered on the buckthorn. A casual search of the honeysuckle revealed larvae of *Limenitis camilla* in several stages of growth.

Late in the evening a fine *Gonodontis bidentata* appeared on the kitchen window.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey.

DIPTERA

Notes on Some Bred Diptera

By M. NIBLETT, F.R.E.S.

PALLOPTERIDAE.

Palloptera trimacula Mg.:—At Bookham Common on 11.xii.49 some stems of *Angelica sylvestris* L. were collected; it was noticed that under the epidermis at the lower part of the stems there were a number of Dipterous larvae. In March and April following, the majority of these larvae had left the stems and entered earth to pupate. Numerous *trimacula* flies emerged between 20.v and 3.vi.50, flies from the larvae remaining in the stems emerged during the same period.

ANTHOMYIIDAE.

Pegomyia nigritarsis Zett.:—I have found the larvae of this species in mines in leaves of several species of *Rumex*, including *R. acetosa*, in May, June, and August. This suggested the possibility of more than one brood a year, but in each case the flies emerged in April of the following year. The larvae are heavily parasitized by Braconids, these emerging in July of the first, and May of the second years.

Pegomyia genupuncta Stein.:—The larvae of this species are to be found in mines in the leaves of *Arctium* spp., which they leave to pupate in earth. I have found the larvae in June, and the flies have emerged in April and May of the following year. These larvae are also heavily parasitized by Braconids, these emerging in April and May.

Pegomyia steini Hend.:—Larvae of this species were found in mines in leaves of *Cnicus arvensis* Hoffm. in July and August. They left the mines, pupated in earth, the flies emerging in the following April.

Delia flavidipennis Stein.:—Larvae of this species were found in some numbers in seed-capsules of *Silene inflata* Sm. in July, August, and September, which they left to pupate in earth, the flies emerging in May of the following year.

Pegohylemyia jacobaeae Hardy.:—I have found numerous larvae of this species in flower-heads of *Senecio erucifolius* and *S. jacobaea* at Addington, Banstead Downs, Banstead Wood, Bookham Common, Boxhill, Coulsdon, Dorking, Epsom Common, Farthing Down, Ranmore Common, Riddlesdown, Walton Heath and Worms Heath in July, August and September. In the majority of cases the larvae left the heads to pupate in earth, the flies emerging in April, May, June, and July of the following year. A few larvae pupated in the flower-heads, the flies from these emerging at the same times as those that had pupated in the earth.

Agromyzidae.

Agromyza anthracina Mg.:—The larvae were found in mines in leaves of *Urtica dioica* L. at Bookham Common on 14.xi.49; they left the mines to pupate in earth, the flies emerging in the following April, Braconids also emerged at the same time.

Dizygomyza posticata Mg.:—On 16.ix.48 at Selsdon Wood a few larvae of this species were found in mines in leaves of *Solidago virgaurea* L. The larvae left the mines, pupated in earth, and the flies emerged in the April following.

Napomyza glechomae Kalt.:—Mines in leaves of *Nepeta hederacea* Trev. with larvae of this species in them were found at Fetcham Downs 7.x.48, and at Bookham Common 14.xi.48 with pupae. They were heavily parasitized by Braconids, but several flies emerged in the following April.

Ophiomyia maura Mg.:—Larvae of this species were also found in leaf-mines on *Solidago virgaurea* at Selsdon Wood in November. They left the mines to pupate and the flies emerged at the end of the following April.

Liriomyza taraxaci Hering.:—On 16.vi.50, numerous mines were found at Wallington, on leaves of *Taraxacum vulgare* L., containing larvae of this species; they pupated in the mines and the flies emerged 24.vi.50, as also did a number of Braconids.

It has been stated that these larvae pupate in the earth; all those of the series here referred to remained in the mines.

Phoridae.

Megaselia rufipes Mg.:—The larvae of this common Phorid inhabit a variety of plants and have emergence times extending over a long period; they pupate in the earth. The earliest date I have found these larvae was June 17, in flower-heads of *Tragopogon pratense* L. From these the flies emerged on July 20 and 24, accompanied by numerous Braconids. Larvae were found in flower-heads of *Sonchus arvensis* L. on July 19; the flies from these emerged on August 15. Another series of larvae were found on the same date in flower-heads of *Lychnis dioica* L.; from these the flies emerged on August 18. From larvae found in flower-heads of *Picris hieracioides* L. on July 30 the flies emerged on September 26 and October 1.

Seeds of *Silaus flavescens* Bernh. galled by the Cecid *Kiefferiana pimpinellae* Lw. were found to contain numerous larvae of *rufipes* on September 14; the flies from these did not emerge until the following March. On August 20 pods of garden peas were found containing numerous larvae; from these the flies emerged on September 18.

All localities mentioned are in the county of Surrey.

I am indebted to Messrs. J. E. Collin, and L. Parmenter, for the identification of the flies (the latter the Agromyzidae) and to them I tender my thanks.

COLEOPTERA

Observations on Cantharis Species

By A. A. Allen, B.Sc.

The other evening (June 11th), having an hour to wait at Cheshunt, Herts., I passed the time by strolling along a length of hedgerow and casually observing the 'soldier and sailor' beetles of the genus *Cantharis* (better known to many of us under the name of *Telephorus*) on the hedge-parsley, nettles, and grasses. Within this stretch of perhaps two hundred yards, where I used to collect in former years, our five largest southern species of the genus occurred in varying numbers. By far the commonest on this occasion was *C. livida* L.; while less abundant towards one end of the stretch, it heavily outnumbered every other. *C. rustica* Fall. and *C. pellucida* F. were less common, and patchily distributed (the latter, generally speaking, seems to prefer the vicinity of woods). *C. nigricans* Müll., often plentiful enough here as in most places, was now unwontedly sparse—only three or four individuals being seen. *C. fusca* L., always a very local insect, was confined as in previous years to a few square yards at the end of the strip of hedge and just behind it; except for an odd specimen at Arundel (West Sussex) as long ago as 1930, this spot near Cheshunt is the only place where I have met with the species, and so far as my experience goes it is out for a shorter time than most others. Now, only one of each sex could be found. The piece of ground where this species occurs adjoins the extensive marshes of the Lea valley, and indeed is but a few yards from the river Lea—which possibly accounts for the higher concentration of Canthares at that point, though they do not much frequent the river bank itself. I believe that *fusca* is exclusively found not far from water, but on firm and not swampy ground; it is tempting to conjecture that such a highly localized species may require very special soil conditions for its larval life.

Slight differences in habits between certain species were noticeable, chiefly as regards behaviour when alarmed. The wariest was always *pellucida*; it showed great dexterity in eluding capture, in which it would often succeed even when sitting in the middle of an umbel—somehow contriving to slip off in a flash and drop down out of sight. I saw many more of this species on the wing than any other, notwithstanding the predominance of *livida*. The latter species was usually much less difficult to seize, but once in the hand was very agile, like *pellucida* taking flight without delay. *Rustica* seemed the least shy and was rela-

tively slow to escape; it generally 'feigned death' for a few seconds when handled. As for *fusca*, I fear I was too intent upon capturing the only two specimens seen, to risk losing them. *Nigricans* appeared most to resemble *pellucida* in its reactions, as far as I could judge from the few encountered; both these being of slenderer build than the rather bulky *rustica* and *livida*, they are perhaps capable of more rapid leg movements. Only the two last named were noticed *in copulâ—livida* pairs were numerous. The flowers of hawthorn above and of hedge-parsley below seemed no more favoured by these beetles as resting-places than plant stems, nettle leaves and blades of grass; but this, together with my failure to see any instance of capture of prey, may have been due to the time of day (6.30-7.30 p.m., B.S.T.), although the insects were still fairly active.

In past years, two other species have occurred here not uncommonly with those above noted—*C. cryptica* Ashe (=*bicolor* Fowl. in part, newly separated from *pallida*, see *Ent. mon. Mag.*, 1946, 82: 138, and 1947, 83: 59) and *C.* (*Metacantharis*) *clypeata* Ill. Neither, however, was observed on the present occasion. Along this stretch of hedgerow I have also met with the very variable *C. rufa* L., and *C. pallida* Goeze, about midsummer. Of the closely allied genus *Rhagonycha*, *lignosa* Müll. (=*pallida* Fowl.), *limbata* Thoms., and of course the ubiquitous *fulva* Scop. in its season, have been seen there. *Clypeata* and *lignosa* preferred the bushes of the hedge, as is usual with these species—the former especially on the hawthorn blossom.

It may not be amiss to conclude these notes with the average times of appearance of those Cantharini of which I have had field experience, as there are few such data in the literature. Apart from *R. fulva*, they fall into two roughly equal groups separated by about a month—an earlier or 'late spring' one and a later or 'midsummer' one—with about a fortnight's overlap in June; some few species may be more or less intermediate.

1. May to about mid-June: *Podabrus alpinus* Payk., *Cantharis fusca* L. (this species usually over by June?), *rustica* Fall., *pellucida* F., *nigricans* Müll., *livida* L., *cryptica* Ashe, *clypeata* Ill., *Rhagonycha lignosa* Müll., *limbata* Thoms., *testacea* L. (the last two sometimes rather later).

2. June to about mid-July: *C. pallida* Goeze, *rufa* L., *figurata* Man., *fulvicollis* F. (=*flavilabris* Fowl.), *thoracica* Ol., *lateralis* L. (*oralis* Fowl.), *R. translucida* Kryn., *lutea* Müll. (=*fuscicornis* Fowl.—perhaps somewhat intermediate), *elongata* Fall. (Scottish Highlands only), *Silis ruficollis* F. (occasionally in August—second brood?).

3. End of June to August, or even early September: *R. fulva* Scop.

It must be emphasized that these periods refer mainly to Southern England, and to what may be called normal years. The present season of course is from two to three weeks later than normal in this area.

The Tiled House, 63 Blackheath Park, London, S.E.3.

CHRYSOMELA MENTHASTRI SUFFR. AT VIRGINIA WATER, SURREY.—On May 20th, in company with Mr. L. S. Whicher, I had the pleasure of taking this fine species for the first time, in the south-east end of Windsor Great Park close to Virginia Water. It was not then common, but when first found there by Messrs. Forster and Whicher last August, the water-mint being at that time well grown up, it had been abundant. I

have seen no published records of *C. menthastri* for Surrey, but believe it has been once or twice taken in the county. The species is an addition to the list of beetles of the Windsor Forest area.—A. A. ALLEN.

ATOMARIA ZETTERSTEDTI ZETT., ETC., IN THE READING DISTRICT.—After considerable search I succeeded in obtaining a pair of this distinct and very local species from the cottony seed-catkins of sallows on some rough marshy ground near the Thames in the Reading district, Berks. This habitat, peculiar for an *Atomaria*, appears to be quite characteristic; and as a British species it is recorded only from a few places in the Thames valley between Middlesex and Oxford, as far as I know.

Among other beetles found on this occasion may be mentioned *Bradycellus placidus* Gyll., in numbers in flood rubbish; *Rhynchaenus foliorum* Müll. (=*Orchestes saliceti* Pk.), a specimen swept from osiers—I had never before taken it, and think it must be very local; and *Ceuthorhynchus chrysanthemi* Germ. (a rare species to me and to some other collectors) sparingly off ox-eye daisies.—A. A. ALLEN.

THE HABITAT OF BARIS SCOLOPACEA GERMAR.—Mr. Wakely's note on this very local weevil (*antea*, p. 97) is interesting, and as far as I know without having searched the literature, his is the first record of its connection with *Atriplex littoralis*. In all likelihood both this and *A. portulacoides** are food-plants of the insect. I cannot claim to have bred it from the latter, but there can be no doubt that the beetle occurs on *portulacoides*. As Mr. Wakely implies, this does not however prove it to be a pabulum of either the larva or imago (cf. the habit possessed by several species of *Apion* of congregating on plants quite unrelated to their host-species). *B. scolopacea* is to be taken by sweeping large unmixed expanses of the sea-purslane, besides scattered clumps of it associated with other plants, from June to August in the salt-marsh near Higham (Gravesend district) and in similar conditions, but more sparingly, near Port Victoria in the Isle of Grain—both in N.W. Kent. On June 18th, 1950, I captured two very fresh specimens in the salterns adjoining Benfleet, S. Essex—Mr. Wakely's locality—which were quite certainly brushed from *A. portulacoides* growing in dense unmixed masses along the edge of a tidal creek. Though the records are few, the species probably occurs all along the Thames marshes from below Gravesend to the estuary, on both sides of the river, where suitable conditions exist; I do not know whether it is still to be found in the Isle of Sheppey (the original British locality).—A. A. ALLEN, The Tiled House, 63 Blackheath Park, London, S.E.3.

Fifty Years Ago

(From *The Entomologist's Record* of July 1901)

IMAGINAL DEVELOPMENT IN PUPAE OF LACHNEIS LANESTRIS.—Owing to the statement in Barrett's work being contrary to my own recollection, I examined a pupa or two in my possession, and, finding it erroneous, I referred the matter to Mr. A. Russell, who had a large number (some thirty) of non-emerging pupae in the early summer of 1899, many

[*This plant has now been removed into the genus *Obione* Gaertn.—ED.]

of which he examined and in none of which he found any trace of imaginal development, nor could I find anywhere, among all the references I collected . . . any authority for the statement that the imago was fully developed and awaited emergence sometimes for several years.—J. W. Tutt.

A Successful Hunt for Lytta vesicatoria.—Having determined for some years past to try and find the 'blister beetle' in Cambridgeshire, I gladly accepted Mr. Verrall's kind invitation to stay with him at Newmarket in July 1900, especially as a living specimen had been brought to him about that time in 1899. Mr. Verrall thought he knew where the beetle would occur, as there are a number of old ash trees near the spot where the insect which was brought to him was taken. I was not, however, fortunate enough to find the beetle, and came to the conclusion that it was too late . . . This year, Mr. Verrall having again kindly asked me to come up and stay with him, and once more try my luck, I determined to run the beetle down if possible. I had made and took down with me a 36 ft. pole and a large dust sheet. Mr. Verrall's locality again drew blank, so it was decided to go further afield and beat every ash tree in the county till I got it. On June 21st, accompanied by Mr. Collin, having ridden some fifteen miles, and tramped about five, and beaten every ash tree we could find, without success, we began to think that we were engaged in a wild goose chase. We determined, however, to try a few more trees before giving in, and having reached some fairly young trees, I was delighted to see four specimens seated on a low bough. I shouted to Mr. Collin, who had gone ahead, that I had got the creature, and after mutual congratulations we set to work with the pole and sheet on all the ash trees near, and with his assistance I was fortunate enough to take eleven specimens. It is nearly thirty years since the beetle was taken, with the exception of one or two single chance specimens.—Horace Donisthorpe.

Current Literature

The Principles of Insect Physiology. By V. B. Wigglesworth. Fourth edition, revised. Pp. viii + 544. London: Methuen, 1950. 42s.

This is an entirely new edition of Dr. Wigglesworth's 'Principles of Insect Physiology' which has undoubtedly proved itself to be the most outstanding amongst textbooks dealing with any aspect of Entomology published since Imms's great general textbook of 1934 (last revised edition). Wigglesworth's book is now so well known and so widely appreciated that any general discussion of it is quite unnecessary. Suffice it to say that this new edition contains a great deal of new matter and many new illustrations and that the author has succeeded by the addition of a hundred pages in covering in a marvellously concise, yet readable, manner the vast additional literature which has accumulated since the first edition was published in 1939. Some chapters, where the advance has been particularly great, such as the study of development and of the integument, are almost entirely re-written; others have been skilfully brought up to date without disrupting them and making them patchy. It is indeed a work which no entomologist concerned either with insect physiology, morphology or economic entomology can afford

to be without, and from which all entomologists and indeed zoologists will derive much profit. A useful new feature of the present edition is the index of authors which makes the finding of the results of a particular paper very much easier than in the old. The printing and general standard of production are admirable.

But why does this firm of publishers insist on describing as "editions" what most of us would call "impressions"? "Editions" two and thr. of this work are in fact merely new impressions of the first edition and contain no material change or revision of any kind. The volume here reviewed is thus, in usual parlance, the second edition and not the fourth.

W. H. T.

[The practice of printing the words "New Edition" on the title page of a reprint or fresh impression is, in the case of scientific works, misleading and therefore reprehensible. Scientific books are in a different class from general literature and in the case of textbooks the words "new edition" are universally regarded as an assurance that the book has been brought up to date.—ED.]

VERZEICHNIS DER KÄFER MITTELEUROPAS (in two volumes). By A. Horion. Vol. I. 8 × 6 ins., 266 + 10 pp., typescript, boards. Stuttgart (Alfred Kernen Verlag), 1951. Price 12 DM.—This publication, by the author of the Supplement to Reitter's great work on the Coleoptera of Germany, is a distributional catalogue of the beetles hitherto known as inhabiting Germany, Austria and Czechoslovakia, with short faunistic indications and an explanatory preface; the last work on the subject (Schilsky's *Mitteleuropäische Käferverzeichnis*, 1909) being long out of date. Vol. I covers the superfamilies Caraboidea to Brachymera. Students of our own Coleoptera mostly concern themselves too little with the distribution of the species abroad; but even those whose study is wholly limited to the British fauna and who, maybe, have no very profound knowledge of the German language, will find in the present work a mass of concise information on this interesting and important aspect of their science. Under each species are given brief indications of its general range followed by more detailed ones relating to Central Europe. Some species not yet found in the latter region, but expected to occur, are included. It is of interest to note, among other things, what proportion and which of our British species do not figure at all in this fauna. The more noteworthy of the infraspecific forms and a few synonyms, and also most subgenera, are given; the systematic arrangement is based on Winkler (1924-32). In the matter of nomenclature Dr. Horion has exercised commendable restraint, in that he has wisely avoided many of the sweeping and very debatable changes advocated in some quarters to-day. There is a key to abbreviations and symbols used, with examples set out in full. Only a few minor misprints appear (such as 'Abkürung' for 'Abkürzung' in three places). We welcome this useful and timely production and look forward to the second volume.—A. A. A.

TREUBIA, **21**, pt. 1 (25.iv.1951), contains, at pp. 133-182, the fourth instalment of A. Diakonoff's paper (in English) on the Malayan Tortricidae. Altogether one genus, eighteen species and one subspecies are described as new. There are drawings of the genitalia, and the types will be deposited at the Rijksmuseum v. Nat. Hist. at Leiden.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

Wanted—Records and notes on Orthoptera and allied Orders from all parts of Great Britain, Ireland and the Channel Islands, especially from the Midlands, Central Wales, Scotland and outlying islands. Specimens returned promptly.—*D. K. McE. Kevan, University of Nottingham, School of Agriculture, Sutton Bonington, near Loughborough, Leics.*

Wanted—Records of the following Butterflies from the New Forest: *crataegi, sinapis, iris, c-album, polychloros, cinxia, aurinea, galatea, betulae semi-argus, lucina lineola, actaeon.—S. C. S. Brown, 454 Christchurch Road, Bournemouth.*

Wanted—Information regarding the biology, ecology, and distribution of *Smerinthus ocellata, Laothoe populi, Mimas tiliae, Sphinx ligustri* and *Deilephila elpenor* in the London area; with special reference to foodplants, parasites, habitat and the effects of bombed sites.—D. F. OWEN, *3 Lockmead Road, Lewisham, London, S.E.13.*

LIVING EGGS, LARVAE, PUPAE.

It must be distinctly understood that the publication of the undermentioned offers of exchange is in no way a guarantee for the British nationality, authenticity, or good condition of the species nor for the fertility of eggs. This Notice is not given to throw doubt on the bona fides of exchangers but to absolve the Editor from responsibility in case the privilege of publication on this page should be abused.

Duplicates—Ova, larvae and pupae of *chrysorrhoea* (Brown-tail), *quercifolia* (Lappet), *quercus* (Oak Eggar), *pavonia* (*carpini*—Emperor), *potatoria* (Drinker), *strataria* (Oak Beauty), *tiliae* (Lime Hawkmoth) *dominula* (Scarlet Tigermoth). *Wanted*—Living ova, larvae and pupae, British and Exotic.—*T. H. Fox, 28 Boxwell Road, Berkhamsted, Herts.*

Duplicates—Larvae of *pavonia* (*carpini*—Emperor), *ocellatus* (Eyed Hawkmoth), *vinula* (Puss-moth). *Wanted*—Larvae of *hyale* (Pale Clouded Yellow), ova or larvae of *pinastri* (Pine Hawkmoth).—*Peter G. Baker, Lawn End, Grange Court Road, Harpenden, Herts.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

Editor: E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S.

Assistant Editor: P. B. M. ALLAN, M.B.E., M.A., F.S.A., F.R.E.S.

Treasurer: H. W. ANDREWS, F.R.E.S.

Publicity and Advertisements: F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

The following gentlemen act as Honorary Consultants to the magazine:

Lepidoptera: S. N. A. JACOBS, F.R.E.S.,, Dr. H. B. WILLIAMS, K.C., LL.D., F.R.E.S.; *Orthoptera*: Dr. MALCOLM BURR, D.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: E. C. M. d'ASSIS-FONSECA, J. E. COLLIN, F.R.E.S.

THE ENTOMOLOGIST'S RECORD is published on the FIFTEENTH day of each month.

CONTENTS

TO OUR CONTRIBUTORS

All material for the magazine should be sent to the *Assistant Editor* at No. 4 WINDHILL, BISHOP'S STORTFORD, HERTS.

We must earnestly request our contributors NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

If REPRINTS of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

Printed by T. Buncle & Co. Ltd., Arbroath.

VOL. 63 No. 9 SEPTEMBER 1951

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

ANNUAL SUBSCRIPTION 10s. POST FREE
Hon. Treasurer, H. W. ANDREWS, F.R.E.S.,
Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

PUBLISHED MONTHLY PRICE 2s NET

Editorial

Entomologists are the only persons in this country to-day who, as a class, can, and consistently do, write legibly. The reason for this, probably, is partly because entomologists are superior beings and partly because a man who can set out the wings, antennae and legs of a Cecidomyid, a Trichogramma, a Nepticulid must needs have hands that can work like precision tools and a patience superior to that of Sisyphus. Years ago, so far as 'copperplate' handwriting was concerned, the palm was borne by solicitors' clerks; but with the coming of the typewriter a rot set in and when they take up a pen to-day the gentlemen of the green tape are but as other men.

Lettering is now taught in most of the technical schools; but if one may judge by the output of some of those who have qualified at these institutions the object aimed at is not legibility but deformity of the alphabet. Indeed, it would appear that the more monstrous the distortions of the letters the greater the success of the student; for perversion of alphabetical characters is a *sine qua non* in the world of posters and advertisements to-day. He who would sell his wares must no longer sing their praises: he must scream them stridently, accompanied by nightmarish anamorphosis. Doubtless it pays, because so few people are entomologists and therefore able to distinguish between a well set and a badly set advertisement.

Yet although we entomologists compared with our fellow-men are in a class by ourselves it is unfortunately the case that we are but human—a superior class of human it is true, but still human—and therefore subject to some of the ills that flesh is heir to. One of these ills is a certain unsteadiness of hand as we attain mature age, with the result that when such words as 'gynandromorph' and 'heterozygous' —not to mention *Mimaesioptilus bipunctidactylus* Haw.—occur in our contributions to the magazines they may become something of a problem for the printer, no matter how obvious they are to us. Recognizing this difficulty some of us make a practice—and an admirable practice it is too—of writing recondite words in capital letters. Others use a typewriter, which of course is better still. Yet a typewriter does not always evade the difficulty because typewriters like entomologists sometimes become very old and their keys or notes, or whatever they are called, very shaky and their ribbons faded to the palest of lilac tints. Moreover one has only to punch the wrong note once or twice to play havoc with *Mimaesioptilus*, not to mention *bipunctidactylus* Haw. Bad handwriting is always a trial to an editor, but it is nothing like so dreadful, so irritating, so maddening as a typescript on flimsy paper which looks as though it had been left in a bucket of water overnight.

The typewriter difficulty will pass when machines and ribbons and, above all, paper are once more procurable, and procurable at a price which we can all afford to pay. Meanwhile so long as we are denied their use there is the alternative of 'block letters,' and no 'shortages' and rises in prices can deny us the use of these. Also, as we have already said, entomologists always write legibly—at least nearly always.

Aberrations of British Macrolepidoptera

By E. A. Cockayne, D.M., F.R.C.P.

Plate V.

[The aberrations described and named in this paper are in the Rothschild-Cockayne-Kettlewell collection in the British Museum.]

Acronictinae.

Cryphia perla Fabricius. Ab. **aurolichenea** ab. nov.

The ground colour of the forewings is dark greenish orange with the markings obscured as in ab. *suffusa* Tutt; the thorax is the same colour. The hindwing is suffused with grey as in ab. *suffusa*, but with a faint orange tint in the ground colour.

Type ♂: Folkestone, vii.1900 S. G. Hills. Rothschild coll.

Allotype ♀: Folkestone (Cooper's sale, 8.vii,1896) Christy coll.

Paratype ♀; Loc. incog. (J. A. Clark coll.) F. J. Hanbury coll. B.M. 1938-683.

EXPLANATION OF PLATE V.

Fig. 1. *Bena fagana* ssp. *britannica* ab. *leucozona*.
Fig. 2. *Bena fagana* ssp. *britannica* ab. *trilinea*.
Fig. 3. *Phlogophora meticulosa* ab. *fumosa*
Fig. 4. *Catocala nupta* ab. *nigra*.
Fig. 5. *Mormo maura* ab. *bicolor*.
Fig. 6. *Sidemia ypsillon* ab. *diluta*.
Fig. 7. *Meristis trigrammica* ab. *eccentrica*.
Fig. 8. *Plusia pulchrina* ab. *denudata*.
Fig. 9. *Cosmia trapezina* ab. *postnigra*.
Fig. 10. *Procus strigilis* ab. *albilinea*.
Fig. 11. *Euclidermera mi* ab. *costimacula*.
Fig. 12. *Colocasia coryli* ab. *deleta*.

Amphipyrinae.

Amphipyra pyramidea Linnaeus. Ab. **latilinea** ab. nov.

On the forewing the postmedian line is displaced outwards towards the termen and more curved than usual in its anterior third; it is bordered externally by a broad pale line in its anterior third and by a narrow one in its posterior two-thirds; the pale submarginal line is wider than usual.

Type ♀: Chingford, Essex, 16.viii.1906, F. J. Coulson. Cockayne coll. It is figured: *Proc. S. Lond. Ent. and N.H. Soc.*, 1937-1938. Pl. 11, fig. 4.

Mormo maura Linnaeus. Ab. **bicolor** ab. nov. (Fig. 5.)

On the forewing the areas between the base and the antemedian line, outside the postmedian line, and outside the subterminal line, are very pale in colour; the dark shading internal to the subterminal line is present near the costa, but gradually becomes narrower and much fainter towards the inner margin. The border of the hindwing is very pale and there is a pale line across the middle of the wing. The thorax and abdomen are much paler than usual.

Type ♀: New Forest, 1892, C. Gulliver. (A. Horne and Willoughby Ellis coll.) Cockayne coll.

1

6

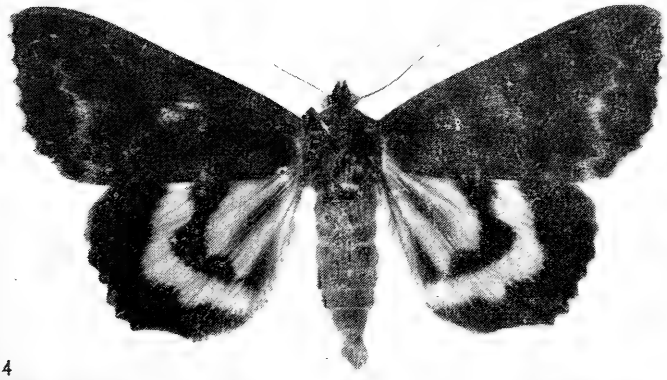
2

7

3

8

9



4

10

5

11

12

Procus strigilis Linnaeus. Ab. **albilinea** ab. nov. (Fig. 10.)

On the forewing the median area is normal and the marginal area greyish; the antemedian and postmedian lines are each bordered by a clear white line, which begins on the costa and reaches the inner margin. These two complete white transverse lines give the aberration a distinctive and beautiful appearance.

Type ♀: Howth, Ireland, 1891, E. R. Curgon per A. Doncaster. Bankes coll.

Paratype ♀: Wicken, 23.vi.1897. Christy coll.

Both specimens have a black bar in the median area.

Procus literosa Haworth. Ab. **pallida** ab. nov.

The ground colour of the forewing is pale grey without the rosy tint of nominotypical *literosa*; the basal and median areas are little darker than the outer part of the wing; the dark bar in the median area is absent in some examples and seldom as dark as in normal *literosa*. The hindwing is paler than usual. The head and thorax are pale grey.

Type ♂: Camber, Sussex, 22.vii.1939, A. L. Goodson. Cockayne coll.

Allotype ♀: same data.

Paratypes 3 ♂♂, 3 ♀♀: Camber, Sussex, 1 ♂, 2.vii, 2 ♂♂, 22.vii. 1939, 1 ♀, 2.vii, 2 ♀♀, 22.vii.1939. A. L. Goodson. Cockayne coll.

This form is comparable with *Procus bicoloria* ab. *pallida* Tutt. There is a series of 17 of the pale form from Camber and 5 rather darker, but also without the rosy tint.

Apamea sublustris Esper. Ab. **rufescens** ab. nov.

The ground colour of the forewing is dull reddish yellow, much darker than that of normal *sublustris*; the markings are darker reddish, less distinct than usual, and not contrasting sharply with the ground colour. The hindwing is darker than usual. The aberration is darker, redder, and more unicolorous than nominotypical *sublustris*.

Type ♂: Co. Sligo, Ireland, 20.vi.1914, L. A. E. Sabine.

Allotype ♀: Co. Sligo, 23.vi.1914, L. A. E. Sabine.

Paratypes 2 ♂♂, 2 ♀♀: 2 ♂♂, Co. Sligo, 20.vi.1914, 17.vi.1914, 2 ♀♀, 20.vi.1914, L. A. E. Sabine. Rothschild coll.

Sidemia ypsillon Schiffermüller (*fissipuncta* Haworth). Ab. **diluta** ab. nov. (Fig. 6.)

The head, thorax, and forewings are pale brownish grey with the markings a slightly darker shade of brownish grey instead of blackish brown. The abdomen is whitish grey. This is an albinistic or dilute form.

Type ♂: Shanklin, I. of Wight, 19.vii.1908, Rev. F. H. Fisher. Bankes coll.

Luperina testacea Schiffermüller. Ab. **vittata** ab. nov.

On the forewing the stigmata are pale, but the markings in the median and basal areas are dark fuscous; outside the postmedian line and extending to the submarginal line is a broad band of pale whitish ochreous colour; there is a pale marginal line of the same colour and between this and the broad band lies the broken dark submarginal line. The hindwing is whitish with a slight ochreous tint.

Type ♀ : Seabrook, 1914, Percy Richards. (Bright coll.) Rothschild coll.

Phlogophora meticulosa Linnaeus. Ab. **fumosa** ab. nov. (Fig. 3.)

All the pale parts of the forewing and the anterior part of the thorax are slightly smoky giving the aberration a peculiar dull appearance. The hindwing is normal.

Type ♂ : near Tring, Herts., 17.xi.1938, A. L. Goodson. Cockayne coll.

Meristis trigrammica Hufnagel. Ab. **eccentrica** ab. nov. (Fig. 7.)

On the forewing the basal, antemedian, and postmedian lines are in their usual positions, but the median line, which is of the same thickness as the others, is displaced outwards and runs parallel and close to the postmedian and lies some distance outside the discoidal spot instead of running through it or just internal to it; the discoidal spot is just visible.

Type ♀ : Gerrard's Cross, Bucks., 1922, taken by Major H. C. Gunton. This is recorded without a description (*Proc. Ent. Soc. Lond.*, 1923, xiv).

Hydraecia fucosa Freyer ssp. *paludis* Tutt. Ab. **virgata** ab. nov.

On the forewing the median area from a point just internal to the orbicular to a point just external to the reniform is completely filled with dark scales forming a broad median band.

Type ♀ : Harwich district, vii.1905, G. F. Mathew. F. J. Hanbury coll. B.M. 1938-683.

Hydraecia micacea Esper. Ab. **diluta** ab. nov.

The ground colour of the forewing is whitish with a faint tinge of yellowish pink, the markings pale with a slight rosy tint; the narrow postmedian and marginal lines are rather darker. The hindwing and abdomen are pale cream colour, with the markings on the hindwing very faint. The thorax is pale rosy brown. This is an albinistic or dilute form.

Type ♂ : Alton, Hants., 10.ix.1949, H. S. and P. J. Robinson. No. 2793.

Paratype ♂ : Tring, Herts., 21.ix.1898. A. T. Goodson. Rothschild coll.

Heliothis maritima ssp. *septentrionalis* Hoffmeyer. Ab. **albida** ab. nov.

The ground colour of the forewing is white; the central dot of the orbicular and the dark central marks of the reniform are present and distinct; all the other dark markings especially the median shade are very pale, but the subapical mark and the dots of the subterminal line are darker; the marginal row of dots is black; the marginal area between the subterminal line and the termen is white. The hindwing is normal. The thorax is pale.

Type ♂ : Loc. incog. (F. Bond, S. Webb, Vauncey Harpur Crewe coll.) Rothschild coll.

Cosmia trapezina Linnaeus. Ab. **postnigra** ab. nov. (Fig. 9.)

That part of the hindwing which is usually brownish or greyish is intensely black, the costal part and the margin are cream coloured. The fringes are pale with a slight rufous tint. The contrast between the pale forewings and the black hindwings is remarkable.

Type ♂: Loc. incog. (E. Cornell coll.) Rothschild coll.

Cosmia trapezina Linnaeus. Ab. **conjuncta** ab. nov.

On the forewing the black dot at the lower end of the reniform is extended as a black line to the lower end of the orbicular.

Type ♀: New Forest, Hants., 1910, P. Haig Thomas. B.M. 1928-485.

Enargia paleacea Esper. Ab. **citrina** ab. nov.

The ground colour of the forewing is pale yellow or straw colour, the markings are normal. The hindwing is yellowish cream colour.

Type ♂: Sandburn, Yorks., 2.ix.1939, A. Smith. Cockayne coll.

Allotype ♀: Sandburn, Yorks., 26.vii.1908, A. Smith. Cockayne coll.

Arenostola pygmina Haworth. Ab. **lutea** ab. nov.

The ground colour of the forewing is clear yellow with no trace of rufous.

Type ♀: Redmires, near Sheffield, 8.ix.1900, E. A. Cockayne.

WESTERMANNIINAE.

Bena fagana Fabricius ssp. *britannica* Warren. Ab. **leucozona** ab. nov. (Fig. 1.)

On the forewing there is a broad white band in the median area bordered on each side by an oblique green line separating it from the first and second oblique white lines; on the distal part of the wing there is more white than usual; in most examples it is entirely white with the exception of two green oblique lines; the basal area is green. All the examples I have seen are females.

Type ♀: Bodmin, 1914, A. Bowen. Rothschild coll.

Paratypes 4 ♀♀: 2 ♀♀, Redhill, Surrey, 1900, T. Grosvenor. (Bright coll.) Rothschild coll.: 1 ♀, Folkestone, 26.iv.1898, S. G. Hills. (Whitehouse coll.) Cockayne coll.: 1 ♀ Loc. incog. (Sale Glendining, 28.ii.1946, lot 188.) Cockayne coll.

Bena fagana Fabricius ssp. *britannica* Warren. Ab. **trilinea** ab. nov. (Fig. 2.)

On the forewing the three oblique white lines are broader than usual and very sharply defined; the ground colour is darker green than usual and the pale shading in the median area and elsewhere is almost entirely absent.

Type ♀: Loc. incog. (H. Vaughan, F. J. Hanbury coll.) Cockayne coll.

Bena fagana Fabricius ssp. *britannica* Warren. Ab. **anargyria** ab. nov.

The silvery white stripes on the forewing are absent in the male and absent or almost absent in the female, being replaced by pale green.

Type ♂: Princes Risborough, bred 2.iv.1924 by E. A. Cockayne.

Allotype ♀ : Princes Risborough, bred 27.iii.1924 by E. A. Cockayne.

Paratypes 2 ♂♂, 2 ♀♀ : 1 ♂, Princes Risborough, bred 24.iii.1924 by E. A. Cockayne: 1 ♂, Tring, Herts., 5.vi.1944, A. L. Goodson. Cockayne coll. 1 ♀, Princes Risborough, bred 27.iii.1924 by E. A. Cockayne: 1 ♀, N. Kent, 1915, L. W. Newman. (Bright coll.) Rothschild coll.

SARROTHRIPINAE.

Sarrothripus revayana Scopoli. Ab. **combinata** ab. nov.

This combines the streaked pattern of *revayana* Scopoli with that of *bifasciana* Donovan with its transverse lines.

Type ♀ : New Forest, 15.vii.1905, Smallpiece. (Bright coll.) Rothschild coll.

Sarrothripus revayana Scopoli. Ab. **conjuncta** ab. nov.

On the forewing a black bar runs from the median black dot (the reniform) to the antemedian line.

Type ♂ : Oxshott, bred 15.vii,1925 by E. A. Cockayne.

Allotype ♀ : New Forest, 1907, E. Morris. (Bright coll.) Rothschild coll.

Paratypes 3 ♀♀ : 1 ♀, New Forest, J. Gulliver. (Bright coll.) Rothschild coll.: 1 ♀, New Forest, 1903. (Gibbs coll.) Rothschild coll.: 1 ♀, New Forest, 1900, P. M. Bright. Rothschild coll.

CATOCALINAE.

Euclidemera mi Clerck. Ab. **costimacula** ab. nov. (Fig. 11.)

On the forewing the basal area is paler than usual; there is a dark mark on the costa, which just encloses the reniform and orbicular, is curved on the distal side, and has a small hook-shaped projection at the proximal end pointing to the inner margin; the subterminal and marginal lines are normal; the rest of the wing is very pale cream colour and contrasts strongly with the dark markings. On the hindwing the basal area is dark grey-brown without the usual light areas of ground colour; a broad band of light ground colour separates it from the black band running parallel with the margin; the black marginal band is normal.

Type ♂ : Mickleham, Surrey, 1878, Carpenter. (F. Bond coll.) R. Adkin coll.

Allotype ♀ : Devon, 1905, J. W. Metcalfe. Cockayne coll.

Catocala nupta Linnaeus. Ab. **nigra** ab. nov. (Fig. 4.)

The forewing and thorax are almost black; on the forewing there are traces of the two light marks near the reniform and of the pale subterminal line. The hindwing is normal. The abdomen is blackish brown.

Type ♂ : near Dartford, Kent, bred 30.viii.1920 by F. Howard Lancum from a wild larva. Recorded *Entomologist*, 1920, **53**: 236.

Catocala (*Mormonia*) *sponsa* Linnaeus. Ab. **postlactea** ab. nov.

The forewings, thorax, and abdomen lack the brown tone of normal *sponsa*. On the hindwings the usual purplish red is replaced by white

with a creamy tint in the basal area. The ground colour of the underside of the hindwings is cream coloured.

Type ♂: New Forest, 1881. (Coverdale, Tutt, Vauncey Harpur Crewe coll.) Rothschild coll.

PANTHEINAE.

Colocasia coryli Linnaeus. Ab. **deleta** ab. nov.

The whole of the median area of the forewing is cream coloured without any markings except a thin dark line round the orbicular and a dark dot inside it, a dark line on the proximal side of the reniform and another inside the reniform; the basal, antemedian, and postmedian lines are absent; the basal area is light brown and the outer part of the wing is uniformly pale brownish-grey with the subterminal line slightly darker. The hindwing is light greyish brown on the inner margin and border, and paler elsewhere.

Type ♀: New Forest, 1921, B. W. Adkin. Cockayne coll.

PLUSIINAE.

Plusia festucae Linnaeus. Ab. **ignita** ab. nov.

The usual brown markings are rich red-brown and the pale markings are bright reddish orange; the thorax is reddish orange and the abdomen is rosy red at the sides and on the anal end. The antennae and legs are bright reddish orange. On the underside the costa of the forewing is bright reddish orange, the hindwing and abdomen are a lighter shade of the same colour. The aberration is a more brilliant and fiery red than any other I have seen.

Type ♂: Rannoch, bred 3.vii.1908, by L. A. E. Sabine.

Paratype ♂: Rannoch, bred 2.vii.1908 by L. A. E. Sabine. Rothschild coll.

Plusia pulchrina Haworth. Ab. **gloriosa** ab. nov.

On the forewing there is a large wedge-shaped golden patch beginning at the antemedian line as a narrow streak and widening gradually and becoming less defined when it reaches the postmedian line; there is a golden line along the subcostal and another along the median nervure, and two diffuse golden streaks, one between nervures 4 and 5 and another between 5 and 6; there is a golden line along the edge of the subterminal line and an area of diffuse pale rosy colour outside it.

Type ♂: Sheepscombe, Gloucester, 21.vi.1919, captured by G. C. Clutterbuck. Rothschild coll. Recorded and figured *Entomologist*, 1920, **53**: 1, text fig.

Plusia pulchrina Haworth. Ab. **denudata** ab. nov. (Fig. 8.)

The area between nervures 1 and 3 on the forewing from the antemedian to the postmedian line is almost symmetrically devoid of scales except those of the golden marks, which remain intact; the proximal and distal sides of the reniform are golden and there are scattered golden scales along the external aspect of the subterminal line. The underside is normal.

Type ♂: Rodborough, Glos., 1.vii.1919, L. Lacey. B.M. 1933-66. Recorded without description *Proc. Ent. Soc. Lond.*, 1922, xciv.

It seems almost certain that such a symmetrical deficiency of scales with the golden marks remaining perfect and with other abnormalities of pattern must be genetic.

Plusia gamma Linnaeus. Ab. **alba** ab. nov.

All parts of the moth are white, the forewing slightly tinged with cream and the markings pale greyish; the thorax has pale brownish grey markings.

Type ♂: Salcombe, S. Devon, viii.1931, H. B. D. Kettlewell.

The specimen is much worn and damaged, having been kept for eggs under the mistaken impression that it was a female.

A similar example from Silesia is figured by Culot, *Noct. et Geom.*, **2**. Pl. 71, fig. 17.

Episema caeruleocephala Linnaeus. Ab. **funesta** ab. nov.

The usually conspicuous stigmata on the forewing are the same colour as the rest of the wing and therefore invisible.

Type ♀: Brighton. (Stevens sale, 27.iii.1900). Christy coll.

Paratype ♀: same data.

One of these is figured by Barrett, Pl. 115, fig. 2c, but the marginal area is too pale and too blue as in the normal examples on the same plate. The aberration is more uniformly dark than ab. *capnodes* Dannehl (*Ent. Z.*, 1925, **39**: 152.)

Ophiderinae.

Lygephila pastinum Treitschke. Ab. **obscura** ab. nov.

The ground colour of the forewing is much darker than normal and is almost the same colour as the subterminal band, which is also unusually dark. The hindwing is slighty darker than usual.

Type ♂: Penarth, 1904, C. W. Williams. Cockayne coll.

Acontia luctuosa Schiffermüller. Ab. **reducta** ab. nov.

On the forewing the white central spot is much reduced in size and separated from the costa; on the hindwing the white areas are reduced in size.

Type ♂: Northfleet, vi.1867. Rothschild coll.

Hypeninae.

Zanclognatha tarsipennalis Treitschke. Ab. **paradoxa** ab. nov.

The areas on the forewing between the basal and antemedian lines and between the postmedian line and the termen are considerably darker than the median area. The outer half of the hindwing from the postmedian line to the margin is darkened.

Type ♂: Torquay, S. Devon, 2.viii.1922, J. W. Metcalfe. Cockayne coll.

Zanclognatha grisealis Schiffermüller. Ab. **approximata** ab. nov.

The postmedian (second) line is displaced towards the antemedian and united to it along the costa. The postmedian line touches the discoidal spot instead of running some distance external to it. All the lines are thicker than usual and are of the same thickness.

Type ♀: Wye, Kent, 4.vi.1910, Percy Richards. Rothschild coll. Recorded with text figure *Entomologist*, 1911, **44**: 1.

Collecting in British Guiana

By J. P. Shaw.

British Guiana lies between the Equator and Lat. 8° N. The climate is therefore tropical, with wet and dry seasons, but the heat is not excessive, the shade temperature keeping between 70° and 90° all the year round; humidity, however, is very great.

The country is divided into three regions: the coastal plain, up to 20 miles in depth, and in parts below sea-level; a belt of forest over 100 miles in width traversing the country from east to west; and the interior, consisting of the Savannahs, open grass-land with ranges of hills. These regions have, to a large extent, their own typical flora and fauna.

Travelling is difficult, although since the advent of the aeroplane many isolated places can be reached easily. A road and railway follow the coast line; the only other road is that leading from Bartica, 40 miles up the Essequibo river, to Potaro. This runs for over 100 miles through the forest, not a comfortable journey as owing to the sandy soil and heavy rains the surface is far from good; only lorries can be used, a good average speed being 12 m.p.h. The only hotels, except those at Bartica, are near the coast, and travellers have to carry their own food and bedding.

The most complete entomological collection, in the Georgetown Museum, was destroyed by fire in 1945. There is a smaller collection in the Department of Agriculture, and I saw two private ones; apart from a very few enthusiasts, little interest is taken in Entomology.

The first thing that strikes the visitor is the apparent scarcity of butterflies. The number of really common species is quite few; among them may be mentioned *Danais archippus*, *Anartia jatrophae*, *Pieris monuste*, and *Catopsilia eubule*, *philea* and *statira*. *Morpho menelaus* can be seen in large numbers at the proper place and time, but, as in the case of *M. achilles*, a few specimens are to be seen at any time of year. The other species of *Morpho* are *perseus*, *hecuba*, *deidamia*, *adonis* and *rhetenor*. I saw only one *hecuba*, flying at a height of at least 30 ft.; *adonis*, which has a beautiful pink and pale blue iridescence, is not uncommon, but flies at about 12 ft. Other less common species, although often seen, are *Dione vanillae*, *Precis lavinia*, *Colaenis julia*, *Metamorpho dido*, several species of *Heliconius*, and *Papilio polydamas*, *thoas* and *anchisiades*. Along the forest paths some of the 30 native species of *Euptychia* may be seen, and *Pierella dracontis*, flitting a few inches above the ground: *Bia actorion* is conspicuous owing to its purple sheen. Hesperiids are common, well over 200 species having been recorded; there are blue and white varieties, and many have tails. Only three "blues" occur; one of them, *Hemiargus hanno*, is common. *Thecla*, however, contributes over 60 species, some of them much larger than the British hairstreaks, and very beautiful. Brassolids often fly into lighted houses at dusk.

This is a short list, when it is realised that over 800 species of butterfly have been found in the colony, and that many more are probably still to be discovered. Nearly a quarter of these are Erycinidae, but

apart from a few species, such as *nymphidia*, very few of them are to be seen: the beautiful little *Helicopis cupido* is perhaps the commonest. The others are so rare and widely scattered that it is difficult to understand how they survive, or how so many species have evolved.

Practically nothing is known about their life history. In fact, larvae of any kind are difficult to find. In the forest, walking except on the paths is impossible, so that very little of the enormous quantity of vegetation can be explored. The common Pieridae can often be seen ovipositing on Cassia bushes, and their larvae can be picked up. I saw a female *Colaenis* laying a batch of eggs on *Passiflora*; my attention was called to her by the behaviour of the male, who was fluttering round her. Is this a habit of any British species? *Papilio anchisiades* can often be seen laying: the female seems to lay single eggs on all kinds of leaves. I collected some and reared them on a small shrub whose name I could not discover. In Georgetown, however, the larvae feed gregariouly on Citrus, which does not grow in the forest. Incidentally, naming plants is a great difficulty, especially herbs and other low-growing species of no commercial value. As there are at least 200 Orders alone, the services of an expert botanist are required. An occasional Heliconid larva can be found: considering the number of spiders and other predaceous insects, mortality among young larvae must be heavy. I saw only one *Morpho* larva, which was given to me; fortunately, it was full-fed, as I had no food-plant for it. The chrysalis, very small for the size of the butterfly, died for no apparent reason.

The number of species of moths must run into many thousands. The most obvious one, since it flies in the daytime, is *Urania leilus*, a common species at certain times of year. A number of moths come to light, though not as many as might be expected, among them some very beautiful Micros. Saturniids and Sphingids are not uncommon, and ova can easily be obtained from captured females without any difficulty. This, as regards the Saturniids at any rate, is usually the end of the story, as it is very often impossible to find a food-plant which they will eat. *Rosaceae*, the commonest food-plants in Europe, do not occur in the tropics; the garden rose has been introduced, but its leaves do not seem to be acceptable. I was given some cocoons of *Dirphia tarquinia*, collected in the interior; this is a handsome moth, showing marked sexual dimorphism. Pairing was easy, and several hundred ova were obtained, but the larvae refused every kind of leaf offered to them, and all died. Probably their food-plant does not grow in Georgetown. One of the commonest Sphingids is *Pseudosphinx tetrio*, which feeds on Frangipanni; the black, red and orange colours of the larvae and their whip-like " tails " are very conspicuous. Several species of *Xylophanes* were found feeding on *Palicourea*; they somewhat resemble our Chaerocampid larvae. The imagines are rather small, and not very attractive.

There are of course some very large moths, such as *Protoparce*, *Cocytius* and *Pholus* among the Sphingids. I caught a very battered specimen of *Amphimoea walkeri*, which is said to be uncommon. *Rhecyntis*, *Arsenura* and *Dysdaemonia* are among the larger Saturniids which may be not uncommonly met with. There are a great many species of *Automeris*, not always easy to identify when in worn condition, as they

often are. Several specimens of the very large Noctuid *Thysania agrippina* were seen, and the smaller *Erebus agarista* is quite common, together with a similar blackish variety, presumably also an *Erebus*.

As may be gathered from these rather disjointed notes, British Guiana is not a collectors' paradise. There is much hard work to be done, and disappointments are frequent. However, I much enjoyed my visit; anyone who could afford to spend about 30 years there would probably increase very considerably our knowledge of the local Lepidoptera.

Scarcity and Abundance of Insects in Southern Latium in 1950

By Orazio Querci.

In 1946 we came to live at Formia where we had already collected several times many years ago. A large number of insects were on the wing in the fields, and almost every night some moth or other came to the light of our diningroom. In 1947 Lepidoptera became scarce; however, other insects were so plentiful that we were able to set more than 6,000 Diptera and Hymenoptera taken between March and November. In 1948 and 1949 insects of almost every Order were apparently absent. We supposed that this dearth might have been caused by the invasion of the Argentine ant and by the excessive use of D.D.T. powder, which was being sprinkled everywhere round about country villas and carried far and wide by the wind. So we decided to go and collect in some place where the ant had not yet arrived and where D.D.T. was not used.

Accordingly in June 1950 (as I have related in a paper printed in the *Boll. Labor. Entom. Agrar. Portici*, vol. x, pp. 108-130), my wife and I, although we are nearly 80 years of age, went to collect in the beautiful valley of the Mollarino river, at an altitude of about 1,500 ft. in the Meta massif, where we had collected occasionally when we were young. We put up at a small hotel and stayed there until the middle of August. In former years there were often rain storms in that area during the summer, so that the ground almost always remained moist. In 1950, however, there were torrential rains in the Spring and no more rain until the autumn. The following remarks about the relative abundance and scarcity of insects are taken from my paper above-mentioned.

Zygaenidae. We took several males of *achilleae* Esp. and very few females. No specimen of *oxytropis* B. was seen although in past years it had been on the wing with *achilleae*. Both *filipendulae* L. and *carniolica* Scop. were much scarcer than in other years; *transalpina* Esp. was less frequent and had a longer flight period. Formerly specimens of this species had always been so small and frail that Lord Rothschild and Mr. Bethune-Baker (*Proc. Ent. Soc. London*, xlviii-liii, t. A-D, 1920) thought they might belong to a new species; in 1950 however they were much larger and both the yellow forms (*xanthographa* Germ.) and orange forms (*aurantiaca* Trti.) were less rare.

Hesperiidae. In past years we had found plenty of *armoricus* Ob. in a meadow close to the Mollarino river. In the Spring of 1950 this meadow was overwhelmed by alluvion and no specimen was seen. On the other hand *morpheus* Pall., of which we had once taken a single specimen, was common in June 1950.

Lycaenidae. In August we took one pair of *thersamon* Esp., a species which we had not previously seen in that area. *L. pirithous* L. (=*telicanus* Lang), *boeticus* L., *argiades* Pall., *alcetas* Hoffgg. and *arion* L., which had always been rare, were abundant in 1950. Other species, for example *alexis* Poda (=*cyllarus* Rott.), *thersites* Cant., *escheri* Hb. and *ilicis* Esp., of which we had previously taken many specimens every year, were virtually absent. Still more striking was the great scarcity, in 1950, of *bellargus* Rott. and *coridon* Poda which we had previously seen on the wing in thousands every time we had collected in the Mollarino valleys.

Pieridae. All very scarce except *napi* L. However, we took a few *mannii* Mayer and *ergane* Geyer, which are new to that district.

Nymphalidae. All very scarce, notably *didyma* Esp. which used to be plentiful.

Satyridae. Very scarce, even *galathea* L. which was always abundant.

Other Orders. An immense number of " domestic flies " and some *Odonata* along the streams; all other Orders practically absent. In spite of the bright lights of our hotel we saw only two moths.

This year we have been collecting daily here at Formia on the slopes of the Aurunci mountains. Next November, when insects have ceased to emerge, I will tell you what we have seen and taken.

Formia, 15.vii.1951.

Current Notes

THE prevailing scarcity of Lepidoptera to which our pages have testified recently is not confined to Great Britain. Friends on the Continent report a similar state of affairs from Denmark to Spain. This decrement was particularly noticeable during the first part of the season, especially among the butterflies; but the early spring moths also were chiefly " conspicuous by their absence." In our own district *Erannis leucophaearia* and *Theria rupicapraria* did not appear at all on fences which in previous years have yielded them in plenty. It has been the same in Denmark. " Here too the season has been a very bad one," writes DR. SKAT HOFFMEYER from Jutland. " Of *aescularia* I saw only a few, all of them males." So also in Germany, whence HR. G. HESSELBARTH of Hannover reports: " In the spring there was the same remarkable scarcity of Lepidoptera as in England. I did not find any of the species which I have met with regularly in previous years, e.g. *H. leucophaearia*, *H. marginaria*, *P. pedaria*, *B. hispidarius* and *B. stratarius*. It was the same with the Taeniocampids."

As for the spring butterflies, " The experience of the Dutch lepidopterists fully agrees with that of their confreres in England," writes our friend MHR. B. J. LEMPKE from Amsterdam. " Only *Pieris rapae* and *P. brassicae* were present in fair numbers at the end of May and beginning of June, possibly descendants of the great swarms which were observed here in 1950. *Aglais urticae* has hardly shown itself, and up to the present I have heard of only two *Vanessa atalanta*!" Conditions have been no better in the extreme south-west of France. " Our weather has been so rainy since 17th October last that I wonder

there are any butterflies left!" reports MRS. V. M. MUSPRATT from St. Jean-de-Luz. " Our commonest, *Colias croceus*, is here but in far fewer numbers than usual; also it turned up very late this year. *Lampides boeticus* has so far not arrived at all, in fact the country seems deserted."

In general, our correspondents attribute this scarcity of Lepidoptera to weather. In Italy, writes DR. ROGER VERITY, " there was an extraordinary scarcity of butterflies during 1949 and 1950, to such an extent that in many places some species vanished. It was attributed to the very exceptional drought of those two years from March to October (not a drop of rain). This year they have increased a bit, but not the Lycaenidae and Anthoceridae, evidently because these feed on delicate leguminous plants, which have not yet recovered from the abnormal conditions." We print a Note from the Naples district by SIG. ORAZIO QUERCI at another page.

Not the drought but the abnormally wet winter of 1950/1 is held by other correspondents to have been the cause of the scarcity. It was " owing to the very bad weather," says HR. HESSELBARTH, that " even the commonest hibernators—*rhamni*, *urticae*, *io*—were rarely seen on the wing . . . the first generation of the Pieridae was scarce too, and *Euchloe cardamines* was not nearly so common as in normal years. Of *Papilio machaon* I saw only one specimen. On the other hand a number of species appeared in their usual numbers—*M. aurinia* and *cinxia*, *E. jurtina*, *A. hyperantus*, *C. tullia philoxenus*, *C. rubi*, *C. argiolus*, *A. sylvanus* . . . A friend in Switzerland tells me that he has never known such a scarcity of Rhopalocera, and a Spanish friend writes that in spring most of the common butterflies were very scarce or nearly absent . . . In my opinion the scarcity of Lepidoptera is general in Europe in all districts which have had bad weather. In alpine regions the long and heavy snowfalls will have destroyed many larvae and pupae." Yet in England the experience of all of us is that a severe winter, with much snow and long-continued frosts, always presages a good year for Lepidoptera! It is the wet that kills, not the cold.

Notes on Life-Histories, etc.

Between the flagstones of our garden path there is a minute plant, a seedling of the common Crucifer *Sisymbrium officinale* (L.) Scop. which has escaped the gardener's hoe. It is half an inch high and has a spread of exactly one inch. This morning, 3rd August, while walking near it a *Pieris napi* L. flew past, about two feet above the ground. After she had passed the plant she turned and flew down to it. She walked over it once or twice, then curved her abdomen and laid an egg on the underside of the largest of its three very small leaves. The scent of the Cruciferae is perhaps stronger—to us humans—than that given off by most other Families; but that so small a plant could attract a butterfly flying past two feet above it—and there was a wind blowing—suggests a delicacy of chemotropic perception quite outside our ken.

Some years ago when tramping over a bleak moorland 1,300 feet above sea-level a small black Geometer (*Odezia atrata* L.) flew out of a

little patch of three or four Umbelliferous plants (*Conopodium denudatum* Koch) growing in the shelter of a stone wall. As the moth was netted for identification two more specimens flew up from the patch and, whirled upwards by the strong wind which sweeps perpetually over those hills, were quickly carried out of sight. *Conopodium* and two species of Chervil which were never seen during four years' acquaintance with those moors are the only recorded foodplants of this insect, and although *Conopodium* occurs occasionally on the lower ground in that district this was the only time it was found growing on that open windswept moor. It is in fact a plant of woods and pastures. The moth netted was a female: had she flown above the coping-stone of the wall she would instantly have been whirled up and carried away by a wind which she could never have stemmed.

How did this colony of *O. atrata* come to be there? Plainly a wandering female must have found the little patch of plants and laid eggs. But where did she come from and how did she find the patch? Was it by blind chance that she was blown across the only patch for miles—and a small one at that, that she scented it, managed to get down to the ground and the shelter of herbage perhaps a hundred yards and more after she had passed it, then in a lull, possibly after a good many hours, smelt the plants and made her way to them, fluttering and crawling across the herbage? If so, the odds against her must have been prodigious. And what of the two which were whirled up out of sight: had either of them any chance at all of reproducing their species?

Every field lepidopterist has come across problems of this kind at some time or other, and even if we grant that the incidence of all moths is very much greater, and their range very much wider, than we imagine, the problem still remains. Many experiments have been made on the distance at which a questing male can become cognizant of a 'calling' female's scent; but so far as we are aware no one has yet experimented similarly with freshly fertilized females and their larval foodplants. What is the maximum distance from which a female *Pieris napi* can 'smell' a Cruciferous plant? It should not be very difficult to test this. Perhaps the results of such experiments would astonish us; certainly they would be of considerable interest biologically and of not a little importance to Economic Entomology. We should welcome observations by our readers on this matter.

Field Notes

Has anybody ever seen or caught a female *Lymantria monacha* L. on the wing? We have bred this moth on several occasions—from eggs laid by females found at rest on boles (oak in every case)—and even in the largest of cages the females never seem to use their wings. At early dusk they crawl about lazily, and when once darkness has set in they do not appear to move again until the following evening; for in the morning they are found in the same position which they occupied when night fell. Sometimes, when about to oviposit, they will crawl on to a piece of bark at sunset, while the sun is still above the horizon, and with wings pressed flat to the bark and slightly parted, insert the ovipositor into a chink and lay eggs in masses. This operation seems

to last all night, for the moth is usually found in exactly the same position next morning. One result of this sluggishness is that the moth remains virtually in ' cabinet condition ' until she dies. We should like to hear the experiences of other lepidopterists with this species.

If this sluggishness of the ♀ *L. monacha* is habitual it would account for the fact that in one locality known to us the moths, and of course larvae, occur only on a group of five ancient oaks, though young oaks in plenty grow all round about. Presumably on emergence the female crawls only a foot or two above its cocoon (we usually find the moth at rest from five to seven feet above the ground) and there awaits fertilization. When this is accomplished she crawls perhaps a little higher and oviposits in a chink on the bole of her native tree, never using her wings at all. So her race may have inhabited the same tree, year after year, for perhaps several centuries. Against this suggestion is the fact that larvae of *L. monacha* have been found on birch, and birch is a short-lived tree: it attains maturity in 40-50 years; after that, decay is rapid. So it is plain that the female *L. monacha* must use its wings sometimes. What are the conditions which cause it to fly? The bark of a decaying birch has even more delectable crannies for a long ovipositor than the bark of a young one!

How difficult it is to find an occupied cocoon of *L. monacha* and how easy when once the moth has emerged! The full-grown larva in a deep cranny on the trunk of an old oak, perhaps only a couple of feet from the ground (always, in our experience, on the north or north-north-east side) is difficult enough to spot in all conscience. But if the exact site be marked and a visit paid next day when the larva is covered by its cocoon it seems impossible that the larva could still be there. Indeed, on more than one occasion when we have done this, gentle prodding with a match-stick has been necessary before we were *quite* convinced that the bottom of the marked cranny really was in fact the top of a cocoon! *Griposia aprilina* L. resting by day in a similar position on a similar tree is, for all its procrypsis, as plain as a pikestaff—to the lepidopterist; but *L. monacha* in its cocooning berth is as ' difficult ' as any larva with which we are acquainted.

The larvae of certain species which rest by day pressed closely to a branch are usually not difficult to the practised field lepidopterist. We have all of us found *Campaea margaritata* L.—which varies its colour according to the bark of its foodplant—and occasionally, in September, a young Lappet (which is much more difficult); for no man can lawfully call himself a field lepidopterist until he can find any procryptic larva that rests within reach of his hands. With us it is a matter of *amour propre*: we refuse to be defeated by procrypsis. But a year or two ago we were well and truly beaten, and by so common a species as *Allophyes oxyacanthae* L. too.

The usual mud-coloured form of this larva is of course as easy as can be. But one day, when a beating-tray was taken to collect *Cirrhia gilvago* Schf. in quantity from elm seeds, we chanced to smite, in passing, a branch of an ancient hawthorn which was thickly coated with lichen. Into the tray fell a full-grown larva of *M. oxyacanthae* such as we had never seen before: a bright silver from head to tail.

That of course was a direct challenge: next day was spent in searching lichen-clad hawthorns. But not one single larva did we find; yet every bush scrutinized, branch by branch, twig by twig, afterwards yielded silver *oxyacanthae* to the beating-stick. We were indeed well and truly defeated. But, then, larvae which adopt lichen as the basis of their protective colouring are notoriously difficult, witness *Cleorodes lichenaria* Hufn. and a not uncommon form of *Gonodontis bidentata* Cl.

In these Notes last June (page 112) we referred to *Isturgia limbaria* Fab. There is a detailed account of the history of this species in England by E. W. Platten in the *Trans. Suffolk Nat. Soc.*, 1932, vol, 2, pt. 1, pp. 5-10. Platten asserted that all the Suffolk localities were along the Gipping valley with one exception, Raydon Wood, where it was reported to have been taken in 1851, which was almost certainly erroneous. According to Platten the broom on the Creeting hills was flourishing in 1932, and as the area was then strictly preserved he thought *limbaria* might linger there still; but he was unable to find the moth after 1903. A good account of its habits are given. There is a further and very interesting account of *limbaria* by C. G. Nurse in the *Ent. mon. Mag.*, 1933, **69**: 33, which describes Percy Reid's discovery of a number of worn specimens in 1911 in a locality which he kept secret. Reid sleeved females on broom and obtained eggs Nurse had some of the larvae which resulted and bred one moth in 1911, others in 1912 and had some pupae lying over in 1914. Reid got his clue to the locality from a schoolboy.

Notes and Observations

The Larva of Selidosema brunnearia de Villers (ericetaria de Villers).—Some years ago I decided to try to find the larva of *Selidosema brunnearia*. The first thing to do was to find out the correct date, and none of my books gave me any help. Porritt bred the larva from the egg, and I could not rely on his date being right for wild larvae. South says it feeds on ling from September well on into the following spring, and Barrett gives September to April. In the end I had to guess the date and chose the first week in June.

The next thing was to decide on the locality. I had taken the moth in the New Forest, but only in small numbers and could not remember the exact place. Mr. A. H. Sperring then told me that it was common on Hayling Island and that there was a very circumscribed patch of heather, on which the larvae must be very abundant, if that was the only food-plant, but he said he had taken the moth a long way from the heather. I did not attach enough importance to this remark. He kindly invited me for a week-end and said he would lead me to the place. On 6th June 1930, which was a warm and favourable night, he took me to the patch of heather and we searched it thoroughly without seeing a single larva. As we were leaving the heather I saw a few bushes of broom and the light of my lamp shone on a large pale geometer larva feeding high up on one of them. I found three or four more on the other brooms and decided that they were too pale to be *brunnearia* and must be larvae of *Ortholitha chenopodiata*, a larva which I had not yet seen.

After this disappointment we decided to look for larvae of *Lasiocampa trifolii*, which Mr. Sperring wanted, and walked towards the golf course. On the way I found some more of the pale geometer larvae feeding on restharrow, *Ononis arvensis*. Soon after this we began to find larvae of *trifolii* resting on the long grass and with them were large numbers of the larvae of the pale geometer, most of them feeding on an unidentified species of *Trifolium* with oval flower heads There were also a few on the grass, but apparently not feeding on it. Finding them so abundant, I was more than ever convinced that they were larvae of *Ortholitha chenopodiata*.

As none of the food plants were obtainable in central London I gathered a bunch of *Trifolium* and took only 23 larvae of the geometer, some of which I blew and gave others to the late Mr. Worsley-Wood. The larvae I kept went down into the earth within a week and I could have managed many more. To my surprise and delight a male *Selidosema brunnearia* emerged on 5th August and was followed by others of both sexes, the last emerging on 25th August. So I had been successful after all.

My larvae varied a little, but they were all paler and not so grey as the figure given by Buckler, and, though the markings agreed with Porritt's description and with the figure, they were much less distinct. The two narrow black dorsal lines running close together are the most characteristic and are not present in the larva of *chenopodiata*.—E. A. Cockayne, 8 High Street, Tring.

Effect of ' Crowding ' on the Colouration of Larvae.—With reference to the Note under the above heading (*Ent. Rec.*, **63**: 88) I would refer you to three Notes of mine on this subject published in *The Entomologist* (1944, **77**: 79; 1945, **78**: 117; 1946, **79**: 221). I have found that a number of species produce a dark larval form when overcrowded. In this connection I would record that the only green adult larva of *Herse convolvuli* L. that I have ever bred was reared as a singleton. I have for a long time intended to experiment with this species, but I have always failed to obtain ova from my females.

I have now secured a large batch of ova from a female of *Celerio lineata* L. (*livornica* Esp.) which I intend to rear partly in batches and partly as singletons and it will be interesting to see how the green and dark forms are distributed.—D. G. Sevastopulo, Box 401, Kampala, Uganda, 3.vii.1951.

Larvae Resting by Night on Grass-stems.—With respect to Dr. Cockayne's note on a larval habit of *Orthosia gracilis* and *Xylena vetusta* in the July-August issue (page 142) I have noticed a similar resting habit in many species of night-feeding larvae. When searching hedge banks in May, with a torch an hour before dawn, larvae of many species of Noctuae and of the common grass-eating butterflies can often be seen resting high up on the grass-stems. This is especially noticeable after rain. I think it is the usual habit of night-feeding Noctuid larvae to digest their food in the position Dr. Cockayne describes; but I cannot suggest a reason for it, unless it be that on certain nights the temperature of the air may be a degree higher a foot above the ground, and of course warmth speeds up metabolism. Possibly condensation may also

be concerned: by remaining above the herbage the larva prevents himself—and his spiracles—from becoming covered with a film of water.—P. B. M. ALLAN, 4 Windhill, Bishop's Stortford, Herts.

IMMIGRATION OF PIERIDAE INTO NORFOLK.—On 17th June 1951 I witnessed an immigration of *Pieris brassicae* L. and *P. rapae* L. at Mundesley-on-Sea, Norfolk. The flight, which was in the proportion of 3 *P. brassicae* to 1 *P. rapae*, was observed over an area 200 yards wide only, but possibly it extended further. The direction of the flight was from N.E. to S.W. Rate, 4 per minute. Wind, S.W. moderate. The weather was sunny and warm; there was no cloud. The time during which this flight was observed was from 10.30 a.m. only to 12.0 noon; but no doubt it continued longer. On the previous evening (16th June) at 5.30 p.m. I had noticed a few specimens of *P. napi* lying dead at the water's edge; but none of this species was identified on the 17th.—P. G. BAKER, Lawn End, Grange Court Road, Harpenden, Herts.

ACASIS VIRETATA HUB. NEAR BIRMINGHAM.—With respect to the Note on *Acasis* (*Lobophora*) *viretata* Hb. at page 138 of the July-August issue this species occurs consistently among the many holly plantations at Sutton Park near Birmingham. I agree that it is a very lovely insect when newly emerged. As for experiences as to foodplants, I have bred it several times; the larvae take to privet and feed up well on it, although the natural foodplant at Sutton Park is holly, there being no privet in the area as far as I am aware.—G. B. MANLY, 72 Tenbury Road, Birmingham 14.

CUCULLIA VERBASCI L. AT BIRMINGHAM.—For several years I grew cultivated varieties of *Verbascum* in my garden. One year I noticed that the flowers were being chewed up. The culprits were *C. verbasci* larvae, a dozen of them. There are no *Verbascum thapsus* in the district. My plants were of branching habit and grew to a height of 6 ft. or over. *C. verbasci* were not exactly welcome visitors, although some of them helped to fill blanks in my collection.—G. B. MANLY, 72 Tenbury Road, Birmingham 14.

CELLULOID CAGES AND CAMPHOR FUMES.—It was interesting to read Mr. Allan's note on this subject (page 145). As is doubtless well known, camphor is widely used as a ' plasticizer ' in cellulose plastics such as cellulose nitrate and cellulose acetate. One of the drawbacks of ' talc ' is the tendency for camphor to evaporate, which leads to brittleness and cracking of the material.

I invariably use celluloid cylinders in my breeding cages. Although the smell is quite noticeable on a hot day I have, so far, had no trouble with breeding either *Euphydryas aurinia* or *Melitaea cinxia*. I have only once bred *athalia* and, at that time, I was not using celluloid cylinders.—MAJOR W. A. C. CARTER, R.A., Briarfields, Sandels Way, Beaconsfield, Bucks.

KILLING AGENTS.—A short while ago I read a paper about the Rothampstead Light Trap. As I understood it, the killing agent used was ' Trilene ' (Trichlorethylene). Apart from its safety compared with Potassium cyanide, it was suggested that it left the insects in excellent condition for setting.

Lured by the thought of doing away with relaxing, I tried it. I found the exact reverse to be true. I had the utmost difficulty in setting butterflies killed by this means even though they were transferred from the killing jar to a relaxing tin. There was a marked tendency for the insects to become 'wet.' I cannot be sure that wing colouration was affected, but the eyes of such insects as *Pieris rapae*, *P. napi* and *Anthocharis cardamines* became a bright reddish brown. Since then I have gone back to cyanide.

Perhaps my method was wrong. I had an ordinary glass jar with a screw lid. The bottom was covered to a depth of ¾ in. or so with plaster of paris and a small quantity of trilene was allowed to soak into the plaster. Any surplus trilene was drained off and I made very sure that there was no free liquid in the jar. Perhaps someone would be kind enough to advise me.—Major W. A. C. Carter, R.A., Briarfields, Sandels Way, Beaconsfield, Bucks.

Pupating Site of Argynnis paphia L.—With reference to Mr. A. L. Goodson's question regarding the pupating site of *A. paphia* I think there is no doubt that the larva usually pupates in shrubs and trees rather than on low herbage. In the years 1904 to 1913 I generally spent my summer holiday fortnight in the New Forest, and on dull days I did a lot of 'beating'. Many times when beating honeysuckle for *Limenitis camilla* L. I obtained *A. paphia* and very often dislodged the larvae and pupae from oak, blackthorn, whitethorn, etc.

I was in the New Forest in June 1922 and in Stubby Enclosure saw *A. cydippe* emerging. There was such a large number of them that one could see them crawling up the low herbage to dry their wings. There were few bushes where the violets grew and I did not look to see whether the *cydippe* had pupated there also. I would, however, consider it probable that *A. cydippe* and *aglaia* whose larvae feed outside woods would generally pupate among low plants but that if they came across a bush when travelling prior to pupation it is more than likely they would pupate in the bush.—Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford, 24.vii.1951.

Pupating Site of Argynnis paphia L.—With reference to Mr. A. L. Goodson's interesting Note on page 141 I would like to say that I have twice found the pupa of *paphia* and in both cases it was fairly high up. The first, near Canterbury in 1938, was suspended from the twig of a hazel growing on the edge of a woodland cart-track. This pupa was about 5 ft. from the ground. I came across the other in some woods near Ashford, Kent, in 1949. This one was much more conspicuous, being suspended from the top of a 3-4 ft. wire mesh fence enclosing a clearing. At Ham Street in 1949 I found a moribund larva of *paphia* which had been about to pupate. It was lying on a cement path and I can only suppose it had fallen from the underside of a ledge situated several feet above.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent, 12.vii.1951.

Scarcity of Triphaena pronuba L.—In a normal season, or even in a bad season, the sugarer expects to have to put up with a crop of *pronuba*. In my district the season of 1950 was a very poor one for sugaring; but *pronuba* still dominated the field. It appeared first in June,

continued through July and August, and when towards the end of September I gave up sugaring for the season in disgust *pronuba* in varying stages of senility remained faithful.

The present season has so far been a welcome change, and whilst moths have been responding to my artificial nectar in satisfactory numbers *pronuba* has been strangely absent. During June and July there have been a number of good nights. On one occasion I was so delighted by the appearance of several *derasa* that I could not resist a little wishful thinking on the following evening. The conditions I knew were wrong, and as the last tree was given its quota of sugar I remembered Allan's words (*A Moth-Hunter's Gossip*, p. 112) and said to myself, "You will get one *pronuba*, one *impura*, and one *oculea*." I nearly brought it off, too. I got one *impura*, one *oculea*, and one *monoglypha*. *Pronuba* let me down. . . .

The night of 23rd July was the kind of night that comes along but seldom. Moths came in their legions, *monoglypha* and *strigilis*, *nebulosa* and *exclamationis*, the latter worn but hungry. The more timid species were pushed and hustled, and hovered around like wasps at a school picnic. *Derasa* gave good sport, but I have yet to master the knack of netting her (I wanted a female) from the sugar. A worn female *batis* was easier, but she died shortly after without leaving any eggs as souvenirs. It was almost a shock to find on one patch a brace of *pronuba*, very fresh and very greedy. At the final round, when most of the visitors had crawled up the trunks or fallen off, they were still gorging.

These two *pronuba* are my only records for the season to date, 5th August. Is the species generally scarce and in small numbers this season, or have I found a sugarer's paradise from which *pronuba* has been warned off?—T. D. Fearnehough, 13 Salisbury Road, Dronfield, Derbyshire, 5.viii.51.

An Aberration of Maniola jurtina L.—A very fine aberration of the Meadow Brown was seen at Dronfield on 4th August last. The specimen was conspicuous and attracted my attention when some thirty yards away. I got near enough to examine it well, but had no net with me, and a borrowed hat proved ineffective. The specimen, a female, had both hindwings pure white. The forewings in contrast were of the normal brown colouration except for some whitish streaks near the tips. —T. D. Fearnehough, 13 Salisbury Road, Dronfield, Derbyshire.

Leptidia sinapis L. ab. ganerew Frohawk in Northants.—While collecting in one of the larger Northamptonshire woods on 1st July last Mrs. Byers netted a specimen of this aberration. In this form the black apical patch on the forewings, and markings on the undersides of the hindwings, are replaced by buff. It is figured on Plate 8 (fig. 16) of Frohawk's *Nat. Hist. of British Butterflies*, Vol. I.—F. W. Byers, 59 Gurney Court Road, St. Albans, Herts.

[The name of this aberration may have been an inadvertent one. The specimen which Frohawk described appears to have been taken at Ganerew near Monmouth. When describing it, Frohawk probably left a blank for the aberrational name, upon which he had not yet decided, and then added "Ganerew" as the locality. The blank was never filled in, and thus the name of the locality was printed as the name of the aberration!—Ed.]

COLIAS CROCEUS FOURC. IN BUCKINGHAMSHIRE.—On 28th July at Princes Risborough I saw two male *C. croceus* in flight. As I have not seen nor heard of this species this year I assume that they were migrants. —C. E. SPITTLES, Schoolhouse, Drayton Beauchamp, Aylesbury, Bucks.

[Dr. C. B. Williams records (*The Migration of Butterflies*, 1930, p. 134) numbers of *C. croceus* coming in over the sea and crossing the Sussex coast in August and the beginning of September 1899; and again at Dover between 12th and 22nd August 1928. So it is quite possible that the specimens seen by our contributor were immigrants.—ED.]

FOODPLANT OF COLIAS AUSTRALIS VERITY.—Berger has recorded (*Entomologist*, **81**: 129) that *Hippocrepis comosa* L. is the only foodplant of this species. An experience which I had some years ago suggests confirmation of this. A few very young larvae of what were described as "*Colias hyale*" were sent to me from the Bavarian Alps. They were on *Hippocrepis comosa*, a difficult food for me to obtain in London. I gave them nice fresh lucerne, clover, and medick; but they ate none of these and quickly died. I managed to blow the biggest. It shows very clearly the black markings of this "new species" *C. australis* (or *calida*) Verity. The death of my larvae is now explained.—E. A. COCKAYNE, 8 High Street, Tring.

AGROTIS IPSILON HUFNAGEL IN FAIR ISLE.—I have just received from Mr. Kenneth Williamson, Fair Isle Bird Observatory, a male *Agrotis ipsilon* Hufn. (*suffusa* Schiff.). It is in good condition and was taken on the moorland part of Fair Isle on 21.vi.1951. The mail-boat comes from Lerwick and no other ship touches at the island, so that it is very unlikely to have been imported. The species is a well known immigrant. It appears in Bryan Beirne's List of Shetland Lepidoptera, *Ent. Record*, 1945, **57**: 37.—E. A. COCKAYNE, 8 High Street, Tring.

PVILUDORIA POTATORIA L. F. BURDIGALENSIS MANON.—When dealing with the variability of this moth I wrote that I had never seen a specimen of this form (*Ent. Rec.*, **62**: 9). Among the large collection of Lepidoptera collected in the south of Dutch Limburg by some members of the staff of the Leiden Museum of Natural History I saw a fine dark *potatoria* ♂ without any trace of the whitish discal spots. This specimen must be a representative of Manon's form.—B. J. LEMPKE, Oude Ijselstraat 12iii, Amsterdam-Z.2.

NYMPHALIS ANTIOPA L. AND CLIMATE.—I always read with much pleasure the articles of the Old Moth-Hunter, not only because of the way in which they are written but for their contents. In his latest on the *antiopa* question he cites (p. 135) the suggestion of Dr. Chapman that if the British winters were colder and longer there might be more chance that the butterfly would re-people ancient haunts.

I have no exact figures for comparison, but I do not believe that the Dutch winters are as a rule more severe than the British ones. They are often so mild that children would get hardly any chance to skate if there were no artificial skating-rinks. The terrible snowstorms which have afflicted the British Isles repeatedly these last few years are practically unknown with us. And yet *antiopa* is a true indigene in the Netherlands. But its principal haunts lie in the eastern part of the country. There are places where one has only to look for a sap-bleeding

birch and quietly sit down to await one's chance. But in the western part of Holland the butterfly is a rarity. It must have something to do with ecological factors. I presume that humidity is of greater importance than the duration of the winter.

There are more such examples. The magnificent caterpillars of *Deilephila euphorbiae* L. are found every year along the banks of Rhine and Meuse, but only in the extreme east of the Netherlands. In the western parts it is almost as rare as in England. And why are *Issoria lathonia* L. and *Deilephila galii* Rott. indigenous in Holland but not in England? In the dunes along the North Sea especially *lathonia* is sometimes numerous.—B. J. LEMPKE, Oude Ijselstraat 12iii, Amsterdam-Z.2.

[It would appear that the humidity of the English winter climate is fatal to the larvae of *lathonia*. There are at least two records of small colonies of this butterfly having been observed in England in September (*Entomologist*, 82: 87, and *Zoologist*, 945), and since these colonies consisted of a number of individuals concentrated in a small area it is quite likely that they were the progeny of immigrant spring females. This may well have occurred on many occasions for many centuries: before the separation of England from the mainland (variously estimated between 6500 and 5000 B.C.), when our climate was continental, it is not unlikely that *lathonia* was an inhabitant of this country. The same perhaps applies to *D. euphorbiae* and *D. galii*. We agree with our learned contributor that with certain species humidity is of greater importance than the duration of the winter, and this may apply to *antiopa* as well.—ED.]

ABRAXAS GROSSULARIATA L. f. SEBARIA COCKAYNE.—Hardly a week after the publication of Dr. Cockayne's article on new *grossulariata* forms (*Ent. Rec.*, **63**: 102) I saw a small collection of Lepidoptera on one of the islands of the province of South Holland. It contained no less than 3 specimens of this splendid form, 2 ♀♀ and 1 ♂, so the form is at any rate not sex-controlled. The garden of the village doctor whence these specimens came is large and contains many currant bushes, and owing to the difficulty of getting the assistance of a gardener it is a bit neglected, so that every year the bushes contain hundreds of caterpillars, among which are some very black ones. There must be considerable inbreeding in this garden, which perhaps explains how it produced 3 *sebaria* in two consecutive years. In the ♀♀ the underside of the body is without black markings; in the ♂ they are strongly reduced. I wonder if this is also the case with the English ♀♀?—B. J. LEMPKE, Oude Ijselstraat 12iii, Amsterdam-Z.2

[In one English female there are no black markings on the underside of the body. The body of the other specimen is stained, but no black markings are visible.—E. A. C.]

EUPROCTIS CHRYSORRHOEA L. IN NORTH-EAST NORFOLK.—On 24th June, when on an entomological expedition with Canon T. G. Edwards, it was decided to visit the beach at Hemsby, about eight miles north of Great Yarmouth. The approach to the shore, through its large holiday camps thronged with people, seemed very unpromising from an entomologist's point of view. On reaching the dunes near the sea we saw quantities of the sea buckthorn (*Hippophae rhamnoides* L.). A closer

examination of the bushes revealed the presence of large numbers of larvae of the Brown-tail Moth, many of them full grown. In some cases whole bushes had been defoliated by the larvae. We visited the coast at various places for several miles in each direction from Hemsby, but failed to find the sea buckthorn growing anywhere else. I do not remember having seen any previous record of the occurrence of this insect in Norfolk, hence this note. One could not help wondering if some of the holiday-makers were not at times mystified by contracting a strange skin-rash! Persons susceptible to the irritating hairs from this larva are often affected by passing to the windward of bushes on which cocoons are situated. For myself, I can handle the larvae with impunity, but never again will I try to remove old cocoons from a breeding cage on a hot dry day. I did this once many years ago in the Isle of Wight, and the result was very painful and rather frightening, necessitating a hurried visit to the doctor. This species is still quite common in Essex and on parts of the South Coast. Does it occur north of Hemsby?—S. Wakely, 26 Finsen Road, Ruskin Park, London, S.E.5, 6.viii.51.

Argynnis aglaia L. Attracted by Carrion.—When paying an annual visit to a local colony of *Melanargia galathea* in July it was pleasing to find the butterfly in fair strength, in spite of the fact that much of the ground has now been reclaimed for agriculture. There were also several *Argynnis aglaia* on the wing, one of which was paying marked attention to a bush of scrub hawthorn. On going to investigate I found the bush was used as a gamekeeper's larder: carrion crow, grey squirrel and a stoat, all in an advanced state of decomposition. The chief attraction of *A. aglaia* was the stoat. Alpine butterflies are known to gather round the effluent of goat pens, and our own *Apatura iris* has a taste for something 'high'; but stoat seems a depraved taste on the part of *A. aglaia*.—G. B. Manly, 72 Tenbury Road, Birmingham, 14, 7.viii.51.

Lithosia quadra Linn. and other Immigrants in Kent.—On Monday last, 30th July, *Colias croceus* was careering about a field here and on 31st July three *Lithosia quadra* and one *Rhodometra sacraria* L. came to the M.V. lamp. All were in fresh condition, so presumably they were immigrants. I have since learnt that on the same night three more *L. quadra* were taken near Ashford and one at Margate, while on the previous night one was taken at Folkestone. It will be interesting to see with what forces the invasion was made and whether the autumn will make up for the earlier summer months of this year.—C. A. W. Duffield, Pickersdane, Brook, near Ashford, Kent, 4.viii.51.

Hyponomeuta rorella Hub. in North-East Norfolk.—On 18th June I was collecting with Canon T. G. Edwards at Horsey, about ten miles north of Great Yarmouth, when we found a number of webs containing larvae of the above species. All the webs were on a clump of sallow bushes, few of which were more than 5 ft. in height. Meyrick mentions only *Salix alba* L. as a foodplant of this species, but these larvae were definitely feeding on a species of sallow as distinct from the smooth-leaved willow. The situation was on either side of a track a few hundred yards from the sand dunes and sea. Moths emerged from 20th to 23rd July and were the normal form of *rorella*. This species has occasionally

occurred as a serious pest on tall willow trees (*Salix alba* L.), and there is an interesting account (with photograph) of such an infestation near Beccles, Suffolk, in *The Entomologist* for December 1936 **69**: 269). It will be noticed that the present occurrence is at a place twenty miles north of Beccles and over ten miles from Rockland Broad, whence a single moth was recorded at light in the same year. It would be interesting to know if this species still occurs in its old locality near Beccles, or if it has been recorded from any other locality since 1936. The larvae at Horsey appeared to be doing very little damage except to foliage in the immediate vicinity of their webs. Willow trees were very common nearby and it is curious that the larvae in this instance were on sallow.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5, 6.viiii.51.

Practical Hints

IF you live on or within reach of the South or East coast search bedstraw on sandhills and on low cliff tops towards the end of this month for larvae of *Celerio galii*. Where there is one there is sometimes plenty.

Going sugaring one evening we put a dab of treacle on a galvanised pipe used as a clothes-prop in the back yard. On our return we found upon it a fresh *Tiliacea aurago*. A large beech grew nearby. This species is best obtained by sugaring leaves on the lowest outermost boughs of beech (or hornbeam) growing on the fringes of beechwoods or coppices.

The larva of *Cucullia umbratica* is best found after dark, when it eats the flowers and top leaves of *Crepis capillaris* (smooth hawksbeard) in meadows and waste places. Difficult to find by day as it rests on the ground underneath the lowest leaves. Half-eaten flowers are a good indication of its presence.

Throughout September the larvae of *Cucullia asteris* should be sought on sea aster (*Aster tripolium*) in the East coast estuaries. Rests by day among the flower-heads, but sometimes feeds openly in the sunshine. Can be beaten. Occurs also on the south coast and in places inland where golden-rod grows in plenty.

The outer boughs of larches fringing the south side of larch plantations should be beaten this month for larvae of *Semiothisa liturata*. Though fairly widespread this species does not seem to be common anywhere. The larva feeds also on Scots fir and perhaps other conifers Obtain pairings and breed if possible, or you may be a long time in amassing a series.

In shady damp woods where tall umbellifers such as Wild Angelica grow on the banks of little streams, it is often profitable to search, about the middle of the month, for larvae of *Eupithecia trisignaria* and *E. tripunctaria*. We have found both species at the same time on the same plant. The larvae recline along the pedicels, which they match in colour but are seen easily enough if the umbel is carefully tilted (if

tilted too much the stem will break!). Umbels with six inches of stalk (cut with a sharp knife) will keep fresh for several days if placed in a water-bottle *at once*. Therefore take a couple of two-ounce medicine bottles with you when you go searching.

Notes on Microlepidoptera

By H. C. Huggins.

The caterpillar of *Anania stachydalis* Zinck. may be found full-grown in mid-Septemer. It is then to be discovered on the lower leaves of *Stachys sylvatica*: it lives on the underside of a large leaf and puckers it together: it is of a clear, rather glassy, green colour. When it has finished feeding it spins a whitish silk cocoon in rubbish, where it remains unchanged till the following spring, so must be kept through the winter in a large flower-pot with good drainage and exposed to the weather, or it will certainly die. This moth fluctuates greatly in numbers even in its favourite haunts; in one year I found several hundred near Yarmouth, Isle of Wight, and the next year not one was to be seen.

The larva of *Dioryctria formosa* Haw. is not uncommon in September in many localities, feeding between elm leaves. It is of a dirty green colour, ugly, sickly-looking and big-headed, and has a knack of escaping through any crack in a tin with a badly fitting lid; where its head can go its body can follow. Otherwise it gives little difficulty, feeding up readily and spinning in moss or crumpled paper, where it pupates at once.

Agdistis staticis Mill. (*clivicola* Meyr., *bennetii* var. *portlandica* Tutt) can still be found in its proper haunts in early September. The larva feeds on *Statice binervosa* growing on the cliffs in suitable places, from Swanage round to Somerset. It lives only in rocky places, usually beginning about six feet above the beach level on the cliffs. In early September the larva, pupa, and imago may all be found together, as the last brood has a protracted emergence period. The pupa is usually on the stem of the plant or on the scanty tufts of wiry grass that accompany it; the imago, which sits in the same attitude as *bennetii*, usually clings to a cliff face. It is wise to take only full-grown larvae, or nearly full-grown ones, as a change to any other *statice* is seldom satisfactory. In captivity the imago emerges from September until early November.

Seed-heads of golden-rod (*Solidago virgaurea*) should be collected in early September, particularly in the Kentish woods, but also in any part of the south of England. In Kent these will contain, in addition to *Eupithecia expallidata* Doubl., the larvae of *Oidaematophorus osteodactylus* Zell., *Phalonia curvistrigana* Will. and *P. implicitana* Wocke. and all of these spin up in the autumn and pupate in the spring, so they must be kept exposed to all weathers, with the exception of the 'Pug,' which pupates at once. The *Eupithecia* larvae are, however, conspicuous when full-grown and may be removed to a separate receptacle.

The larvae of *Peronea hastiana* Linn. vary in size with the season; but usually in the south of England the second brood is nearly full-grown in the first week of September. It may be found, usually in numbers where it occurs, in the terminal shoots of osiers, all the smaller leaved sallows, and on *Salix repens* on sandhills. I usually rear them in tin biscuit boxes with a piece of muslin under the lid jammed round the edge of the box. This serves a double purpose as it both prevents the larva from escaping and tends to take up any moisture generated by the foodplant. Crushed newspaper should be placed under the foodplant for pupation; this obviates the habit of the larva of spinning on the withered foodplant and being flattened as this hardens.

Collecting Notes

HELIOTHIS DIPSACEA LINN. IN BUCKS.—I netted a worn female specimen of this species on the hills above Prince's Risborough on July 1st, hovering over flowers in company with a fair number of *Plusia gamma*. I have not seen the species in this part of the country in thirty years' collecting and my father, who worked the district for twenty years before me, does not mention it in his diaries. It therefore seems likely that it is an immigrant which came over with the *gamma*.—A. L. GOODSON, 26 Park Road, Tring, Herts.

DEILEPHILA ELPENOR L. IN RENFREWSHIRE.—I would like to report that I took a specimen of *Deilephila elpenor* L. two nights ago at gilliflower in my garden here. This is the first I have taken, and it appears to be new to the Renfrewshire list.—ALAN M. MACLAURIN, Oldhall House, Kilmacolm, Renfrewshire, 2.vii.1951.

LEPIDOPTERA AT WESTON-SUPER-MARE.—In continuation of my Note on page 147 the following is a list of the more interesting species occurring at light in my garden at Weston-super-Mare in June, together with the date of first appearance and in some cases notes on their subsequent frequency. It will be appreciated that light was used only on suitable nights and that as a rule operations had to be terminated at 12.30 a.m. or 1.0 a.m. owing to the necessity of catching an early train to work during the week.

June: 8th, *Deilephila porcellus*, fairly common later; *D. elpenor*, several later. 10th, *Apatele alni*; *Pheosia tremula*; *Agrotis clavis* (*corticea*), very common later; *Hadena w-latinum* (*genistae*), several later. 13th, *Agrotis cinerea*. 20th, *Discoloxia blomeri*, common later. 21st, *Tethea ocularis* (*octogesima*), a few later; *Cossus cossus*, a few later; *Notodonta dromedarius*, several later; *Craniophora ligustri*, several later. 22nd, *Drepana binaria*. 29th, *Pheosia gnoma* (*dictaeoides*), several (this moth was, however, out in at least one Somerset locality in May). 30th, *Harpyia* (*Cerura*) *hermelina* (*bifida*), another later; *Stauropus fagi*.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare, 11.vii.1951.

BUTTERFLIES IN SOUTH DEVON.—On 12th July, while on holiday, I visited the Haldon Moors near Teignmouth. It was pleasing to find *Satyrus semele* L. just emerging in numbers. The specimens from here,

on heather moors, have the underside of the hindwings marked with whitish, similar to those from chalk downs in Sussex. However, the upper side of the Devon specimens is decidedly darker than in the Sussex ones, with the bright brown patches round the eye-spots of the forewings suffused with dark scales. The orange-brown band on the ♂ hindwings is smaller and also more split up in the Devon specimens. Other species seen on the moors included *C. pamphilus* and *M. jurtina* (both very numerous), *M. tithonus* and *A. hyperantus* feeding at bramble flowers, and *T. sylvestris* and *O. venata* amongst long grass on the edge of a birch wood. Along the lanes and hedgerows near Dawlish, Ashburton and Buckfastleigh *P. aegeria*, *M. tithonus*, *A. urticae* and *P. c-album* were seen in numbers, while *P. icarus* and *O. venata* were flying in meadows. It was pleasing also to come upon a small colony of *M. galathea* in a rough field in the beautiful Dart valley near Dartington.—R. J. R. Levett, Netheroak, Stockcroft Road, Balcombe, Sussex, 6.viii.51.

Loxostege palealis Schiff. in Cambridgeshire.—Whilst collecting on Newmarket Heath with Mr. Allan on 27th July last I netted a specimen of this Pyraustid. It is a ♀ in good condition. We had both seen a specimen near the same place on 16th July. *Pastinaca sativa* L. grows in profusion in the place, so perhaps this specimen had been bred there. —C. Craufurd, Denny, Galloway Road, Bishop's Stortford, Herts., 30.vii.51.

[Mr. S. N. A. Jacobs writes:—"I regard *Loxostege palealis* Schiff. as a semi-maritime species resident in the eastern half of England, more common in chalky districts. Seedheads of *Daucus carota* L. and *Pastinaca sativa* L. should be examined in the late summer and early autumn for the whitish larva with black warts. The larval habit is to spin the florets together, giving the seedhead a flattened appearance, and inside this case it feeds on the fruits. On attaining its full growth the larva goes to ground and hibernates in a tough silken cocoon, pupating only a short time before emergence, and sometimes spending two winters as a larva.

"This habit of larval hibernation makes the insect rather difficult to rear; but if, when approaching full growth, the larvae be put into a large flowerpot out of doors, plunged (that is, buried in the ground) to about half its depth and covered with sleeve calico, the moisture problem should be solved. The pot should be half filled with earth, preferably topped with downland turf, and the top ground flat so as to permit of the calico being replaced by a sheet of glass when the pot is taken indoors for the eclosion time.

"During late July and August the moth may be disturbed freely when walking over its downland haunts, and it is a frequent visitor to light."]

The M.V. Lamp in Northamptonshire.—In company with Mr. W. Quibell I paid a visit to Castor Hanglands on 13th July, the night proving to be one of those "dream nights" we all hope for. Sugar was useless, not a moth of any description was seen on any of the 25 to 30 trees sugared, on either of the two rounds made at dusk and about 12.30 a.m. Light, however, proved to be very attractive, and the enclosed

list of moths taken, or examined and released, which came to the sheet may be of interest. We worked with a white 125 watt M.V. lamp.

Dicycla oo L. seems to appear in the early hours of the morning. While not plentiful in the wood, they were quite common, and I understand that several have been taken since my visit, when they were quite fresh.—W. REID, 46 Totley Brook Road, Sheffield.

[We regret that we have not space to print our correspondent's list. It contains the phenomenal number of 104 species, surely a record for a single night! Among the more interesting species we note *Lophopteryx cucullina* Schf., *Miltochrista miniata* Forst., *Craniophora ligustri* Schf., and *Boarmia roboraria* Schif.—ED.]

COLLECTING AT SHEFFIELD.—The moths listed below appeared at light in my garden in Sheffield between 11.30 p.m. and 1.15 a.m. on the night of 10th July. We used a white 125 watt mercury vapour lamp and sheet on the lawn. The weather was clear at first with a high relative humidity, and rain came later in the night. The temperature was not observed unfortunately as we did not intend making a serious night's work.

One *Acronicta alni* appeared at about 12.15 a.m.; two others were taken last Saturday (7th July) at just the same time, and as it nearly always appears to be taken at sugar just after midnight it seems probable that this is its normal time of flight, the flight itself probably being a short one.

In addition to the moths listed, *Apatele leporina* was taken with the two *alni* on the 7th. Of these *alni* only one is type; the others are of the dark form.

Conditions seem to have improved during the last week, and even taking into account the very cold and backward spring, many of the moths from hibernating larvae are appearing at their usual times, and even beforehand in some cases.

On Thursday of last week (5th July) I took an extreme aberration of *Spilosoma lutea*—thorax and abdomen both totally black, hindwings both totally black except for the veins, which are lightly traced in buff; forewings totally black except for a very small buff irregular patch in the centre of each, and the veins again lightly traced. I am aware that specimens of this type have been obtained by selective breeding, but did not know that they occurred in the wild state. My specimen was taken at light in Sheffield.

Laothoe populi L. (several).
Deilephila elpenor L. (several).
Deilephila porcellus L. (four).
Pheosia tremula Cl.
Pheosia gnoma Fab.
Lophopteryx capucina L.
Phalera bucephala L.
Spilosoma lubricipeda L.
Spilosoma lutea Hufn.
Agrotis segetum Schf.
Agrotis exclamationis L.
Lycophotia varia Vill.
Graphiphora augur Fab.
Diarsia brunnea Schf.
Diarsia festiva Schf.
Ochropleura plecta L.
Triphaena pronuba L.
Melanchra persicariae L.
Polia nebulosa Hufn.
Diataraxia oleracea L.
Ceramica pisi L.
Hadena thalassina Hufn.
Hadena bicruris Hufn.
Leucania pallens L.
Leucania comma L.
Leucania lithargyria Esp.

Cucullia umbratica L.
Eumichtis adusta Esp.
Cryphia perla Schf.
Apatele megacephala Schf. (type and black forewings).
Apatele alni L. (type).
Apatele psi L.
Apatele rumicis L.
Rusina umbratica Goze.
Apamea crenata Hufn.
Apamea sordens Hufn.
Apamea unanimis Hb.
Apamea obscura Haw.
Procus fasciuncula Haw.
Euplexia lucipara L.
Petilampa minima Haw.
Meristis trigrammica Hufn.
Caradrina morpheus Hufn.
Plusia chrysitis L.
Plusia festucae L.
Plusia iota L.
Plusia pulchrina Haw.
Plusia gamma L.
Abrostola triplasia L.
Abrostola tripartita Hufn.
Zanclognatha tarsipennalis Tr.
Sterrha aversata L.
Scopula floslactata Haw.
Xanthorhoe fluctuata L.
Ortholitha chenopodiata L.
Perizoma affinitata Steph.
Dysstroma truncata Hufn.
Thera obeliscata Hb.
Eupithecia pulchellata Steph.
Eupithecia centaureata Schf.
Eupithecia vulgata Haw.
Lomaspilis marginata L.
Cabera pusaria L.
Ourapteryx sambucaria L.
Opisthograptis luteolata L.
Biston betularia L. (black and type).
Alcis rhomboidaria Schf.

A total of 67 species.—W. Reid, 46 Totley Brook Road, Sheffield, 11.vii.1951.

DIPTERA

Two Species of Pericoma (Psychodidae) Taken in the Bristol Area. —Audcent. in his fine *Bristol Insect Fauna Diptera*, 1949, 1950 (*Proc. Bristol Nat. Soc.*, XXVII: 409-470; XXVIII: 45-132) had few modern records for this family. It is therefore worth recording that when taken by Mr. E. C. M. d'Assis Fonseca to Coombe Dingle, Glos., on 27th May this year, we were attracted to some dark-winged Psychodidae on the tree trunks during a spell of rain. The species proved to be *Pericoma auriculata* Hal. and with it, *Pericoma fuliginosa* Mg.; both appear to be unrecorded previously from Gloucestershire.

It is fitting to pay tribute here to the excellence of Paul Freeman's treatment of the family in the Royal Ent. Soc. *Handbook*, IX, pt. 2: 77-96, and to ask our Editor to publish the accompanying review which I have just received from Dr. G. H. Satchell of the University of Otago, New Zealand, who has paid much attention to the early stages and ecology of this family in Britain.—L. Parmenter, 94 Fairlands Avenue, Thornton Heath, Surrey, 2.vii.51.

" The family Psychodidae in the *Handbooks for the Identification of British Insects*, IX, is introduced by an account of the features of diagnostic importance in identifying flies of this family, and continues with a series of keys to subfamilies, genera and species. These keys are excellent and worked without a hitch when I tested them out on twelve British species of *Psychoda* and a similar number of *Pericoma*. The only point where a beginner might go wrong is in the key to the genus *Psychoda*, where one has to count the antennal segments. I can

imagine many, presented with, say, *P. albipennis* Zett., or *P. surcoufi* Tonn., overlooking the diminutive fourteenth segment, and going wrong at number 19, on page 93. But a brief glance at the figures on the opposite page should clear up this difficulty, since the antennal joints are there numbered.

" Students of the group have in the past been handicapped by the relative inaccessibility of Tonnoir's 1922 descriptions, and the obscurity of many of Eaton's accounts. Though Eaton was undoubtedly ahead of his generation in the attention he paid to genitalia, his figures of them can rarely be regarded as adequate. All students of the Psychodidae will therefore feel indebted to Paul Freeman for a work which provides at least one and often as many as three figures of the diagnostic features of all of the 73 British species, and its publication may be expected to stimulate a renewed interest in this little worked family of Diptera."—G. H. SATCHELL, 4.vii.51.

A NOTE ON HAEMATOPOTA BIGOTI GOBERT [DIPT. TABANIDAE].—The clegs are well known as hunters of entomologists and are generally swatted rather than collected by the dipterist. However, when in Suffolk in July, the clegs found on the salt marshes of the Stour estuary about Flatford Mill attracted me as much as I attracted them. They proved to be *Haematopota bigoti* Gobert, a species I had not found previously. With paler wing markings than the common cleg, *H. pluvialis* L., found further from the estuary to the north of East Bergholt, they seemed to have a more noticeable and darker stigma than the latter. The well defined pale spots on the first abdominal and the yellowish mid and hind femora clinched the identity.

The flies were numerous especially about the young cattle on the marshes. At least 15 were noted sucking on the flank of one animal. Several were found sitting on the fence posts around the fields and these were sluggish in movement, being bloated with blood as was proved by an accidental squashing.

It was not certain whether *H. bigoti* or the few *Tabanus autumnalis* L. that were also flying around us most worried the cattle, which were daily noted dashing about the fields with their tails straight out behind them. Certainly *H. bigoti* was more persistent in its attack than *T. autumnalis*. One of the latter, disturbed from a fence post where it sat "sunning", flew off, circled and dived at the fresh water dyke, touching the surface of the water with its proboscis and rising, banked rapidly and dived a second time for what appeared to be a second drink before finally flying off.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey, 7.viii.1951.

DOES RHAGIO SCOLOPACEA (L.) 'BITE'?—During a recent trip to the Scottish Highlands worrying attacks were made by hundreds of Rhagioned flies, particularly at Abernethy, Inverness-shire, and at Ardgay, Ross-shire, when walking through heather at approximately 1,500 feet. The flies would dart off the heather straight on to the face and arms, causing a stinging sensation, similar to the attacks of *Stomoxys calcitrans* (L.). The persistent 'biting' (if it can be called biting) quickly forced us to return to the shelter of the car on many occasions. The flies were thought to be *Rhagio scolopacea* (L.) but ap-

peared to be smaller and darker, and so, on returning home, they were submitted to Mr. J. Cowley, who confirmed that they were indeed *R. scolopacea*. He called attention to Verrall's *British Flies, Stratiomyidae, etc.*, p. 266, where it is stated that they were reputed to inflict an unpleasant bite, but that no corroboration of this was forthcoming. No after-effects nor wounds were produced, so that possibly the irritation was due to the insects pitching on to the skin with appreciable force.—A. H. Turner, Bickenhall, Somerset, 6.viii.51.

Diptera at Meriden, Warwickshire.—During the present summer I have made two short visits to the edge of a wood near Meriden, which is, incidentally, one of the reputed centres of England. The first visit was made on June 2nd, which was a sunny day with a fresh breeze. The second was on July 21st, a hot oppressive day with no wind.

2nd June. Bibio marci L. abounded, large numbers of them hovering at about ten feet above the ground. I noticed many of these flies lying dead on the ground and on large leaves. There was no apparent sign of injury. *Pachymeria tessallata* F. was in abundance on the flowers of various umbelliferous plants, and indeed, this was one of the most numerous flies that I observed. Among others were *Mesembrina meridiana* L., *Syrphus lucorum* L., *Rhingia macrocephala* Harris, *Chilomyia funebris* Harris, *Chilomyia albitarsis* Meig., and *Epistrophe eligans* Harris. All these were common. A less frequent species was *Baccha elongata* Fab.

21st July. The intense heat and a persistent halo of small flies made collecting difficult. Perhaps the most interesting capture was *Rhagio tringaria* L. which I have found in several localities in the Birmingham district, but in most cases only singly. Among the larger *Syrphidae* were *Volucella pellucens* L. and *Volucella bombylans* L. *Tubifera tenax* L. was present in its usual abundance and other members of the genus were *T. horticola* Degeer (not many), *T. arbustorum* L. and *T. nemorum* L. (both common), and *T. intricaria*. Most of the common hover flies were present, including many of that beautiful fly *Scaeva pyrastri* L. There were a few *Myathropa florea* L. which seems to occur everywhere locally, but never in large numbers.

In addition to the above, a number of flies were captured which have been put aside to be sorted out during the winter evenings.—Cartwright Timms, 524 Moseley Road, Birmingham. 12, 7.viii.51.

COLEOPTERA

The Coleoptera of a Suburban Garden

2—Palpicornia, Lamellicornia, Serricornia

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

(*Continued from page 65.*)

Hydrophilidae

All the following (Sphaeridiinae) occur in heaps of grass-cuttings and vegetable compost, especially when well rotted down; the commoner species more or less throughout the year. Unfortunately the specific nomenclature has been much confused in this subfamily.

Sphaeridium bipustulatum F. ab. *marginatum* F.—A few examples in August 1930, and again in June 1951.

**Cercyon lugubris* Ol. (=*obsoletus* Gyll.).—One, 14.iv.46. This, our largest species of the genus, is in my experience very uncommon.

Cercyon impressus Sturm.—Not common; first noted in April 1946.

Cercyon haemorrhoidalis F. (nec Hbst.; =*flavipes* F.).—Common; also found at grass-roots and under stones, in damp spots, in spring.

Cercyon lateralis Marsh.—Sparingly in the same situations. Though less common than several others, I can hardly agree with Joy (1932, *Pract. Handb. Brit. Beetles*, I: 292) in calling it rare.

Cercyon melanocephalus L.—Taken singly in company with others of the genus in May 1946.

Cercyon unipunctatus L.—This striking species is very infrequent; found singly at long intervals from about 1930. The last capture was of three specimens in a rather dry manure heap, April 1948. (I have scarcely ever met with it elsewhere, and never in dung—whereas all the others listed here, except probably the next two, *analis*, and possibly *lugubris*, are also dung feeders.)

Cercyon terminatus Marsh.—Quite common as a rule, even in winter. Usually considered somewhat rare; perhaps partly due to its not being a dung species, unlike most of the others.

**Cercyon atricapillus* Marsh. (=*nigriceps* Marsh.).—A single example, in April 1946, is the only one I have yet found anywhere. Its much commoner ally *C. quisquilius* L. may be expected to occur, as like *melanocephalus* it is not entirely—though chiefly—confined to dung.

Cercyon pygmaeus Ill.—Usually more or less common.

Cercyon analis Payk. (=*flavipes* Thunb. nec F.).—Frequent, particularly in winter and spring, and varying a good deal in size. Odd specimens also under stones, etc., in moist places.

Megasternum obscurum Marsh. (=*boletophagum* auct.).—Common, and at times abundant; occasionally on the wing or under stones; by sweeping lawn (21.vii.50).

Cryptopleurum minutum F. (=*atomarium* auct.).—Common, but hardly as plentiful as the last. Has also been taken by sweeping in warm weather (30.ix.50).

Lucanidae

These, like the first three Scarabaeids below, have the status of casual visitors only—probably attracted, when flying at night, to the lights of the house.

Lucanus cervus L.—The 'Stag beetle' is in some years not rare in this neighbourhood, in June and July, and stray individuals of both sexes have occurred from time to time in the garden on paths, etc.

Dorcus parallelepipedus L.—One under a flat piece of wood placed on bare earth at the foot of a brick wall as a trap for beetles, 21.v.51. Otherwise I have not seen it in the district.

Scarabaeidae

Geotrupes spiniger Marsh.—A specimen was picked up dead in the garden, I believe near the house, many years ago—I was away at the time, and did not see it till much later.

Geotrupes stercorarius L.—Once taken at light (date also uncertain. The source of these two beetles and the next may have been the field be-

yond the garden, where at various times in the past a horse used to be grazed).

Aphodius rufipes L.—One captured flying to light (a well-known habit of this species) in autumn, 1932.

Aphodius scybalarius F.—In heaps of cut grass and other rotting herbage; sporadic as a rule, but three or four were found together towards the end of February 1951.

Aphodius granarius L.—As for the last, but more plentiful, especially in spring and early summer.

Oxyomus sylvestris Scop.—In the same situations and at most times of year; quite the commonest of the few Lamellicorns resident in the garden.

Melolontha melolontha L.—Very occasionally at light in May or June, but not in recent times; I have never known it common in the district, even in a 'good cockchafer year'. It may however have a more genuine claim to a place in this list than some of the above, as a few large chafer grubs were once dug up in an uncultivated part of the garden a long while ago, which were assumed to belong to the present species.

Trixagidae

**Trixagus* (=*Throscus*) *carinifrons* Bonv.—By sweeping grass on summer evenings, chiefly long grass under a group of apple trees, and also occasionally on the open lawns; always singly, and at the rate of two or three annually; first met with about five years ago (but before that, probably passed over). It is supposed to be rarer with us than *T. dermestoides* L.—though in my experience the reverse is true.

Elateridae

Athous haemorrhoidalis F.—A specimen was swept off coarse grasses on a neglected plot, 6.vi.51. After being marked by rubbing the pubescence off one elytron, and then released, the same individual reappeared in the net on both the two following days, not far from the original spot. It was probably a straggler from the adjacent field.

Agriotes sputator L.—One found dead in a spider's web on a wall of the house, April 1929. It is strange that this common species has not recurred; and that *A. obscurus* L. seems absent, though certainly this is to me everywhere much less plentiful than the next.

Agriotes lineatus L.—From March to May at grass-roots, under pieces of loose bark around the base of a fruit-tree stump, under boards, clods, etc.; not abundant, but found from 1927 onwards.

Agriotes acuminatus Steph. (=*sobrinus* Kies.).—One swept from long grass or rank herbage, 28.v.51. (This and the allied *A. pallidulus* Ill. and *Dalopius marginatus* L. are diurnal species common on trees and shrubs in hedges and woods; whereas the three above-named Agriotes—the notorious wireworm beetles—being mainly nocturnal, seldom turn up in the sweeping-net, and affect open grass- and arable land.)

Cantharidae

Cantharis pallida Goeze.—On fruit-trees and bushes, in the same area as the next, but much scarcer (vi.49, vii.50).

Cantharis cryptica Ashe.—Fairly frequent in June by beating ivy, pear trees, flowering Pyracanthus, etc., along a wall facing east; not found in any other part of the garden. (This is in great measure the

common *C. bicolor* of our older authors and collections, but on the Continent seems hitherto only recognized from Denmark; probably still widely confused with *pallida*. See *Ent. mon. Mag.*, 1946, **82**: 138, and 1947, **83**: 59.)

Rhagonycha fulva Scop.—On thistles, flowers of golden-rod, etc., in July and August; even this abundant species occurs very sparingly.

Rhagonycha limbata Thoms.—In similar situations, but the only definite record is for a single specimen in early July 1950—rather a late date for the species. (Two or three others of this family may be expected to occur, at least as visitors. *C. livida* L. is, or used to be, found in a weedy lane not far away.)

Ptinidae

No species of this family is known to me as breeding in the garden but **Ptinus sexpunctatus* Panz. and *P. tectus* Boield. have occurred occasionally in the house.

Anobiidae

Ochina ptinoides Marsh. (=*hederae* Müll.).—By beating ivy on wall, especially where dead or dying; not common, and first seen in 1950, except for a stray example found on the window of a shed some years previously. June, July.

Anobium punctatum Deg. (The 'Furniture beetle').—Breeding in great profusion in a piece of old wood which it has reduced to a powdery chalk-like consistency, whence adults emerge in late June and in July; odd specimens by general sweeping, on the wing, on a fence, etc. Also indoors, where fortunately it is not abundant enough to be a serious pest. (A specimen of *Stegobium paniceum* L. taken indoors on a window-sill, 13.vii.51.)

Ptilinus pectinicornis L.—Two females on a wall of the house, 13.vii.51. They had doubtless come from some old wood nearby, in which borings and remains of the species were later discovered.

Lyctidae

**Lyctus brunneus* Steph.—A dead but undamaged specimen was found adhering to the wall by a fragment of web, on the same occasion as the capture of *Ptilinus* above; probably of similar origin. (Elsewhere I have met with this woodborer only in the Windsor Forest area, though the records show it to be somewhat widespread.)

(*To be continued.*)

Reminiscences on Lytta vesicatoria L.—I was very interested to read a Note on this species printed at page 155 of the July-August issue, which was reprinted from the *Record* of July 1901. About thirty years ago this beetle occurred in the Isle of Wight, and no doubt still does. It was my fortune once to see this rarity in numbers: it was during the month of July, when I came across a luscious growth of ash in a hedge near Perreton Cross, situated between Blackwater and Arreton. The leaves were hanging in shreds, and on examination it was seen that numbers of a beautiful green beetle were feeding on them. In those days I did not collect Coleoptera, but I boxed three or four and took them to my old friend H. G. Jeffery. He was, of course, very excited at the find; but when we visited the spot together a few days later only a

few odd beetles were present, and I never saw the species in numbers again.

On another occasion we had news that some large green beetles were stripping the leaves off some ash trees in a hedge near Alverstone. We found the place; it was on rising ground to the north of Alverstone, not far from Knighton (not to be confused with Niton). Once again only a few odd beetles were found, but it was evident that a number had been feeding there at recent date.

In both these instances the beetles were on ash bushes forming part of a hedge. When cut back at the periodical hedge-trimming these bushes send up very succulent branches and it is on these that the beetles prefer to congregate and feed on rather than on trees. I notice in the Note by Donisthorpe that eventually he found his specimens on fairly young trees, on a low bough.

The female beetles burrow into the soil and lay hundreds of eggs in a shallow cavity near the surface. I well remember seeing a beetle which Mr. Jeffery kept in a glass bowl containing a piece of turf. Its head was just visible, the rest of the body being below the surface. A few days later I was shown the same bowl with literally scores of the small active larvae congregating in masses on the side facing the light from a window. When the bowl was turned round they raced madly round towards the light till they were in mass formation again facing the light. I was given to understand that in a state of nature they congregated on flower-heads and attached themselves to any visiting bee. Those attaching themselves to the right species of bee stood a chance of reaching maturity by being carried by the bee to its breeding-hole, when they released their hold and fed on the grubs of their host. The beetles congregate in companies of some dozens and feed voraciously on ash leaves—also occasionally on privet.—S. Wakely, 26 Finsen Road, Ruskin Park, London, S.E.5, 6.viii.51.

ORTHOPTERA, &c.

Notes on the Greenhouse Camel Cricket, *Tachycines asynamorus* Adelung

By C. T. McIntyre.
(Communicated by D. K. McE. Kevan, School of Agriculture, University of Nottingham.)

[In response to a recent request for information concerning this peculiar established alien in Britain (1951, *Ent. mon. Mag.*, **87**: 116), Mr. McIntyre writes me the following observations which I pass on in the hope of stimulating interest in others.—D. K. McE. K.]

The crickets have been known in this nursery [at Baillieston, Lanarkshire, near Glasgow] for about twenty years, and, from what I have gathered, they were apparently first seen in a box of *Kentia* palm seeds which were packed in Sydney, N.S.W.*

*So far as I am aware, this species, which appears to be native to western China (Sze-Chwan), has not been recorded from Australia. It occurs under glass in several parts of Europe and N. America and also in Japan.—D. K.

It is only in the palm and fern houses (*i.e.* 29 out of the total of 58 houses) which have a temperature of 70° F. all the year round that they are to be found. Between houses No. 15 and No. 23, which both contain crickets, is a distance of about one hundred yards containing eight cool houses and a vacant space; crickets have not been found in any of these cool houses but are abundant in the two (Nos. 15 and 23) which flank them.

They are *sometimes* found in the soil among the plants but they do not seem to live there. They are more frequently found among sand which is used for potting and is stacked at the foot of some houses. Their favourite place, and one is always sure to find a number of them there, is under potting benches or upturned boxes where the light is not too strong and somewhat drier conditions prevail; their usual position is hanging on to the sides or roof of the box or bench. There is also a spot in one house where a well used to be. This has long since been disused and the cavity filled with a flat stone of about twelve by eighteen inches in size. Numerous crickets can be found clinging to it when it is turned over but nowhere else in the houses are they to be found. The house is of 50,000 cubic feet and contains *Geranium*, *Fuchsia* and *Pelargonium* from January until July, and from then until Christmas, ferns.

The crickets are not easily disturbed and will allow me to place my hand about two inches from them before they jump. The larger ones can leap a distance of about fifteen inches and I have seen them jump over a coping twelve inches high. If they are caught by the leg this snaps off cleanly where it is attached to the thorax and they jump their way to freedom minus a leg. They are shy creatures, seldom emerging during daylight unless disturbed. They come out in the half-light of the evening and as it gets darker the noise peculiar to these crickets can be heard.†

The crickets are most abundant between May and September. The eggs [which are laid either in or on sand or soil and are pearly-white, long-oval and about 2 mm. long] must hatch during April [and they have been observed to do this in the laboratory after an incubation period of three months or more], since this is the period when the young (one of which could sit on the blunt end of a pencil) are most numerous. Young ones of a comparable size are occasionally found during the summer but not in anything like the same numbers as during April and early May. By September the majority have reached quite a fair size (one would fit within the circumference of a shilling piece). A few are of a larger size at this time but by the end of the year most are fully grown [although numbers appear to be reduced].

Their nocturnal habits make it very difficult to observe what they thrive on [in the laboratory they vary a vegetarian diet with animal matter] but they seem to do very little damage to the plants in the houses . . .

SOME DERMAPTERA FROM CYPRUS.—I am indebted to Dr. Wahrmann, of the Hebrew University, Jerusalem, for the opportunity to inspect a

†Mr. McIntyre does not attempt to describe this noise but it is interesting to have this evidence of stridulation since the Rhaphidophoridae have apparently no external auditory organs although some members of the family are said to have abdominal sound-producing organs.—D. K.

small collection of earwigs from Cyprus. There are only three species represented, presenting no special feature.

1. *Forficula lurida* Fisch.
   Mt. Olympus, 6.viii.50, 3 males, 11 females.
2. *F. decipiens* Géné.
   A stunted female from Platres, 10.viii.50, which may be referable to this species. Brachypterous
3. *F. smyrnensis* Serv.
   Milikouri, 8.viii.50. A macrolabious male

M. Burr.

Fifty Years Ago

(From *The Entomologist's Record* of 1901.)

Dark Aberrations of Abraxas sylvata.—This year, on the ground where the so-called " blue " aberrations of *Abraxas sylvata* have occurred during the past few years, we found even the type extremely rare, no dark aberrations and not many pale ones, while the proportion of cripples was enormous. It occurs to me that this aberration is really a diseased form. As far as my experience goes it will not breed true, and the large percentage of cripples both among the aberrations and the type seems to suggest an enfeebled race, owing probably to some purely local cause, while the fact that the species is evidently decreasing in numbers, points to a similar conclusion. I had ova last year from a dark ♀, but though sleeved out from the first on a growing tree, the larvae did badly, and those that did produce moths yielded nothing like an aberration. I should like to see this question thrashed out.—C. D. Ash, Selby.

Lepidoptera in South Devon.—During the first three weeks of August, lepidoptera were not particularly abundant. I took a good series of *Callimorpha hera*, with a very large proportion of yellow and orange forms. *Bryophila muralis* was abundant and exceedingly varied; one wall, about 200 yards long, producing over 100 specimens in six days. They emerge between 5.30 and 7.30 p.m., and this is the best time of the day, I found, for looking for them, as they are far more conspicuous when stretching their wings or when at rest on the spot where they have just closed them. When they had flown and chosen a resting-place for themselves they were exceedingly hard to find, so well did they harmonise with their surroundings. Sugar at Torcross and Torquay was a great failure. Very few insects came to it, and in a fortnight we did not see more than 40 *Caradrina ambigua*.—F. C. Woodforde.

Current Literature

J. Sneyd Taylor (*J. Ent. Soc. S. Africa*, 1950, 13, 53, Plate) has written an interesting paper on a species of *Mesocelis* (Lasiocampidae). *Mesocelis montana* Cramer, found in various parts of S. Africa, has a male with wings and a female, which has rudimentary antennae, mouth parts, and legs and wings reduced to tiny bulbs hidden in its fur. In

a very limited area in the Karoo only 18 miles long by a few miles wide a *Mesocelis* occurs, which has a similar but slightly larger female which is parthenogenetic. No male has been obtained by breeding from larvae, by light, nor by 'sembling. The eggs, larvae, and pupae of the Karoo *Mesocelis* are a little larger than those of *montana*, the larva differs slightly in markings, and the pupal wing lobes are barely discernible instead of being small, not extending to or beyond the middle of the body. The usual food-plant is *Ruschia* (Ficoideae) whereas the food-plants of *montana* belong to other orders. *Montana*, however, has different food-plants in different parts of its range, so that too much importance must not be attached to this. It is uncertain whether the Karoo *Mesocelis* is a distinct species or a subspecies of *montana*, and it is difficult to see how any definite decision can be arrived at.

The case of *Orgyia dubia* Tausch. (Lymantridae) is similar. In most parts of its range it has males and females, but in a local area in Southern Russia the larva is unusually large and only produces females, which are parthenogenetic.

The June number of *The Entomologist* (**84**: 128) contains an article, with Plate, by Dr. E. A. Cockayne on a new aberration of *Abraxas grossulariata*, which is named **aureomarginata**. This handsome aberration is separable into two main forms, in one of which the head and thorax are orange, in the other almost normal. Superficially it resembles the ab. *albomarginata* of Raynor which is more heavily marked and never has an orange discoidal spot in either fore or hindwing and no spots whatever on the margin of either wing. Apparently the larvae from which this aberration was bred came from Birmingham, and it would seem to be recessive; but the result of breeding was disappointing and the stock was lost before definite proof could be obtained.

Agriculture, LVIII, No. 3, June 1951, contains an article (pp. 135-139, with map) by I. Thomas and E. Dunn, on the Colorado beetle in England in 1950. 29 breeding colonies and 170 beetles were found; this is the second highest total so far recorded (the highest was 57 colonies and 224 beetles in 1947). 54 were found with imported produce, 49 on ships, 11 on docksides and beaches, 12 inland on potatoes, 33 inland in other situations, 8 dead, and 3 on aircraft. 9 of the colonies were near the Kent coast (5 of these around Dymchurch) and 7 others inland in Kent; N.W. Suffolk had 3, E. Essex 3, Surrey 1, Sussex 3, S. Hants. 1, W. Wilts. 1, and S. Oxon. 1. Most of these were outside the precautionary spraying area—an encouraging sign. Colonies were reported between the end of June and mid-September. The critical period for their establishment is evidently from May to mid-July, during which time there seems to have been at least one considerable flight northward from the Continent—where the attack was fairly severe. Weather here was adverse to both the beetle's development and fully effective control measures.—A. A. A.

Collecting and Breeding Butterflies and Moths. By Brian Worthington-Stuart. London: Frederick Warne & Co., Ltd., 1951. 10s 6d.

This book, belonging to the 'Woodland and Wayside' series, is intended for beginners. It is clearly written and most of the advice is

good. The young collector is told how to make his own apparatus, and diagrams are given. Home-made apparatus is much cheaper and often more efficient than that bought from a dealer, though it probably pays to buy a kite net and a beating-tray. Some of the advice is rather old-fashioned. Black nets are much better than white or green ones both by day and by night; setting-bristles are seldom used; the Robinson light-trap with a m.v. lamp is at least twelve times as efficient as any other, and with the special black glass can be used without annoying neighbours. I disapprove of mass executions with ammonia and discarded the method years ago. If you have a pin-hole in the lid of each box and put a little chloroform through the hole with a brush, taking about ten boxes at a time, you can select females for eggs and reject damaged specimens. If the chloroform is blown out of the box these recover quickly and the perfect ones can be put into the killing-bottle. These blemishes detract but little from the value of the book, which can be recommended highly to the young amateur, who will find his small outlay amply repaid.—E. A. C.

In the July issue of *Entomologische Berichten* (No. 313) there is an interesting article, with six diagrams, by B. J. Lempke on the genitalia of *Cerura* and *Harpyia*. The author writes: "In modern English literature *Phalaena bifida* Brahm (1787) is treated as a synonym of *Ph. hermelina* Goeze, 1781, *Entom. Beytr.*, 3 (3): 227. This is not correct as Goeze's name is invalid, because it is a primary homonym of *Ph. hermelina* Goeze, 1781, *Entom. Beytr.*, 3 (3): 207 (which in its turn is a synonym of *Ph. ludifica* L., 1758).

"My preparation of *H. furcula* Cl. . . . corresponds with the figure of *H. bicuspis* Bkh. in Pierce & Beirne, 1941, *Genit. Brit. Rhop.*, etc., pl. IX. The genitalia of *bicuspis* ♂ are larger, the valvae broader, the style less produced. Neither do the figures of the eighth sternite correspond (*l.c.*, pl. XXI). I suspect that the ♂ genitalia of these two species had been exchanged by Pierce."

Flies of the British Isles. By Charles N. Colyer in collaboration with Cyril O. Hammond. Sm. 8vo. ($6\frac{3}{4} \times 4\frac{3}{4}$). Illustrated; pp. 384. London: Frederick Warne & Co. Ltd. Price, 30s.

If the reviewer can say so without being accused of hyperbole he can now sing his *Nunc dimittis*, for the book which he has been awaiting all his life has now appeared. Many years ago, doubtless in company with most young field entomologists, he was attracted by the beauty and allurement of some of the flies encountered on every walk, whether by field or wood, by hill or valley. If only he could find out something about them, could name them and learn their life-histories! But there was no book available to "a beginner": the only way to learn about the Diptera was by a study so exacting as to preclude taking an interest in any other Order. The tyro soon found that butterflies and moths, grasshoppers and dragonflies, beetles even, could be identified, nine times out of ten, almost at a glance. Not so the Diptera. Something more than observation of shape and size and colour and markings was required if one would identify the great majority of species with certitude.

Now at last has appeared the book of which beginners have been in need for so long, and, happily, it is altogether excellent. We hope and

believe that it will increase the number of dipterists in this country considerably. In spite of the vast amount of information it contains it is terse and always very much to the point; it is attractively written (the story of the friendly cow which assisted the author to collect *Tabanus bromius* L. will delight all field entomologists) and it is lavishly illustrated; there are 48 coloured plates and 55 black and white ones. The excellence of these illustrations (all by Mr. C. O. Hammond) is remarkable. The introductory chapter with its most useful diagrams, the appendix on collecting, preserving and examining specimens, the glossary of terms in common use by dipterists—all these are good, practical and helpful. The index is all one could wish. The author and his collaborator deserve the congratulations and thanks of all the younger generation of field entomologists—and of not a few of the older ones too. A word of praise is due to the publishers for the handsome production at so difficult a time.—O.M.H.

[Mr. H. W. Andrews writes: " I have looked through this book and find it excellent in every way. It will supply a long-felt want of a general work on British Flies. Letterpress, plates and figures are all good."—ED.]

THE Bishop's Stortford and District Natural History Society has just issued a list of the macrolepidoptera occurring within six miles of their town. This district, on the borders of Herts and Essex, 32 miles north of London, is not usually regarded as particularly fertile ground for the lepidopterist; but this is probably because it has never been properly worked. The subsoil in the southern area is boulder clay; but north of the town chalk comes almost to the surface in places and there are a good many scattered woodlands, though most of these are of small acreage.

The list has been compiled by seven members of the Society and is a catalogue of 412 species. Forty butterflies are recorded (including an *Apatura iris* so long ago as 1879!) and twelve hawkmoths. But the local Notodonts number no less than 15. It is interesting to note that *Stauropus fagi* occurs *in* the town as well as round about it. Species which are now occurring in the district after many years' absence are: *Pararge aegeria, Argynnis euphrosyne, Nymphalis polychloros, Polygonia c-album, Limenitis camilla, Sphinx ligustri, Polia nebulosa, Apatele aceris, Celaena leucostigma, Boarmia punctinalis,* and *Aethalura punctulata.*

The list is legibly printed and we have not noticed many misprints. The English names (from South's *Moths*) are given as well as the scientific ones (from Mr. Tams's list), and the price is 5s. It can be had from Mr. C. Craufurd, ' Denny,' Galloway Road, Bishop's Stortford, Herts.

The Annual Exhibition of the AMATEUR ENTOMOLOGISTS' SOCIETY will be held on Saturday, 22nd September 1951, from 2 p.m. to 6 p.m., at Buckingham Gate Central Schools, Wilfred Street, London, S.W.1. There will be exhibits of specimens, equipment, apparatus, photographs, etc., and talks by experts including Major Maxwell Knight. All interested in entomology are welcome.

EXCHANGES

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

Wanted—Data from specimens, however few, and data on distribution, habits, etc., of any of the Nymphaline tribe Catagrammidi (Lep. Rhopalocera) Genera: *Callithea, Catagramma, Callicore, Haematera, Perisama, Cyclogramma, Dynamine, Batesia, Callizona, Smyrna, Gynaecia.*—*Terence Parsons, 28 St. John Street, Ogmore Vale, near Bridgend, Glam.*

Wanted—For cash or exchange set or papered specimens of any species of the abovementioned Catagrammid genera, in any condition; some data essential. *Duplicates*—American *Papilio ascolius, thoas, autocles*, etc., *Opsiphanes nicandrus, Morpho rhetenor, deidamia, papirius*, various Ithomiidae, *nobilis*; others of several Families; Assam, *Cynthia erota.*—*Terence Parsons, 28 St. John Street, Ogmore Vale, near Bridgend, Glam.*

LIVING EGGS, LARVAE, PUPAE.

It must be distinctly understood that the publication of the undermentioned offers of exchange is in no way a guarantee for the British nationality, authenticity, or good condition of the species nor for the fertility of eggs. This Notice is not given to throw doubt on the bona fides of exchangers but to absolve the Editor from responsibility in case the privilege of publication on this page should be abused.

Duplicates—Larvae of *A. syringaria, N. dromedarius. Wanted*—Ova of *D. oo*, larvae of *A. villica, E. hera (quadripunctaria).*—*P. N. Crow, 'Belvedere', 40 Salisbury Avenue, St. Albans, Herts.*

Duplicates—Pupae of *P. machaon. Wanted*—Larvae of *C. hyale* (Pale Clouded Yellow), *H. pinastri* (Pink Hawk).—*Peter G. Baker, Lorne End, Grangecourt Road, Harpenden, Herts.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

Editor: E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S.

Assistant Editor: P. B. M. ALLAN, M.B.E., M.A., F.S.A., F.R.E.S.

Treasurer: H. W. ANDREWS, F.R.E.S.

Publicity and Advertisements: F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

The following gentlemen act as Honorary Consultants to the magazine:

Lepidoptera: S. N. A. JACOBS, F.R.E.S.,, Dr. H. B. WILLIAMS, K.C., LL.D., F.R.E.S.; *Orthoptera*: Dr. MALCOLM BURR, D.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: E. C. M. d'ASSIS-FONSECA.

Business Consultant: P. SIVITER SMITH, F.R.E.S.

THE ENTOMOLOGIST'S RECORD is published on the FIFTEENTH day of each month.

CONTENTS

TO OUR CONTRIBUTORS

All material for the magazine should be sent to the *Assistant Editor* at No. 4 WINDHILL, BISHOP'S STORTFORD, HERTS.

We must earnestly request our contributors NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

If REPRINTS of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

Printed by T. Buncle & Co. Ltd., Arbroath.

VOL. 63 No. 10 OCTOBER 1951

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

ANNUAL SUBSCRIPTION 10s. POST FREE
Hon. Treasurer, A. C. R. REDGRAVE,
14a The Broadway, Portswood, Southampton

PUBLISHED MONTHLY PRICE 2s NET

Editorial

This has been a year of upheaval for the *Record*. When Henry Jerome Turner died last December at the age of 94, after occupying the editorial chair for thirty-eight years, his mantle fell upon Thomas Bainbrigge Fletcher, who had become sub-editor in January 1948. But the new Editor was already in failing health and after only a few weeks he was obliged to conduct the *Record* from a sick-bed. Throughout February, March and April the magazine was carried on by the Treasurer with the assistance of a volunteer. At Mr. Fletcher's death on 30th April the present Editor assumed control.

At that moment the fortunes of the magazine were at a low ebb. So much ground had been lost that many of our supporters doubted whether resuscitation were possible. But "where there's a will there's a way", and happily the will was not wanting. It was decided to make the attempt. It is for our readers to judge whether the attempt has been successful; certainly the accession of more than a hundred new subscribers in the last three months indicates that the magazine is slowly but surely regaining its former status.

Throughout these difficult months the conduct of the magazine, apart from the literary side, has been in the hands of Henry W Andrews, who had become titular Treasurer in January 1925. 'Titular' because from the moment he assumed office the entire business side of the *Record* fell to him. Indeed the editorial announcement of January 1925 requested that henceforward "all business matters" should be sent to him. So he became not only Treasurer but Secretary, Production Manager and Advertisement Manager as well.

The *Record* was fortunate indeed in having such a guardian during the troublous days. Imperturbable, and therefore unperturbed, he entered, quietly and effectively, into the plan for the *Record's* revival and by so doing set the seal upon his long association with the magazine.

How thoroughly, efficiently and tactfully Mr. Andrews has carried out his onerous self-imposed duties for twenty-seven years is known to all who have been associated, and have had correspondence, with him. What is probably unknown to many is that at the outset he knew that if he were to accept this duty and fulfil these several tasks efficiently he, a dipterist, would have to give up the study of Diptera in the field and devote his leisure hours to conducting a magazine which from its inception has catered predominantly for lepidopterists.

And now we are to lose his services. When a man's years number threescore and ten and he has devoted a great part of his life to the service of his fellow men it is but seemly we should listen to his request that the burden be now lifted from his shoulders. We rejoice that another who also sets public service above self has come forward to enable Mr. Andrews to spend his remaining years 'in the field'. On behalf of all our subscribers we welcome Mr. A. C. R. Redgrave as his successor and to the retiring Treasurer we say "Happy days and good hunting to you for many a long year!"

Editor.

On Breeding *Colias croceus* Fourcroy

By R. Everett Warrier.

I was in West Wickham in June 1949 and noticed a typical female *C. croceus* in a garden. I remembered seeing lucerne growing in patches in a field attached to a school near by, so I fetched a net and searched the field. I saw only one *C. croceus* and that an ab. *helice*, which flew across the field and under the school windows and so escaped. Next day I quartered the same field and found only one *croceus*, probably the one seen on the previous day. It was a worn ab. *helice*. I placed it in a muslin cage and offered it *Medicago sativa* and *M. lupulinus*, on each of which it deposited a small number of eggs during the next three days. In all 59 eggs were laid and all hatched. The brood fed well and all pupated. When the colour showed through the pupal skin just before emergence I noticed that some were much lighter than others and had an almost powdery appearance where the normal black of the wing tips and margins should have been visible. Even then I did not suspect what was in store. They were albinos. Emergence spread over six days as the table shows.

Day of Emergence.	Normal Colour.				Albino.			
	♂	♀ *helicina*		♀ *helice*	♂	♀ *helicina*		♀ *helice*
1	1							
2	1							
3	5	1			4	1		1
4	9	6	1	4	5		1	1
5	3	2		1	1	1		1 crippled
6	3	1		3				
Totals	22	10	1	8	10	2	1	3
	41				16			

Albinos were in the ratio of 16 : 41, which was sufficiently close to a 1 : 3 ratio to make me wonder whether the female parent had arisen from a pairing between a typical *croceus* and an albino and that the albino was recessive.

I determined to try the experiment of mating an albino ♂ and an albino ♀. Under ideal conditions they took no interest in each other. I then divided a muslin cage into three sections and in the centre placed the albino ♂ and ♀, and in the outer sections about a dozen males and females separately belonging to a vigorous brood from a female I had taken at Shoreham in June. Nothing happened. The female was very lethargic and the male almost as much so. Time was passing so I removed the albino male and replaced it by a livelier normal male of the same brood; pairing took place and the pair remained *in copula* for 26 hours. The female remained lethargic and refused to lay eggs even under the best conditions. She had ample flying room, ideal weather conditions, growing food in bloom, and was hand-fed each morning. Nothing happened, and having heard that a couple of males would stir the female up and keep her on the move I introduced two of the very lively Shoreham brood, having no normal males of the albino brood left. These worried her like terriers, until one succeeded in pairing. Oviposition was

Further New Records of Lepidoptera from Cyprus, Iraq and Persia (Iran).

By E. P. Wiltshire, F.R.E.S.

During my first stay in Persia (1937-1942) I spent a year and a half in the Shiraz district (Fars, South-west Persia). It has now been my good fortune to reside there again, and I hope after my present visit to England to return. Conditions have once again favoured travel and entomological exploration, both on my own part and on that of several friends who have kindly collected specimens for me in various parts of the country.

One of the most interesting achievements of my own entomological travels in Fars was the rediscovery of that lovely, comparatively large and extremely rare Fritillary butterfly, *Melitaea sarvistana* Mea (see *Ent. Rec.*, Vol. 56), of which only three known specimens existed before, the two types from Sarvistan which I caught in 1940 and a battered example from the Paghman mountains, Afghanistan, which was discovered in the British Museum collection after the appearance of my description in *Bombay Journal Nat. Hist. Soc.*, Vol. 43 (1941). In the spring of 1950 I revisited the original locality near Sarvistan and took about half a dozen more perfect specimens, all males. The absence of females makes me wonder whether I have yet reached the breeding-ground. I have seen it nowhere else in Persia, but suppose it probably occurs at scattered spots between Sarvistan and Kirman and perhaps also in South-east Persia.

The present article, which is a continuation of my 1949 article, "Some more new records of lepidoptera from Cyprus, Iraq and Iran" (*Ent. Rec.*, **61**, pp. 73, ff.), records for the first time five species of Lepidoptera from Cyprus, three from Iraq, and twenty-five from Persia (Iran), with data and comments. The additions to the lists of the first two countries were taken by myself recently or some time ago, while the additions to the Persian list are the fruits of my most recent stay in Fars with the exception of the new records from Northern Persia, most of which were taken in 1950 by Messrs. George Popov and Charles Garrett-Jones, in the course of other entomological activities. The former collected at various sites in the Elburz range, and in one locality, Gach-i-Sar, he was evidently on the frontier of the submontane forest region of Lenkoran-Gilan-Mazandaran, for the catch at Gach-i-Sar included species typical of that region with others typical of the drier parts of the Elburz range. Mr. Garrett-Jones collected almost entirely at a low elevation in Gilan and Mazandaran, *i.e.* wholly within this region. It should not, however, be thought, that the species which can now be added to the Persian fauna as a result of these catches, are widespread in other parts of Persia, for the fauna and flora of Gilan and Mazandaran is quite different; the region is submontane or low-lying coastal plain, and densely forested, owing to the heavier and more evenly-distributed rainfall. It is not altogether surprising that these two friends of mine should have found in this region species hitherto unrecorded from Persia and that

these species should be partly common and widespread Euro-Siberian species and partly more local, including one Oriental, species of the mesophilous Palearctic fauna.

In the list of Cyprus species, which comes first, I have added notes on three species from Cyprus, already recorded from that island, in order to clear up certain doubts which existed about them hitherto; these three are listed in brackets ( ).

The following eleven additions to the lepidopterous fauna of Persia must also be noted as well as the 25 listed below:—*Trichiura pistaciae* sp.n.m., *Evisa reisseri* sp.n.m., *Agrochola disrupta* sp.n.m., *Sidemia scrophulariae* sp.n.m., *Autophila sinesafida* sp.n.m., *Caradrina zandi* sp.n.m., *Herminia proxima* Chr. *anahita* subsp.n.m., *Lymantria daraba* sp.n.m.*Cidaria tangaba* sp.n.m., *Cidaria apiciata* Stgr. *pistacieti* subsp.n.m., and *Sterrha sordida* Roths. *neavei* subsp.n.m. (=*microptera* Brandt, nec Warr. & R.). These eleven species all inhabit Fars and will be described with full details and illustrations in *Bull. Soc. Fouad I d'ent.* (Cairo) this year (Vol. 35).

It is striking how the semi-arid region of Fars, though previously explored by Brandt and myself, has again readily produced so many interesting novelties, while the better-watered region of Gilan and Mazandaran, though probably far less thoroughly worked by *entomologists* previously, has only produced "new records for Persia" of fairly well-known species, on the whole.

A. CYPRUS.

LYCAENIDAE.

(*Thecla quercus* subsp. *longicauda* Riley.

Previous authors on Cyprus have failed to state that the Cyprus specimens belong to Riley's race, which is also found in the Lebanon/Kurdistan and South-west Persia.

I have taken this butterfly flying around *Quercus lusitanica* in Prodromos village and also round well-grown *Quercus alnifolia* at 3500 feet at Heptavrysi near Prodromos, and in the forests between Kykko and Stavros, in viii.49. It is irregular in appearance, only flying at certain hours and close to certain trees, whose selection seems quite arbitrary. These places are all in South-western Cyprus.)

THAUMETOPOEIDAE.

(*Thaumetopoea solitaria* Freyer.

In my previous article I doubted this record, because the larva was stated to feed on *Cupressus*, which is not the foodplant. However, I can now confirm the occurrence of the moth in Cyprus, having taken several specimens there, 21 & 26.viii.49, Prodromos, c. 4000 feet. *Pistacia terebinthus* grows in this locality and is doubtless the foodplant. It is possible that Zach found the adult moth sitting on *Cupressus*, which might in copying having become changed to a record of the conifer as foodplant.

This is an appropriate place to mention that A. S. Talhouk in his article "A list of insects observed on economically important plants and plant products in Lebanon" (*Bull. Soc.*

Fouad 1er d'Ent., **34**, p. 133) (1950) states that *T. solitaria* has been observed on "*Pinus, Sequoia, Cuppressus*, etc." and quotes my name as authority. A misunderstanding has evidently occurred for my only publication to mention this moth's foodplant was to the contrary effect; I repeat that the foodplant is not a conifer but always some species of *Pistacia*.)

ARCTIIDAE.

1. *Roeselia strigula* Schiff.
   24.viii.49, on wing at dusk, woods, Prodromos, 4000 ft.

AGROTIDAE.

2. *Euxoa cos cycladum* Staudinger.
   25.viii.49, to hotel lights, Prodromos, 4000 ft.
   (*Amathes xanthographa* Schiff.
   Rebel (1939) listed "*xanthographa palaestinensis* Kalchb." as inhabiting Cyprus, being evidently unaware that these two names are in fact two distinct species. I have now verified from the genitalia of my specimen (a ♂) that it is in fact *xanthographa* Schiff. The representation in Cyprus of this group, properly confirmed, is now:—*Am. xanthographa* Schiff. and *Am. pulverea* Hamps. Whether the third species *palaestinensis* Kalchb. occurs there at all is doubtful. My specimen of *xanthographa* was taken in Prodromos village lanes at dusk on the wing, 10.ix.49.)
3. *Epilecta linogrisea* Schiff.
   8.ix.49, pine forests, Prodromos, 4000 ft.

GEOMETRIDAE.

4. *Glossotrophia uberaria* Zerny.
   25.viii.49, to hotel lights, Prodromos.
5. *Boarmia punctinalis* Scop.
   23.viii.49, to hotel lights, Prodromos. The identity was confirmed by genitalia; the specimen was rather small, being apparently a second brood moth; superficially it resembles *B. punctinalis magyarica* Wehrli.

B. IRAQ.

ZYGAENIDAE.

1. *Zygaena cambysea* Led. ssp. (det. Daniel).
   16.vi.35, 5000-6000 ft., Rayat.
2. *Zygaena manlia* Led. ssp. (det. Daniel).
   6.vi.35, 6000 ft., Ser Amadia.

AGROTIDAE.

3. *Catephia alchymista* Schiff.
   10.vii.35, Mosul. (Was referred to as *Anophia* sp. indet. in my article: "Mesopotamian Desert Lepidoptera" (1941).)

C. IRAN (PERSIA).

LYCAENIDAE.

1. *Tarucus mediterraneae* B.B.
   29.x.49, 3000 ft., Shapur, near Kazerun, Fars, South-west Persia; identity confirmed from male genitalia.

BRAHMAEIDAE.

2. *Brahmaea christophi* Staudinger.
v.50, Ramsar, Mazandaran, North Persia (leg. Garrett-Jones).

AGROTIDAE.

3. *Diarsia mendica* F. (=*festiva* Schiff.).
8.vii.50, 75 miles from Tehran on Chalus road, Elburz mts., leg. Popov.
4. *Polia splendens* Hübn.
v.50, Ramsar, Mazandaran, leg. Garrett-Jones.
5. *Polia genistae* Borkh.
8.vii.50, 75 miles from Tehran, on Chalus road, Elburz mts.; and 8-9.vii.50, Gach-i-Sar, Tehran-Chalus road, Elburz mts., leg. Popov.
6. *Polia serratilinea* Tr.
8-9.vii.50, Gach-i-Sar, as above.
7. *Hadena reticulata* Vill.
8-9.vii.50, Gach-i-Sar, as above; also 8.vii.50, 75 miles from Tehran on same road, Elburz mts., leg. Popov.
8. *Leucania pudorina* Schiff.
v.50, Ramsar, Mazandaran, leg. Garrett-Jones.
9. *Cucullia wredowi* Costa.
2-11.i.51, Bushire (leg. Hay-Neave).
10. *Leucania obsoleta* Hübn. (det. Boursin).
14.vi.50, marshy stream near Shiraz (c. 5500 ft.), Fars. (♂ genitalia examined.)
11. *Pfeifferella gracilis* Ost.
4.x.50, 7000 ft., Pireh-Zan oak woods; 2.xi.50, 5500 ft., Hunaifagan, south of Shiraz (vegetation:—*Pistacietum*, *Amygdaletum*, *Crataegetum*). Both these localities are in Fars, Southwest Persia. (N.B.—Brandt appears to have taken this species but considered it the female of *Meganephria renalis* Mea (=*crassicornis* Brandt), of which, it should be noted, the female is the same size as the male, not smaller, as is *gracilis* than *renalis*. The error appears in Pl. XXVI, fig. 32, of Brandt (1941) (*Mitt. der Muench. Ent. Ges.*, XXXI, Heft 3).
12. *Athetis lepigone* Moeschl.
v.50, Ramsar, Mazandaran, leg. Garrett-Jones.
13. *Aedophron venosa* Christ.
6500 ft., 9.vi.50, Muk Pass, south of Shiraz; c. 6000 ft., 5 & 14.vi.50, Shiraz mts. Near Shiraz this species flies together with, but outnumbers, *Aedophron phlebophora* Led.
14. *Phyllometra obliterata* Ramb.
18.v.50, *Ramsar*, Mazandaran, leg. Garrett-Jones.
15. *Ophiusa albivitta* Moore.
v, vi, vii, viii, Gardens, Shiraz. Also one ♀, 15-18.v.50, Bandar Pahlevi (Enzeli), Gilan, North Persia (leg. Garrett-Jones).

According to the genitalia these appear conspecific with the Egyptian, not the Cyprian, species of the *algira* L.-group (see Part I of my article (1948) "The Lepidoptera of the Kingdom

of Egypt'' for the structural differences, and the 2nd Addendum (1949), Part II, *id.*, for a discussion of the nomenclature). Brandt's record of *O. algira* L. is probably the same species as the above. The Gilan example especially resembles the Cyprian form, and some of the Shiraz specimens also approach it in facies rather closely. I am now convinced that the genitalia alone provide good characters for distinguishing the two, perhaps more, species, in this group; there are good genitalia characters in both sexes; I no longer consider it possible to distinguish the species from each other by facies. The brightness of the facies seems to depend on seasonal and climatic influences.

16. *Minucia lunaris* Schiff. f. *rufa* Ob.
v.50, Ramsar, Mazandaran, North Persia (leg. Garrett-Jones).

17. *Minucia bimaculata* Ost.
Bred in January and February 1951 from larvae found in Tang-Ab Gorge near Firuzabad, c. 4000 ft., on 7.iv.50, on *Pistacia mutica*. They were full-grown in v.50. A full description of the early stages will be published separately; the larva can be confused with *Anua tirhaca* Cr. The adult differs somewhat from Osthelder's description of the types from Marash, in particular the hindwing colour is not grey but dull glossy copper-brown, and the sub-apical spots on the forewing are black, not ''velvet brown''; they are usually more than two in number and tend to unite into a chain. However, I understand that the types were inaccurately described by Osthelder and approximate in appearance to my specimens and I therefore refrain from describing the Persian form under a separate name.

18. *Herminia cribrumalis* Hübn.
26.v.50, Sari, Mazandaran, leg. Garrett-Jones.

19. *Zanclognatha tarsipennalis* Tr.
v.50, Ramsar, Mazandaran, leg. Garrett-Jones.

ARCTIIDAE.

20. *Phragmatobia fuliginosa pulverulenta* Alph.
v.50, Ramsar, Mazandaran, leg. Garrett-Jones.

GEOMETRIDAE.

21. *Sterrha mancipiata repagulata* Prout.
vi.39, Gulhek gardens, near Tehran; from ova obtained, a second generation hatched in late vii.39. The larva will be described subsequently. Mr. D. S. Fletcher has kindly confirmed the identity from the ♂ genitalia.

22. *Sterrha vulpinaria* H.-S.
3, 12, 15 & 26.vi.50, to light, Shiraz gardens, 5000 ft., South-west Persia. (Probably other records of *St. rusticata* Schiff. from Persia should be corrected to refer to this species, e.g. that of Schwingenschuss (1939) from the Elburz mts.)

23. *Lithostege notata* B.-H.
5.ii.50, 2 & 7.i.51, 27.ii.51, Bushire (leg. Hay-Neave), South-west Persia.

24. *Triphosa expansa* Moore.
8.vii.50, 75 miles from Tehran, Chalus road, Elburz mts., leg. Popov.

PYRALIDAE.

25. *Pyralis pictalis* Curtis.

3.ii.51, c. 3000 ft., Nurabad (Mamassani), Fars, South-west Persia; indoors, apparently breeding in roof (as is the habit also, in the Middle East, of *Pyralis farinalis* L., and *Hypsopygia costalis* (F.), stored-product-feeders in cooler localities). This species is a Paleotropical stored-product-pest. Three specimens were taken, and in all the hindwing was less marked than in figs. 11 & 12, Pl. I, Corbet and Tams (1943) (P.Z.S.), but the ♂ genitalia agreed perfectly with figs. 46 & 49 (*id.*).

Aberrations of *Colias croceus* Fourcroy.

very protracted and only 90 eggs were laid before the female died. Seventy-two in all emerged, 59 normal (41 ♂♂, 18♀♀), 12 *helicina* and *helice*, and 1 ♂ albino.

I made three pairings and laid in a stock of foodplants in pots, and proceeded to rear the fourth generation of the year. Progress was very slow, though I used thermostatically controlled heating, which, however, somewhat limited the ventilation as the weather became colder. Infant mortality was very high. Much of the food I procured from outside when my stock was exhausted was frost-bitten and was not in good condition. Only 31 emerged and were all typical in colour and markings except one male, which had an excess of black extending as a smudge and obscuring the discoidal spot, and all were very small. Mr. Tunstall reared a considerable number and had a similar result. No albinos were bred.

99 Braidwood Road, Catford, S.E.6. 12.vi.51.

A note on the genetics of *Colias croceus* Fourcroy ab. *cinerascens* Rowland Brown

By E. A. Cockayne, D.M.

In the original brood 12 females were normal in ground colour and 13 were ab. *helicina* or *helice*, the sex-controlled dominant female form, showing that the female parent was heterozygous for the *helice* gene, the expectation in such a case being 1 : 1.

All albinos in Lepidoptera, of which the genetics are known, are recessive and there is little doubt that Mr. Warrier is correct in assuming that the albino is recessive to normal *croceus*, the ratio of 16 : 41 is very close to the expected ratio of 1 : 3. The brood shows that the albinos and ab. *helice* are inherited independently.

In the next generation it is clear that the first male was heterozygous for albinism and the second male, the Shoreham one, was a homozygous *croceus*. It is impossible to say how many eggs were fertilized by the first male, but probably very few were, since only one albino was bred and half the offspring of this pairing should have been albinos.

All the rest of the brood must have been heterozygous for albinism, since the female parent was an albino, and yet no albinos were bred from the pairing of two of these heterozygotes, though the expectation is 1 albino : 3 normal. Mr. Warrier bred 31 and Mr. Tunstall bred a considerable number, but these were the result of three pairings and the individual broods must have been small.

I can think of only one possible explanation. E. B. Ford showed that when normal *Cleora repandata* L. and a dominant melanic form are bred under optimum conditions, both appear in the expected ratios, but when the larvae are starved at frequent intervals the ratio of normal to melanic *repandata* is much below that expected.

I think the albino *croceus* may be a parallel case. Albinos appeared in the expected proportion, actually slightly in excess of it, in the first brood, which had plenty of sunshine, fresh air, and good food, but in the last generation there was a high mortality among the very young larvae and the older ones had artificial heat, very little ventilation, and frost-bitten food, and the number reared was small.

I suggest that all the albinos died and many of the normal ones. Even the normal ones which survived produced small butterflies. Selective mortality of albinos would account for their absence in all three broods. Mr. Warrier says he is convinced that the albino in the perfect state is weak. Neither males nor females showed the natural vigour of the normal *croceus*, and the females particularly were most lethargic.

Four specimens of the first brood are figured in the *Transactions of the South London Entomological and Natural History Society*, 1949-1950; Pl. 2, fig. G normal ♂, fig. E normal ♀, fig. H. albino ♂, fig. F albino ♀. The correct name for the albino is ab. *cinerascens* Rowland Brown (*Entomologist*, 1921, **54**, 156). Ab. *schiberi* Oberthür (*Lép. Comp.*, 1923, **21**, (2), 171, Pl. 571, fig. 4918) is a synonym.

8 High Street, Tring, Herts.

A Contribution to the genetics of *Lasiocampa quercus* L.

By B. J. LEMPKE.

When breeding *Lasiocampa quercus* L. from the egg indoors (from Dutch material) I have never succeeded in obtaining a true hibernation of the larvae. They continue feeding, and by forcing them a little (*e.g.* by shutting the windows at night) it is easy to get practically all the larvae pupated before the end of the year. The pupae hibernate and the moths begin to emerge in May. The fact that hibernation of the larvae can thus easily be avoided makes *L. quercus* an attractive species for genetical research, though the difficulty of only one generation a year of course remains.

From 1946 to 1949 I reared several broods, and although not all the data which I noted are "new to science" I hope it will be of some interest to give a report of the results obtained.

I. f. *olivaceo-fasciata* Cockerell. In June 1946 I received 50 larvae from the north of the Dutch province of Drente; these will be discussed in this paper under III. One of them produced a ♀ *olivaceo-fasciata*, the first I ever saw. While I was debating whether or not I should kill it for the cabinet it paired with a phaenotypically normal ♂, and this put an end to my doubts. That same night it laid a large batch of eggs. I reared the larvae indoors, fed them with willow and, when this was no longer available, with privet, and about Christmas almost all had spun their cocoons.

At that time I did not know anything about the genetics of *olivaceo-fasciata*, but from the great rarity of the form I presumed it to be a recessive. I expected to breed nothing but normal specimens, but when the F_1 appeared (from the first week of May till the beginning of July) I was surprised by the appearance of several *olivaceo-fasciata*. This could of course be explained by assuming the normal ♂ parent to be heterozygous for this form. If we indicate the *ol.-fasc.* character by the letter o, the combination would have been oo×Oo, and the result be $\frac{1}{2}$Oo+$\frac{1}{2}$oo.

The actual result was, however, that I obtained 6 specimens of *ol.-fasc.* (5 ♂♂ and 1 ♀) and 30 normal ones (20 ♂♂, 10 ♀♀). Not all the

larvae succeeded, however, in spinning their cocoons or in producing healthy pupae, and the great majority of these failures must have been *ol.-fasc.*

A further disappointment was that none of the *ol-fasc.* ♂♂ would pair with either the sole ♀ of that form or with a normal one. This was a very remarkable fact, as a *quercus* ♂ will pair as soon as its wings are dry. If, however, my supposition that the form is a recessive was correct, all normal specimens would have to be heterozygotes. These paired readily and two broods were reared. The summer of 1947 was a hot one, and by the end of September all the larvae had already spun their cocoons. This time they were not reared indoors but in the garden of one of my friends.

The 82 cocoons produced an F_2 of 50 moths in 1948. The combination $0o \times 0o$ must theoretically result in $\frac{1}{4}00+\frac{1}{2}0o+\frac{1}{4}oo$. The actual figures were: 34 *quercus*, 16 *ol.-fasc.*, so that there was a small surplus now of the latter. There was no difference between the homozygous and heterozygous *quercus* specimens, so that I did not continue breeding from them. I found, however, a couple of *ol-fasc.* paired in the breeding-cage, and I kept this female for eggs. Contrary to the rule, it started laying only on the second night, laid much fewer eggs than a normal ♀, and only a part of them hatched. The 17 cocoons of this brood produced only 4 or 5 moths in 1949, 1 *ol.-fasc.*, the others true *quercus*! This surprising result can easily be explained when one remembers that a *quercus* ♀ will pair more than once (cf. *Ent. Rec.*, **58**: 133, 1946). Obviously the ♀ had already paired with a (heterozygous) *quercus* ♂ before I found it *in cop.* with the *ol-fasc.* ♂.

From these results I think we may safely conclude that *ol.-fasc.* is a simple recessive. This conclusion has also been reached by the Danish lepidopterist Gjaldbaek, whose breeding experiments were published by Hoffmeyer in his *Danske Spindere*, p. 100 (1948). My breedings suggest that the form is not a very favourable one for the species. The refusal of the F_1 males to pair, the great mortality of the form in the F_1, the ♀ of the F_2 starting laying only the second night and producing only a very small brood—any one of these irregularities might be accidental but not all of them, I think, together.

As regards the facies of the moths, the ♀♀ are rather uniform. They are of a blackish red-brown with a more or less clearly visible greenish (but sometimes dirty dark yellow) postdiscal band, the nervures darker than the ground colour, the white central spot sharply contrasting. With a single specimen the ground colour is more reddish.

The ♂♂ are very dark reddish brown, redder (and therefore paler) than the ♀♀. In most of them the postdiscal band is distinctly greenish. In some, however, this band is dirty dark yellow on the upperside, and only slightly greenish on the underside. Their ground colour is also paler (but still much darker than with normal ♂♂), so that they are phaenotypically more or less intermediate. Yet they are genetically true *ol.-fasc.*, as in my breedings the true intermediates (that is to say the heterozygotes) are indistinguishable from *quercus* ♂♂. Such a ♂ was also caught wild in 1950 in a quite different part of Holland.

There has been some controversy about the question whether larvae producing *ol.-fasc.* could be distinguished from those producing *f. quercus*

(cf. Ford, 1937, *Biol. Reviews*, **12**: 466). In my breedings all larvae were of the same tint and could not be separated into two series.

II. f. *basipuncta* Tutt. There can be little doubt that this ♂ form with the yellow spot at the base of the forewings is also a hereditary one. It is no doubt multifactorial, as the extension of the spot varies a good deal. In Holland the form is not equally distributed over the whole country. In the north (provinces of Friesland, Groningen and Drente) it is very common, often beautifully developed; in the south (North Brabant, Dutch Limburg) it is a rarity.

In 1947 I received a number of larvae from Dwingelo, a locality in Drente. I also had a small number of cocoons from Epen, in the extreme south of Dutch Limburg. The Limburg stock had already been bred for several generations and only produced ♂♂ without the basal spot. Incidentally I may mention that I do not know of any specimens from this district with the spot.

Unhappily I had only Limburg ♂♂ when the Dwingelo brood hatched; so I was obliged to cross Dwingelo ♀ × Epen ♂. Now the difficulty is that the *basipuncta* character is sex-limited, so that it is impossible to see if the male offspring of a ♀ will possess the factor. All Dwingelo ♂♂, however, showed the basal spot, so that there is at any rate a great probability that the ♀ also belonged to the family.

The F_1 brood of this cross only produced ♂♂ without basal spot. The F_2 was not large. Only 6 ♂♂ resulted from it, 2 of which showed traces of a spot, 4 were without. Though a definite conclusion is not permitted in this case these breedings made it at any rate very probable that *basipuncta* is recessive to the form without the basal spot.

III. The red-brown larva. The principal form of the larva in Holland is the well-known one with grey-brown ground colour in the last instar, which is figured in all the text-books. But mixed with it another occurs having a beautiful red-brown colour, which strongly reminds one of the larva of *Macrothylacia rubi* L. As far as I know this form occurs, however, only in the three northern provinces of the country. The percentage is not the same everywhere. Of the 50 larvae with which I started in 1946, no less than 46 were of the red-brown form. At that time I did not think of separating the 4 grey-brown ones from them, so that I was not certain that the ♂ and ♀ with which I started the *olivaceo-fasciata* breedings both originated from red-brown caterpillars. But in this case fortune favoured me, for all larvae of the F_1 and F_2 generations were red-brown. This proved that the red-brown larva could be bred in a pure line.

It was, however, my experience with the *basipuncta* factor, described under II, which induced me at the same time to investigate the heredity of this particular larval form. The ♀ from Dwingelo resulted from such a larva; the ♂ from Epen arose from a normal larva. I could be pretty sure that the Epen larvae were homozygous for grey-brown, because they had been bred already for several generations. Moreover a red-brown larva has never been found outside the three northern provinces. The results were as follows:—

F_1: all larvae grey-brown;
F_2: 80 larvae grey-brown, 28 red-brown.

It is clear therefore that the red-brown larva is recessive to the grey-brown one, and unifactorial. The theoretical figures in the F_2 generation are: $\frac{3}{4}\times 108$=grey-brown, $\frac{1}{4}\times 108$=red-brown, so that the result obtained is as good as could be wished. It is advisable to count the two colours only in the last instar, as they can easily be separated then.

The colour of the larva has not the least influence on that of the imago. Besides the larvae from Dwingelo I had also a series from Wijster (another locality in Drente) in 1947. Both series contained the two larval forms, which were reared separately. There was no difference whatever in the moths. This is in accordance with the rule stated by Lorkovič, that aberrations of larvae and pupae are in their genetical behaviour quite independent from those of the adults (1930, *Zeitschr. Oest. Ent. Ver.*, **15**: 66).

The result of the investigations may be summarized as follows:—

1. f. *olivaceo-fasciata* Cockerell is a simple Mendelian recessive.
2. The heterozygotes of this form are phaenotypically inseparable from true *Lasiocampa quercus*.
3. f. *basipuncta* Tutt is very probably multifactorial and recessive to the ♂ form without basal spot.
4. The red-brown larva is a simple Mendelian recessive to the normal grey-brown one.

Oude Yselstraat 12iii, Amsterdam, Z.2.

Some Observations on *Coscinia cribrum* L.

By H. Symes, M.A.

Having just succeeded in breeding a small series of *Coscinia cribrum* L. (*cribraria* L.) I think my experiences with this species may be of interest. A previous attempt in 1949 was a complete failure. Two small batches of eggs, laid on 20th July, hatched on the 29th of the same month; but the larvae, about 25 in number, never really got going. They were given dandelion and lettuce leaves, on which they fed sparingly; but they gradually died, and only five survived until the end of September. These five were then sleeved over a potted dandelion plant, and left out of doors through the winter. On 18th February 1950 I examined the sleeve and found one larva still alive. It lingered until the end of April, when it died without, apparently, having resumed feeding.

On 13th July 1950 a female taken in East Dorset laid about a dozen eggs which hatched in ten days. The larvae fed steadily on withered dandelion leaves, which they preferred to lettuce, heather or groundsel. They were a much healthier brood than my 1949 larvae, and when they ceased feeding at the end of September I sleeved them on a cut sprig of heather, inserted the stem in a jam jar filled with wet sand, and left them out of doors through the winter, facing east and sheltered from the heaviest rain by a small pent-house.

On 2nd March 1951 I examined the sleeve and found that nine larvae had survived the winter: the presence of some small pellets of frass showed that they had nibbled the heather. I gave them a fresh sprig and left them in the sleeve until the end of March, when I moved them to a breeding-cage, for better observation. I gave them fresh heather and some groundsel and withered dandelion leaves.

During April I kept them under constant observation. At the beginning of the month the larvae changed their skins, assuming the penultimate instar. They fed steadily on a mixed diet of heather, preferring the fresh green tips but occasionally eating withered flowers, dandelion, preferring withered leaves but sometimes eating fresh ones, and groundsel, of which they ate both leaves and flowers. They ate very slowly and deliberately. One larva took more than an hour to consume the yellow part of a single groundsel flower. They were very sluggish in all their movements in the breeding-cage. Their favourite feeding times were between 8 and 10 a.m. b.s.t. and 4 and 6 p.m. In April they would bask in a sunny spot in the cage, but as the sun became hotter in May they spent most of the day among dead leaves and moss at the bottom of the cage. On 13th May one of the larvae changed into its final instar: the rest did so within a week. On 16th June I found that two of the larvae had pupated. All nine eventually did so. They spin a very slight cocoon. Two larvae chose corners at the top of the cage, the rest spun up in small tufts of mat-grass, dead leaves or lichen at the bottom. In due course nine moths, of which seven were females, emerged, the first on 7th July and the last on the 13th. They were all very fine specimens, larger than any wild ones I had seen.

I have searched for the larvae many times, but only once with success. On 18th May 1951 Dr. H. King and I each found three larvae. They were all resting on the ground or very low down on heather or dwarf gorse, not feeding but apparently sunning themselves in the very scanty sunshine of that day. Mine ate very little and were all dead by 25th May. I kept the corpses and on 20th June an ichneumon fly emerged from each.

It is not difficult to obtain a reasonable number of the imago in the daytime, nor is bright sunshine necessary. On a dull morning in July 1949 seventeen specimens were taken by the Rev. F. M. B. Carr, Mr. J. D. C. Boyes and myself, and this was not the only time that I have taken the species in dull weather. But little success can be expected in a strong wind or, of course, rain. My experience in the past three years is completely at variance with the remarks in Tutt's *Practical Hints*, vol. 2, p. 77. The moths can be seen resting near the top of a sprig of heather and may often be captured before they take to flight. The female, indeed, is most reluctant to leave its resting place and can be boxed as it sits, while it is quite easy to follow the flight of the male and take it when it settles again.

The eggs, when first laid, are very beautiful: they are a pale golden colour and highly polished in appearance. In 1950 I found several batches laid in clusters round heather stems and near the top of the plant. They were quite conspicuous at first, but after a few days they lost their original colour and turned purplish-brown, and were therefore almost invisible against a heather background.

The Annual Exhibition of the South London Entomological and Natural History Society will be held on Saturday, 27th October 1951 at the rooms of The Royal Society, Burlington House, Piccadilly, London, W.1. It will be open from 11 a.m. to 6 p.m.

Lepidoptera near the Dorset Coast

By Paul H. Holloway.

Approaching Worth Matravers by car at noon on 8th July 1951, we looked across the cloud-capped valleys from the Dorset hills; thin, misty cloud drifting slowly southwards at a lower altitude than ourselves, creeping up the hillsides until we were enveloped in the same warm grey mist. Occasional drizzle in the varying winds made little difference to the abundance of butterflies and burnet moths, although more sunshine would have resulted in a greater number on the wing. On the rocky hillsides the wild red Valerian made bold contrast to the green foliage and the blue-green of the sea visible at the end of the valley; a vast, tranquil expanse upon which rested a solitary white sail.

The local race of *Plebejus argus*, somewhat smaller on an average than the typical form and paler in shade in the male, was seen in hundreds, while *Polyommatus icarus* and *Cupido minimus* were quite plentiful and the first appearance noted of *Lysandra coridon*, a solitary male.

Maniola jurtina almost equalled *P. argus* in numbers but no variation was observed, *Melanargia galathea* was well out and the commoner 'Skippers' very prominent, one *Thymelicus acteon* also being recorded.

We were pleasantly surprised to find a large number of confluent-spotted specimens among the numerous *Zygaena trifolii*. Both this species and *Z. filipendulae* were carefully examined for variation, which was an easy matter when so many were resting on grass stems or clustered round the flower-head of a Knapweed while the sun was obscured, and the results obtained were promising. One yellow *Zygaenid* was reported in flight but escaped unidentified.

The several *Callimorpha jacobaeae* observed were of a lighter shade than usual, probably slightly faded after a long period of maturity, although still thickly scaled. Being a late season it seems within the bounds of possibility that this is a paler local form.

On our return down the long, winding hills, with the dense forests rolling away across the valleys to the west, presenting a panorama of Dorset country unsurpassed in splendour, we realised that a further survey should result in equally interesting observations and captures.

It happened that on 22nd July we drove through the worst thunderstorms in my experience. The rain ceased for a short while and mist obscured the cliff-tops. From the rugged coast, deserted excepting a few restless Herring Gulls, the only sounds were the crying of Gulls and waves lashing the shore. The sea faded away to an invisible horizon in the grey haze of early afternoon.

During this fair period the butterflies made frequent flights. *Maniola jurtina* and *Melanargia galathea* were very common and mostly in good condition. *Lysandra coridon*, all very fresh males, abounded. *Plebejus argus* and *Thymelicus sylvestris* were still fairly well represented and just a few *T. acteon* were boxed from the grass. A few *Zygaena trifolii* and *Z. filipendulae* were examined, but no variation noted.

Drizzle developed in intensity until, on our homeward journey, we were again accompanied by thunderstorms.

We were favoured with improved conditions on our third visit, on 29th July, although the sun failed to appear. There was an abundance

of *T. acteon* and *T. sylvestris*, *M. galathea* (still emerging), *M. jurtina* and *L. coridon*; the females of *coridon*, however, were not yet fully out although well represented. *Argynnis aglaja* raced across the slopes, making pursuit impossible. *P. argus* was still there, *Maniola tithonus* appeared casually and the commoner "Whites" were frequently seen. *Z. filipendulae* showed signs of deterioration, the first appearance this season of the colourful *Prothymnia viridaria* was noted, while *Ortholitha bipunctaria* was the commonest moth.

Grasshoppers were everywhere, including the much prized Great Green (*Tettigonia viridissima*).

An entomological friend who had been staying in this locality for the past week told us of the exciting encounter he had with *Nymphalis antiopa* one day during the week, missing it with the net by a few inches.

We left Worth Matravers with many pleasant memories: the gaunt, rugged cliffs; the dusty road winding through the valley to the smooth, sea-washed boulders; the lonely caravan on the hill. But the most thrilling experience to us was the galaxy of butterflies flying around us as we made our way slowly across the grassy slopes.

The Early History of the Swallow-tail Butterfly (*Papilio machaon* L.) in England

By R. F. Bretherton.

Wicken Fen in Cambridgeshire and the marshes round the Norfolk Broads are now the only places where one can count on seeing the Swallow-tail butterfly naturally at large in Britain. In addition, one might be lucky enough to find some occasional immigrants or their offspring along the South Coast from Kent to the Isle of Wight. But it was not always so: there is evidence that in the 18th and early 19th Centuries the Swallow-tail was much more widespread. It seems worth while to review this evidence, and to try to determine to which subspecies of the insect it refers.

It is now well recognised that our Cambridge and Norfolk Swallowtails belong to the indigenous sub-species *britannicus* Seitz, while those found on the South Coast are of the West European lowland sub-species *bigenerata* Verity. The two are usually distinguishable at a glance; for in *britannicus* the dark markings are broader and heavier and the area of the primrose ground colour much reduced, especially on the hindwings and at the apex of the forewings. But occasionally intermediately marked specimens occur about which, if they were found alone, there would be doubt. The two sub-species are shown on the same plate by Dr. E. B. Ford (*Butterflies*, plate 48), and the differences there are obvious; but in early hand-painted illustrations it is not easy to be sure which is being portrayed. There are also differences of food-plant, habitat, and life-cycle. In the wild state the larvae of *britannicus* are almost exclusively found on the Marsh Parsley (*Peucedanum palustre*), and the insect seems to be quite unable to establish itself outside undisturbed marshland; while *bigenerata* uses a wide range of Umbelliferous food-plants, both on the Continent and when it is found at large in England, and it frequents meadows, gardens, cliffs and hillsides, often of the driest kind. Mr. B. C. S. Warren has also recently

shown that *bigenerata* is rigidly compelled to produce two broods in the year and can only survive if the larvae of the second have time to feed up and pupate before the winter. *Britannicus* has a more flexible constitution. Its main emergence is spread over a long period from May to early July, and the offspring of early butterflies may either fit in another brood in August and September or over-winter as pupae, apparently according to weather conditions.

Mr. P. B. M. Allan tells me that the first clear mention of *Papilio machaon* in English entomological literature appears to be in James Petiver's book *Musei Petiveriani Centuria Prima Rariora Naturae* of 1695, where it is called "The Royal William"; but I have not been able to examine a copy of this. Ray names it in his *Historia Insectorum* of 1710, but says nothing of its distribution. Petiver's *Papilionum Britanniae* of 1717 has an uncoloured figure of what seems to be *bigenerata*, and says: " this has been caught about London and in divers counties of England, yet rarely." Benjamin Wilkes gives a detailed account in his *The English Butterflies and Moths*, published between 1747 and 1760: " the first brood appears in May, the second towards the end of July. Being in a meadow near Cookham in Kent, on 5th August 1748, I observed a female hovering over certain plants, which, taking particular notice I found to be the Meadow Saxifrage (*Seseli pratense*) . . . It may be taken in meadows and clover fields about Westram in Kent."

Unfortunately his beautiful plate shows only the larva and the foodplant, Common Fennel, on which he bred it, though in an earlier work of 1742 he gave a pair of black and white illustrations which resemble *bigenerata* more than *britannicus*. Moses Harris in 1766 in *The Aurelian* gives a figure which also appears to represent the former, and says " the flies appear in May and August, meadows, Bristol and Westram"; and Donovan's very bad figure of 1797 seems to be the same: but since he remarks that specimens preserved in British cabinets were generally brought from Germany it may not portray a British Swallowtail at all. In 1803 Haworth wrote that the larva lived on umbelliferous plants in July and September, and that the imago was to be found in late May and early August, but uncommonly enough. He gave no distribution, but remarked in his preface that he knew that it still bred near Beverley in Yorkshire and that his brother-in-law possessed a specimen taken there some seven years earlier. Samouelle in 1819 said: " very local, but occurs near Bristol and Beverly and has been taken plentifully near the New Forest in May and August."

More detailed evidence can be extracted from the manuscript Entomological Journal of J. C. Dale, which is deposited in the Hope Museum at Oxford. Dale's own diary is prefaced by some pages copied from Dr. Abbot's *Entomological Calendar* for 1798 to 1804. This records the finding of a larva of *P. machaon*, nearly full-fed, at Windlesham, Surrey, in the last week of June, 1798 or 1799, which emerged on 10th August. Dale himself records seeing a Swallow-tail at Wimborne, Dorset, in 1805, and his father several at Batcombe in 1806; and from 1808 to 1816 he saw or took between 40 and 50 at Glanville's Wootton (now usually called Wootton Glanville). The relevant extracts may be summarised as follows:—

1808—22nd, 26th, 27th June, 2nd, 5th, 13th July	6
27th July to 3rd August	14
1809—17th, 19th, 31st August, 1st September	4
1810—16th, 19th, 24th August	3
1811—5th, 8th August	3
1812—14th and 22nd July, " not worth catching "	3
1813—11th June	1
12th July, 11th, 14th, 20th August	6
1814—1st August	1
1815—31st July (2), 17th August, " the last I took here " ...	3
1816—22nd June, " the last I *saw* here "	1
	45

In several cases the diary shows that these Swallow-tails were taken, not in any marsh, but settled on flowers often on the very top of the chalk hills above Glanville's Wootton; and their annual occurrence, often in two broods and nearly twenty miles inland, makes it clear that they must have represented an established colony and not mere immigrants. The dates and habits suggest that they were *bigenerata*; but unfortunately the only surviving specimen which I can trace—the female taken on 17th August 1815—is of intermediate markings, and Mr. E. Taylor, who examined it at my request, reports that neither he nor others are prepared to swear which race it belongs to! The colony appears to have died out suddenly and completely; for, though J. C. Dale lived and kept his diary at Glanville's Wootton until his death in 1872, he never saw a Swallow-tail there after 1816.

C. W. Dale in 1890, apparently drawing on information which had been available to his father, added that about 1808 it was also taken in great plenty in Cowslip Meadow, near Lymington, Hants., and at West Camel and Rimpton in Somerset, and in Glamorgan. He also quotes White's *Natural History of Selborne* to show that it had occurred at Selborne, Hants., and several times on dates between 20th April and 28th August at Catsfield, near Battle in Sussex.

In East Anglia the Swallow-tail can hardly have escaped the notice of those persons who discovered the Large Copper in the Huntingdonshire fens about 1793 and near Ely a few years later. C. W. Dale says it was taken there in plenty near Wisbeach by Mr. W. Skrimshire. But serious collecting in the fens seems only to have begun in the second decade of the new Century. J. C. Dale went to Whittlesea Mere from Cambridge for the first time in 1814, and saw 28 Swallow-tails there on 16th June. He recorded a similar number there between 22nd and 26th June 1818; and between 22nd and 26th July 1819, besides finding the first British larva of the Reed Tussock (*Laelia caenosa* Hubner) and seeing his first Large Copper, he obtained a great number of Swallow-tail butterflies around Whittlesea and Trundle Meres and some larvae in Bardolph Fen, Norfolk, from which butterflies emerged in the following June. He noted Swallow-tails again, with the Large Copper, at Whittlesea on 21st June 1826, and on 18th/21st July 1827 he saw one butterfly and several larvae. But after his last visit to the Fens in mid-July 1837 he notes: " Towards Whittlesea Mere—no Coppers or Swallow-tails: nor any at Milton (near Peterborough) this year".

Nevertheless, the headquarters of the Swallow-tail did not become generally known for some time. Samouelle failed to mention it in 1819, and the first published reference seems to be in 1824, in *The Butterfly Collector's Vade Mecum* by Miss Lœtitia Jermyn of Ipswich. Depending no doubt on local knowledge, she gave its distribution as Catton and Acle in Norfolk and Cherry Hinton, Madingley and Whittlesea in Cambs.; in her second edition in 1827 she added Horning and Grantchester. Her plate represents an unmistakable female *britannicus*. Stephens in 1828 described it as a " not uncommon English insect, especially in the fenny counties of Huntingdon and Cambridge . . . Two broods generally supposed; but from the observations of my deceased friend, E. Blunt, Esq., I presume this is inaccurate, as he had taken the larvae in all its stages at one time, and the perfect insect continued to make its appearance with regularity from the end of May to the middle of August." All this clearly refers to *britannicus*; but he went on to say that the Swallow-tail had sometimes been captured close to London, in Epping Forest, at Stepney, and near Peckham, and refers to its occurrence in Dorset, Yorkshire and near Bristol. In 1836 Curtis mentioned only Norfolk, Cambridge, Whittlesea, and Dorset. Neither he nor Stephens gave plates of the Swallow-tail, no doubt because by then it was too well known for this to be worth while. It was, however, figured again, in the *britannicus* form, by Humphreys and Westwood in 1841; but, as Dr. E. B. Ford has pointed out, in their 1849 and later editions this was replaced for some unexplained reason by a figure of *bigenerata*, equally said to be drawn from an English specimen. So far as I know, all illustrations of British Swallow-tails in later works represent *britannicus*.

After the Swallow-tail came to be freely taken in East Anglia later records of its occurrence elsewhere are often suspect because of the many releases of bred insects and of amateur attempts at establishing larvae which were made in many parts of the country. Nevertheless Edward Newman, who went into the matter with his eye on this fact, in 1869 felt able to add to the list of places where it had been at some time a resident insect. He quotes records from Hazlebury Common and Cranbourne as additions to J. C. Dale's evidence for Dorset; and he mentions some more early records for the New Forest and Stainton's statement that it was common near Pulborough in Sussex. In the London district, he said that he had himself repeatedly found the caterpillar feeding on rue in a garden on Tottenham Green, Middlesex, "probably fifty years ago" (*i.e.* about 1819). He also cited a note by George Austin in *The Entomologist's Weekly Intelligencer* for 1856, referring to the finding of the larvae, year after year, in the osier beds behind Beaufoy's Distillery in Battersea Fields, Surrey, though he had never seen it there in the winged state. (It would be too much to hope that the Swallow-tail will grace the Festival Fun Fair there a century later!). Elsewhere, Mr. Norman Riley tells me that the only two British Swallow-tails in the British Museum collections, which come from outside the Fens, are a pair taken at Petworth, Sussex, " not later than the year 1855 ": these are certainly *bigenerata*. Dr. E. B. Ford has noted the belief that in early times Swallow-tails were found regularly round Hythe in Kent, and has pointed out that in our own time the numbers and circumstances of the records of butterflies and larvae suggest

that it is very nearly able to keep a permanent foothold along the South-east Coast. Several of these recent captures, of which no less than 70 were reported in 1945, have been firmly identified as *bigenerata*.

The pictorial, literary and museum evidence about the early Swallow-tails is scrappy and often obscure. But taken as a whole it seems to justify the following conclusions: —

(1) The Swallow-tail was known to 18th Century entomologists almost exclusively in the Continental form *bigenerata*.

(2) Though it was not common, this form was regularly resident for long periods in Southern Britain, even well inland, from Glamorgan through Somerset and Dorset, Hants, Sussex, Kent, and South-west Surrey, until about the second decade of the 19th Century.

(3) The Swallow-tail was also resident around London, on both sides of the Thames and in the Lea Valley, possibly until considerably later. The type of ground frequented there suggests that these specimens may have been of the Fenland sub-species *britannicus*; but the fact that all the early figures of the Swallow-tail seem to refer to *bigenerata* tells the other way, since most of the early writers worked in London and would have been most likely to figure insects caught nearby. As to the identity of the Yorkshire specimens there is no indication at all.

(4) In the Fens, the Swallow-tail had a much wider distribution than at present; but in Norfolk, so far as the scanty evidence goes, there does not seem to be much difference.

In Fenland, the contraction of the range of *britannicus* was no doubt due to the progressive drainings of the Huntingdonshire meres, which was completed about 1850; and the draining and urbanisation of the Thames marshes may have caused its destruction round London, if the London race was in fact *britannicus*. But the disappearance of *bigenerata* as a resident cannot be similarly explained, since its catholic tastes in habitat and food-plants would have protected it here, as they have done across the Channel, from most changes due to human agency. It seems likely that a climatic deterioration was responsible. I believe that the meteorologists consider that the climate of 18th Century England was more ' continental,' with hotter summers and colder winters, than it afterwards became. It may be significant that 1816, the year in which the Swallow-tail disappeared from Dorset, had the lowest accumulated summer temperature since 1750, and was the last of a progressively deteriorating decade. Similarly, the recent signs of partial re-establishment of the Swallow-tail in the South-east may probably be associated with climatic improvement; the decade 1940 to 1949 shows average summer temperatures markedly above the average, though not reaching the average levels of the warmest recorded decade, from 1772 to 1781.

REFERENCES.

Ford, E. B. *Butterflies*, 1945.

Warren, B. C. S. The Central European Races of *Papilio machaon* and their Nomenclature (*Entomologist*, 82: 150, 1949); Biological Notes on the Subspecies Alpica and Bigenerata of *Papilio machaon* (*Entomologist*, 84: 11, 1951).

Ray, John. *Historia Insectorum*, 1710.

Petiver, James. *Papilionum Britanniae*, 1717.

Wilkes, Benjamin. Plates, 1742: *One Hundred and Twenty Copperplates of English Moths and Butterflies*, 1773 ed.
Harris, Moses. *The Aurelian*, 1766.
Donovan, E. *The Natural History of British Insects*, vol. 6, 1797.
Haworth, A. H. *Lepidoptera Britannica*, 1803.
Samouelle, G. *The Entomologist's Compendium*, 1819.
Dale, J. C. MS. Entomological Journal and Diary, 1806/1871.
Dale, C. W. *A History of British Butterflies*, 1890.
Jermyn, Lœtitia. *The Butterfly Collector's Vade Mecum*, 1st ed. 1824, 2nd ed. 1827.
Stephens, J. F. *Illustrations of British Entomology*, vol. 1, 1828.
Curtis, John. *British Entomology*, vol. 13, 1836.
Humphreys, H. N., and Westwood, J. O. *British Butterflies and their Transformations* 1st ed. 1841, 2nd ed. 1849.
Newman, Edward. *An Illustrated Natural History of British Butterflies*, 1869.
Manley, Gordon. The Range of Variation of the British Climate (*Geographical Journal*, March 1851).

British Hawkmoths in East Africa

By D. G. Sevastopulo, F.R.E.S.

Mr. Sneyd Taylor's paper, *British Sphingidae in South Africa* (1951, *Entomologist's Record*, **63**, 16) suggests that a companion article on East Africa might be interesting.

I have met with the same five British species in Uganda as Mr. Sneyd Taylor records from South Africa. The Uganda climate in the districts around Lake Victoria is not tropical, although Kampala is very nearly on the equator, the temperature varies between about 65 and 85 degrees, showers occur almost all through the year, with the exception of a short period from mid-January to mid-March, so that the country is always green and gardens full of flowers. There are no pronounced generations in insects and brood succeeds brood throughout the year. Development is fairly quick, the pupal stage in *H. convolvuli* lasts for about three weeks, a few days more or less depending on temperature.

It will be noticed that the names I have used in the following list are slightly different from those used by Mr. Sneyd Taylor. I have followed Bell & Scott's Sphingidae, *Fauna of British India*, Moths, v.

Acherontia atropos L.—Is widespread but not by any means common. Most of the larvae I have found have been feeding on Jasmine and refuse to change over to Solanaceae in captivity. The larva is often fed on by small blood-sucking flies, I believe a species belonging to the Simuliidae, as many as eight flies having been found feeding on one larva, which apparently suffers neither harm nor inconvenience from the attacks.

Herse convolvuli L.—Is fairly common, coming to light and visiting flowers in gardens. The larvae feed on various Convolvulaceae, including Sweet Potato, on which, as in South Africa, it may be a serious pest. The usual form of the adult larva is the dark one, the green form seems very rare, and some larvae I have bred have been an almost uniform black.

Deilephila nerii L.—Is not very common, not nearly so common as in Calcutta for example. The usual form of larva is the green one, but I have found one example of a dull ochre colour with suffused black lateral patches. These yellow forms appear to be due to a failure of

the blue component of the normal pigment as the outer part of the ocellus and the rings surrounding the white dots are violet in yellow larvae whilst they are a deep indigo in green. I have already drawn attention to the fact that South's figure showed the pre-pupational colouring in a note in the *Entomologist* (1947, **80**, 218), but there seems to be a certain amount of difference in the South African colouring in that stage and that which I have recorded both in India and Uganda. My specimens have always been a deep olive-black or blue-black, I have used both terms in descriptions, on the dorsal area with the lateral and ventral areas a livid orange-pink. The dark colouring occupies only a narrow area on the thoracic somites and there is a divided blackish dorsal plate on the 1st somite. I feel that there may be some mistake in Mr. Sneyd Taylor's mention of Mango and Gardenia as food-plants, as all previous records give only plants of the family Apocynaceae. There is a plant of this family, *Tabernaemontana coronaria*, that is very similar to a Gardenia, and I think that this may have resulted in a wrong identification, although I cannot account for the mango record in this way. In Uganda *T. coronaria* is the favourite food-plant, and I have never found ova or larvae on Oleander, although these may be growing alongside a bush of *coronaria*. The larvae of *nerii* are also fed on by the small Simuliid flies referred to under *A. atropos*.

Celerio lineata L., *livornica* Esp.—Appears to be rare in Uganda. I have only once found an example—an imago at rest in a hedge. In Kenya it appears to be more common and a friend reported having found the larvae very commonly at Magadi, not far from Nairobi. Incidentally, this species is not mentioned in Seitz' Macrolepidoptera, xv, African Bombyces.

Hippotion celerio L.—Is common, the moths coming to light and visiting flowers in gardens. In spite of the common occurrence of the imago, the larva is very rarely seen and I have never heard of it being considered a pest.

Kampala, 25.iv.51.

Flying Butterflies

By An Old Moth-Hunter.

In the July-August issue of this magazine I said something about *Vanessa antiopa* and there is one important matter which I omitted to mention. There is no printed record, so far as I can discover, of the *larva* ever having been found in the wild in this country. In 1876 Surgeon Hele of Aldburgh, Suffolk, found an imago clinging to a post, the wings being limp and only partially expanded, and Parson Bloomfield captured one in his garden in Sussex which promptly discharged meconium, the waste products of pupal metabolism which are usually ejected before the first flight. A pity that neither of these observers looked for the pupa-cases, which cannot have been very far away.

The reason why *antiopa* comes to England in a year when its migratory impulse reaches its peak does not seem to be obscure: it is powerful of wing and the individuals which fly westwards across the North Sea from southern Scandinavia must needs enter our island. The dis-

tance from south Norway or Denmark to our coastline is not much more than 350 miles while from the Netherlands to Yarmouth it is only about 100. With an easterly wind of say 25 m.p.h. even the longer crossing could be made in daylight, between May and August.

The speed at which butterflies travel over the earth or sea is often over-estimated. In his classic book *The Migration of Butterflies* (1930) Dr. C. B. Williams gives a list of the only records of butterfly speeds which he had been able to trace and with the exception of his own careful observations, timed by stopwatch, all of them are merely guesses—interesting no doubt but of little value scientifically. Says Dr. Williams: "I myself was much deceived by the rate of flight, which I estimated as at least 20 m.p.h. until the insects were actually timed over a fixed distance with a stopwatch and found to be moving only about 11⅗ m.p.h." The actual speeds which Dr. Williams himself timed are as follows:—

Catopsilia florella. 15 m.p.h. Following wind.
Catopsilia florella. 12-16 m.p.h. Cross wind.
Catopsilia statira. 17 m.p.h. Wind diagonal with flight.
Catopsilia statira. *c.* 12 m.p.h. Cross wind.
Belenois severina. 6½ m.p.h. Head wind.
Terias senegalensis. 5 m.p.h. Following wind.
Andronymus neander. 11⅗ m.p.h. Cross wind.

The only other records timed by watch which Dr. Williams quotes are one of *Vanessa cardui* observed by Charles Oberthür: it was travelling with a following wind and attained a speed of only 11 m.p.h., and one of *Catopsilia sennae*, observed by L. D. Cleare, which was doing 9 m.p.h. against a head wind estimated at 12 m.p.h.

The maximum speed of a Pierid butterfly in still air measured by R. Demoll in 1918 was 5.14 m.p.h. This approximates to the figure 5.59 m.p.h. recorded, also with a Pierid, by A. Magnan in 1934. Presumably *V. cardui* can fly a little faster than this—but not very much, because the combined speed of wind plus butterfly which Oberthür timed was only 11 m.p.h.

The speed of a butterfly is, of course, superimposed on the speed of the air-stream over the earth if the insect is propelling itself in the same direction as the air-stream relative to the earth or sea. But unlike a bird the butterfly up in the air cannot *see* where it is going, since, the focal length of its eyes being only a few yards, neither the earth beneath it nor distant land is visible to it. And being part and parcel of the medium in which it is borne, *i.e.* the air-stream, if the wind is steady the butterfly is in calm air *whichever way it faces.* As a man running in a perfectly still air feels a breeze only on his *face* in whichever direction he runs, so a wind-borne butterfly is conscious (if I may anthropomorphize momentarily) only of a breeze on its antennae *no matter in which direction it is flying.* If it be travelling in a wind which is passing over the face of the earth at 30 m.p.h. it will feel exactly the same gentle breeze on its antennae whether it be propelling itself contrary to the direction in which the wind is passing over the earth or in the same direction as that in which the wind is passing over the earth. It matters not at all which direction the butterfly faces nor how strongly the wind is blowing *in relation to the earth,* for the butterfly is flying *inside* a virtually still medium—the air-stream.

Then has a butterfly no sense of direction? If it is flying northwards in a wind from the south and the wind veers quickly to the north-west, will the butterfly continue to accord with the direction of the wind relative to the earth, until it is heading south-west? Why do butterflies traversing oceans head for a land which they cannot see? Is it a mere matter of luck whether they ever make land at all, seeing that swarms of butterflies have been observed flying out to sea in a direction which precluded any possibility of reaching ' the other side ' and ensured that they should perish to an antenna? Surely the arrival of Monarch butterflies in the multitudinous islands of the Pacific oceans is a matter of chance—or do you suggest that each individual set a course for a particular island before it left the mainland?

At present only the first of these questions can be answered with any kind of assurance; for the assertion that butterflies do possess a sense of direction and fly in the migrating direction independently of wind changes is confirmed by an overwhelming number of observations, and that a migrating swarm is carried where the wind listeth is no longer credible. The individuals of a migrating swarm *all* travel in the same direction; so do the stragglers following a day or a week or more behind the main body.

And there I must leave it. Yet I would remark that one thing seems plain (if anything at all can be plain in this most recondite matter): since insects flying in a steady wind cannot feel wind-pressure from any direction, any sense of orientation which they may possess when in the air would seem to be one which is not called into play by a *mechanical external stimulus*—unless indeed you postulate some form of cosmic ray or solar radiation which guides them even as wireless can guide an aeroplane . . . Said Dr. Williams in a later work: " whatever the causes of extensive migration may be, they cannot be localised as independent happenings, but must be due to *some widespread event* " (my italics), " tending to vary in the same direction over areas covering nearly half the circumference of the earth."

It is indeed a mystery.

Notes from Aviemore

By C. Craufurd.

I arrived at Aviemore on Monday morning, 18th June, and left on Monday evening, 2nd July. The first thing I noticed on arriving was that the Cairngorms had great snow patches everywhere, and I was informed that no one in the village could remember so much snow on the hills in mid-June. The following day was dull and cold and the only butterfly seen was a solitary *Argynnis selene*, which I disturbed from the heather. The 19th and 20th June were dull with drizzling rain, but on the 21st the sun shone, and *A. selene*, *Coenonympha pamphilus*, *Ematurga atomaria* and male *Lasiocampa quercus* race *callunae* were flying. On Friday (22nd) I went up the slope of Carn Dearg Mor by the gravel road, and on the small birches larvae of *Endromis versicolora* were found just out of the egg. There were 26 eggshells, and two batches of 14 and 12 larvae were feeding. Three *L. callunae*

larvae just emerged were also found and many others were later discovered in all stages of growth up to half-grown. At the same time male and female *callunae* could be seen flying until the 30th June.

On Saturday, 23rd June, *Polyommatus icarus*, *Pieris napi*, and *Parasemia plantaginis* were on the wing; there was a cloudless sky, and it was very warm. The first *Aricia agestis* race *artaxerxes* was seen on the cistus on the south side of Craigellachie. Larvae of *Nymphalis io* and *Aglais urticae* were noted on 24th June, which was a dull day. The 25th, 26th and 27th were wet or dull and nothing was seen on the wing. Another batch of *E. versicolora* larvae was found —sixteen in number. The 28th and 29th were hot and bright, and *A. artaxerxes* was now emerging while *Pieris brassicae*, *A. selene*, *C. pamphilus*, *P. icarus*, *P. napi* and *P. rapae* were also flying; but they were all few and far between. The 30th June and 1st July were respectively dull and wet, but on the 30th I saw a fine female *L. callunae* flying and two males also. On the same day I found a half-grown larva of this species.

The bright spots of my fortnight at Aviemore came after sunset in the form of moths at sugar. A hundred posts on a deer forest were sugared over a distance of 600 yards with the open golf course on one side of the fence and a background of birches on the other. The sugar (black treacle, apple jelly, methylated spirit, and amyl acetate) was applied at 9.30 p.m., and it was 11.30 before it was dark enough to make the first round. Sugaring was continued nightly from the 18th to the 30th June, but not on Sunday, 1st July, which was very wet and windy; also arrears of sleep had to be made up.

I give below a full list of the species seen or taken. There were about 400 on the sugar the first night, and the largest number (about 1000) were seen on the 29th June.

Hyppa rectilinea was the commonest moth seen. I was delighted when the first one or two appeared; but as there were sometimes ten on a single post familiarity bred contempt. *Hadena thalassina* was next in point of numbers, and then came *Ochropleura plecta*, *Eumichtis adusta*, and *Rusina umbratica* (*tenebrosa*). *Hadena contigua* was fairly frequent; *Tethea duplaris* was common. *Apamea crenata* (*rurea*) was quite common with, I should imagine, all its named varieties. *Euplexia lucipara* and *Lycophotia varia* (*porphyrea*) were common. *Hadena bombycina* (*glauca*) appeared on 20th June, *Agrotis exclamationis* on the 21st, *Diataraxia oleracea* on the 22nd, *Diarsia rubi* and *Triphaena pronuba* on the 24th, *Phlogophora meticulosa* on the 28th, and the only *Polia hepatica* (*tincta*) on the 29th. Almost every insect was in fresh condition, and even of those that had been out presumably for over a fortnight very few were damaged.

Moths came to the sugar apparently without regard to the quarter from which the wind blew or whether it was strong or weak or whether there was heavy rain or drizzle.

Sugaring at Aviemore was in great contrast to East Herts, where the result of two nights' sugaring on the 3rd and 4th July was one *Meristis trigrammica*!

The generic and specific names in the following list are those given by Mr. W. H. T. Tams as printed in Allan's *Larval Foodplants*.

Hyppa rectilinea (commonest).
Hadena thalassina (very common).
Ochropleura plecta (do.).
Euplexia lucipara (do.).
Lycophotia varia (do.).
Eumichtis adusta (do.).
Tethea duplaris (do.).
Apamea crenata (do.).
Rusina umbratica (do.).
Hada nana (*dentina*) (common).
Hadena contigua (do.).
Ceramica pisi (do.).
Apatele psi (a few).
Apamea sordens (do.).
Apamea furva (do.).
Leucania comma (do.).
Agrotis exclamationis (do.).
Diataraxia oleracea (do.).
Diarsia rubi (do.).
Phlogophora meticulosa (do.).
Hadena bombycina (four).
Apatele leporina (three).
Triphaena pronuba (three).
Procus strigilis (three).
Apatele menyanthidis (one).
Gonodontis bidentata (one).
Scoliopteryx libatrix (one).
Polia hepatica (one).

Notes on Life-Histories, etc.

THAT insects possess senses of a delicacy unknown to us humans is plain to every field entomologist, and the precision of these senses surpasses that of any scientific instrument which we can devise. We might possibly contrive an instrument which could detect scent particles in the surrounding air or even at a distance of several feet from the source of emanation; but to devise a means of detecting a scent, imperceptible by our noses, emanating from so tiny a source as a small female Geometer, at a distance of perhaps a quarter of a mile, and moreover instantly locate the exact source to within a point of the compass, is at present beyond our capacity.

Writing some years ago in this magazine (**2**: 256) Dr. Richard Freer said: "I have often wondered how the Foxglove Pug was got at by its parasites, living as it does closely shut up inside the foxglove flower. This year I had the good fortune to catch an ichneumon in the very act. I saw this fly apparently sitting on a foxglove flower, and, on looking closer, I saw that it had thrust its ovipositor and nearly all its abdomen through the petal, and on opening the flower I found a wretched squirming *pulchellata* larva impaled. The ichneumon must have made a very good shot as the larva was a very little one."

We can imagine how the ichneumon detected the larva—perhaps by sound, perhaps by scent, perhaps by noticing the spun-together lips of the foxglove blossom. But what sense did it possess to enable it to locate the unseen larva—and "a very little one"—with such precision that it could impale its prey when a deviation of its ovipositor of one millimetre would have meant a clean miss? Could the fly *see* the larva —had it some sense which enabled it to look *through* the petal—or can it 'pin-point' the noise (?) of a very small larva's jaws? The larva at rest does not always occupy identically the same spot within the flower, so one can rule out the possibility that the ichneumon 'measures off' the exact place on the outside of the petal through which the ovipositor must be thrust. Perhaps there are a good many 'near misses'; but plainly the middle of the target is found sufficiently often for the race of this particular parasite to survive.

The female of the Chalcid *Trichogramma*, which parasitizes lepidopterous eggs, can tell whether she has been forestalled by one of her own species merely by walking over the egg; for she can 'smell' the scent left by her predecessor. If the scent is removed by washing the surface of the egg the second comer will insert her ovipositor. But having done this she becomes aware that the egg is already parasitized, so she withdraws her ovipositor without laying, and flies away. *How* she becomes aware that the egg is parasitized is probably a chemical affair: the receptors on her ovipositor 'inform' her of some difference in the composition of the egg contents. Here too is a delicacy of sensory perception which is truly remarkable.

Notes and Observations

PIERIS BRASSICAE L. IN NORTH DEVON.—While walking along the top of Summerhouse Hill at Lynmouth in mid-July I was surprised to see a large number of full grown larvae and pupae of this butterfly. There must have been some hundreds. A good proportion of the caterpillars had been 'stung' and these were hanging lifeless from the stems and leaves of various plants surrounded by the parasitic cocoons. The pupae were attached to projecting rocks and sundry herbage, and those on grass-stems were often in pairs. It would be interesting to know what these larvae had fed on. Unfortunately I could find no caterpillars actually feeding, neither could I see any of the usual plants on which they would normally feed.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey.

NOTES FROM EAST DORSET.—On 16th, 17th and 18th August *Pieris brassicae* was passing my cottage at the rate of 80 an hour, all coming in from the sea. On the 18th three *Colias croceus* were seen in fresh condition, and during the past week many *N. io*, *V. atalanta* and *P. c-album* in excellent condition have been noticed. *L. coridon* and *T. acteon* have been swarming here these last sixteen days.—LEONARD TATCHELL, Rockleigh Cottage, Swanage, Dorset. 20.viii.51.

NOTES ON THE DISTRIBUTION OF EUPITHECIA MILLEFOLIATA RÖSSL.—This species is now known to be breeding in suitable places along the east coast of Kent, from Ramsgate in the east to Dungeness in the west. This is the extent of its range in Great Britain at present so far as I am aware. There are two exceptions, however, for I took an imago in July this year at Ham Street, Kent, and another about the same time near Canterbury. Both these localities are several miles inland from the known breeding grounds. The larvae should be looked for this autumn in fresh places where it may perhaps occur, namely along the north coast of Kent and perhaps inland in that county; also along the seaboards of Sussex and Essex, especially the former. The places which appear to be most suitable for search are waste stretches of ground where the foodplant, yarrow, has been able to grow unchecked to about a height of a foot or more.

The larvae, which feed on the brown and withered flower-heads, should be beaten into a tray during October. They are fairly large at the beginning of the month and some may even be full grown; but a few late individuals will continue feeding until the end of the month. Fairly

good coloured figures of the larva will be found in Hofmann's *Die Raupen der Gross-Schmetterlinge Europas* (Pl. 47, figs. 12a, b and c). The results of intensive searches should be recorded whether they be productive or not; for such information whether positive or negative will be of value in determining the status of this species in this country.

When beating yarrow at this time of the year larvae of *Eupithecia subfulvata* and *E. succenturiata* are likely to fall on to the tray; but the larvae of these species are elongated whereas that of *E. millefoliata* is stumpy.—J. H. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent.

SMERINTHUS OCELLATUS L. IN DERBYSHIRE.—Yesterday I found a nearly full-grown larva of *S. ocellatus* basking in the sun on a sallow bush, in a wood between Chesterfield and Sheffield. Mr. W. Reid tells me that it is uncommon in this part of England. I also had a fine male imago brought to me on 25th July. It was caught at Holmewood Colliery electric light. This is about five miles south of Chesterfield.—J. H. JOHNSON, 53 Knighton Street, Hepthorne Lane, Chesterfield. 28.viii.51.

[Mr. T. D. FEARNEHOUGH of Dronfield, Derbyshire, writes:—"I agree that *S. ocellatus* is a rare moth in this area; indeed I have no record for North Derbyshire. It occurs regularly in the Doncaster area, becomes scarcer southwards from there towards Sheffield, and occurs only in occasional years in the Rotherham district. Further south in the Derby and Burton-on-Trent area I understand it is found regularly. I think myself that the distribution of the species in Derbyshire and Yorkshire is largely governed by altitude."]

A NEW LARVAL DETERGENT.—In 1949 I conducted some experiments on prophylactic methods in the rearing of larvae and mentioned, in a paper in *The Entomologist's Gazette*, Vol. I, Part III, the use of " T.C.P." as a non-toxic disinfectant. There was, in this article, a somewhat inconclusive suggestion that this disinfectant might be of use as a cure for "virus disease". Further experiments have confirmed the suggestion and a crucial experiment has now been made.

In July 1951 I was breeding a number of batches of *Acronycta alni* L. from ova and one of these batches, in the last instar, became infected with a disease. Of the twenty-five larvae in the batch thirteen were apparently well and were segregated. The remaining twelve appeared to be dead. The symptoms were the usual ones of diarrhoea, failure to feed, flaccidity. The larvae affected were wet over the whole of the integument as contrasted with the unaffected larvae which showed a velvety sheen.

On detailed examination, three larvae were undoubtedly dead and liquefying. The remaining nine were wet and limp and lay on the floor of the breeding-tin. Occasionally, however, they showed feeble signs of movement.

These nine were extracted and totally submerged for one minute in a 10% solution of standard " T.C.P." in water. Apparently time and dilution are very critical. After fifteen seconds' immersion they became very active and writhed to and fro. They then became inert and when removed from the liquid appeared quite dead. They were placed on clean cellulose wadding and, after two hours, showed signs of activity.

At the end of twelve hours eight were dry, healthy and feeding actively, and all eventually pupated normally. The ninth larvae appeared

dry and clean, but was too weak to feed and eventually died. A similar experiment with *Callimorpha dominula* L. made earlier indicated that there was some recovery, but the solution was stronger and a high rate of deaths from poisoning made the results doubtful.

It is possible that "T.C.P." is toxic to some larvae (mainly unpigmented species) in strong solution but, where the disease is met with, experiments might well be pursued with larvae which would, in any case, succumb unless treated. I should be grateful to hear of the results of any tests.—H. S. Robinson, Lower Farringdon, Alton, Hants. 4.viii.51.

["T.C.P." is a proprietary antiseptic and is described by its manufacturers as "A solution of halogenised phenolic bodies, in water, made from the following ingredients:—Chlorine 0.2%, Iodine 0.11%, Phenol 0.63%, Salicylic Acid 0.045%, Bromine a minute trace."—Ed.]

The Forms of Coenonympha tullia in the Solway Area.—During June 1950 and June 1951 I collected a total of sixty-two specimens of *Coenonympha tullia* from mosses and flows bordering the Solway Firth. Examples were obtained from three counties, Cumberland, Dumfriesshire and Kirkcudbright; usually a dozen from each colony, and were not in any way selected.

Critical examination has revealed that of the twenty-four taken in Cumberland all are of the typical race *C. t. tullia*. Twenty-two specimens from Dumfriesshire are of the same race and three intermediate between *tullia* and the northern race *scotica*. From Kirkcudbright I have four of the typical race, five intermediate *tullia-scotica* and two *scotica*, suggesting that this is the southern limit in West Scotland where the latter race occurs with any degree of regularity.

Two specimens, a female from Kirkcudbright and a male from Dumfriesshire, at first sight appeared to resemble the southern race *philoxenus*. Examination revealed that the spots are not greatly enlarged, but are lanceolated forming points towards the outer margin of the wings. These can simply be regarded as rather unusual aberrations.

It is apparent that most of the Solway *C. tullia* are the typical race, but there is a tendency towards *scotica* on the Scottish side.—D. F. Owen, 3 Lockmead Road, Lewisham, S.E.13.

Gelechia hippophaella Schrank, Platytes alpinellus Hübner and Loxostege palealis Schiff. in Yorkshire.—Records from Stainton and Meyrick give "near Deal" and Kent respectively as areas where *Gelechia hippophaella* Schrank may be found. The moth was seen on the sandhills on the Spurn Peninsula from 15th-24th August 1949. Between 1000 hrs. and 1200 hrs. B.S.T. and between 1900 hrs. and 2000 hrs. B.S.T., several moths were disturbed from Marram Grass growing near the foodplant, Sea Buckthorn (*Hippophae rhamnoides*); these quickly sought cover in the surrounding herbage. It was not possible to disturb the moth during the afternoon but two were taken at light after midnight. I hoped to take the moth in a similar situation on the Formby (Lancashire) sandhills but could find no sign of either larva or imago during several hours search.

Sea Buckthorn is used to bind the sand and prevent erosion by the wind. I could not ascertain if the shrub was planted for this purpose at Spurn or find the date of planting, but it is obvious, from the dense-

ness of the scrub, it has been established for many years. It is likely the moth was introduced if and when such planting took place.

A single specimen of *Platytes alpinellus* Hübner was netted on the sandhills at Spurn on the evening of 20.viii.1949. There is no record of this species in Porritt's list of Yorkshire Lepidoptera. With reference to Mr. C. Craufurd's note on p. 183 of the present volume of *The Entomologist's Record,* two specimens of *Loxostege palealis* Schiff.—were taken at Spurn in mid-August 1949, one flying during the day and the other at light. The foodplant *Daucus carota* is plentiful at Spurn.—H. N. Michaelis, 10 Didsbury Park, Manchester 20.

Practical Hints

In a late season the larvae of the Tawny-speckled and Bordered Pugs (*Eupithecia icterata* ssp. *subfulvata* and *E. succenturiata*) can be found on mugwort (as well as on yarrow and tansy) almost until the end of October. They have quite different habits. The larva of *subfulvata* rests by day stretched out at full length on the stems and leaves of the foodplant and is therefore fairly easy to find. *E. succenturiata* can be collected only at night, for it passes the daylight hours concealed among the lowest leaves. After dark it climbs up to the top of the plant, sometimes in considerable numbers, to feed not on the flowers but on the upper surface of the leaves. White patches on the leaves suggest its presence. If you run short of mugwort, both species will eat garden chrysanthemum.

Mid-October is the best time to collect larvae of the Lappet (*Gastropacha quercifolia*). The beating-tray must be used, and small scattered blackthorn bushes from two to three feet high are more profitable than hedges, since the larva usually rests by day low down in the bush. Put the tray right under the bush. There are various other foodplants, but for one larva found on these you will find twenty on blackthorn. In the larva-cage, plug the neck of the water-bottle tightly with cottonwool, or the larvae will walk down into the water.

It is always worth while searching aspen and sallow in mid-October provided some of the leaves are still green: there are always a few belated larvae of *Notodonta dictaea* (*tremula*), *N. ziczac*, *P. palpina* and *L. capucina* (*camelina*) to be found, not to mention *H. furcula* and *bifida* (*hermelina*). Hawthorn may also be beaten for *Apatele tridens*. Provide the latter with a piece of well-baked rotten wood into which it can bore for pupation.

Every ivy bush in blossom within a convenient walk of the house should be visited nightly after supper this month. The net can be quite a small one and should be mounted on a *stiff* bamboo at least nine feet long. The torch should throw a beam, so that blossoms up to sixteen feet from the ground can be examined and the moths thereon jerked into the net, where most of them lie fuddled. This is the best way to take the Tawny Pinion (*Lithophane semibrunnea*)—a much commoner moth than some people think.

In a fine autumn, October is the month *par excellence* for pupa-digging. The earth is usually in suitable condition, most of the desir-

able larvae have pupated, and the birds and mice have not yet started to search for cocoons. By raking out the debris collected in crannies *under* the trunks of large oaks one is almost certain to find species which spin up among dead leaves. This debris should be examined most carefully, for it is easy to overlook the soft, dark, oval cocoon, sprinkled with earth, of *Drymonia dodonaea* (*trimacula*). The curious cocoon, like an upturned boat, of the Green Silver-lines (*Bena fagana*) attached to the middle of a dead oak leaf, is one of the first things one finds.

The larvae of *Apamea unanimis* are best collected this month. By night they feed openly on reed-grass (*Digraphis arundinacea*), which grows so commonly in ditches on low-lying ground near watercourses, and are easily seen in the light of a torch. By day the larva hides inside a tube which it constructs by spinning a leaf of the foodplant into a cylinder, and when once this place of concealment has been detected one can usually collect as many larvae as required; for where *A. unanimis* occurs it is generally plentiful. The ' tubes ' should be collected as late in October as the weather permits and placed, with the foodplant, in water-bottles, furnishing the cage also with a pupating-trough filled with peaty compost. The larvae ' go down ' at the end of October or early in November and rest until the following March or April, when they pupate without coming to the surface again.

Notes on Microlepidoptera

By H. C. Huggins.

Most of these Notes refer to larvae and pupae which may be obtained during the dead season, and so far as the insects themselves are concerned they may be sought at any time till March. However, the birds are apt to make great havoc amongst them as the winter sets in, and my advice in all cases is to collect the material as soon as possible where it is exposed in any way to their attacks. I sometimes think to-day that entomologists should consider the necessity of a "Wild Birds' Destruction Act" to protect our insect fauna! I know that in theory the birds all live on pernicious insects, but why do tits pick all the oak-galls to pieces, and why should the moorhen destroy so much larger a proportion of *algae* to *typhae*?

The full-grown larva of *Anania nubilalis* Hüb. can be found in stems of mugwort from October onwards. It lives in the thicker part of the stem and may be at any height from ten inches above the ground to the thin parts at the top. I usually break the dried stems and collect those containing burrows; often two or three larvae occur in one stem. As pupation does not take place till the beginning of May the stems must be kept exposed to all weathers. *Nubilalis* is now found in suitable localities such as waste heaps, abandoned allotments, gravel-pits, etc., all round the coast from Romney Marsh to Colchester. It is not usual to find it far inland; but systematic searching will probably add more inland localities.

Thatch on farm buildings, etc., is well worth beating during this month. Several of the hibernating Depressarias and *Orneodes hexa-*

dactyla Linn. will be obtained almost everywhere; but in its chosen localities *Anthophila pariana* Clerck will probably prove the commonest insect obtained. This variable little moth is usually held to be scarce as well as local, but when I lived in the Sittingbourne district I could usually beat out 40 or 50 from the thatched eaves of a barn at the bottom of my garden any day in October. The supply seemed to be constantly renewed till the end of the month. *Pariana* drops into the beating-tray and can easily be boxed, whilst the other insects are apt to fly off again.

Oak-galls, particularly the large spongy ones, should be collected in quantity from the middle of October. Although more difficult to find before the leaves are off the extra trouble is compensated by their freedom, at this early date, from the attacks of insectivorous birds, particularly tits. Place them in tubs or flowerpots with good drainage and in mid-March transfer them to a breeding-cage. With any luck the following Tortrices will be bred, more or less in the order given: *Pammene fimbriana* Haw., *P. argyrana* Hüb., *P. splendidulana* Guen., *P. gallicolana* Zell.; and an occasional bonus may arrive in the form of an odd specimen of *P. juliana* Curt. This last insect feeds on acorns but cannot be obtained by collecting them as the larva leaves the fruit before it falls; however, occasionally it spins in a spongy gall. The distribution of some of these species is odd. *P. argyrana*, usually supposed to be found everywhere, is in my experience very scarce east of the Medway in Kent, whilst to the west of that river it is abundant.

Early falling acorns should be collected and placed in a flowerpot with good drainage and a few inches of light soil. The larva of *Laspeyresia splendana* Hüb. will emerge from these and burrow in the soil. This is another of those tiresome caterpillars that do not pupate until the following spring, so it must be exposed to all weathers. The larvae in the later falling acorns will be found to be those of beetles.

Collecting Notes

ORIA MUSCULOSA HUB. IN HAMPSHIRE.—I have to record a male specimen of *O. musculosa* Hub. taken at light at Sway, Lymington, on 26th July last. South's book mentions an example taken at Brighton in 1855 and others in the same locality, and at Bexhill, Kent, between that year and 1860. One was taken at Brighton in 1883 and another in South Devon in 1899.—C. B. ANTRAM, Clay Copse, Sway, Lymington, Hampshire. 13.viii.51.

[Although so plentiful in the Salisbury district (where "a large number" were taken in 1940, seventy in 1941, "abundant" in 1942 and 1948) this species is rarely recorded outside that favoured area.—ED.]

NOTES FROM NORFOLK.—A fortnight's holiday on the Norfolk Broads during the latter half of June afforded an opportunity for some interesting field work. This was my first experience of collecting in East Anglia, apart from an occasional visit to Wicken Fen, and it was a great privilege to see *Papilio machaon* flying freely in its restricted localities. The eggs (laid on *Peucedanum palustre*) were not difficult

to find, if one was prepared to search for them in marshy ground. They are usually laid on the upper side of the leaf, and oviposition takes place over a fairly long period. I found them in all stages and a few of the newly hatched larvae. These were subsequently reared successfully on garden carrot, and a fair number of imagines of the second brood had emerged by the end of August. The pupae were of both the green and the grey forms, the latter with strong black markings. There is no apparent difference in the imagines emerging from the two forms.

Other fen insects taken in Norfolk during late June included *M. flammea* Curt., *A. phragmitidis* Hub. (larvae) and *O. lignata* Hub. (*vittata* Bork.), in addition to the pretty little, very local, Pyralid *C. cilialis* Hub.

An intensive search of the sandhills on the Norfolk coast yielded only one specimen of the plume *Z. distans* Zell. freshly emerged. Possibly a further search in early July might have been more successful. This plume feeds on *Picris hieracoides* L. A number of *A. lotella* Hub. were also taken and a few of the rarer Crambid *C. fascelinellus* Hub.—Canon T. G. Edwards, Holy Trinity Vicarage, Tulse Hill, London, S.W. 20.viii.51.

Anania nubilialis Hub. in London.—A recent interesting find in a London garden within the borough of Lambeth was the migrant species *A. nubilialis* Hub. Three of these were attracted by the lights in my house in Tulse Hill in late July.—Canon T. G. Edwards, Holy Trinity Vicarage, Tulse Hill, London, S.W. 20.viii.51.

Acronicta leporina L. in Derbyshire.—When I moved to this district early in the year and found near at hand a tract of ground formerly woodland but now covered with a new growth of young trees, mostly birch, my thoughts turned to the possibility of finding here the Miller (*Acronicta leporina* Linn.). I had not had *leporina* larvae before, so I looked up all the references I could find anent these desirable creatures. It seemed that the best way to obtain the larvae was by searching (or of course beating) small birches, preferably the lower branches. A few years ago a correspondent with a companion found 30 *leporina* larvae in one day by searching small birches on a Yorkshire common. Unfortunately all these larvae died. How often do we hear of *leporina* failures, and how seldom do we hear of the causes!

I started to prove the birch area on 4th August and spent the first couple of hours assiduously turning over the lower branches or sprays of likely looking birches. A little discouraged at lack of success I thought that for a change I might well try to find some of the other lovers of birch, and straightening up I began to turn over leaves at the less tiring level favoured by *camelina* (*capucina*), *dromedarius*, and *gnoma* (*dictaeoides*). Two minutes later I was transferring to a glass-topped tin my first *leporina* larva. Later a second larva was found in a similar position about four feet from the ground.

On the way home to lunch I passed under the overhanging branch of an aspen, and looking up noticed the transparent leaf-patch and coiled shape of a *megacephala* larva. The leaf with its inhabitant was hurriedly popped into a box, for this species gives nice melanic forms in this area. On closer examination later the larva proved to be not *mega-*

cephala but a young *leporina* about to cast a skin. After lunch I took a visiting relative for a stroll in the woods. We came upon a patch of very young sallows, and remarking upon these I idly twisted over a top stem. There again was *leporina* looking well in a new coat, the cast skin just beside him.

I began to think that *leporina* must be common here, but this proved to be not so. For several following weeks I spent my spare time, and some time that was not really spare, haunting the birches, aspens, and sallows. The two latter gave no more *leporina*, but the birches yielded six more larvae. The last four obtained were all attended by parasites. These were small, green, transparent grubs, sucking at the sides of the larvae, like piglets at a sow. These four larvae were all attached to silken pads as though for moulting and were helpless against the clinging grubs. The parasites were easily removed with fine-pointed forceps; but although apparently undamaged the *leporina* larvae remained stationary and slowly died.

I now have six *leporina* larvae, healthy, feeding well, and growing apace. Already I have dreams of taking into the woods next season a lady Miller, to find for her a suitable mate. She will be full of eggs and desire to lay them. They say, however, that Millers are difficult to rear; so perhaps. . . .—T. D. FEARNEHOUGH, 13 Salisbury Road, Dronfield, Derbyshire.

COLEOPTERA

Notes on Collecting Longicorns in 1951

By F. A. HUNTER.

On 25th May I visited a wood in the neighbourhood of Cambridge, in order to sweep the hawthorn blossom—which was then in full flower—for longicorns. Although the day seemed in every way to be favourable all I succeeded in obtaining was a short series of *Rhagium mordax*, and these all from the flowers of dogwood (*Cornus sanguinea*).

Two days later I returned to the wood in company with my friend D. C. Twinn, and we were rather more fortunate. On this occasion we obtained a good series of *R. mordax* and a number of *Molorchus minor*, along with a considerable number of *Gramoptera ruficornis*. Again these were taken off the dogwood; the hawthorn seemed only to contain *G. nigra* and other small beetles such as *Rhynchites* sp. and various Mordellids.

Part of one of the intervening days, the 26th May, was spent in the Madingley area. Here the hawthorn seemed to be much more productive. We again took *M. minor* and *G. ruficornis*, but no *R. mordax*. Sweeping the grass at the edge of the road supplied us with a short series of the rather local *Phytoecia cylindrica*.

On 2nd June we motored down to a woodland in the Bishop's Stortford area, and although the weather again appeared to be perfect we did not take more than a few beetles. *Strangalia melanura*, *A. tabacicolor*, and the inevitable *G. ruficornis* were all taken sparingly.

Two visits to Wicken Fen in the beginning of June were also unproductive; *Chrysomela populi*, *Haltica lythri*, *Lochmia crataegi*, and *Loch-*

mia capreae, normally common enough chrysomelids here were to be found only sparingly. My friend J. Boorman took a very good specimen of *Anaclyptus mysticus*.

During the fortnight 23rd June to 8th July D. C. Twinn and myself collected in the New Forest. The weather was, on the whole, good. Some of the enclosures had just been subjected to a thinning out, and in the rides next to them many pine logs were heaped. These pine logs were of the pit prop size, and we looked underneath them for the weevils, *Hylobius abietis*, and *Pissodes pini*—these weevils were exceedingly common; in some cases there were nine or ten on each log. The unexpected find on these logs, however, was a number of *Asemum striatum*. In two or three days' collecting I had formed a good long series including both the red and black forms. In Wilverley enclosure I took a *Tetropium gabriele* from under one of the logs.

The hawthorn blossom in the New Forest was completely over two or three days after our arrival, and we then found that the most productive flowers were those of the bramble, the wild rose and the hogweed. On hot days the brambles in the Pignal enclosure were abounding with *Strangalia melanura*, *A. tabacicolor*, *S. nigra*, and frequent *S. maculata*, These species were to be had flying and by sweeping the bramble leaves as well as from the flowers themselves. Frequently also *Clytus arietis* was swept from the bramble leaves. This latter species was most easily taken, however, by looking on the new fence posts which have been put up around the enclosures. For this purpose the new posts were by far the most productive, and the old ones, particularly those which have been covered with mud, were comparatively devoid of *Clytus*.

In a closed-in ride we were glad to find three *Strangalia quadrifasciata* on wild rose flowers. My friend D. C. Twinn was fortunate enough to find in this ride a beech log containing three imagines, a pupa, and some larvae of the local species *Leptura scutellata*. I also took a male imago of this species on a bramble leaf in a nearby enclosure. Also from the flowers of the wild rose I took a very fine specimen of *Stenocorus meridianus* (the black form).

In the evenings we spent some time sweeping hazel and bramble and we took, in addition to *S. maculata*, *S. nigra*, *A. tabacicolor*, *S. melanura*, and *G. nigra*, a short series of *Tetrops praeusta*.

Throughout the first week we took only a single specimen of *Leptura livida*, but when during the second week we visited Lymington we found a large number in a very small area, on the edge of a wood.

Conspicuous by their absence were specimens of *Rhagium bifasciatum*, a species usually abundant in the forest. We found much evidence in the shape of larvae, exit holes, and dead unemerged imagines but did not see a single living imago.

On leaving the New Forest I paid a week's visit to Bournemouth, but saw only *L. livida* and *S. melanura*.

While staying at Streatley in the Thames valley, I again noted *L. livida*, *S. melanura*, and *G. ruficornis*.

The longicorn season, which apart from the various fenland species must now be almost at its close, has this year been rather hampered by a late commencement, but has picked up considerably towards its end. I was, however, disappointed not to have seen any *Callidium violaceum*, several stations of which we visited.

DIPTERA

Anthomyia albicincta Fall. and other species of Diptera occurring in swarms

By E. C. M. D'ASSIS-FONSECA.

On August 7th this year (1951) a vast swarm of smallish flies was noticed close to a large sweet chestnut tree in Eastling Wood, near Waldershare (Kent), which proved to be males of the Muscid species *Anthomyia albicincta* Fall. The swarm, whose movements were rapid and somewhat erratic, occupied a considerable depth, the lowest specimens being 8 to 9 feet up while the top of the swarm must have reached well over 20 feet in height. A good number of specimens were captured without difficulty, although it was found to be necessary to make a very rapid stroke of the net before the lower layers of the swarm moved bodily upwards out of reach; these came down again within reach if left undisturbed for a few minutes. A somewhat puzzling feature was the presence of three females in the first catch. There can be no doubt that these were captured in flight, but although many subsequent attempts were made to obtain further females they were without success.

The swarm persisted during day-time without a break, except in heavy rain, until August 12th, after which further observation was not possible. A fairly exhaustive search was made of the woods between August 7th and 12th to try to locate other swarms of *A. albicincta*, but this particular species appeared to be confined to the single swarm described above. It may, however, be interesting to note here some of the other species found in Eastling Wood to possess the "swarming" habit to a greater or less degree.

Fannia species. The habits of the males, which are frequently to be seen wheeling or "swinging" to and fro in leisurely fashion under trees, are well known. The following species of *Fannia* were observed during the period mentioned:—*pretiosa* Schin., *pallitibia* Rond., *armata* Mg., *manicata* Mg., *polychaeta* Stein, *serena* Fall., *coracina* Lw. and *mutica* Zett. Usually each small group appeared to consist of a single species, but in several instances *armata* and *polychaeta* were found flying together.

Fannia fuscula Fall., although found in considerable numbers feeding on the stem of a large fungus (not identified), were not once seen in flight.

Helina lucorum Fall. A number of males of this species were seen hovering, quite motionless, beneath a large oak tree at about 6 o'clock in the evening of August 8th.

Delia trichodactyla Rond. Close to the same oak tree, about 8 feet from the ground, males of *D. trichodactyla* were observed to be whirling in an extremely rapid and erratic manner. Closer inspection showed that each individual insect appeared to be darting outwards from the tree-trunk and following the path of a more or less vertical loop, returning after two or three circuits to rest on the trunk for a short space. The effect from a short distance was of a wildly gyrating mass, and even close and careful observation failed to determine the exact path of any individual fly.

Azelia triquetra Wied. Males of this species were seen circling round in leisurely fashion 6 to 10 feet above a low hedge some little distance outside Eastling Wood. Their movements were very similar to those of *Fannia* species, but, unlike *Fannia*, they were entirely in the open 10 to 12 yards from the nearest tree.

Lonchaea chorea F. Immediately adjacent to the swarm of *A. albicincta*, and in the shade of a large yew tree, males of *Lonchaea chorea* were gyrating extremely rapidly in a comparatively small swarm, appearing almost silvery as they passed through patches of sunlight. The first attempts to capture specimens failed completely owing to the extraordinary speed with which the whole swarm moved away at the crucial moment, thus avoiding the sweep of the net. A few specimens were ultimately obtained by a very rapid sweep over a wide arc, the speed being such that the flies lay stunned in the bottom of the net until transferred to the bottle. On subsequent days several such swarms were found in different parts of Eastling Wood, and in each case the same difficulty was experienced when attempting to capture specimens.

In an attempt to discover if females of either *Anthomyia albicincta* or *Lonchaea chorea* were at rest near the appropriate swarm of males, much of the surrounding foliage was repeatedly swept, but not a single specimen of either sex of these two species was captured in this way. One is therefore forced to the conclusion that the males of at least some species which indulge in the "swarm habit" are capable of sustaining their apparently purposeless gyrations for many hours at a stretch, without rest or visible sustenance.

18 Grange Park, Henleaze, Bristol. September 10th, 1951.

Fifty Years Ago

(From *The Entomologist's Record* of October 1901.)

Beetles differ much from lepidoptera in the attention they have received at the hands of entomologists and many of their species are so minute and so elusive that nothing but persistent collecting carried on for several years in any locality could hope to even approximately exhaust its coleopterous inhabitants. This is precisely what we lack. Coleopterists are few in number and principally inhabitants of large towns and, it must be confessed, often more prone to visit, for collecting purposes, localities known as likely to furnish additions to their cabinets than to explore more virgin fields whose possibilities may be all unknown. Moreover, coleoptera share with other orders of insects a most perplexing irregularity of appearance and abundance. It is within the experience of every entomologist that species of all orders have their "years", seasons when, owing to causes probably exceedingly complex and often indirect, but which are certainly quite beyond our present knowledge, a species will abound throughout its range and often overflow its normal limits. Such a spring tide of profusion is always followed by the ebb of scarcity, and it is the mean of a long series of years which will fix the true range limit of a species.—W. E. Sharp.

Variation of Zonosoma pendularia.—The most frequent form of *Z. pendularia* obtained here [Shropshire] is dark slaty-blue with a broad,

bright red band, the edges running into the blue and being very ill-defined. The ordinary type form is rare. I think this is a very distinct case of protective coloration. On the ordinary white-barked birch the type form is hardly visible, but very few of the birches here are white-barked, only a few of the larger ones being so as a rule; the bark is usually dark brown, mottled with a little white, and coloured also by lichens; on these stems the typical form is most conspicuous, and can be seen many yards away, whereas the dark form is almost invisible and is most easily overlooked; very occasionally it sits on oak-trees in which the dark form has the same advantage of being inconspicuous, whilst the type is just the reverse.—F. C. WOODFORDE, Market Drayton.

Obituary

HORACE ST. JOHN KELLY DONISTHORPE, F.Z.S., F.R.E.S., died on 22nd April 1951, in his 81st year. Mr. Frank Bouskell writes:—"He was my oldest friend. He started his education at Mill Hill House, Leicester, went on to Oakham Grammar School, then to Heidelberg University. He joined the editorial panel of *The Entomologist's Record* in 1897 and was a member of the Entomological Club and a notable figure at the Verrall Supper. He did his early collecting with me at Bradgate Park, Bardon Hill and Budon Wood, where he was first interested in ants and their hosts. About this time I introduced him to Mr. F. Bates, the brother of Bates of the Amazons, who eventually gave him his almost complete collection of Coleoptera. Later on we went to Wicken Fen, the New Forest, Isle of Wight, etc., and his numerous records are recorded in our early issues. I should mention our joint trip to South Kerry Island, where he added a new beetle to that country. His varied work on the Coleoptera was so well known from his articles in the Victoria County Histories of Hampshire, Cambridgeshire and Northamptonshire and the various journals that I need not enlarge on it. But his great research in the ants was world famous. As a brilliant entomologist he was always helpful to beginners, and will be widely missed."

It should be added that Donisthorpe was elected a Fellow of the Royal Entomological Society in 1891, becoming Vice-President in 1911 and serving three times on the Council of that Society. Throughout a long life he was constantly contributing to the magazines—we believe his printed papers and notes exceed 800 in number. In addition he wrote the chapter on Entomology for Mrs. Grant Duff's *Life and Work of Lord Avebury* (1924). A more extended notice of both his literary and field work is given in the July issue of the *Ent. mon. Mag.* of this year (**87**: 215).

It was Donisthorpe who assisted Chapman and Frohawk in their work on the life history of *Maculinea arion* Linn. by placing his observation nests of ants at their disposal: into these the larvae of the Large Blue were introduced and thus the bionomics of *arion* discovered.

EXCHANGES

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

Wanted—Papered or set, full data: *A. hegemone, selenis, oscarus, iphigenia, angarensis, jerdoni, gemmata, clara, elisa, kamala, childreni, ruslana.* What do you want —*Georg Christensen, Parmagade 24, III, Copenhagen S., Denmark.*

Wanted—Data from specimens, however few, and data on distribution, habits, etc., of any of the Nymphaline tribe Catagrammidi (Lep. Rhopalocera) Genera: *Callithea, Catagramma, Callicore, Haematera, Perisama, Cyclogramma, Dynamine, Batesia, Callizona, Smyrna, Gynaecia.—Terence Parsons, 28 St. John Street, Ogmore Vale, near Bridgend, Glam.*

Wanted—For cash or exchange set or papered specimens of any species of the abovementioned Catagrammid genera, in any condition; some data essential. *Duplicates*—American *Papilio ascolius, thoas, autocles,* etc., *Opsiphanes nicandrus, Morpho rhetenor, deidamia, papirius,* various Ithomiidae, *nobilis;* others of several Families; Assam, *Cynthia erota.—Terence Parsons, 28 St. John Street, Ogmore Vale, near Bridgend, Glam.*

LIVING EGGS, LARVAE, PUPAE.

It must be distinctly understood that the publication of the undermentioned offers of exchange is in no way a guarantee for the British nationality, authenticity, or good condition of the species nor for the fertility of eggs. This Notice is not given to throw doubt on the bona fides of exchangers but to absolve the Editor from responsibility in case the privilege of publication on this page should be abused.

Duplicates—Larvae of *A. syringaria. Wanted*—Ova of *D. oo*, larvae of *A. villica, E. hera* (*quadripunctaria*).—*P. N. Crow, 'Belvedere', 40 Salisbury Avenue, St. Albans, Herts.*

Duplicates—Pupae of *P. machaon. Wanted*—Pupae of *H. pinastri* (Pink Hawk).—*Peter G. Baker, Lorne End, Grangecourt Road, Harpenden, Herts.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

Editor: E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S.

Assistant Editor: P. B. M. ALLAN, M.B.E., M.A., F.S.A., F.R.E.S.

Treasurer: A. C. R. REDGRAVE.

Publicity and Advertisements: F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

The following gentlemen act as Honorary Consultants to the magazine:

Lepidoptera: S. N. A. JACOBS, F.R.E.S.,, Dr. H. B. WILLIAMS, K.C., LL.D., F.R.E.S.; *Orthoptera*: Dr. MALCOLM BURR, D.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: E. C. M. d'ASSIS-FONSECA.

Business Consultant: P. SIVITER SMITH, F.R.E.S.

THE ENTOMOLOGIST'S RECORD is published on the FIFTEENTH day of each month.

CONTENTS

TO OUR CONTRIBUTORS

All material for the magazine should be sent to the *Assistant Editor* at No. 4 WINDHILL, BISHOP'S STORTFORD, HERTS.

We must earnestly request our contributors NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

If REPRINTS of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

Printed by T. Buncle & Co. Ltd., Arbroath.

VOL. 63 No. 11 NOVEMBER 1951

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

ANNUAL SUBSCRIPTION 10s. POST FREE
Hon. Treasurer, A. C. R. REDGRAVE,
14a The Broadway, Portswood, Southampton

PUBLISHED MONTHLY PRICE 2s NET

Aberrations of British Macrolepidoptera

By E. A. Cockayne, D.M., F.R.C.P.

Plate vii

[The following aberrations of British Macrolepidoptera are in the Rothschild-Cockayne-Kettlewell collection in the British Museum.]

Orthosia incerta Hufnagel ab. **elongata** ab. nov.

The orbicular stigma is greatly elongated towards the base and the elongated portion has a dark central streak.

Type ♀ : Rannoch, Perthshire, 1894, Reid. R. Adkin coll.

Orthosia advena Schiffermüller ab. **lativittata** ab. nov.

The ground colour is blackish brown as in ab. *fuscus* Robson, becoming a little lighter in the distal part of the wing, where the nervures are darker than the ground. The white submarginal line is more than double the normal width.

Type ♂ : Morpeth, 1894. (Gibbs coll.) Rothschild coll.

Orthosia gracilis Schiffermüller ab. **alba** ab. nov. (Fig. 1.)

The head, thorax, abdomen, and forewings are white or very pale cream colour; the black dots of the postmedian row are very small; the stigmata are scarcely visible. The hindwing is white, but in some examples there are some grey scales near the margin.

Type ♂ : Wood Walton, Hunts., 20.iv.1913, N. C. Rothschild. B.M. 1913, 382.

Allotype ♀ : Same locality, 29.iv.1913. Rothschild coll.

Paratypes 6 ♀♀ : Wood Walton, 13.iv, 18.iv, 27.iv, 28.iv.1913. Rothschild coll. and 30.iv.1913, N. C. Rothschild. B.M. 1913, 382.

Heliophobus albicolon Hübner ab. **substriata** ab. nov. (Fig. 2.)

Between the postmedian and subterminal lines on the forewing the interneural spaces are cream coloured and only very sparsely powdered with dark scales; the nervures are dark. Thus there is a broad pale band crossed by dark nervures. The cream submarginal line is present.

Type ♂ : Loc. incog. Rothschild coll.

Leucania comma Linnaeus ab. **nigristriata** ab. nov.

On the forewing there is a black streak along the costa, a black streak from the base almost to the termen between nervures 1 and 2, and a shorter one between 1 and the inner margin; the other black streaks are accentuated.

Type ♂ : Hull, Yorks., 1894, C. Russell. (Bright coll.) Rothschild coll.

Leucania lythargyria Esper ab. **flava** ab. nov.

The forewings are dull ochreous with no trace of the usual rufous tint.

Type ♀ : Isle of Man, 1890. (Salvage coll.) R. Adkin coll.

Leucochlaena oditis Hübner ab. **extensa** ab. nov. (Fig. 3.)

The dark area between the reniform and orbicular is reduced in size, the dark area distal to the reniform, lying between it and the post-

median line, is pale with a very small blackish streak in the upper part and two larger ones in the lower part. This makes the pattern appear to be very abnormal especially in the distal part of the wing.

Type ♂ : Torquay, 1878. (A. H. Jones and Baldock coll.) Cockayne coll.

Cucullia absynthii Linnaeus ab. **albescens** ab. nov. (Fig. 4.)

The ground colour of the wings is white and all the dark markings are replaced by pale brownish grey; the thorax and abdomen are white.

Type ♂ : Portland, bred 1891. (Bright coll.) Rothschild coll.

Lithomoia solidaginis Hübner ab. **argentea** ab. nov. (Fig. 5.)

On the forewing the basal area is paler than usual; from the basal line to the subterminal line there are no markings except a faint shading proximal to the orbicular, darker shading along the costa above the reniform running out to the subterminal line, and faint traces of the postmedian line; the nervures have black scales along them and appear as extremely thin black lines; the subterminal line is distinct, but the

EXPLANATION OF PLATE VII.

Fig. 1. *Orthosia gracilis* ab. *alba* ♀. Allotype.
Fig. 2. *Heliophobus albicolon* ab. *substriata* ♂. Type.
Fig. 3. *Leucochlaena oditis* ab. *extensa* ♂. Type.
Fig. 4. *Cucullia absynthii* ab. *albescens* ♂. Type.
Fig. 5. *Lithomoia solidaginis* ab. *argentea* ♀. Type.
Fig. 6. *Allophyes oxyacanthae* ab. *nigrilinea* ♂. Type.
Fig. 7. *Allophyes oxyacanthae* ab. *variegata* ♂. Type.
Fig. 8. *Griposia aprilina* ab. *striata* ♀. Type.
Fig. 9. *Dryobotodes protea* ab. *nigra* ♀. Type.
Fig. 10. *Antitype chi* ab. *variegata* ♂. Type.
Fig. 11. *Antitype chi* ab. *cuneigera* ♂. Type.
Fig. 12. *Antitype chi* ab. *cuneigera* ♀. Allotype.
Fig. 13. *Agrochola lychnidis* ab. *nigribasalis* ♂. Type.
Fig. 14. *Anchoscelis litura* ab. *paradoxa* ♀. Type.

markings near the termen are a little reduced. The hindwings are paler than usual.

Type ♀ : Aberdeen, 1898. (T. Maddison coll.) Bankes coll.

Allophyes oxyacanthae Linnaeus ab. **nigrilinea** ab. nov. (Fig. 6.)

On the forewing the postmedian line is thick and intensely black even where it curves round above the reniform; the basal area, the claviform, and the marginal area are paler than usual, the last named becoming almost white near the inner margin.

Type ♂ : New Forest. (B. W. Adkin coll.) Cockayne coll.

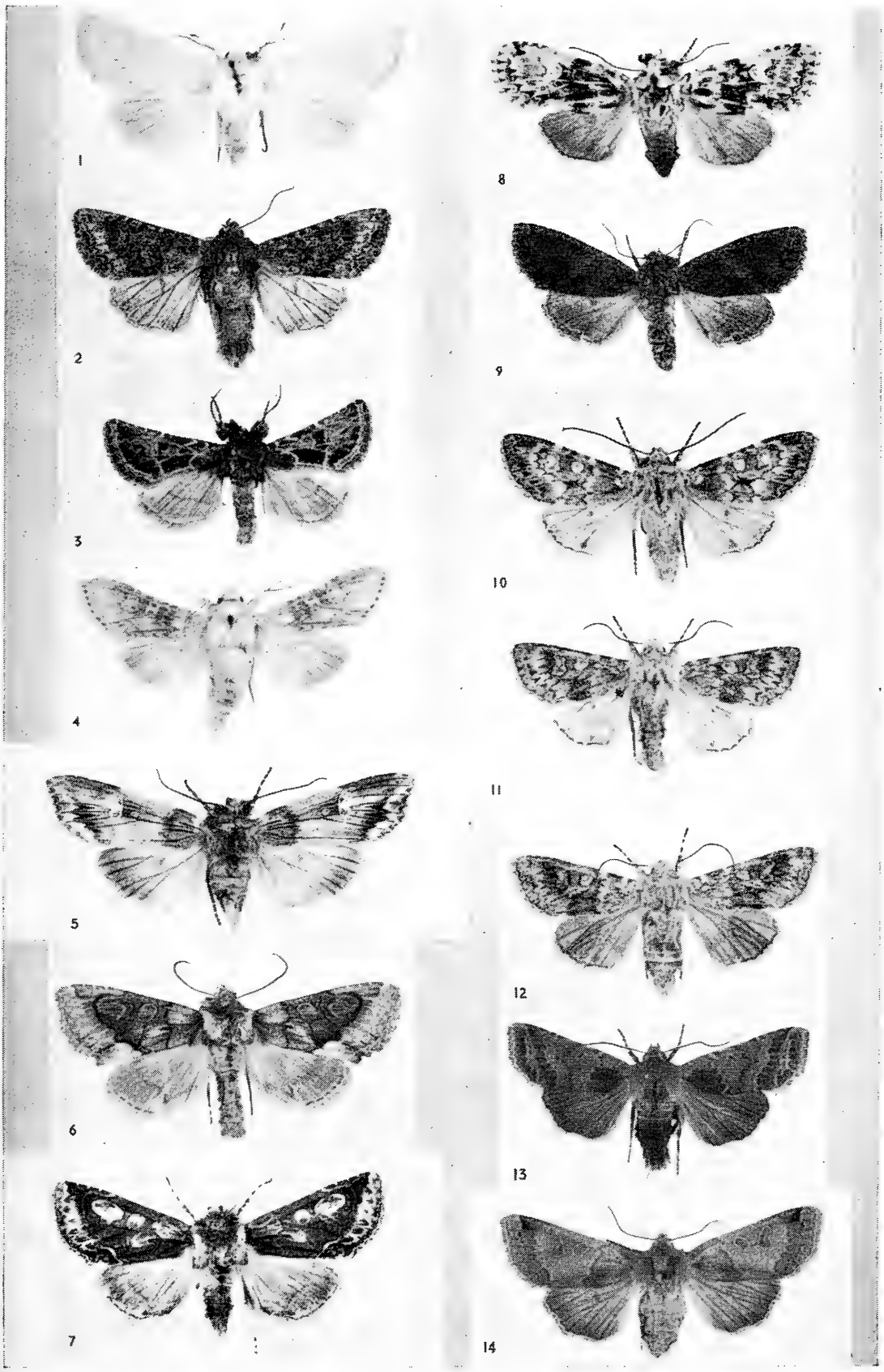
Allophyes oxyacanthae Linnaeus ab. **variegata** ab. nov. (Fig. 7.)

The ground colour of the forewing is dark brown; the reniform, orbicular, and claviform are pale, especially the reniform, and stand out conspicuously on the dark ground; the area distal to the postmedian line is very pale and there is a row of dark dots in it; the margin itself is dark. The hindwing is normal.

Type ♂ : Christchurch, Hants., 28.x.1910. (Bright coll.) Rothschild coll.

Griposia aprilina Linnaeus ab. **striata** ab. nov. (Fig. 8.)

On the forewing the black markings between the basal and ante-


1
2
3
4
5
6
7
8
9
10
11
12
13
14

median lines are abnormal; the two black dots on the costa are united, the one in the cell is elongated and wedge-shaped and is united to the transverse black band by a powdering of black scales, there are two long black streaks on the inner marginal side of the median nervure, the second extending from the base to the transverse black band, and then there is another black streak between nervure 1 and the inner margin. The antemedian and postmedian lines are absent, but there is a black band across the wing passing on either side of the orbicular, which has a black centre and is thus obscured; even the two black dots on the costa above the reniform are absent; the postmedian line is represented by a row of indistinct black dots; the subterminal line is present but displaced outwards towards the termen.

Type ♀ : Loc. incog. (Mason coll., 1905; Pether coll.) Cockayne coll.

Dryobotodes protea Schiffermüller ab. **nigra** ab. nov. (Fig. 9.)

The forewing is entirely blackish brown with the markings only just visible and the thorax is of the same colour. The hindwing is darker than normal with the usual bands present.

Type ♀ : Godalming, Surrey, 1929, H. B. D. Kettlewell.

Paratype ♀ : Knowle, bred 18.ix.1896. Cockayne coll.

Dryobotodes protea Schiffermüller ab. **ochrea** ab. nov.

The usual pale areas of the forewing, which are whitish in ab. *variegata* Tutt, are yellowish white; the darker areas are ochreous with a tinge of greenish; small black dots or streaks represent traces of the normal black markings, the most conspicuous being a curved line running more or less horizontally from nervure 1 to nervure 2.

Type ♂ : Loc. incog. (J. A. Clark coll.) Bankes coll.

Antitype chi Linnaeus ab. **variegata** ab. nov. (Fig. 10.)

This bears some resemblance to ab. *olivacea* Stephens, but the white transverse lines are much wider and the stigmata are whiter; the ground colour is pure grey and not greenish. The thorax is white with grey markings.

Type ♂ : Haddo House, near Methlick, E. Aberdeenshire, 21.viii.1936. E. A. Cockayne.

A daily search in the same place was unsuccessful in finding others, though normal specimens were not uncommon. Ab. *olivacea* does not occur in this district.

Antitype chi Linnaeus ab. **cuneigera** ab. nov. (Figs. 11, 12.)

The aberration has a sightly suffused appearance. On the forewing the median area is filled with dark scales to an unusual degree; the *chi* mark is less distinct than usual and there is a black stripe along the inner margin in the median area. From the reniform a series of wedge-shaped black marks runs out towards the subterminal line with a sprinkling of black scales between their basal halves.

Type ♂ : Aberdeen, 20.viii.1921, L. G. Esson. (A. Horne coll.) R. Adkin coll.

Allotype ♀ : Aberdeenshire, ix.1916, J. Duncan. (A. Horne coll.) R. Adkin coll.

Jodia croceago Schiffermüller ab. **derufata** ab. nov.

The ground colour of the forewing is yellowish brown with no trace

of the normal orange colour; the markings are normal. The hindwing is normal.

Type ♂ : Loc. incog. (Gibbs coll.) Rothschild coll.

Allotype ♀ : Herne Bay, Kent, 1903, Battley. (Bright coll.) Rothschild coll.

Dasycampa rubiginea Schiffermüller ab. **lutescens** ab. nov.

The ground colour of the forewings and thorax is yellowish buff with no trace of the usual rufous colour.

Type ♀ : Devon, bred 6.x.1934 by H. W. Head. (J. Hope coll.) Cockayne coll.

Paratypes 2 ♀♀ : Newton Abbot, Devon, 17.ix.1934 and 3.x.1934, A. J. Bowes.

Agrochola circellaris Hufnagel ab. **conjuncta** ab. nov.

On the forewing there is a black longitudinal streak running from the postmedian line along the median nervure and crossing the lower end of the reniform to a point just below the orbicular stigma. The hindwing is normal. The specimen is worn.

Type ♂ : Lissan, Co. Tyrone, 10.x.1904, T. Greer. Cockayne coll.

Agrochola lychnidis Schiffermüller ab. **nigribasalis** ab. nov. (Fig. 13.)

From the base to the antemedian line of the forewing and from the median nervure to the inner margin is an area thickly covered with black scales; nervure 1 and the interneural fold between 1 and the inner margin remain the same colour as the ground; the dark curves of the antemedian line form the distal limit of this conspicuous blackish patch.

Type ♂ : E. Kent, ix.1931, H. D. Smart. Cockayne coll.

Allotype ♀ : Blackrock, Ireland, 17.x.1901, T. Greer. Cockayne coll.

Agrochola lychnidis Schiffermüller ab. **fumosa** ab. nov.

Forewings, thorax, and abdomen blackish brown with the markings slightly darker and the subterminal line slightly paler; the nervures are no lighter than the ground colour; hindwings uniform blackish brown.

Type ♂ : New Forest, x.1936, H. D. Smart. Cockayne coll.

Agrochola lychnidis Schiffermüller ab. **conjuncta** ab. nov.

The lower ends of the reniform and orbicular stigmata are united by a dark line.

Type ♀ : Aston Hills, Bucks., 14.ix.1930, A. L. Goodson. Rothschild coll.

Paratype ♀ : Tring, Herts., bred 15.ix.1939 by A. L. Goodson. Cockayne coll.

This corresponds with *Anchoscelis litura* Linn. ab. *conjuncta* Höfer (*Verhandl zool.-bot. Ges., Wien*, 1920, 70 (173).

Anchoscelis litura Linnaeus ab. **paradoxa** ab. nov. (Fig. 14.)

The basal area as far as the antemedian line and the marginal area from the postmedian line to the termen are powdered with grey scales; the median area is pale rufous without the usual median shade and is bounded on each side by a pale line; the stigmata are normal and the usual subapical black mark is present. The pale median area contrasts sharply with the dark areas on each side of it.

Type ♀ : Argyllshire, 16.ix.1891, W. M. Christy.

Citria lutea Ström. ab. **clara** ab. nov.

On the forewing there is the usual dark purplish mark on the costa near the base, a dark purplish band running from the costa along the proximal side of the reniform to the inner margin, and another, less dark, running more or less parallel to it on the distal side of the reniform; these two transverse bands are united to one another by dark purple along the costa and to the subapical mark, the space between them being lightly dusted with reddish purple scales; the usual dots or spots on the orange parts of the wing are absent or almost absent. The absence of these spots gives the wing an unusually clear appearance. The hindwing is normal.

Type ♂: Hampton-in-Arden, Warwickshire, 12.viii.1901, bred. (G. W. Wynn coll.) Rothschild coll.

The Genetics of *Cleora repandata* Linnaeus, ab. *conversaria* Hubner, and ab. *mendeli* Williams

By E. A. Cockayne, D.M., F.R.C.P.

In the *Entomologist's Gazette*, 1950, 1, 36, Dr. H. B. Williams suggested that *Cleora repandata* L. ab. *conversaria* Hübner, the grey form, is heterozygous and ab. *mendeli* Williams, the black and white form, is homozygous. The evidence he brought forward in support of this was meagre and he admitted that confirmation was badly needed.

Hearing that Mr. J. O. T. Howard was going to Kinlochewe in July 1949 I asked him to try to get eggs from a female ab. *conversaria* for me. He very kindly sent me a batch of eggs, but owing to a delay in the post they had hatched before I received them, and I was able to find only 24 living larvae. They did well and I sleeved 24 in September, but I bred only seven moths in 1950.

1 *repandata* (♂): 4 *conversaria* (3 ♂♂, 1 ♀): 2 *mendeli* (♀♀).

The male parent was unknown, but the result was very close to a 1:2:1 ratio and in all probability the male parent was a grey heterozygous *conversaria*. Both *mendeli* were extremely beautiful with a purer white and more intense black than any others I have seen. By this good fortune I was saved a year's breeding. I obtained two fertile pairings, the first was *conversaria* ♂ × *conversaria* ♀ and the second *conversaria* ♂ × *mendeli* ♀. The male parent was the same in each case and almost every egg was fertilized. I hoped that these two broods would supply convincing proof that Dr. Williams was right. If so, the first brood would give a 1:2:1 ratio, *repandata*: *conversaria*: *mendeli*, and the second would give a 1:1 ratio, *conversaria*: *mendeli*.

In the autumn about 120 healthy larvae of each brood were placed in separate sleeves side by side. We had a series of torrential thunderstorms in the autumn and then the heavy and almost continuous rains of January, February, and March 1951, and I had little hope that my larvae had survived. Owing to the cold spring the mirabelle plum came into leaf unusually late and I had to wait impatiently until its buds were beginning to burst before bringing my larvae indoors. In spite of the cold the larvae must have started to move as early as in 1950 and found very little to eat. Of the first brood I found 44 living

larvae, but some were weak and soon died and others lingered for weeks without making much progress and in the end they died, too. Of the second and more important brood there were only two survivors and, though both reached the last instar, they made no further progress and died. The dead leaves in both sleeves were sodden and matted together and between them were dozens of little larvae drowned during hibernation. From the pairing *conversaria* ♂ × *conversaria* ♀ I bred only 20 moths.

7 *repandata* (2 ♂♂, 5 ♀♀): 10 *conversaria* (7 ♂♂, 3 ♀♀); 6 *mendeli* (2 ♂♂, 4 ♀♀).

There is a very sharp segregation between the *mendeli* and the *conversaria*, though some of the latter are whiter than others. The *mendeli* are very pure black and white, with no grey speckling. The only crippled specimen is a *mendeli*, which failed to free its front legs from the pupa case. I tried to obtain pairings. I used the same cages as last year in the same part of the same room, sometimes placing the cage in the open window and sometimes inside with the window shut, but the nights were cold and I was unsuccessful.

So far as it goes, this new evidence supports Dr. Williams, but more is still needed.

Lasiocampa quercus Linn. var. *callunae* Palmer in North Devon

By E. Barton White

In his *Moths of the British Isles*, South states that *L. quercus* var. *callunae* is to be found not uncommonly in the Exmoor district of North Devon. Since boyhood I have taken from time to time in this district specimens all of which appear, more or less, to agree with the description of v. *callunae* given by South and Barrett.

On 25th June 1946 a female from the North emerged and was hung up in the garden. No males arrived during her life of eight days. On the 30th July of the same year two Southern *quercus* emerged in my workshop, the event being discovered by seeing males crawling in under the closed door. The females were placed on a terrace with a south aspect, and during the next two days 122 males were counted and over one hundred were examined. Every one of these showed in some degree one or more of the characteristics of v. *callunae*. All but three had the band turning outwards, and only one had no 'epaulette'. This yellowish patch varied in size from a small group of hairs to a fair-sized patch. In most cases the yellow band was extensively rayed outwards, becoming paler as extended and the ' veins ' being covered with dark brown scales. The general ground colour was dark purplish brown rather than chocolate.

The specimen without the epaulette or shoulder patch was very dark. The band was more brown than yellow, narrow and without any raying and was almost absent on the hind wing.

I was unable to make further investigations until this year when, in late June, my supposed v. *callunae* from the North proved to be males, but on 1st August two southern *quercus* emerged and were placed in the same position on the terrace. Whether it was due to the gene-

ral scarcity of insects this year or not, only twenty-three males were attracted during the ensuing eight days, the most in one day being seven. On 1st August three males arrived. The second was seized by a robin which treated the moth as a thrush deals with a snail and eventually flew away with it. During the next few days there was intermittent rain with some sunshine and there were few arrivals. On the 6th the sun was out and in spite of a strong West wind from the Atlantic seven males arrived, and on the 7th the strong wind prevailing, two more arrived and two others overshot their mark and did not return.

During the first four days the moths were in rather a worn state, but the later ones were in perfect condition. They all came down the valley from the East against the wind.

Of the twenty-two examined this year, eighteen showed most of the characteristics of var. *callunae*, but in four the band did not curve outwards though they had well-rayed bands and epaulettes.

I have yet to see here in North Devon the true type *quercus* as taken in Dorset and South Wales, but there seems to be no early emergence as in the case of v. *callunae* up North. The larval and pupal periods have not so far been investigated.

Notes on Rearing *Herse Convolvuli* L.

By V. W. Philpott.

The Note entitled "Effect of Crowding on the Colouration of Larvae" by D. G. Sevastopulo (*Ent. Rec.*, **63**: 173) has prompted me to look up some notes which I made last year on the rearing of *H. convolvuli* larvae. Circumstances obliged me to rear a large number of these larvae through the last three stadia in a single cage which afforded no more than 3 square feet of floor space. The notes are therefore interesting inasmuch as they have a distinct bearing on the question of colouration *quoad* overcrowding. They are as follows.

"The *Herse convolvuli* larvae have come through far better than I had dared to hope. Out of eighty fertile eggs just over 60 larvae started feeding. The rest, owing to unavoidable lack of supervision, wandered off and, failing to find any food, quickly began to die through an apparent rapid loss of moisture. Of the sixty-odd that began to feed all except three (one of which I accidentally killed when changing the foodplant) have completed their feeding and they are now either 'down under' or describing the inevitable vicious circles round the floor of their cage prior to pupation.

"This good fortune has enabled me to observe every skin and colour change with a fair degree of accuracy, and I have also been able to make black and white photographic records of the larva in each of its five instars, showing, in each, the typical ranges of marking and depth of shading. A very interesting fact is that whereas in the third instar light and dark forms of the larva occurred in roughly equal numbers, in the fourth skin only 20 per cent. had pronounced light characteristics and in the last instar the whole sixty were dark with a ground colour of chocolate-black. Certain evidence did, however, remain to identify those larvae which had been of the light green form in earlier instars. This comprised a heavy suffusion of dorsal orange-yellow markings together with bright red spiracles and a brownish-red black-tipped horn.

Larvae which had shown a tendency to be dark throughout produced extremely dark forms in the last stadium. The yellowish dorsal markings were reduced to a few small isolated blotches on somites 3-9, the spiracles were black with dirty-white centres, and the horn was entirely dense shiny black.

"The larvae were kept in a room where the temperature was held at a mean of 65° F.; it never fell below 60° F. In these conditions the larvae occupied a period of approximately four days between each change of skin. They were reared on *Convolvulus sepium*, which they ate ravenously by day and night. (I found it much easier to get freshly hatched larvae to start feeding on tender leaves of *C. sepium* than on *C. arvensis*.) Towards the final stages the larvae consumed about a bushel of foodplant per day, and the noise of sixty massed mandibles at work was clearly audible even at a distance. The first larva emerged from its egg on 27th September and it pupated on 19th October.

"The fact that the ground colour of all the larvae in the last stage was black leaves me wondering just how frequently the light form of the larva ever does extend to the last instar. I am afraid this can only be settled when others who have bred or taken *H. convolvuli* larvae can be consulted."

During the last five years *H. convolvuli* has occurred here (Weymouth) with such regularity that I was beginning to suspect it might perhaps be indigenous in this neighbourhood; but in keeping with the general keynote of this most unproductive year not a single larva nor imago has come to my notice despite an especially alert look-out which has been maintained since last July. Because of my suspicion that some of the Weymouth *H. convolvuli* might be "natives" I allowed my pupae to take a normal course, in the hope that they would provide supporting evidence to my theory by producing imagines in August/September 1951. The last few survivors did in fact emerge from the pupa at the end of August this year, but their numbers were not large enough to be significant (5). Six emerged at Christmas, odd specimens emerged at irregular intervals from then onwards until early in July, when there was a large emergence between the 7th and 28th. My losses were considerable (about 50 per cent. of pupae). Most of the pupae developed fully but the moths failed to emerge. Some had obviously fallen victims to mould, but I suspect that many simply failed to emerge because the gradual temperature gradient was insufficient to stimulate eclosion.

My bred *convolvuli* imagines are normal to small in size. The ground colour is lighter than that of the normal autumn specimens and the ranges of grey on the forewings are more in contrast than usual, also the vermilion bands on the abdomen are reduced in extent and duller than usual. In some instances the bands are almost entirely replaced by an overall suffusion of "mousey" grey.

The colour changes were general and probably the effect of an environmental factor. There were no examples of extreme variation.

In the newly hatched larva of *H. convolvuli* the horn is pink, and this gradually changes to black during the first hour after emergence. This was one of the many interesting observations which the species afforded me when breeding it.

60 Roman Road, Radipole, Weymouth, Dorset.

Lepidoptera at Light in a London House during 1951

By P. A. Desmond Lanktree, F.R.E.S.

From the end of March to the end of September the writer has made the endeavour to keep a record of all the moths visiting his bedroom light in Thurloe Square, South Kensington. The resulting list is not a lengthy one, being, as far as sheer numbers of specimens are concerned, but fractional of a single night's work with a moth-trap well placed in suitable surroundings on a productive night; but none the less it has its interest.

The bedroom is on the third story of the house. The window faces east, away from the Square. The light-source, naturally no mercury-vapour pattern, is a modest 60 watt bulb pendant 40½ feet above ground level. At three feet back from the casement window, which has of course remained wide open throughout the period of observation, the light overhangs a writing-desk at which on most occasions the writer has been seated. Thus the chance of visitors being 'spotted' at their times of arrival was a reasonable one.

The modus operandi was as follows:—After noting the time of arrival of a visitor, it was shown to the killing bottle at the first suitable opportunity, the killing jar having been previously prepared with either carbon tetrachloride or chloroform and stood ready in a convenient place. It was not of course always necessary to take this step for identification of species, but a brief introduction to the vapour, after quieting the insect, caused spasmodic dilation of the genitalia and so permitted the sex to be readily determined. In noting the specimen's condition, particular attention was also paid to any individual marking or signs of wear by which it might be recognised on any return visit, should it be released. Although the writer is not satisfied that any of the released individuals did return, the precautionary measure of marking them beforehand was not undertaken.

A list of the recorded species, the number of specimens and the dates on or between which they occurred is given below.

Laothoe populi	1	August 13th.
Apatele aceris	1	June 28th.
Apatele megacephala	1	August 18th.
Cryphia perla	1	August 19th.
Agrotis puta	3	August 4th-22nd.
Agrotis exclamationis	1	June 16th.
Amathes xanthographa	2	August 30th, 31st.
Triphaena pronuba	1	September 12th.
Triphaena ianthina	1	August 28th.
Mamestra brassicae	5	July 22nd-September 2nd.
Melanchra persicariae	2	June 26th-29th.
Procus strigilis	1	August 15th.
Apamea secalis	2	July 13th, August 9th.
Apamea monoglypha	12	July 3rd-August 25th.
Apamea hepatica	1	June 24th.
Euplexia lucipara	4	July 2nd-August 5th.
Caradrina clavipalpis	4	June 20th-August 7th.
Cosmia trapezina	1	August 4th.
Xanthorhoe fluctuata	1	June 17th.
Euphyia bilineata	1	July 19th.
Lithina chlorosata	1	June 11th.
Cleora rhomboidaria	4	July 26th-August 17th.

In the following and more detailed list, the specimens are arranged in the order of their dates of arrival. The times of entry into the room have been given where possible, though there are, regrettably, several blanks. The time of entry could not be shown where not certain and gaps in the sex-column are due to those few individuals staying long enough for positive identification of species, but escaping before their genitalia could be examined. Where no comment has been made on the condition of the insect, it may be assumed that it was good, if not "fresh".

DATE.		SPECIES.	SEX.	TIME OF ENTRY.	REMARKS.
11th June.	1	*L. chlorosata*	♂	1.25 a.m.	Fair condition; torn hind-wing.
16th ,,	1	*A. exclamationis*	♂	11.45 p.m.	
17th ,,	1	*X. fluctuata*	♂	1.00 a.m.	
20th ,,	1	*C. clavipalpis*	♂	11.45 p.m.	
24th ,,	1	*A. hepatica*	♂	1.00 a.m.	
26th ,,	1	*M. persicariae*	♂	12.15 a.m.	
28th ,,	1	*A. aceris*	♂	—	
29th ,,	1	*M. persicariae*	♂	11.15 p.m.	
2nd July.	1	*E. lucipara*	♂	12.00 p.m.	
3rd ,,	1	*A. monoglypha*	♂	1.08 a.m.	
7th ,,	1	*E. lucipara*	♂	1.00 a.m.	
13th ,,	1	*A. secalis*	♂	—	
19th ,,	1	*E. bilineata*	♂	—	
21st ,,	1	*C. clavipalpis*	♂	2.10 a.m.	Fair condition; torn hind-wing.
22nd ,,	1	*M. brassicae*	♂	1.55 a.m.	Forewings frayed.
24th ,,	1	*A. monoglypha*	♂	—	
25th ,,	1	*A. monoglypha*	♀	11.55 p.m.	
26th ,,	1	*E. lucipara*	♂	12.45 a.m.	
26th ,,	1	*C. clavipalpis*	♂	12.50 a.m.	
26th ,,	1	*C. rhomboidaria*	♂	12.58 a.m.	
27th ,,	1	*A. monoglypha*	♂	1.15 a.m.	
28th ,,	1	*C. rhomboidaria.*	♂	11.25 p.m.	
1st Aug.	1	*A. monoglypha*	—	1.10 a.m.	
1st ,,	1	*A. monoglypha*	—	1.20 a.m.	
2nd ,,	1	*A. monoglypha*	♂	12.05 a.m.	
3rd ,,	1	*A. monoglypha*	—	12.30 a.m.	
3rd ,,	1	*M. brassicae*	♂	2.50 a.m.	
4th ,,	1	*A. puta*	♂	12.20 a.m.	
4th ,,	1	*C. trapezina*	♂	1.55 a.m.	
5th ,,	1	*E. lucipara*	♂	11.00 p.m.	
5th ,,	1	*A. monoglypha*	—	11.30 p.m.	
6th ,,	1	*C. rhomboidaria*	♂	— a.m.	
7th ,,	1	*C. clavipalpis*	♂	1.20 a.m.	
7th ,,	1	*A. monoglypha*	♂	1.40 a.m.	
8th ,,	1	*A. monoglypha*	♂	11.15 p.m.	
9th ,,	1	*A. secalis*	♂	12.50 a.m.	
11th ,,	1	*A. puta*	♂	11.50 p.m.	
13th ,,	1	*L. populi*	♂	12.40 a.m.	
14th ,,	1	*M. brassicae*	♂	9.50 p.m.	
15th ,,	1	*P. strigilis*	♂	11.35 p.m.	"Rubbed" and torn condition.
17th ,,	1	*C. rhomboidaria*	♂	1.05 a.m.	
18th ,,	1	*A. megacephala*	♀	11.00 p.m.	Fair cond.; tip rt., f'wing torn.
19th ,,	1	*C. perla*	♂	1.45 a.m.	
22nd ,,	1	*A. puta*	♂	11.00 p.m.	
25th ,,	1	*A. monoglypha*	♀	12.20 a.m.	
28th ,,	1	*M. brassicae*	♂	3.00 a.m	

DATE.		SPECIES.	SEX.	TIME OF ENTRY.	REMARKS.
28th	,, 1	*T. ianthina*	♀	3.50 a.m.	Fair condition; torn hind-wing.
30th	,, 1	*A. xanthographa*	♂	12.50 a.m.	
31st	,, 1	*A. xanthographa*	♂	12.30 a.m.	
2nd	Sept. 1	*M. brassicae*	♂	4.40 a.m.	Very "rubbed" condition.
12th	,, 1	*T. pronuba*	♂	2.20 a.m.	

Strictly speaking, 56 moths in all were known to have come to light, but as 5 of these were fleeting visitors and total escapees, they have not been mentioned in the record. One of these would certainly have been a species new to the list, but the remaining 4 are thought to have been species already recorded.

An examination of the above tables reveals the following points of information for those interested in the statistics:—

Though watch was kept over the 6 months April to September, moths only occurred between 11th June and 12th September, a period of 94 days. Remembering that, for example, "16th June 11.45 p.m." and "17th June 1.00 a.m." are one and the same night, the productive nights numbered 7 in June (yielding a total of 8 specimens), 10 in July (yielding 14), 18 in August (yielding 27), and 2 in September (yielding 2). In the total of 37 productive nights (or 39% of the 94 day period through which moths occurred), a total of 51 specimens involving 22 species was recorded, the proportion of ♀♀ attracted being 8.5% of the 47 specimens whose sex it was possible to record. The figures are rather low to do more than indicate the nights of greatest plenty, but the two best appear to have been those of 25th/26th July and 5th/6th August.

One of the more interesting points emerges from a comparison of the relative hours of abundance of moths at the light. It must be stated, in all fairness, that the period that the light remained on varied nightly. It may have been on most nights from 9.30 p.m. till 1.30 a.m. in any case, but, not infrequently, it was on from earlier until very much later. Though there is this inconstancy, the fact remains that, had the light been out each night by 10 p.m., there would have been only one moth on this record, or had it remained on till just after 11 p.m., there would still have been only 4. Similarly, and still with reference only to those times recorded, with the light out by 12 p.m., there would have been 14 moths; by 1 a.m., 29 moths; by 2 a.m., 40 moths; by 3 a.m., 44 moths; and only 2 more recorded after this hour. The period of any one hour productive of the most moths occurred between 12.20 and 1.20 a.m., altogether 19 specimens being accounted for during that hour throughout the time of observation. As the times of only 46 of the 51 specimens are known, the hour 12.20-1.20 a.m. yielded 41% of this total.

Although a number of species of moths have their favoured times for flight, many others are more catholic in this habit, and the reason for there not being a greater attendance at the light in question during the earlier hours of the night is not altogether obvious. Walking through the streets, from dusk onwards, one may see moths at street lights in town perhaps as early as one will find them visiting the lights of a country railway station, so they are not only active but thoroughly

" light-conscious " at this time. The writer is inclined to believe that three factors which may be largely contributary to this early evening absence are, first the height and secondly the power of his light (both, in relation to the brilliant lights of the adjacent streets below), and thirdly the fact that during the earlier part of the evening his lighted window is one of scores of the duller attractions that the insects have to chose from. That the greater power of the street lights (all at approximately the same lower level) may draw more moths seems a reasonable supposition and it might therefore follow that of the smaller number passing above this aura, some may find attraction in a scattered distribution over the maze of the higher lighted windows, others may descend to the street lights again in the same or in another area. With regard to the third point, the capacity of most respectable citizens for retiring at " a reasonable hour " greatly reduces the number of lighted windows and thereby greatly increases the chances of moth-attraction by one that remains still lit.

That the number of moths should tail off at the other end of the night from sometime after 3 a.m. is natural enough; for one thing, the night has reached its coolest towards dawn. For another, though a moth will spend a greater or lesser part of the night visiting light after light, the time eventually comes when each will settle down. though what dictates the urge (weariness? satisfaction?), and why some species seem invariably to seek the darkest places, while others are content with the brightest glare for their retirement, are points meriting an explanation.

The behaviour of moths entering a lighted room is a subject of interest in itself, for there is a consistency of behaviour within a species observed not only in this but in other years by the writer. On this occasion every *A. monoglypha* that was recorded was noted to enter the window with controlled speed and comfortable clearance and after a brief visit to the source of light emission to lose interest and proceed on a thorough and ponderous investigation of those components of the room in deepest shadow, at one of which it would eventually settle. The underneath of chairs, bed, tables, mantelpiece and the rear of pictures were visited, dark clothing held some interest and some even tried to escape beneath the door into the darkness of the landing beyond, but always the quest for darkness. On the other hand, *C. perla* entered, ' bee-lined ' straight past the light and settled quietly in the shadow of the picture-rail on the far wall as though by plan. *L. populi*, whose force of flight appears always to exceed his ability for accurate navigation, made his entry on this occasion with the customary attendant drama. Entering like a bullet from a fine angle and crashing heavily into an inner wall, he lay with eyes ' blazing ' and wings a-tremor, recuperating for further flight. The writer recalls an occasion late in June 1949 when a male of this species thudded loudly into the windowpane and fell to the ledge in several attempts before successfully entering a wide open window; a demonstration reminding one that for strength, resiliency and light construction, there is much to be said for an exoskeleton.

T. ianthina, *M. brassicae*, *M. persicariae*, *P. strigilis*, *A. secalis*, *A. hepatica* and *C. rhomboidaria* all sought out the darkest areas in

due course after arrival like *monoglypha*; but, unlike the latter, *rhomboidaria* is not always easy to keep track of and settles quickly. Should the resting place be inconvenient or escape notice, a procedure that was sometimes effective if carried out right away was to put the light out for a few moments; being put on again would often 'flush' the creature into a fresh bout of activity.

With *A. puta*, *A. exclamationis*, *T. pronuba*, *E. lucipara*, *X. fluctuata*, *E. bilineata* and *L. chlorosata* no immediate demand for darkness was evinced; rather was there a tendency for continued restlessness for some time after arrival until eventually captured.

By far the most active visitor was *C. trapezina*, who arrived at the bulb and stayed there battering at it. His pugnacious persistence gave the impression that nothing would do but to have it apart, and some considerable time elapsed before he was 'bottled' while still pursuing this apparent object. One is left to wonder whether his interests are confined to electricity or whether the naked candle flame of other days held the same fascination for him with the well-known and disastrous consequences.

A. xanthographa arrived in both instances with a rush, but settled very suddenly on one of the walls and not in shadow.

Quite the most unobtrusive visitor was *A. aceris*, whose arrival seems to have occurred between 11.30 p.m. and 2.30 a.m. It was not there before this period and was first noticed at the latter time resting on the white painted woodwork of the window frame; the tightly-stowed antennae were indicative of its having been there some time. It lay in the full glare of the light, three feet from the bulb and little more from the writer, who had not stirred from the vicinity during the period referred to. Though the female *A. megacephala* attracted attention by its fluttering crawl for a few moments after arrival, it soon settled down and, like its cousin *aceris*, chose a well-lit situation on the white wooden sill.

Apart from three of the five recorded *M. brassicae* being melanic (respectively those of the 14th and 28th of August and the 2nd of September), all specimens were within normal variation. All *C. rhomboidaria* were of the dark form, as might be expected; all *A. monoglypha* were of the pale form and of *A. xanthographa*, one was pale, the other dark red-brown with a blackish fore-wing suffusion.

Among the species listed above, least usual light-arrivals for this 'inner London' district in the writer's experience over the last few years were *C. trapezina* and *E. bilineata*; more remarkable was the complete absence of *Diataraxia oleracea* (prolific in most years), *Spilosoma lubricipeda* and *Ourapteryx sambucaria* (though the latter two were noted elsewhere in London at light this year), and the lack of good numbers of *A. aceris* and *megacephala*.

Considering the all-pervading night network of lights and the variety in vegetation cultivated in gardens and squares, and ranging from tropical through indigenous to arctic in climatic origin, one can reasonably expect Good Things to show up in London from time to time; and they do, as the city's past records will testify. Within a hundred yards of this window, the more usual of the trees to be found are cherry, lime, sycamore, poplar, chestnut, plane and the lilac and privet shrubs and all in plentiful supply.

Some Lepidoptera Records from Tenby, 1951

By Dr. NEVILLE L. BIRKETT

My main summer holiday this year was spent at Tenby, Pembrokeshire, and was very much a family affair. That is to say that the getting and recording of insects was not the primary object. However, entomology ran a very close second and in consequence I am able to accede to the request of your indefatigable assistant editor. He, on hearing of my proposed visit to "Little England beyond Wales," hastened to point out that the late C. G. Barrett (of *Lepidoptera of the British Islands* fame) was at one time resident in Tenby and that it would be of interest to record my findings there, especially as Barrett did not find the locality any too propitious.

I stayed at Tenby from 21st July until 4th August and during the visit enjoyed reasonably good weather. It was neither very hot nor did we have much rain. A considerable gale on the last night of my visit broke the lamp of my moth-trap, however. Tenby is pleasantly situated high on the cliffs—cliffs for which Pembrokeshire is justifiably famous. Most of the hinterland is devoted to agriculture so that there are few areas of any extent suitable for collecting away from one or two near the coast. Woods are few indeed, the most extensive being those at Canaston, about eight miles from the town Lesser woods occur at Saundersfoot, about three miles away.

Extending south-west from Tenby for just over a mile is a fine stretch of sand-hills known as the Burrows. These sand-hills support a typical flora and on this depends an equally typical insect fauna. (I was disappointed, however, not to take *Actebia praecox* L. nor *Plebeius argus* L., both of which are recorded from the area.)

Stretching north-west from the sand-hills is a valley running up to the little village of St. Florence. In the lower part of this valley there is an extensive marsh where grow common rush, reed-mace, yellow flag and a host of other marshland plants. This area would well repay systematic working.

Through the kindness of Mr. and Mrs. Williams of the Carrington Hotel I was able to operate (to the amazement of neighbouring hotels!) a portable moth trap in the hotel garden. A 125-watt mercury vapour lamp with Woods glass (Purple Peril!) was employed. This trap produced many species I did not come across by any other means.

Larva hunting was not pursued to any extent. The most obvious larva was undoubtedly that of *Callimorpha jacobaeae* L., which occurred wherever its food-plant was to be found. Wherever the Great Mullein occurred it was noted to be severely attacked by the larvae of *Cucullia verbasci* L.

So far as I am aware there is no published list of the Lepidoptera of Pembrokeshire. Records are scattered through various journals and books. As yet no one has collected them together—and this is strange in a county where there are numerous naturalists and an active field-study centre. Perhaps my short list will encourage someone in the area to get to work on a full list.

I should like to express my grateful thanks to two members of the West Wales Field Society—Lieut.Col. H. Allen, D.S.O. (Secretary of

the Society), and Mr. Desmond Odlum, both of whom helped me in many ways.

In the list which follows both the order and nomenclature are those of Kloet and Hinks, 1945. Comment is made only when it seems specially called for. It is obvious, I think, that in a fortnight one can gain little idea of prevalence except in those species which are obviously abundant. The taking of a single specimen, or even two, does not necessarily indicate rarity. Again, variation cannot be studied to any extent for a like reason. In general, therefore, I have avoided committing myself to any opinion as to the status of a species.

Hepialus hectus L.
Eilema lurideola Zinck.
Eilema griseola Hb.
Comacla senex Hb. Common.
Nudaria mundana L.
Hipocrita jacobaeae L.
Spilosoma lutea Hufn.
Arctia caja L.
Apatele rumicis L.
Cryphia muralis Forst. Common.
Cryphia perla Schiff.
Amphipyra tragopoginis L.
Coenobia rufa Haw.
Cosmia trapezina L.
Caradrina clavipalpis Scop.
Caradrina morpheus Hufn.
Caradrina blanda Schiff.
Thalpophila matura Hufn.
Phlogophora meticulosa L.
Xylophasia lithoxylea Schiff.
Xylophasia monoglypha Hufn.
Xylophasia furva Schiff.
Celaena secalis L.
Miana literosa Haw.
Miana strigilis Clerck.
Euxoa tritici L.
Agrotis segetum Schiff.
Agrotis vestigialis Hufn.
Agrotis puta Hb.
Agrotis exclamationis L.
Agrotis cursoria Hufn.
Agrotis trux Hb. Common.
Lycophotia porphyrea Schiff.
Ammogrotis lucernea L.
Ochropleura plecta L.
Graphiphora augur Fb.
Amathes triangulum Hufn.
Triphaena pronuba L.
Triphaena ianthina Schiff.
Triphaena comes Hb.
Axylia putris L.
Cucullia verbasci L.
Leucania impura Hb.
Leucania pallens Hb.
Leucania lithargyria Esp.
Leucania litoralis Curt.
Leucania conigera Schiff.
Hadena conspersa Schiff.
Hadena lepida Esper.
Diataraxia oleracea L.
Ceramica pisi L.
Mamestra brassicae L.
Melanchra persicariae L.
Zanclognatha nemoralis Fb.
Plusia chrysitis L.
Plusia festucae L.
Plusia gamma L.
Sterrha aversata L.
Sterrha dimidiata Hufn.
Scopula immutata L.
Scopula marginepunctata Goeze.
Scopula imitaria Hb.
Hemithea strigata Mull.
Hemistola immaculata Thunb.
Geometra papilionaria L.
Pseudopterpna pruinata Hufn.
Chloroclystis coronata Geyer.
Chloroclystis rectangulata L.
Eupithecia vulgata Haw.
Eupithecia centaureata Schiff.
Eupithecia subfulvata Haw.
Eupithecia pulchellata Steph.
Lygris prunata L.
Lygris mellinata Fb.
Epirrhöe galiata Schiff.
Epirrhöe alternata Mull.
Lyncometra ocellata L.
Cidaria fulvata Forst.
Hydriomena furcata Thunb.
Euphyia unangulata Haw.
Euphyia bilineata L.
Perizoma alchemillata L.

Perizoma flavofasciata Thunb.
Asthena albulata Hufn.
Pelurga comitata L.
Xanthorrhöe spadicearia Schiff.
Xanthorrhöe montanata Schiff.
Xanthorrhöe fluctuata L
Ortholitha mucronata Scop.
Ortholitha limitata Scop.
Rhodometra sacraria L. A single worn male taken on the sand-hills, 24th July.
Opisthograptis luteolata L.
Chiasmia clathrata L.
Itame wavaria L.
Ectropis bistortata Goeze.
Cleora lichenaria Hufn.
Cleora repandata L.
Abraxas grossulariata L.
Lomaspilis marginata L.
Gnophos obscurata Schiff.
Cabera pusaria L.
Cabera exanthemata Scop.
Ourapteryx sambucaria L.
Selenia bilunaria Esp.
Crocallis elinguaria L.
Habrosyne derasa L.
Macroglossum stellatarum L.
Deilephila porcellus L.
Deilephila elpenor L.
Sphinx ligustri L.
Notodonta ziczac L.
Phalera bucephala L.
Cilix glaucata Scop.
Malacosoma neustria L.
Philudoria potatoria L.
Nola albula.

RHOPALOCERA

Dira megaera L.
Eumenis semele L.
Maniola jurtina L.
Coenonympha pamphilus L.
Aphantopus hyperantus L.
Aglais urticae L.
Aricia agestis Schiff. Very common and little variability.
Polyommatus icarus Rott.
Pieris brassicae L.
Pieris rapae L.
Pieris napi L.
Zygaena filipendulae L.

These constitute the macro-lepidoptera I observed in the Tenby district. I also took or noted a number of ' micros ' but some of these remain to be identified and classified.

Kendal, 3.x.1951.

REFERENCES.

Barrett, C. G.: *Lepidoptera of the British Islands*, 1893-1907.
The Entomologist.
The Entomologist's Record.
Kloet and Hincks: *Check List of Brit. Insects*, 1945.
Meyrick, E.: *Revised Handbook of Brit. Lepidoptera*, 1927.
Newman, E.: *Butterflies and Moths*, 1869.
South, R.: *Butterflies* and *Moths of the British Isles.*
West Wales Field Soc. *Report*, 1951.

Current Notes

THE current issue of OPUSCULA ENTOMOLOGICA (XVI, 1-2), published by the Entomological Society of Lund, Sweden, contains an interesting account in English by EINAR KLEFBECK on the insect fauna of the Danish island of Anholt. This island, about six miles long and 2½ miles wide, is situated in the middle of the Kattegat, being some 28 miles from the coasts of Denmark and Sweden and, next to Gottland, it is the most isolated island in Scandinavia. Formerly the island was covered with pine forest; but the trees were gradually felled to provide fuel for the lighthouse, and to-day—save for some reafforested areas—it is largely a sandy desert carpeted with *Empetrum* and low junipers.

The insect fauna seems a remarkably rich one for such a habitat. Hr. KLEFBECK records 42 species of Hemiptera, 164 of Coleoptera, 60 each of Diptera and Hymenoptera, and no less than 99 of Lepidoptera. The butterflies include *P. machaon*, *V. antiopa*, *V. polychloros*, *P. c-album*, *A. paphia*, *A. lathonia*, *A. niobe*—21 in all, with 8 hawk-moths. The Pine Lappet (*Dendrolimus pini*)—reputed to have been a British species years ago—is well established and is supposed to be an ' original inhabitant.' Strangely enough, there is no record of *A. vestigialis* nor *A. ripae*; but *A. atriplicis* and *C. fraxini* occur. For those who are interested in the ecological aspects of island Entomology Anholt should be a pleasant spot for a holiday.

The same issue of OPUSCULA ENTOMOLOGICA contains an account (of which a summary is given in English) of a migration of *Vanessa atalanta* observed over the Falsterbo peninsula and through the Kattegat on 25th and 28th August 1946 (with map showing the direction of flight). The butterflies were flying about 1 metre above the sea and the total number taking part in the migration " must have been more than 10,000." The migration took place against the wind, and all individuals kept to a straight course. A few *V. cardui* and *V. io* took part in the migration.

Those of our readers who collect the European Rhopalocera and have made expeditions to the South of France in search of them will be interested in a new race of the handsome butterfly *Thais rumina* f. *medesicaste* Ill. which has been found in the valley of the upper Var (Alpes Maritimes). An account of it is given by Dr. Jean Loritz in the *Bulletin et Annales de la Société Entomologique de Belgique* of 5th July 1951 (87: V-VI, 130). This race was found on the slopes of the mountains round about the village of Daluis, on a dry limestone subsoil, extending for more than a kilometre along the valley on the right bank of the river, from 650 to about 800 metres above sea-level. It is characterised by a strong reduction of the carmine spots on the upper sides of all four wings in the male. Dr. Loritz has named this local race *daluisensis*.

Notes and Observations

PROCRYPTIC LARVAE OF ALLOPHYES OXYACANTHAE LINN.—With reference to the Field Note in September issue, in May 1948 I beat from lichen-covered hawthorn and sloe bushes near Withypool, West Somerset, a number of larvae of *Allophyes oxyacanthae* L. (and also *Opisthograptis luteolata* L.) which were coloured to resemble the lichen.—F. H. LYON, Green Headland, Sampford Peverell, Tiverton, Devon.

[Probably this form of the larva is not uncommon. Barrett (*Lep. Br. Is.*, **4**: 326) remarks that it "seems to be somewhat common in the New Forest. In this variety it closely resembles the lichens growing on the trunks of trees and bushes . . ." See also *Ent. Rec.*, **56**: 70, 122.—ED.]

FLIGHT OF FEMALE LYMANTRIA MONACHA LINN.—Referring to the Field Note on page 170 of the September issue, on 23rd August 1950 when I was in a small wood at Grosmont, Herefordshire, my car headlight at-

tracted a few moths, among them a female *L. monacha* which settled on my light grey trousers and rested there quietly while I boxed it and added it to my collection.—W. Bowater, 41 Calthorpe Road, Edgbaston, Birmingham, 15.

Variety of Euclidimera mi Clerck.—I have in my collection a specimen of the 'Mother Shipton' closely approaching the newly described ab. *costimacula* Cockayne (*Ent. Rec.*, **63**: 162). The dark mark on the costa has a projection distally much as has the type. However, the second distal projection, normally pointing to the tornus, is quite absent. The proximal part of the dark costal mark has a hook-shaped projection as has *costimacula*. On the hindwings the darker basal area of my specimen *has* got some ground-colour showing. My specimen is a male and was one of a number of specimens bred in May 1950 from larvae found on Meathop Moss, Westmorland.—Dr. Neville L. Birkett, 3 Thorny Hills, Kendal. 16.ix.1951.

Moths Attracted by a 'Live' Wire.—While working a mercury vapour lamp at Romsey one night in September I noticed a curious thing. I was using ordinary cotton-covered flex from the choke to the lamp. This flex was trailing across the sheet and as there was a very heavy dew it got quite wet. I had to leave the lamp for a short time, and when I returned I found that a number of the moths had gravitated to the flex and were pitched on it in a row where they sat rapidly vibrating their wings. When I removed one or two they immediately fluttered back and took up new positions on the flex. They remained in this position, joined by several new arrivals, until one by one they fell off, apparently dead as indeed some were. I picked up the wire and found that it was "alive" and that gripping it tightly between the fingers gave a sharp "shock". To avoid the possibility of a serious short I had to lift the flex off the sheet after which it had no further attraction for the moths.—A. C. R. Redgrave, 14a The Broadway, Portswood, Southampton.

Immigration of Lithosia quadra Linn. to Kent in 1951.—This species has only been recorded from Kent in the past at irregular intervals, when it has usually appeared singly and at places widely separated. Some indication of its rarity here may be gathered from the fact that I have been unable to trace records of more than some 12-15 individuals for the county since 1850, not including those of the present year. It is therefore remarkable that in Kent this year at least 14 imagines have been seen. All were males, and with the exception of one all were taken.

An interesting fact is that none was seen prior to the thunderstorm which struck southern England early on 31st July and that all the specimens were noted during the few days which immediately followed.*

A fairly detailed record of the observations of myself and others in respect of this species for the period of 31st July to 7th August inclusive is given below. It should be mentioned that all were noted at light.

31st July: Folkestone (one found in a light-trap: A. M. Morley).
31st July: Brook, near Wye (3 in a light-trap: C. A. W. Duffield).
31st July: Cliftonville (one at approx. 11.30 p.m.: W. D. Bowden).

*Perhaps the moths were carried upwards by convection currents due to the storm, and then, when high in the air, blown across the Channel.—Ed.

1st Aug.: Ham Street (3 between 1.30 a.m. and 1.45 a.m.: J.M.C.-H.).
2nd Aug.: Ham Street (2 between 12.30 and 1.30 a.m.: J.M.C.-H.).
3rd Aug.: Folkestone (one found in a light-trap: A. M. Morley).
4th Aug.: Dungeness (1 at approx. 2 a.m. which remained on the sheet just long enough for me to identify it: J.M.C.-H.).
4th Aug.; Ham Street (1, after 11.30 p.m.: E. J. Hare).
7th Aug.: Ham Street (1, after 11.30 p.m.: E. J. Hare).

From the above, it would appear that an immigration of *L. quadra* arrived in Kent over a fairly wide area, perhaps as a result of the thunderstorm during the early hours of 31st July.

I wish to acknowledge with thanks the kindness of the above named gentlemen in supplying me with their records.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 10.ix.51.

Pieris napi on Wet Mud.—Early this Spring—I have not kept the date, but most of the early butterflies were out—I was cleaning out a pond about 40 feet by 15 feet. After the water had been drained off and many Odonata nymphs and waterbeetle larvae had been rescued, there was a residue of fine black mud, mostly from decayed waterlily leaves. This was thrown into a barrow for later removal. It was a warm sunny morning and there were many butterflies about. On the excavated mud in the barrow I noticed four males of *Pieris napi* Linn. Several of other species passed to and fro including the two other Pierids and *Pararge aegeria* Linn. which is so fond of settling on the ground on shady paths, but none of them took any notice of the mud. Is this a known habit of *P. napi*?—E. Barton White, Braunton, N. Devon.

The Hampshire Record for Myrmecozela ochraceella (von Tengstroem).—Stainton described the life history of this species in his *Natural History of the Tineina*, 1873, XIII: 44. After mentioning the well-known Rannoch location, he goes on to say: "I believe it has also occurred in the New Forest in Hampshire." This statement has mystified micro-lepidopterists ever since, and many a nest of *Formica rufa* in the Forest must have been disturbed to no purpose. The New Forest locality is not mentioned by Stainton in *Insecta Britannica. Lepidoptera: Tineina*, 1854, p. 36, so at some time between these two dates he came into possession of this information. In *The Entomologist's Annual* for 1866, pp. 122-137, Frederick Smith has a paper: "Notes on *Hymenoptera*." Under *Formica congerens* (now known as *pratensis* Retz.) he writes: "This is the common wood-ant at Bournemouth; I have not yet found *F. rufa* there. Mr. Dale observed some small moths in the nest of this ant, but was not so fortunate as to capture one, probably this was the *Tinea ochraceella*." Through the kindness of Prof. Varley I have recently been able to examine the Dale diaries and collections which are in the Hope Dept. of the University Museum, Oxford. There are a few specimens of *ochraceella* in the collection labelled "Rannoch." I could not find any reference to this species in J. C. Dale's catalogue of the Lepidoptera, but in C. D. Dale's diary for 15th August 1865 there is the entry: "Saw *Tinea ochraceella*. Branksome." Incidentally, Branksome is just over the border in Dorset, and is not a Hampshire locality. According to Donisthorpe, *British Ants*, 1915: 267, *Formica pratensis* Retz was common at Bournemouth in the 60's

of the last century and *rufa* L. very rare. By 1882 *rufa* was becoming commoner and when Donisthorpe visited Bournemouth in 1914 out of hundreds of wood-ants' nests he examined only one contained *pratensis*. At the present time *rufa* is abundant throughout the district and it is probable that *pratensis* is extinct. Could it have been that in the South of England *Myrmecozela ochraceella* was attached to *Formica pratensis* and died out when this ant was replaced by *Formica rufa*? Mr. S. Wakely has pointed out to me that *Mompha ochraceella* Curtis can be easily confused with *Myrmecozela ochraceella* Tengst. if the name is not written in full.—S. C. S. Brown, 454 Christchurch Road, Boscombe, Bournemouth.

Eupista erigerella (Ford) in Surrey.—On 7th October I visited Riddlesdown, Surrey, and was surprised to find two larvae of this local insect. *Erigeron acris* is not uncommon in patches on the downs in this vicinity, but I have searched in vain for this species many times, both here and in other parts of Surrey. On finding the two already mentioned, I examined the seedheads of scores of other plants, but failed to discover another. The seedheads on which the larvae were found looked untidy—very "moth-eaten" in fact, and it was this that drew my attention to them. Previous to this the only records of this insect are from many places in the Dartford-Gravesend district of Kent. It is still apparently unknown on the Continent.—S. Wakely, 26 Finsen Road, Ruskin Park, London, S.E.5.

Gelechia hippophaella Schrank in Norfolk.—In a previous note to the *Record* (pp. 178-9) I mentioned finding quantities of Sea Buckthorn (*Hippophae rhamnoides* L.) on 24th June growing on the sand-dunes at Hemsby, N.E. Norfolk. Seeing that large numbers of the leaves were spun together, I collected a fair number of spinnings to see what species of micro-lepidopteron were present. It was soon apparent that most of these were tortices, and I bred specimens of *Cacoecia rosana* L. and *C. xylosteana* L. On 3rd August I noticed a greyish Gelecheid had emerged, which was soon verified as *hippophaella*. From then till the 10th several others appeared—eight in all. The buckthorn leaves had dried by this date, and the coloration of the moths resembled that of the leaves so much that it was almost impossible to detect a moth resting on a leaf. I had to tip the leaves out daily on to a large sheet of paper and box the moths as they moved. When a movement was made it was more of a hop than any attempt at flight, and the moths seemed loth to move away from the shelter of the leaves. Records of this insect in Britain are very scarce, and hitherto it has not been noted outside Kent.—S. Wakely, 26 Finsen Road, Ruskin Park, S.E.5.

Adoxophyes orana F.R., A Tortrix New to Britain.—In the *Entomologist's Monthly Magazine* for September (**87**, No. 1048) an account is given at page 259 by J. R. Groves of the discovery of this species in Kent. It is the *Capua reticulana* of Hübner and was found in August 1950 infesting apple trees in a Kentish orchard. " The young larvae feed in the tips of the shoots, but the later instars damage the fruit surface, and it is then that it is serious enough to be considered a pest. The original infestation was controlled, but the species is present in other orchards in the county." According to Lhomme (*Cat. des Lép.*

de France et de Belgique, **2**: 245, No. 2303) this species is spread throughout France and the larval foodplants are given as *Lonicera, Betula, Corylus, Populus, Humulus lupulus, Pyrus, Salix, Alnus, Prunus, Pistachia, Solanum dulcamara, Rubus, Vaccinium*, and *Polygonum persicaria.*

Killing Agents.—With regard to Major W. A. C. Carter's Note in the September issue (page 174-5) of the *Record*, reference to Dr. C. B. Williams's paper describing his light-trap shows that he specifically mentions tetrachlorethane as the killing agent which he adopted as being the most satisfactory. I can confirm, from my own experience, that this reagent is perfectly satisfactory, insects killed by it being perfectly relaxed and ready for setting immediately after death. The bottle described by Major Carter should prove quite satisfactory. —R. F. Birchenough, 8 Ravenswood Crescent, West Wickham, Kent. 13.x.51.

Practical Hints

A writer in this column at the end of the last century advised lepidopterists "not to fail to put on sugar every possible night during November for *Dasycampa rubiginea*" and suggested that this species would "probably be heard of in many more districts if collectors did not give up sugaring too early." Our own experience has been that it is no use sugaring after the first really hard frost of winter, at least inland—unless of course one wants to take *Conistra ligula, C. vaccinii* and, when the weather has become mild again, *Eupsilia transversa* (*satellitia*) with perhaps an occasional *Agrochola circellaris* (*ferruginea*). We have taken these four species at sugar throughout November and the first two of them on Boxing Day. But a really hard frost drives into their permanent winter quarters the Noctuae which hibernate in the imaginal stage. In maritime districts the case may be otherwise and we should like to hear the experiences of some of our correspondents with sugar throughout the winter in seaside places.

In 1936, when the first hard frost of winter, in our district, was on 22nd November, *Lithophane semibrunnea, Phlogophora meticulosa, Caradrina clavipalpis* (*cubicularis*) and the four species above-mentioned were taken at sugar and ivy so late as 20th November. In 1939 there was no hard frost until 21st December and moths came to sugar nightly until that date. On the 10th November, that year, we found a full-grown larva of *Apatele psi* on the altar in the Memorial Chapel at King's College, Cambridge, doubtless conveyed thither on foliage for altar decoration. It pupated on the 19th. So in a mild winter there are autumn-pupating larvae to be had quite late in the year.

Every mild evening throughout this and the succeeding month should see the moth-hunter, torch in hand, searching the hedgerows and fringes of woodlands for a couple of hours after dark. It is only during the winter months that the larvae of many of our rarer Noctuae are to be had in anything approaching numbers. For a dozen larvae of a grass-eating species which the torch discloses in late November and December there is only an occasional one to be had in April. The keen lepidopter-

ist should begin his winter larva-hunting as early as possible and should pursue it assiduously until the weather forbids; if he leaves it too late he is likely to miss many opportunities. Most of the larvae which one finds are small, so that one has the interest and employment of rearing them from an early stage.

Throughout this month the pupa-digger should be wielded on every day that weather permits. Fungi take a heavy toll of pupae, and as the winter advances every day increases the peril. In November the ground is sometimes too wet to dig; but sometimes there are welcome spells of dry weather, and then the harvest of the wise lepidopterist may well be a rich one. On one noteworthy early December afternoon six cocoons of *Drymonia dodonaea* (*trimacula*) were raked out from crannies underneath ancient oaks. Some of the resulting moths were used for assembling, and eggs in plenty were obtained.

Notes on Microlepidoptera

By H. C. Huggins.

This is a good month for finding Tortrix larvae in old flowering stems before these become broken down.

Lozopera francillana Fab. and *dilucidana* Steph. can be found in old stems of wild carrot and wild parsnip respectively, probably wherever the foodplant is found in the south of England. *L. beatricella* Wals. is much more local but can be obtained in the stems of hemlock in many places, in Kent and East Anglia at any rate. It is apt to take one stem and swarm in it; occasionally the number of pupae in a hemlock stem is almost incredible. The late Sir John Fryer sent me two pieces of hemlock stem from Chatteris, about six inches long each. I kept these, as I do all of these Tortrices that hibernate as larvae, in the garden open to the weather till May, when I brought them into the house, and in late June, after setting well over a score of moths from them, sent them on to Mr. L. T. Ford, who also bred a good series. I have also bred *L. beatricella* from the stem of alexanders, but not in numbers, so it may only have wandered from a hemlock plant to pupate. I did not, however, see any hemlock near the infested stems.

The larva of *Phalonia zephyrana* Treits. can be found in the lower portion of the stem and upper part of the root of wild carrot from November throughout the winter. It is best to pull up the roots, then dead, and pot them up with the top five inches of stem attached. They may be potted as close as possible and must be left outdoors till May. The *zephyrana* of the chalk downs are usually much smaller and less interesting than those of sea shores and sand dunes, which tend to approach *maritimana* in size.

Phalonia maritimana Guen. would appear to-day to be one of our rarest Tortricids. The egg is unfortunately laid in the upper part of the stem of sea holly and almost everywhere before the larva gets to the root some fool picks the plant for interior decoration. The result is that *maritimana* disappears almost everywhere as places become developed as "resorts". I searched for it in vain over thirty years ago in its classical locality where it was discovered in England by Harding, between

Deal and Sandwich, although to-day *Depressaria cnicella*, which used to inhabit the sea holly with it, but lays its eggs lower down, is still not uncommon. In 1924 my late friend Bernard Harwood sent me larvae from near Clacton from which I bred a good short series, but told me it would soon be exterminated by trippers, and just before his death wrote that he believed it was now gone. It is easy to rear if the last five inches of stalk and about five of the root are potted up and it would be interesting to know if it still survives anywhere.

Apropos of nothing, how many collectors use a long-handled treacle brush? I have always until two years ago used a brush with a handle of six inches or less length. Wanting a new one then I could only get the size I required with a handle just over a foot long. On trial I found that I received no treacle splashes on hands or clothes and no longer had to carry a damp flannel or go sticky all the evening, and shall never use a short handled brush again.

Collecting Notes

NOTES ON THE LEPIDOPTERA OF TETBURY (GLOS.) AREA.—After the very wet summer and winter of last year the occurrence of butterflies and moths in this district this year has not been so adversely affected as I expected. The wonder to me is that there have been so many. Some species have appeared late and others (notably Noctuids) have been reduced in numbers.

In June-July the valerian in my garden did not attract the usual number of moths: only 3 *Rhyacia simulans* (a fourth in good condition I saw on my buddleia as late as 10th September); 2 *Polia nitens*; and 2 *Deilephila porcellus*. From one of the last mentioned I obtained eggs and subsequently reared 60 pupae. Contrarily, the valerian attracted more than usual of *Abrostola tripartita* and *A. triplasia*.

It has been a poor year here for migrants. I have not seen one *Colias croceus*, only one *Vanessa cardui* (19th Sept.) and five *Vanessa atalanta*. *Plusia gamma* has been very common as usual; but *Macroglossum stellatarum* has appeared very sparingly, the last one on 1st October.

A very fine day on 15th April brought out *Nymphalis io*, *Aglais urticae*, *Polygonia c-album*, *Gonepteryx rhamni*, and the larvae of *Philudoria potatoria*. The buddleia in my garden this autumn attracted more *N. io* than I have ever seen before. I have the hybrid buddleia *weyeriana*, which I can recommend to be planted in any lepidopterist's garden. It is at its best when the other buddleias are over and attracts moths well at night.

Moths are beginning to appear at ivy bloom (early October) some later than usual. The common species such as *Agrochola circellaris*, *A. lychnidis*, *Eupsilia transversa*, *Dryobotodes protea*, *Allophyes oxyacanthae*, *Conistra vaccinii*, *C. ligula*, *Phlogophora meticulosa*, *Agrotis ypsilon*, *A. segetum*, *Dysstroma truncata*, *Selenia bilunaria*, are as plentiful as usual. On 6th October I took one specimen of *Lithophane semibrunnea* on ivy. This species occurs very sparingly here, as anywhere else apparently; I have never taken more than three in one season. The foodplant, ash, is common enough, but the females are reputed to lay their eggs in small batches only over a wide area. To me this still does

not explain why they are never more plentiful. I wonder if any readers who use a mercury vapour lamp could report how many *semibrunnea* (if any) they have seen in one season?—J. NEWTON, 11 Oxleaze Close, Tetbury, Glos. 7.x.51.

NOTES FROM S.W. KENT.—The scarcity of Lepidoptera has continued hereabouts throughout September, but it is only fair to state that these notes cover only a very small area though my observations have been regular for twenty years and more. Visitors to garden flowers, buddleia and michaelmas daisies have been fewer even than last year. A fair number of Pierids have appeared, more *rapae* than *brassicae*; but Vanessids have been fewer. *V. atalanta* I have seen only four times; *Nymphalis io* two or three a day on some days; *Aglais urticae* once or twice up to seven. *Vanessa cardui* I have not seen, but one was noted by a friend in her garden half a mile away. The same friend has twice seen *Colias croceus* in a clover field near her house, but I never saw one when I heard of it and went to look. I saw one in my garden on 19th August and another on 6th October. No *Macroglossum stellatarum* have appeared since the spring. *Pararge aegeria* (one) appeared on 5th October.

At sugar on some fifteen posts and trees *Amathes xanthographa*, *Apamea monoglypha*, *A. secalis* and *Triphaena pronuba* appeared in small numbers but nothing like last year and I seldom saw an average of one per post. Contrary to the experience of a writer in a recent issue of this magazine snails turned up at sugar on four or five occasions. *Hypena proboscidalis*, a small specimen, query second emergence, flew into my room on 11th September. Tipulae have appeared in larger numbers than usual this year I think.—G. V. BULL, White Gables, Sandhurst, Kent.

LEPIDOPTERA AT WESTON-SUPER-MARE.—It may be of interest to continue my note on page 182 and give a further list of the more interesting species occurring at light in my garden from July to September. As before I am stating the date of first appearance and in some cases adding notes of subsequent frequency. The weather in July was good but in August and September very indifferent. I was away from Weston during a considerable part of July so no doubt some good nights were missed during that month.

July: 1st, *Habrosyne derasa*, abundant later. 18th, *Cryphia muralis*, common later. 20th, *Apamea fissipuncta* (*ypsilon*); *Zeuzera pyrina*, a few later. 28th, *Pseudoips bicolorana*, several later; *Eilema complana*, several later.

August: 7th, *Deuteronomos erosaria*, several later. 23rd, *Deuteronomos fuscantaria*, very common. 30th, *Lampra fimbriata*, several later.

September: 4th, *Atethmia xerampelina*, fairly common later. 6th, *Plusia festucae*. 8th, *Tholera cespitis*; *Tiliacea citrago*, a few later. 12th, *Sarrothripus revayana*, a few later; *Antitype flavicincta*, common later. 22nd, *Eumichtis lichenea*, common later; *Cosmia affinis*. 26th, *Rhizedra lutosa*, several later. 25th, *Aporophyla nigra*, fairly common later.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare.

NONAGRIA DISSOLUTA TR. IN HAMPSHIRE.—On 27th July this year, in company with Mr. Barry Goater, while working lamps in a coastal marsh in Hampshire for *Leucania straminea* Tr. and *Arenostola phrag-*

mitidis Hb. I took a small dark reddish-brown Wainscot which I could not then identify. Subsequent examination proved it to be the type form of *Nonagria dissoluta* Tr. Further visits by Mr. Goater and I gave us several specimens of the usual British form *arundineta* Schm. and four more of the type form.

It may be of interest to record the capture of a short series of *Chilodes maritima* Tausch., all typical, at the same place.—A. C. R. REDGRAVE, 14a The Broadway, Portswood, Southampton.

NOTES FROM EAST DORSET.—The larvae of *Sphinx ligustri* and *Chaerocampa elpenor* have been very common here this season. Imagines of *Macroglossum stellatarum* are arriving, and in the woods around Swanage *Pararge aegeria* are flying, and in quite fresh condition.—LEONARD TATCHELL, Rockleigh Cottage, Swanage. Sept. 1951.

RARITIES IN EAST ESSEX.—Although it has been such a poor summer for butterflies I have had three outstanding moths in the trap: *Calophasia lunula*, *Plusia limbirena* and *Plusia gutta* Guen. (*bigutta* Staud.). All three were females and all proved to be infertile, which was very disappointing. However, they are still in very reasonable condition.—A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex. 14.x.51.

[We await with interest the continuation of Mr. Dewick's Notes from East Essex (see page 148). *Calophasia lunula* Hufn. is a common species in France and has been taken once or twice in this country. *Plusia gutta* Guen. is reported by Lhomme (*Cat. des Lép. de France et de Belgique*, page 317, No. 858, where it is named *Phytometra confusa* Steph.) to occur "almost everywhere" in France. The foodplants are given by this authority as *Urtica*, *Mentha*, *Achillea millefolium*, and *Matricaria chamomilla*. Lhomme distinguishes *bigutta* Staud. as having "la tache arentée divisée en deux petites taches." *P. limbirena* is an African species.—ED.]

A NOTE FROM TORQUAY.—The sight of a solitary *Colias croceus* at Slapton on 13th August raised hopes that we might see more Clouded Yellows later, but I haven't seen another. A *Macroglossum stellatarum* taken in the house by one of my neighbours on 1st October is the only autumn representative of that species too that I've seen. "Also rans" might well include in this category the few migrant species of moths seen this autumn with perhaps the exception of *Herse convolvuli* and *Plusia gamma*, though compared with other years the numbers of the latter have been quite pitifully small. *Nycterosea obstipata* is still around but very few, and the same remark applies to *Laphygma exigua* (second brood); yet I saw more than usual of both in their first broods. The dates for *H. convolvuli* were: 2 ♀♀ 5th September; 1 ♂ 10th Sept.; 1 ♀ 12th Sept.; 2 ♀♀ 22nd Sept.; 2 ♂♂ 25th Sept., and 1 ♂ 3rd October, all taken at light or in the trap. I also had one brought to me (a ♀), which, like two of the other ♀♀, I kept, in vain, for eggs.

One *Heliothis peltigera* has been reported to me (in September); the only one I've taken myself was on 5th July, rather late for one of the first brood? The only *Rhodometra sacraria* of the year for Maidencombe I took in the trap on 18th September, a ♂ of the buff form, a colour which we more often find to be associated with females.—FRANK H. LEES, The Gables, Maidencombe, Torquay. 14.x.51.

DANAUS PLEXIPPUS L. AT BIRMINGHAM.—I was recently somewhat shaken to be told by a young collector, Master Edward Marks of King's Heath, that he had taken a specimen of *Danaus plexippus* L. in a field at the end of my garden. The insect, a male of the typical *D. plexippus plexippus* form, was taken while resting on damp ground near a spring on 2nd August 1950. It is in excellent condition, except for the loss of an antenna in manipulation.—F. H. LATHAM, 26 Hollie Lucas Road, King's Heath, Birmingham, 14. 13.x.51.

EUPHYDRYAS AURINIA ROTT. AT BIRMINGHAM.—*E. aurinia* has occurred this year at King's Heath, only four miles from the city centre and about six miles from its nearest known ground.—F. H. LATHAM, 26 Hollie Lucas Road, King's Heath, Birmingham, 14. 13.x.51.

LARVAE ON ARTEMISIA ABSINTHIUM.—Recently I uprooted a two-year-old plant of *Artemisia absinthium* (Wormwood) which I had allowed to remain in my garden for larva-feeding purposes. Beating it over a sheet produced the following larvae:—12 *Cucullia absinthii*, 15 *Eupithecia succenturiata*, 2 *E. absinthiata*, and two each of two unidentified species of *Noctuae*.—F. H. LATHAM, 26 Hollie Lucas Road, King's Heath, Birmingham, 14. 13.x.51.

DIPTERA

TABANUS SUDETICUS ZELL. IN MERIONETH.—During the last fortnight in August 1951 my brother was on holiday at Fairbourne, near Barmouth. While out walking one day he noticed a curious insect crawling on the path. Knowing my fondness for curious insects, he captured it and posted it to me. It proved to be a female of *Tabanus sudeticus* Zell. and is rather interesting because Verrall (*British Flies*, Vol. 5, 1909) mentions the capture of a male in Merionethshire.

In view of this insect's powerful flight, it is rather strange that it should be crawling on the ground. A possible explanation is that it had flown around an earlier passerby, who had "swatted" the insect and stunned it. However, it was in perfect condition.—CARTWRIGHT TIMMS, 524 Moseley Road, Birmingham, 12. 11.x.51.

FLIES TAKEN BY A SPIDER, DICTYNA UNCINATA THORELL.—A female spider of this species, kindly determined for me by Mr. G. H. Locket, had a web spun over a hazel leaf at the edge of a woodland path at Bookham Common, Surrey, on 11th June 1950. In the web were the remains of six flies, five of which could be identified:—*Neurigona quadrifasciata* Fab. [Dolichopodidae], ♂, *Hilara thoracica* Mg., ♀, *Rhamphomyia nigripennis* Fab., ♂, *Bicellaria spuria* Fln., ♀ [all three Empididae], and *Minettia inusta* Mg. [Sapromyzidae], ♀. The presence of the *Neurigona* surprised me, for in my June visits over the past few years I have only found the species on the higher ground. The males are always on the trunks of trees growing near to the shaded pools there and never on horizontal leaves. Both the *Hilara* and the *Minettia* are additional to my list—'The Diptera of Bookham Common' [1950, *London Naturalist* for 1949: 98-133].—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 5.x.1951.

THE EGG LAYING OF CATABOMBA (=SCAEVA) PYRASTRI L. [DIPT., SYRPHIDAE].—Watching a female of this species during a sunny afternoon in July as she examined the spear thistles flowering in a pasture, I noticed that she paid no attention to the flowers. She kept always below the flowerhead and appeared to be attracted by the aphids present on the plants. Although, as usual, my slightest movement sent her flying swiftly away, she would return and at last I had the pleasure of seeing her laying an egg. It was placed directly on to the back of an adult aphid which seemed to be undisturbed by the addition of this white burden. My friend Mr. C. N. Colyer records the egg-laying " on the underside of a leaf, or on a plant-stem where aphids are feeding or likely to feed " [1951, *Flies of the British Isles*, p. 156].—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 5.x.1951.

PTYCHOPTERA LACUSTRIS MG. [DIPT., PTYCHOPTERIDAE] IN WALES.—On August 2nd and again on 3rd, 1948, I captured males of this species on the undergrowth in Castlebeech Wood, near Dale Fort, Pembrokeshire. The only counties mentioned by P. Freeman [1950, Royal Ent. Soc. *Handbook*, IX, part 2: 76] are Devon, Essex, Hants, Herts., Notts., Arran, and he does not mention the adult flight period except that the genus has spring and summer broods. Audcent [1949, *Proc. Bristol Nat. Soc.*, 27:422] records the species in Gloucester and Somerset, 19th May-27th June and on 16th September. Perhaps other readers can fill in the gaps.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 5.x.1951.

THE NUMBER OF EGGS LAID BY A HOVER FLY.—The desire to keep specimens of Hover flies in their bright yellow colours has caused me to bring my captures home in tubes so that the delay before death enables the gut to be emptied. I captured a female *Syrphus* (=*Syrphidis*) *nitidicollis* Mg. in a tube in May off a birch leaf in the woodland at Bookham Common, Surrey. During the journey home 346 eggs were laid in the tube, mostly on the cork. I do not remember a similar instance happening in my tubes. Can it be that this female would have laid all these eggs in 1 to 2 hours on plants if she had retained her freedom? It would be interesting to know what are the egg-laying capacities and normal habits of each Syrphid species. There is plenty of scope for entomologists to study the biology of the Hover flies that haunt our gardens and the wayside and woodland, and that are so beneficial with their aphidiphagous larvae and the pollination of plants effected by the adults.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 5.x.1951.

PEGOMYIA SQUAMIFERA STEIN. ATTACKING CULTIVATED MUSHROOMS.—On 8th September 1950 about 30 to 40 females of *Pegomyia squamifera* Stein. were discovered ovipositing on cultivated mushrooms growing in a wooden shed in my garden, and I took about a dozen. No males were seen. The flies appeared to confine their attentions to a portion of the bed where the mushrooms were past their best and had become infested with *Sciara* larvae, which would appear to indicate that the *Pegomyia* larvae are carnivorous rather than fungivorous.—C. H. WALLACE PUGH, Derwent Dene, Oswestry.

PEGOMYIA NIGRITARSIS ZTT.—With reference to Mr. Niblett's note on the number of broods in this common species (*Ent. Rec.*, **63**: 150) I have bred it this year from larvae in dock leaves collected on 9th July, the flies emerging during the third week in August. On previous occasions the flies have emerged in May and up to the end of June, and I believe it has two or more broods in the year, as larvae can be found in all stages throughout the summer.—C. H. WALLACE PUGH, Derwent Dene, Oswestry.

ASILUS CRABRONIFORMIS L. IN EAST DORSET.—A specimen of *Asilus crabroniformis* L. was brought to me at the end of September. I have not met with this species here before, though I know it occurs in the New Forest.—LEONARD TATCHELL, Rockleigh Cottage, Swanage. 3.x.51.

COLEOPTERA

The Coleoptera of a Suburban Garden

3—Heteromera, Longicornia, Phytophaga

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

(*Continued from page 190.*)

As is only to be expected from the habits of most of their members, these sections (like the last two) are very sparsely represented in the garden fauna with the exception of the subfamily Halticinae.

TENEBRIONIDAE

Tenebrio molitor L. (The 'Mealworm beetle').—Occurs sparingly in July and August about the house, both inside and outside, flying to light. As far as I know there is no suitable breeding site for this species in either the house or garden. First seen about 1933.

OEDEMERIDAE

Oedemera lurida Marsh.—Found rather freely from May to August of this year by sweeping weeds on a neglected vegetable plot. Probably passes its early stages in the stems of certain Compositae of the *Hieracium* group, the flowers of which are chiefly frequented by the beetle.

MORDELLIDAE

Anaspis regimbarti Schil. (=*ruficollis* Fowler, Joy, nec F.).—Common on flowering shrubs, mainly lilac (May), Pyracanthus (June), and elder (July). A confusing jet-black form is found occasionally (ab. *fraudulenta* Joy), connected with the type by every colour-gradation (intermediate form, ab. *alpicola* Em.).

Anaspis humeralis F. (=*geoffroyi* Müll.).—With the preceding in May and June, but very scarce hitherto.

Anaspis lurida Steph. (=*subtestacea* Steph.).—Not uncommon, especially on elder blossom. Though found from the end of May, its peak period is decidedly later than that of the last two; three ♀♀ were shaken off golden-rod as late as 18.viii.51.

Anaspis maculata Geoff.—With *A. regimbarti* and about as plentiful. (The apparent absence of *A. frontalis* L. and perhaps one or two others is curious.)

ANTHICIDAE

Anthicus antherinus L.—Very occasionally met with in vegetable refuse, but not in recent years.

Anthicus floralis L.—In rather dry manure- and compost-heaps, and once or twice in cut grass; one by sweeping in warm weather after rain, 18.viii.51; not common, but much less seldom seen than *antherinus*.

CERAMBYCIDAE

Clytus arietis L.—An unusually small specimen was taken from the foliage of runner beans in June 1930; it had perhaps emerged from the supporting stakes, in which signs of Longicorn workings are still visible. However, the 'Wasp beetle' has not been seen again.

Grammoptera ruficornis F.—Fairly common in the last few seasons (and most likely long before that) on flowering shrubs from May to July, especially Pyracanthus. Dark forms are frequent.

**Grammoptera holomelina* Pool.—With the latter species on Pyracanthus in June 1951, but very much rarer.

Tetrops praeusta L.—Only one example has occurred, which was beaten off an apple tree in June 1950.

BRUCHIDAE

Bruchus (=*Laria*) *loti* Payk.—One specimen in a loganberry flower, 4.vi.51. Perhaps associated here with clover, of which there was a lush growth nearby.

CHRYSOMELIDAE

Cassida rubiginosa Müll. (=*viridis* Scop. nec L.).—This 'Tortoise beetle' has been tolerably plentiful on thistles since first noticed in 1949, and is the only beetle they have so far produced. Larvae and pupae in July; adults in late May and June, somewhat fewer in late July and August.

Crioceris asparagi L.—On the foliage of asparagus with its larvae, at intervals between May and August; in some numbers in early July 1949, when first found, since when it has been rather less frequent. For many years I had kept a look-out for it, and have still only seen it on one isolated plant of the several scattered about the garden.

Gastrophysa polygoni L.—One taken by sweeping rank herbage bordering a lawn, 28.v.51; it probably came off a species of *Rumex*.

Crepidodera ferruginea Scop.—One swept from black horehound (*Ballota nigra*) in a weedy corner, 13.vii.51. Thistle and nettle have been mentioned as foodplants; the latter does not seem to grow in the garden (!).

Phyllotreta nigripes F.—Common on Cruciferae, both wild (such as *Capsella*) and cultivated kinds; April to September. Odd specimens also found hibernating at roots of grass, etc.

Phyllotreta consobrina Curt.—On cabbages in some former seasons, in late summer; in numbers when present, but erratic in appearance.

**Phyllotreta aerea* Allard (=*punctulata* auct.).—Only one example has been taken, by general sweeping, 4.vi.51.

Phyllotreta cruciferae Goeze.—With *P. nigripes* as above, and equally common during the summer especially on turnips and cabbages in past years, but not found hibernating.

Phyllotreta undulata Kuts.—On cabbages, etc., in company with others of the genus, mostly in August or September; not very common.

Phyllotreta vittula Redt.—A single specimen by sweeping amongst coarse grass and weeds, 6.vi.51.

(*Note.*—This year I have been unable to find even a solitary 'turnip flea' on our autumn cabbages, on the same plots where in past years these have always harboured at least two or three of the above species. Since turnips—their favourite crop—ceased to be grown in the garden, the beetles have been much less in evidence.)

Aphthona euphorbiae Schrk. (=*virescens* Foud.).—By general beating and sweeping from spring to autumn; singly as a rule, but in quantity on the leaves of certain apple trees on some warm sunny days at the end of April 1944.

Longitarsus parvulus Payk.—As for the preceding, but so far only by odd specimens during the last two years, mostly by sweeping on the lawns. (On the recent increase of these two species of flea-beetle in England, see *Ent. mon. Mag.*, 1950, 86: 49, 224, 256.)

Longitarsus luridus Scop.—By sweeping grass and mixed herbage; foodplant very uncertain; common, particularly in late summer and autumn. Almost black specimens occur.

Longitarsus atricillus L.—By sweeping on waste ground, weedy patches on lawns, etc., often with the last; sometimes plentiful when and where found, in early summer and again in autumn. Said to live on Leguminosae; if this be correct, its host-plant in the garden is probably clover.

Longitarsus melanocephalus Deg.—One by sweeping on a lawn, 11.ix.51. Like the next species, this is a plantain feeder.

Longitarsus pratensis Panz. (=*pusillus* Gyll.).—Taken singly by sweeping amongst grass and low plants (vii.50, viii.51, ix.51).

Longitarsus jacobaeae Wat.—A solitary example was swept from the only patch of ragwort in the garden on August 18th of the present year; but though this plant has since been examined often, the species has so far not recurred.

Longitarsus gracilis Kuts.—With the latter on ragwort (*Senecio jacobaea*) but mostly on groundsel (*Senecio vulgaris*) on neglected vegetable plots, July to early October; not abundant. Rather more than half the groundsel specimens are referable to the ab. *poweri* All. Like most of its congeners here recorded, it has not been noted before this year.

Longitarsus ochroleucus Marsh.—Apparently very rare; one in a heap of cut grass, ix.48; another (immature) by sweeping in weedy flower-bed, 21.vii.50. The foodplant is thought to be mainly groundsel.

Longitarsus succineus Foud. (=*laevis* All.).—On yarrow (*Achillea Millefolium*) and on the cultivated yellow-flowered *A. Eupatoria*. One was observed on a flower-head of the last-named, where it appeared to be feeding. Somewhat scarce; July to September, 1951.

Chaetocnema concinna Marsh.—Fairly frequent throughout the past summer by sweeping rank herbage; also found at grass-roots in early spring. Like the next, this 'hopper' seems little particular as to foodplant, but is possibly associated with either *Ranunculus* or various low-growing Compositae.

Chaetocnema hortensis Geoff.—Moderately common under the same conditions. The first capture was of three examples in vegetable rubbish, November 1934.

Psylliodes affinis Payk.—In some numbers on *Solanum Dulcamara* at intervals from May to October, singly by general sweeping, and one at roots of herbage in March. Not seen before the present year, but the 'bittersweet' or Woody Nightshade has, I believe, only lately established itself in the garden. Some of the October specimens were recently emerged; this brood probably overwinters.

(*To be continued.*)

Epitrix spp. (Chrysomelidae, Halticinae) in Kent.—A week ago I was fortunate enough to come upon a small colony of the extremely local flea-beetle *Epitrix pubescens* Koch, on the black nightshade (*Solanum nigrum*) in a very weedy—not marshy—field adjoining the Church Woods, Blean, near Canterbury. The plant was flourishing and covered quite a large area, but except for a solitary straggler the seven specimens which were all I could find of the beetle came off one single clump. Most of the plants seemed not to have been attacked, and yielded nothing but an occasional *Psylliodes affinis* Payk. The only Kentish records I have seen for *E. pubescens* are the old ones given by Fowler, 1890, *Col. Brit. Isl.*, **4**: 384:—'Kent (J. J. Walker); Sheppey', elaborated as follows in the *Victoria County History of Kent*, 1908:—'On *Solanum dulcamara*, marshy places; rare. Iwade (J.J.W.), Sheppey'. Much more recently, however, my friend Dr. A. M. Massee found it plentifully on *S. Dulcamara* growing on the banks of a pond near Smarden (Ashford district). There are but few other British records known to me, and it appears rather often to be represented in collections by the black unspotted form of the next species.

In neither of the above works is *Epitrix atropae* Foud. recorded from Kent, and I have not heard of its being taken in that productive county; but on July 1st of this year I came across a shrub of *Atropa Belladonna* tenanted by the species on the chalk hills above Otford, near Sevenoaks. This deadly-nightshade feeder is probably more or less co-extensive in Britain with its host plant and so is very local, though usually abundant where it occurs. I have met with it also in Surrey (Headley Lane and Box Hill), Sussex (Arundel Park), and Cambs. (Swaffham); and do not remember having seen a plant of *Atropa* which did not bear marks of attack by it. Joy mentions *Hyoscyamus* as a second foodplant.—A. A. Allen, The Tiled House, 63 Blackheath Park, S.E.3. 13.x.51.

Coleoptera, Trichoptera, etc., in a Light-Trap at Bickenhall, Somerset (Vice-county 5).—A moth-trap, consisting of a 2 ft. square glass cage, and using a 300 c.p. paraffin pressure lantern, has been in use almost continuously throughout the year. It may be of interest to record the Coleoptera, Trichoptera and a few others found in the trap. The number of species is small, but in the case of the Trichoptera, it must be pointed out that the nearest permanent water is about a mile away, apart from a small garden pond containing gold-fish.

Coleoptera.—*Bradycellus verbasci* (Dufts.), several in September. *Necrophorus interruptus* Steph., two, September and October. *Necrodes littoralis* (L.), one in September. *Paederus riparius* (L.), several at intervals. *Calvia quattuordecimguttata* (L.), one in September; *Oncomera femorata* (F.), very common. *Aphodius fossor* (L.), abundant—up to 100 in a night. *Curculio venosus* (Grav.), one in September.

TRICHOPTERA—(All records are for August and September).—*Limnephilus affinis* Curt., once only. *L. decipiens* (Kol.), several. *L. lunatus* Curt., twice. *L. sparsus* Curt., once. *L. vittatus* (F.), common. *Stenophylax permistus* McLach., several. *S. stellatus* (Curt.), common. *Plectrocnemia conspersa* (Curt.), fairly frequent. *Halesus digitatus* (Schr.), abundant. *Philopotamus montanus* Don., once. *Glyphotaelius pellucidus* (Retz.), several.

Other uninvited visitors included:—

ORTHOPTERA.—*Pholidoptera griseoaptera* (Deg.) and *Meconema thalassina* (Deg.).

DERMAPTERA.—*Forficula auricularia* L.

HYMENOPTERA.—*Ophion* sp. and *Vespa crabro* L.

DIPTERA.—Too numerous to determine, but one interesting capture was the sun-loving *Conops quadrifasciata* Deg.

ARACHNIDA.—*Drassodes lapidosus* (Walck.), *Salticus scenicus* L., *Meta reticulata* (L.), *Zygiella litterata* (Oliv.), *Aranea diadema* (L.), *A. rajibetulae* Sulz., and *A. sexpunctata* (L.).

—A. H. TURNER, Bickenhall, Somerset. 8.x.51.

Fifty Years Ago

(From *The Entomologist's Record* of 1901.)

DWARF LEPIDOPTERA.—One noticeable feature of the season has been the number of undersized specimens taken wild. Several *Tephrosia crepuscularia* (*biundularia*) have been much below usual size, and a ♂ *Amphidasys betularia* ab. *doubledayaria*, at Sledmere, was a veritable dwarf. A number of *Anthrocera lonicerae* pupae, collected at Sandburn are yielding very small specimens. Larvae of *Thecla pruni* also, which pupated within 24 hours or so of capture, have yielded some very small specimens, and many of the *Ourapteryx sambucata*, which are now swarming everywhere, are little bigger than some of the *Rumia luteolata* that we get here. Has the dry season here anything to do with this? Strange to say, during the last few days, I have netted in my garden two of the largest and brightest *Pericallia syringaria*, a species usually rare with us, that I ever saw.—C. D. ASH, Selby.

The following insects captured this year are interesting from the point of view of size: (1) *Asthena luteata*, .8125 in. in expanse. (2) *Bryophila muralis*, .77 in. in expanse. (3) *Asthena sylvata*, .75 in. in expanse. (4) *Venusia cambricaria*, .75 in. in expanse. I also bred an example of *Amphidasys betularia* ab. *doubledayaria*, 1.1 in. in expanse. F. C. WOODFORDE, Market Drayton.

DWARF forms of *Polyommatus icarus* have been commoner than usual this year. I took one measuring only $\frac{13}{16}$ths in. in expanse. Mr Tylecote took one even smaller.—R. B. ROBERTSON, Boscombe.

NOTE.—The name of the aberration of *Cleora cinctaria* Schiff. given in the Title and throughout the text on pages 126 to 129 of our July-Aug. issue (vol. 63, Nos. 7-8) should be *submarmoraria* Fuchs. The reference given in lines 27 and 28 of text on page 126 should read: "Fuchs (*Stett. Ent. Ztg.*, 1884, 45-267)."

EXCHANGES

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

Wanted—Papered or set, full data: *A. hegemone, selenis, oscarus, iphigenia, angarensis, jerdoni, gemmata, clara, elisa, kamala, childreni, ruslana.* What do you want —*Georg Christensen, Parmagade 24, III, Copenhagen S., Denmark.*

Wanted.—Urgently required during the next few months for research purposes pupae of *Biston betularia* Linn. (melanic or otherwise). We should be most grateful if entomologists would inform me of approximate percentages of the two melanic aberrations, *carbonaria* and *insularia*, and the typical, occurring in any locality.—*Dr. H. B. D. Kettlewell, Department of Zoology, University Museum, Oxford.*

Wanted.—" The British Hemiptera Heteroptera " by Douglas & Scott.—*W. Watts, 42 Bramerton Road, Beckenham, Kent.*

CHANGES OF ADDRESS.—Dr. H. B. D. Kettlewell *to* Department of Zoology, University Museum, Oxford.—H. G. Allcard *to* 'Brooklyn', 194 Brooklands Road, Sale, Manchester.

LIVING EGGS, LARVAE, PUPAE.

It must be distinctly understood that the publication of the undermentioned offers of exchange is in no way a guarantee for the British nationality, authenticity, or good condition of the species nor for the fertility of eggs. This Notice is not given to throw doubt on the bona fides of exchangers but to absolve the Editor from responsibility in case the privilege of publication on this page should be abused.

Duplicates—Larvae of *A. syringaria. Wanted*—Ova of *D. oo*, larvae of *A. villica, E. hera (quadripunctaria).—P. N. Crow, 'Belvedere', 40 Salisbury Avenue, St. Albans, Herts.*

Duplicates—Pupae of *P. machaon. Wanted*—Pupae of *H. pinastri* (Pink Hawk).—*Peter G. Baker, Lorne End, Grangecourt Road, Harpenden, Herts.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

Editor: E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S.

Assistant Editor: P. B. M. ALLAN, M.B.E., M.A., F.S.A., F.R.E.S.

Treasurer: A. C. R. REDGRAVE.

Publicity and Advertisements: F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

The following gentlemen act as Honorary Consultants to the magazine:

Lepidoptera: S. N. A. JACOBS, F.R.E.S.,, Dr. H. B. WILLIAMS, K.C., LL.D., F.R.E.S.; *Orthoptera*: Dr. MALCOLM BURR, D.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: E. C. M. d'ASSIS-FONSECA.

Business Consultant: P. SIVITER SMITH, F.R.E.S.

THE ENTOMOLOGIST'S RECORD is published on the FIFTEENTH day of each month.

CONTENTS

TO OUR CONTRIBUTORS

All material for the magazine should be sent to the *Assistant Editor* at No. 4 WINDHILL, BISHOP'S STORTFORD, HERTS.

We must earnestly request our contributors NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

If REPRINTS of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

Printed by T. Buncle & Co. Ltd., Arbroath.

VOL. 63 No. 12 DECEMBER 1951

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

EDITED BY
E. A. COCKAYNE
M.A., D.M., F.R.C.P., F.R.E.S.

FOR SUBSCRIPTION RATES SEE PAGE iii OF COVER
Hon. Treasurer, A. C. R. REDGRAVE,
14a The Broadway, Portswood, Southampton

PUBLISHED MONTHLY PRICE 3s 6d NET

Editorial

In the Editorial of our May issue we expressed concern about the circulation of *The Entomologist's Record* and wrote:—

> "In these unhappy times through which we are passing there is always a spectre in the background: the matter of pounds, shillings and pence. None of us wishes to see the annual subscription raised. Yet costs of production are constantly rising, and both ends must be made to meet."

Since those words were penned our circulation has increased so materially that the position of the *Record* is now a much more comfortable one. Thanks to the vigorous support of our contributors, who are determined that the *Record* shall be second to none, and the persuasive efforts of our subscribers in enrolling new ones, we can look forward with confidence to the future.

But we are not going to sit back in our chair now and take a rest. Far from it. The *Record* must get better and better. We want to have more and more pages of reading matter every month; and although we have pushed the 'spectre' alluded to in May a good deal further into the background it is still there, and we must needs look ahead. Here it is only right to pay tribute to our printers. They have the cause of the *Record* very much at heart and but for their ready co-operation in keeping down the costs of production the position of the magazine today might not be quite so comfortable as it is. Neither we nor they, however, have any control over the constantly rising prices of materials, and the magazine must be ready at all times to face an increase of cost.

With these two things in mind—the desire to better the magazine and the prudence of keeping a shot in our locker—we have decided that from January next the subscription to the *Record* shall be payable in two instalments, namely Ten Shillings at the beginning of the year and Ten Shillings in August. And as we all have quite enough to pay for in January—most of us more than enough—the first half-yearly instalment will not become due until February, the second one in August. We believe that this course will be more acceptable to our subscribers than doubling the present rate in January. No assurance is needed from us that this step is desirable, for our readers are already aware that the *Record* is not a "commercial proposition" (see page 101).

This new system will necessitate the filling up of fresh Banker's Orders by those of our supporters who prefer to pay their subscriptions by this very convenient means, and those who already have these Orders in force will receive a letter from our Treasurer in the course of the next few days. Those who prefer to send a Ten Shilling note or postal order each half-year can do this when they receive the Order Forms which will be sent out with the January and July numbers.

Lastly, we want your co-operation not only in sending us Notes and Articles but in saving us time and labour. It will be an enormous help to our Treasurer, and will save him hours of clerical work, not to mention a heavy postage bill, if you will all pay your subscriptions promptly. Meanwhile, a happy Christmas to you, and may the New Year bring increasing prosperity to you and yours.

EDITOR.

Aberrations of British Arctiidae

By E. A. Cockayne, D.M., F.R.C.P.

Plate VIII.

[The following aberrations are in the Rothschild-Cockayne-Kettlewell collection in the British Museum.]

Cybosia mesomella Linnaeus. Ab. **postpallida** ab. nov.

The hindwing is cream coloured, with grey dusting in the basal third.

Type ♂: Grange, 1902, W. Feather. Rothschild coll.

Paratype ♂: New Forest, vii.1871. (Farn coll.) Rothschild coll.

Diacrisia sannio Linnaeus. Ab. **rosea** ab. nov.

The hindwing is suffused with pink, especially along the nervures.

Type ♂: Verwood, bred 10.vi.1947 by E. W. Classey. Cockayne coll.

EXPLANATION OF PLATE VIII.

Fig. 1. *Spilosoma lutea* ab. *totinigra*. ♂. Sheffield.
Fig. 2. *Parasemia plantaginis* ab. *nigricosta*. ♂. Type.
Fig. 3. *Parasemia plantaginis* ab. *atrescens*. ♂. Type.
Fig. 4. *Cycnia mendica* ab. *lineata*. ♀. Type.
Fig. 5. *Cycnia mendica* ab. *substriata*. ♀.
Fig. 6. *Cycnia mendica* ab. *circumpunctata*. ♀. Type.
Fig. 7. *Cycnia mendica* ab. *nigrociliata*. ♀.
Fig. 8. *Spilosoma lubricipeda* ab. *semibrunnea*. ♂. Type.
Fig. 9. *Spilosoma lubricipeda* ab. *bipartita*. ♂. Type.
Fig. 10. *Spilosoma lubricipeda* ab. *basistriata*. ♂. Type.
Fig. 11. *Spilosoma lutea* ab. *marginata*. ♀. Type.
Fig. 12. *Spilosoma lutea* ab. *suffusa*. ♀. Type.
Fig. 13. *Coscinia cribraria* ab. *delimbata*. ♂. Type.

Diacrisia sannio Linnaeus. Ab. **decolorata** ab. nov.

The whole of the fore and hindwing is pale buff or deep cream colour with no pink along the costa or on the fringes; the discoidal spot is only a little darker than the rest of the wing.

Type ♂: New Forest, vi.1910. (B. W. Adkin coll.) B.M. 1949-55.

Parasemia plantaginis Linnaeus. Ab. **nigricosta** ab. nov. (Fig. 2.)

The whole of the costa of the forewing is black; the only light markings on the forewing are a streak running from the base, the discoidal spot, and two marks near the termen. The hindwing is normal.

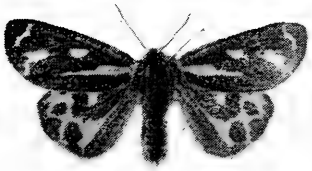
Type ♂: Minera Mountain, Denbighshire, 1906, R. C. Lowther. Cockayne coll.

Parasemia plantaginis Linnaeus. Ab. **atrescens** ab. nov. (Fig. 3.)

The forewing is deep black with an oval cream-coloured streak near the base; the other pale markings are obsolescent with their edges ill-defined; they are reduced to four very small spots on the left and one on the right side. The hindwing is entirely black. The fringes are orange. The thorax is black with the exception of the red collar and the cream base to the tegulae.

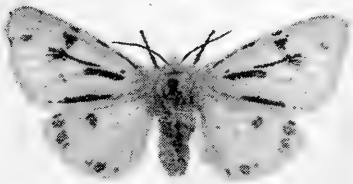
Type ♂: Scotston Moor near Aberdeen, bred 1893 by Francis Buchan. (A. Horne coll. Crabtree coll.) Rothschild coll.


1


2


3


4


5


6


7


8


9


10


11


12


13

Hipocrita jacobaeae Linnaeus. Ab. **expallescens** ab. nov.

The parts normally blackish-brown have a faded yellowish-grey colour and the parts normally red are faded orange, sometimes tinged with reddish-orange.

Type ♂: Newport, Monmouth, 1902 (Whitehouse coll.) Cockayne coll.

Allotype ♀: Same data.

Paratypes 3 ♂♂, 1 ♀: 1 ♂ Same data; 1 ♂ Loc. incog. (F. Bond coll. Crabtree coll.) Rothschild coll.: 1 ♂ Loc. incog. (F. Bond, S. Webb, Royle, and H. B. Williams coll.) Cockayne coll.: 1 ♀, Dover, 1904. (S. Webb, Royle, and H. B. Williams coll.) Cockayne coll.

Hipocrita jacobaeae Linnaeus. Ab. **albescens** ab. nov.

The forewing is pale silvery grey with slightly darker fringe and normal red markings. The hindwing is red with a silvery-grey border and fringe. The thorax is dark grey and the abdomen is pale grey.

Type ♂: Loc. incog., bred Meek 1875 (S. Webb. Horne coll.) R. Adkin coll.

Allotype ♀: Woodchester, Glos., 18.v.1920, L. Lacey.

This is a beautiful albino.

Cycnia mendica Clerck. Ab. **lineata** ab. nov. (Fig. 4.)

On the forewing the two spots near the inner margin are united to form a longitudinal black streak.

Type ♀: Watergate, Emsworth, Hants., 2.vi.1890, W. M. Christy.

Paratypes 3 ♀♀: 1 ♀, Emsworth, 5.iv.1891, W. M. Christy: 1 ♀ Loc. incog. (Clark coll. Bright coll.) Rothschild coll.: 1 ♀, St. Albans, Herts., 1902. (Gibbs coll.) Rothschild coll.

Cycnia mendica Clerck. Ab. **substriata** ab. nov. (Fig. 5.)

On the forewing there are three black streaks, one formed by an elongation of the basal spot, which is situated just below the median nervure, the second formed by the elongation of the discoidal spot towards the base, and the third by the union of the two spots near the inner margin; there is an additional spot near the anal angle.

Type ♀: ex coll. Boot of Derby, 1946. Cockayne coll.

Paratype ♀: Belvedere, Kent, 1887, W. Marshall. R. Adkin coll.

Cycnia mendica Clerck. Ab. **circumpunctata** ab. nov. (Fig. 6.)

There are six equidistant black spots on the costa of the forewing, and a complete row of black spots along the margin of both fore and hindwing. The fringes are white.

Type ♀: Loc. incog. (Gregson coll.) R. Adkin coll.

Cycnia mendica Clerck. Ab. **nigrociliata** ab. nov. (Fig. 7.)

The costa of the forewing and the fringe of both fore and hindwing is black. The ground colour is usually slightly smoky.

Type ♀: Lewisham, bred 17.iv.1909 by J. W. Tutt. (Bright coll.) Rothschild coll.

Paratypes 3 ♀♀: 1 ♀ Loc. incog. (Gregson coll.)

1 ♀, Finchley, bred 7.v.1913 by H. B. Williams. Cockayne coll. 1 ♀, Co. Cork, bred iv.1922.

Cycnia mendica Clerck. Ab. **albinotata** ab. nov.

The ground colour is dark brown and on the forewing are pale spots or marks in addition to the normal black spots.

Type ♂ : Bexley, bred v.1914 by H. D. Smart. Cockayne coll.

Paratype ♂ : Co. Cork, bred iv.1922. Cockayne coll.

Spilosoma lubricipeda Linnaeus. Ab. **postmagnipuncta** ab. nov.

The forewing is normal, but the spots near the margin of the hindwing are very large and elongated.

Type ♂ : E. Kent, bred v.1938 by H. D. Smart.

Allotype ♀ ; Same data.

Paratypes 2 ♂♂, 2 ♀♀ : E. Kent, bred by H. D. Smart, v.1937, 25.v.1938, vi.1937, v.1938. Cockayne coll.

The aberration is figured by Oberthur, *Et. Lep. Comp.*, 1912, **6**, pl. 122, fig. 1084. (Angleterre, ex. coll. Machin.)

Spilosoma lubricipeda Linnaeus. Ab. **venosa** ab. nov.

Both fore and hindwing are a pale greyish lilac colour, more pronounced on the hindwing; the nervures are slightly darkened. The colour is more pronounced on the under side of both wings and the darkening of the nervures more distinct. The aberration may occur in the white English or the light-brown Scottish form.

Type ♂ : Loc. incog., 21.vi.1912. Durrant coll. B.M. 28-99.

Allotype ♀ : Edinburgh, bred vi.1933 by E. A. Cockayne.

Paratypes 3 ♀♀ : 1 ♀, Finchley, 19.vi.1912, V. E. Shaw. (A. Thompson coll.) Cockayne coll. : 1 ♀ Loc. incog. Rothschild coll. : 1 ♀ Loc. incog. (W. Farren coll. Vauncey Harpur Crewe coll.) R. Adkin coll.

The allotype was bred in the F2 generation. Both parents and all the brood from which they came were deep cream colour. Only half a dozen of the F2 gen. were bred and the rest of the larvae were liberated or given away. Ab. *venosa* is probably recessive.

Spilosoma lubricipeda Linnaeus. Ab. **nigricosta** ab. nov.

There is a black line along the costa from the antemedian to the subapical spot.

Type ♂ : Elgin, 1905, McTavish. R. Adkin coll.

Spilosoma lubricipeda Linnaeus. Ab. **semibrunnea** ab. nov. (Fig. 8.)

On the forewing the costa and a band along the termen, which is widest at the apex, are brownish-grey. The whole of the left and most of the right hindwing are also brownish-grey. The specimen is very small.

Type ♂ : Loc. incog. (Bond, S. Webb, Crabtree coll.) Rothschild coll.

Spilosoma lubricipeda Linnaeus. Ab. **bipartita** ab. nov. (Fig. 9.)

The basal part of the forewing almost as far as the discocellular nervure is devoid of markings; there are two black dots just internal to the discocellular nervure and external to it are some short interneural black streaks and external to them is a distinct black fascia running from the costa to the inner margin crossed by pale nervures; there is a

row of black spots along the termen with some black scales running inwards from them and a black interneural streak near the apex. The hindwing has no markings except the black discoidal spot and some very small dots along the margin.

Type ♂ : Peterhead, Aberdeenshire, 1872, J. Ramsay. R. Adkin coll.

Spilosoma lubricipeda Linnaeus. Ab. **basistriata** ab. nov. (Fig. 10.)

On the forewing there is a black streak along the costa, a black streak filling the basal portion of the cell, a thin black streak just below the median nervure, and a black dot between the median nervure and the point of origin of the nervure 2; there is also a black streak along the inner margin; there is a well-marked fascia in the middle of the wing and the usual dots at the apex and near the termen are well marked. On the hindwing the discoidal spot is large and black and there is a large spot between nervures 5 and 6.

Type ♂ : Greenhithe. (B. W. Adkin coll.) B.M. 1949-555.

Spilosoma lutea Hufnagel. Ab. **venosa** ab. nov.

The ground colour of the wings, especially the hindwing, is suffused with greyish lilac and the nervures are darkened.

Type ♀ : Middlesex, 6.vii.1923, J. A. S. Brown. Cockayne coll.

Paratypes 2 ♀♀ : 1 ♀ Loc. incog. (J. Green coll. Stevens sale 15109, 1934.) Cockayne coll. : 1 ♀ Loc. incog. S.F.W. larva, vii.1891. (South coll. B. W. Adkin coll.) Cockayne coll.

This corresponds to *Cycnia mendica* ab. *venosa* Adkin.

Spilosoma lutea Hufnagel. Ab. **brunnea** ab. nov.

The ground colour of the wings, the thorax, and abdomen are brown; the markings are normal.

Type ♂ : Liverpool. (Bright coll.) Rothschild coll.

A similar specimen, a female, is figured by Mosley, *Illustrations of Varieties of British Lepidoptera*, Arctia, Pl. 2, fig. 4. Doncaster, bred by Cook.

Spilosoma lutea Hufnagel. Ab. **marginata** ab. nov. (Fig. 11.)

This is a modification of ab. *zatima* Stoll. On the forewing the costa, a broad band along the termen, and the inner margin are pale smoky buff with no black between the nervures as there is in the rest of the wing. The hindwing has all the interneural spaces completely filled with black and the nervures are pale buff as in *zatima*. The under side of both fore and hindwing is like that of *zatima*. The smokiness of the border of the forewing is caused by a powdering of black scales.

Type ♀ : Lincs., 21.vi.1903, W. Tunstall. (Porritt's strain) Bankes coll.

Spilosoma lutea Hufnagel. Ab. **suffusa** ab. nov. (Fig. 12.)

The ground colour of both fore and hindwing is smoky, due to a powdering of black scales. The hindwing is less dusky, being more lightly dusted. In addition, the specimen is an example of ab. *fasciata* Tugwell with a broad suffused band.

Type ♀ : Scarborough, bred vi.1928 by H. D. Smart.

There is another female with the same data. This is rather less smoky and not suffused, the fascia on the forewing is narrower and the hindwing is spotted not fasciated.

Coscinia cribraria Linnaeus. Ab. **delimbata** ab. nov. (Fig. 13.)

On the forewing the markings in the basal and median parts are strongly developed, but in the marginal part there are no markings with the exception of a thick black streak between nervures 1 and 2 and a few scattered black scales elsewhere.

Type ♂ : Loc. incog. Hutchinson coll. B.M. 1937-472.

An English Specimen of *Spilosoma lutea* Hufnagel ab. *totinigra* Seitz

By E. A. Cockayne, D.M., F.R.C.P.

In July 1951 Mr. W. Reid took in his light trap in Sheffield a specimen of *Spilosoma lutea* with the thorax and abdomen completely black. This form was sold by Staudinger under the catalogue name *unicolor*, but the name had been used already by Homberg for an almost completely pale form and so Seitz named and figured it as *totinigra*, 1910, 2, 85, Pl. 15a. Mr. Reid's specimen differs from *totinigra* Seitz in having a larger area of pale ground colour in the middle of the forewing, but evidently belongs to the same genetic group and examples like it undoubtedly occurred in Heligoland.

Very large numbers of *zatima* were bred years ago from Harrison's strain derived from Hull and York, but I do not think selective breeding from the darkest ever produced moths with black thorax and abdomen, though they produced some with dark marks on the thorax, partial blackening of the abdomen, and a forewing with mere traces of normal ground colour. Raynor's strain from the Lincolnshire coast never became as dark as Harrison's and produced no *totinigra*. Thus there is no evidence that specimens with black thorax and abdomen occurred in England until the capture of the Sheffield example in 1951.

Goldschmidt in his breeding experiment started with *totinigra* from Heligoland, but was unable to prove its genetic relationship to *zatima*. He suggests that it may be determined by an allelomorph of the *zatima* gene. It seems to me equally likely that there may be a modifier in addition to those called A, B, C by Federley. In any case an insect of the complex genetic constitution required by either hypothesis could not occur wild unless forms leading up to it such as *intermedia* Standfuss were fairly common, and there is no evidence that *zatima* or intermediates have been taken near Sheffield. It is possible that the insect taken by Mr. Reid had travelled some distance from a place where *zatima* forms including *totinigra* exist. Such a colony might have been established by the necessary mutations having occurred locally or by the introduction of the aberration from Heligoland. On the other hand someone might have been breeding *zatima* and *totinigra* from continental stock and the Sheffield specimen might have escaped or been liberated. Continental stock has been much more difficult to get in recent years than formerly and enquiries from local collectors have all been negative, so that this explanation is unlikely to be correct.

Another possibility is that Mr. Reid's specimen was imported by aeroplane or in some other way, but this seems to me to be most improbable.

Finally the Sheffield specimen may be a form resembling *totinigra*, but genetically distinct and determined by a single gene instead of being multifactorial. If so a single mutation occurring locally might have produced it, and since it is most improbable that Mr. Reid caught the original mutant, other similar specimens are likely to be taken in future.

The Sheffield specimen is figured on Plate VIII, fig. 1, by kind permission of Mr. W. Reid from a photograph supplied by him.

Collecting Notes, 1951

By W. Reid

The year 1951 has been very patchy from a collecting point of view. The long damp but not very cold winter, particularly its continuance to nearly the end of May, in spite of some warm intervals, put the emergence calendar all awry, and seemed to have taken a heavy toll of lepidopteral life in all its various stages in Sheffield. Generally, the total number of insects was far below that of 1950, which itself was considered a bad year. However, I have personally no cause to complain, as mostly by luck and partly by being able to take advantage of apparent good conditions, I have had some interesting and quite exciting collecting nights, in particular the 25th April, when 42 absolutely fresh *Gypsitea leucographa* came to light at Bishops Wood, and the 13th July, in company with Mr. W. Quibell, when 104 (or was it 105) species came to the sheet at Castor Hanglands. On that night there were 14 *Sphinx ligustri* on the sheet together. And, during the year, the following species shown on the appended list, additional to my 1950 list, have put in an appearance at my light *in* Sheffield.

Erratic emergences are well illustrated by the fact that the first *Cerura vinula* L. was observed on the Wallasey Sand Hills, a large fresh female, on 27th April. They were still appearing at my sheet on Formby Point on 21st July. *Lampra fimbriata* Schreb. was still appearing at light in Sheffield on 25th September, while on 3rd September *Atethmia xerampelina* Esp. was already worn in the Bakewell Valley, and very worn in Sheffield on the 5th, when three specimens appeared at light in my garden.

The " away " collecting trips started with a visit to Aviemore on 7th April, when we arranged to meet Dr. Neville Birkett, hoping to see *Brachionycha nubeculosa* Esp. alive. We arrived in a snowstorm and during our week's holiday there, we saw little but snow and rain storms. As it turned out, we were about a fortnight too early for *nubeculosa* this year, even *Poecilopsis lapponaria* Bdv. was only just appearing and we managed to find a few on the posts at Struan, including two females which subsequently provided sufficient ova to rear plenty to the pupa stage. The only other lepidoptera seen were very few *Orthosia incerta* Hufn. and *Orthosia gothica* L. on the trunks of snow surrounded trees; a few *Colostygia multistrigaria* Haw. flying round the street lamps, and two *Nothopteryx carpinata* Bork. taken from tree trunks, one at Struan and one at Kinloch Rannoch, where

we spent a night on our way home. Altogether an unproductive trip!! But what grand country it is.

My next outing was the good night on 25th April to Bishops Wood —a warmish night after the three warm days in the Spring (see *Ent. Rec.*, **63**: 108). But the wind had changed to the east before we left, and I was not hopeful of success when I made a quick trip to Wallasey on 27th April to try for *Orthosia advena* Schf. (*opima* Hb.). But there I was lucky. In spite of a windy, showery, cold night, seven of the ten insects which came to the Tilley lamp in the shelter of the sand dunes were the desired insect, but somewhat worn, and I managed to find one batch of ova on the dead ragwort the next morning, 95% of which duly pupated. Being so near to Freshfield, I visited Mr. and Mrs. Fraser the same day, and we took one more fresh *O. advena* that evening, but conditions were very poor.

May was a very backward month; it was difficult to find birch sufficiently well out to feed a brood of *Orgyia recens* Hb. which were unhibernating in the cellar, and my weather records show almost continuous cold north-east winds. *Hadena bombycina* Hufn., however, appeared on the moor walls, and at light on the moors on 19th May. The weather improved somewhat towards the end of the month, and a visit to Llangollen on the 1st and 2nd June produced *Agrotis cinerea* Schf., *Hadena w-latinum* Hufn., *Selenia lunaria* Schf. with some 18 other species at light. At Sheffield *Apatele menyanthidis* appeared on the usual walls, fully a fortnight later than last year on June 2nd, and on June 6th, in company with Mr. Austin Richardson and his wife we found the first wild *A. menyanthidis* var. *suffusa* on the same walls. I have always thought that I must have missed seeing these when previously looking over the walls. Although they are all very different from the type, they are not nearly so difficult to see as I imagined. As I feel that I cannot have missed them all for two or three years, I am of the opinion that the type is still dominant in this district. We had ova from two females, one a var. *suffusa* and one a type which had obviously paired with a male var. *suffusa* which was resting two or three inches from her. Both lots have resulted in pupae, and I am looking forward to the emergences in the Spring with some interest.

Little collecting was done until 29th June, except for a larvae beating expedition to the famous Wadworth Wood near Doncaster, with hopes of *Enargia paleacea* Esp. larvae. These hopes were not fulfilled, little falling into our trays except *Cosmia trapezina*. We were, of course, concentrating on birch and might have had other successes had we turned our attention to the poplars and aspens, of which there are plenty, but we were trying to emulate Mr. Young (mentioned by Porritt in Buckler's larvae) without success. We gave up at dawn!

At Minchinhampton on the 29th June, my son and I had the pleasure of seeing Mr. Austin Richardson's splendid collection. We were really amazed to see the variety and numbers of moths which came into his study at night, attracted by the Mercury Vapour lamp—many perhaps common enough in the south but much desired by northern collectors—amongst them being *Stauropus fagi* L., both forms, many of the *Lithosiinae*, *Agrotis clavis* Hufn., *Apamea sublustris* Esp., and many others. *Angerona prunaria* L. and *Eupithecia lariciata* Freyer were flying freely near the Forest of Dean, and the yellow form of

Zygaena lonicerae was just appearing at a locality in the Cotswolds. In spite of the non-appearance of *Rhyacia simulans* Hufn., we had a most enjoyable visit with beautiful weather.

The first *Apatele alni* L., a black specimen, turned up at Sheffield on the 27th June, over three weeks later than last year. Nor did the moth prove to be so common, only five being seen, including two at the sheet on 7th July, which was a good night for Sheffield, 53 species putting in an appearance. On the 5th July, I was very fortunate to take an extreme variety of *Spilosoma lutea* Hufn. at light (see page 266), with completely black thorax and abdomen. It is extraordinary that during three years collecting, when I must have seen hundreds of this common moth in its typical form, I have never seen any which could be termed intermediates, and I am inclined to think that my specimen is a mutation and not a variation.

On the 13th July, I went, in company with Mr. W. Quibell, to Castor Hanglands. As mentioned previously, it was a really good night (see page 183). A light shower about midnight did not make conditions any worse, and new arrivals continued to come until dawn. The next night was not nearly so productive—so little coming that we left about 1.0 a.m., I to return to Sheffield on the 15th July.

Hadena conspersa Schf. did not appear in Sheffield until 19th July (a month later than in 1950), and during the whole summer only three specimens of *Hadena trifolii* Hufn., so common last year, were seen at light in Sheffield.

On the 21st July, after the meeting of the R.E.S. in Manchester, I visited Freshfield again, spending most of the night with the white M.V. lamp and sheet at Formby Point, and found *Leucania litoralis* Curt. still quite fresh. The many other species which came to the light included *Euxoa tritici* L., *Euxoa cursoria* Hufn., *Eustrotia uncula* Cl., *Actebia praecox* L., *Sterrha muricata* Hufn., *Cidaria fulvata* Forst.

On the 27th July, I visited a locality near Burton, Cheshire, in company with Mr. Gordon Smith, where we found *Apamea oblonga* Haw. (*abjecta* Hb.) very fresh, also *Hadena suasa* Schf., somewhat worn. *Procus fasciuncula* Haw. was very plentiful in fresh condition, and other moths included *Deilephila elpenor* L. and *Hepialus humuli* (males and females) at light. Funnily enough, little else came to the white M.V. lamp—all the *A. oblonga* and most of *H. suasa* being taken off the grass heads, some within 20 yards of the sheet.

The following day, we went to the Great Ormes Head, where the local forms of *Satyrus semele* L. and *Plebeius argus* L. (*aegon* Schf.) were flying in abundance. Leaving the Orme about 6.30 p.m. we went later on to the Sychnant Pass. Conditions were good and a nice series of *Agrotis trux* Hb. ssp. *lunigera* Steph. was taken at light. Other insects included *Amathes ashworthii* Dbld., *Ammogrotis lucernea* L., *Amathes ditrapezium* Schf., *Apamea furva* Schf., *Sterrha eburnata* Wocke (*contiguaria* Hb.) and *Colostygia olivata* Schf., the latter being taken off flowers by Mr. Gordon Smith.

On the 2nd August the lamp and sheet in the garden attracted 71 species, but except for two new arrivals of common moths to *my* Sheffield list, there was little of note amongst them.

On the 4th August my son and I visited Sandburn, where we noted 72 species at the light. This total included *Enargia paleacea* Esp.,

Parastichtis suspecta Hb., *Deuteronomos erosaria* Schf., *Apatele leporina* L., and it was interesting to see an *Apatele megacephala* Schf. with black forewings. I expect that this form is fairly widely distributed throughout the South West Riding and the borders thereof.

On the 10th August, in company with Dr. Neville Birkett, we made an evening trip to Sherwood Forest. Little came to light except 12 *E. paleacea*, a few *D. erosaria* and *Deuteronomos alniaria* L.; other insects were very scarce, due no doubt to the cold east winds. *E. paleacea* seems to settle on the herbage just off the sheet, and can easily be missed unless periodical searches are made. We noticed this habit at Sandburn, Sherwood and later on at Laughton. This insect is still evidently widely spread in suitable localities in South Yorkshire and North Nottingham.

During a week's holiday, commencing 24th August, spent near Holyhead, collecting conditions were not good; strong gales, sometimes with rain, prevailed most of the week, and little work with the lamp was possible until the 31st August, when we found *Stilbia anomala* Haw., *Tholera cespitis* Schf. and *Luperina testacea* Schf. in abundance, *Tholera popularis* Fab., and *Rhizedra lutosa* Hb. fairly common, with two *Aporophyla lutulenta* Schf. var. *sedi*, quite fresh.

A night trip to Sychnant Pass produced seven *Ammogrotis lucernea* L. and four *Amathes agathina* Dup., two of which were already worn, but little else except a few *anomala*. A strong wind was blowing up the Pass, but, given good conditions, this locality can be very productive.

Atethmia xerampelina Esp. (3) turned up on the sheet in the garden at Sheffield on the 5th September. I had not previously taken it in Sheffield; we have few ash trees near to us, but it is evidently fairly common in the Bakewell to Buxton Valley, as I took 10 specimens there at light before 11 p.m. on the 3rd September. When the same species turns up in the garden for the first time within two or three days of taking it elsewhere, I am always fearful that it *may* have been " imported " by me when bringing home the sheet, but I should hardly have brought three home with me in this instance.

On the 8th September Mr. Hyde and I went to Laughton Wood, near Gainsborough. Again we had a cold night with easterly wind, but it became cloudy later and conditions improved. Little came to sugar, but *Asphalia diluta* Schf., *Trichiura crataegi* L., *T. cespitis*, *Citria lutea* Strom., *Cirrhia gilvago* Schf., *E. paleacea*, two very worn, *Catocala nupta* L., *Ennomos quercinaria* Hufn., *D. erosaria* and *D. alniaria* L. all came to light with the usual *Triphaenas pronuba* L. and *comes* Hb. amongst the 34 species observed.

On the 10th September, the weather having turned warm and muggy, I tried the lamp on the moor at home, and 14 perfectly fresh male *Anchocelis helvola* L. with three *Celaena haworthii* Curt. came to the sheet before 10.15 p.m. *Oporinia filigrammaria* H.S., *Entephria caesiata* Schf. and two *Antitype chi* L. (*olivacea*) were also present. *Lithomoia solidaginis* Hb. was arriving still in fresh condition, just as I was packing up.

On the 13th September I returned to the Holyhead district for two days, and there met Mr. and Mrs. Austin Richardson. Conditions were most unfavourable, very high winds, with much rain prevailing, and the only moths found on the heather worth recording were a few

agathina; *lutulenta* had been fairly plentiful at light, including a few *sedi*, but Mr. Richardson succeeded in discovering a new locality for *Hadena barrettii* Dbld. and between us with a few hours searching the roots of the Sea Campion growing on cliff edges, we found ten larvae of varying size and four pupae.

Returning to Sheffield on the 15th, weather cold, with east winds, was not conducive to collecting, but a sudden change on the 23rd September tempted me to a trip to Laughton. *Dryobotodes protea* Schf. was well out in grand condition, at sugar—*C. nupta*, *C. gilvago*, *Agrochola lychnidis* Schf. (just appearing), *A. litura*, *C. lutea*, *Agrochola circellaris* Hufn. being amongst the visitors. Light attracted little except *c-nigrum* and *alniaria*, but one fresh *paleacea* put in an appearance. By 9.30, conditions had changed to a very cold dry wind, and there was nothing on the sugar on the last round made about 10.15. Not a very productive night. A male *C. paleacea* was noticed, sitting on a tree trunk, while putting on sugar in full daylight.

No away collecting was done after this date, but the light and sheet in the garden attracted some 23 species on the 2nd October, which number included one female *C. gilvago*, of very orange colouring. *Agrochola lota* Cl. has been common this year. On the 5th October a single *Tiliacea aurago* Schf. turned up, exactly three years to the day after taking one in the Beauchief Woods at sugar.

NEW SPECIES TO MY LIGHT AT SHEFFIELD, WITH DATES OF APPEARANCE

Orthosia advena Schf.	28/5.	*Eupithecia linariata* Schf.	2/8.
Tiliacea aurago Schf.	5/10.	*Citria lutea* Strom.	5/9.
Plemyria bicolorata Hufn.	31/7.	*Mormo maura* L.	6/9.
Diarsia dahlii Hb.	5/9.	*Lyncometra ocellata* L.	8/7.
Plagodis dolabraria L.	23/7.	*Colostygia pectinataria* Kn.	2/8.
Orthosia cruda Schf.	23/4.	*Saturnia pavonia* L.	29/5.
Scopula floslactata Haw.	23/6.	*Chloroclystis rectangulata* L.	16/7.
Achlya flavicornis L.	10/4.	*Eupithecia succenturiata* L.	3/8.
Panolis flammea Schf.	23/4.	*Sterrha seriata* Schr.	3/7.
Cidaria fulvata Forst.	22/7.	*Zanclognatha tarsipennalis* Tr.	3/7.
Procus furuncula Schf.	2/8.	*Dysstroma truncata* Hufn.	Sept.
Cirrhia gilvago Schf.	2/10.	*Atethmia xerampelina* Esp.	5/9.
Celaena haworthii Curt.	10/9.	*Orthosia munda* Schf.	25/4.
Semiothisa liturata Cl.	2/7.	*Smerinthus ocellata* L.	8/6.

Notes on the larva of *Luceria virens* Linnaeus

By E. A. Cockayne, D.M., F.R.C.P.

This is not a description of the structure of the larva, but an account of its behaviour in captivity, which may give a clue to its habits in its natural environment.

In August 1950 I received 22 eggs of *L. virens* laid by a female taken by the expedition led by E. W. Classey and H. S. Robinson in the Burren of Clare. They were rather large white eggs, the majority laid in a row in the sheath of a grass and the rest lying loose in a small glass tube. They were kept as I received them in the cellar until the beginning of May 1951 and then brought up into a warm room. Three or four days before hatching they became a little greyer in colour and

darkened gradually until on 12th May 16 larvae emerged, and on 13th May the remainder hatched. They moved about actively, dropping by a silk thread when touched, and as soon as they were put into a glass-topped tin with cut stems of *Dactylis glomerata* they disappeared at once. One actually bored a neat round hole to reach the middle of the stem; the rest entered by means of a sheathing leaf, showing no preference for the white parts near the root stock nor the green parts higher up.

Unfortunately, grass turns yellow in two or three days, and I decided to transfer them to fresh grass every other day as I have done successfully with other internal feeders. Removing the outer leaves very carefully, I found that the larvae had eaten narrow strips along the surface of the inner leaves and there was some very minute frass. The larvae were removed with a soft brush and placed under the sheathing leaf of a fresh stem or in a position from which they could easily find their way inside, but almost all of them fell off at once on to the paper covering the bottom of the box, and as fast as I picked them up and replaced them they fell down again. They appeared to be unable or unwilling to hold on by their prolegs and soon died. The result was that I had only eight living larvae after the first change of food. The next time I took even greater care where I placed my larvae, but in spite of this four more failed to creep inside a sheathing leaf, fell to the bottom, and quickly died. I decided not to expose my remaining four larvae and kept any stem I thought they might be in, putting fresh stems all round them. I put the discarded stems into another tin and opened them in a couple of days to make sure I hadn't missed a larva.

On 28th May two larvae were visible and had grown very little, but on 4th June the other two were lying on the paper dead. On 5th June the larger larva had grown longer and stouter and was producing a good deal of fine frass, and ate both the young flower-head and stem of *Dactylis*. On 7th June it had made a little cocoon of silk with bits of chewed leaf and frass incorporated in it between two grass stems and I could see that it was changing skin. The smaller larva was sitting inside the middle of a stem with its head visible and in spite of the care with which I moved the stem it walked out, fell by a thread, and seemed unable to grip leaf or stem, falling off as soon as I put it back. It died like the others.

On 10th June the survivor changed skin and on 12th June it had grown very rapidly and was now dark brown all over with black tubercles and a shining black head. Early on 15th June the larva changed skin again after having made a similar flimsy cocoon of silk, frass, and bits of chewed grass. It was now much larger, 14 mm. in length, dark brown becoming rather paler below the spiracles with blackish-brown tubercles from each of which a rather long thin seta arose. The head was shining black, held almost vertically, the anal plate and legs were dark brown. On 18th June it was 18 mm. in length. On 21st June it spun another cocoon using bits of paper cut from the piece at the bottom of the box in addition to the other materials. On 25th June it changed skin and was a good deal larger, but very similar in appearance, the head being a shining blackish-brown and the body dark brown all over. The larva continued to eat any part of the grass, the

white part near the root stock, green blades or stem, or flower-heads, and passed large quantities of small frass. Growth was very rapid.

On 2nd July it made a flimsy cocoon of silk and frass, and on 5th July it changed skin again, and for the first time ate its skin with the exception of the head. It ate voraciously, preferring the white parts of the stem, but eating anything lying on the bottom of the box. It was now more grey than brown, but otherwise unchanged in appearance except for the great increase in size. Great quantities of frass, very small for the size of the larva, were passed. During the last three instars it always remained on the bottom of the box, and never even climbed on to a stem. It liked to hide under grass stems placed obliquely in the box. The prolegs are short and seem to have little power of grasping.

On 10th July it was 31 mm. long and I thought it must be full grown. I decided to blow it, but on comparing it with the figure in Spuler, *Schmett. Europ. Raupen. Nachtrag.*, Pl. 5, fig. 7, I found it measured much less in all dimensions, and hesitated. At first I thought it might be a small male and the figure a large female and decided to wait. On 14th July it made another cocoon of silk and paper and I thought it was going to change skin again, but on 15th July it had turned a dirt whitish colour and shrunk and obviously was going to pupate. It was too late to blow it and I gave it soft damp fibre, in which it quickly disappeared, and, as I found later, had made a firm cocoon, but failed to pupate.

The larva changed skin four times and spent 36 days in the first instar, 6 days in the second, 10 days in the third, 10 days in the fourth, and 9 days in the fifth up to the time it stopped feeding. Changing skin was always rather a slow process. In most larvae that do not hibernate the first instar is the shortest and the last the longest, but in *virens* the first instar was as long as the whole of the rest of its larval life up to the time it had had its last meal.

In general appearance the larva is more like that of *Apamea monoglypha* than any other with which I am acquainted, but has smaller tubercles and does not possess any little chitinous plates on the lateral aspect of the thorax.

What follows is conjecture and may be wrong. I think the larvae scatter as soon as they have hatched and may wander for some distance, and each enters a separate stem. During the first and very prolonged instar it lives inside a grass stem, very likely in the stem which it entered originally. It then comes out, makes a cocoon on the surface of the earth, changes skin, and after that lives underground. If it comes up above the surface at all, it lies on the earth and eats the stems at the very bottom. More probably it lives entirely underground and feeds on the stems just above the root stock, the root stock itself, and the roots. Although the larvae live in colonies I think they would be very difficult to find at any stage.

A correspondent in *The Nat.*, p. 329, describes a butterfly taken at Wetherly as "the Little Blue (*Chvysophanus minimus*) . . . a living, fluttering bit of sky, as if dropt out of the azure." We should like some Yorkshire azure-blue *Cupido minima*, if any are available.—(J. W. Tutt).

Some Observations on *Mompha nodicolella* Fuchs.

By S. Wakely.

As previously reported (*Entom. Record*, March-April, 1951, pp. 49-50), a larva of *Mompha nodicolella* was taken on 2nd September 1950, at Oxshott, Surrey, in a gall on stem of *Epilobium angustifolium*. This produced a moth on 5th October, which was later found to be the first correct record of this species for Britain (*Entom. Record*, June 1951, p. 116).

It was too late in the season to do any more about the matter during 1950, but a resolve was made to try and find more specimens the following season. The 2nd September was obviously too late, as at this date, out of over twenty galls found, one only contained a larva, all the others having been vacated. Thus it was decided to start searching about a fortnight earlier.

On 14th July 1951, it happened that Mr. L. T. Ford and myself decided to take a trip to Ockham, Surrey, to look for varieties of *Dioryctria abietella* F., which species was fairly common there on 10th July 1943. Not being able to find any of this insect, we began looking at the stems of Rosebay for galls of *nodicolella*. As the date was at least a month too soon, according to our reckoning, it was a great surprise to find, not only a number of galls, but also that with a few exceptions they were empty, with the larval exit hole plainly visible. The two or three galls found with no exit hole were carefully kept and examined daily for signs of a larva having eaten its way out to seek a place for pupation. My solitary hole-less gall produced nothing and was found on examination to contain a minute dead larva. However, Mr. Ford was more successful, and a larva emerged the following day and spun up. From this a moth emerged on 1st August.

This experience was rather disappointing, as a visit a fortnight earlier would undoubtedly have found the galls occupied, but there was still a chance of getting more later. Accordingly, on 18th August we again visited Ockham Common, this time with much better results. The galls were not exactly common, but a concentrated search produced several dozen with no sign of exit holes. Not all of these contained living larvae, and some were very small.

My stems were placed in a small glass container (a disused ink bottle to be exact) around which was tied several thicknesses of corrugated paper. A day or two later a larva of *nodicolella* was seen wandering around in the glass cylinder seeking a place for pupation. Several others were noticed from time to time, most of which pupated between the folds of the corrugated paper.

The first moth appeared on 12th September, and from then to the 20th fourteen fine specimens emerged. Mr. Ford had even better luck and succeeded in breeding about double that number.

Later a visit was paid to the previous year's Oxshott locality, but not a solitary gall could be found. This is rather surprising as over twenty empty galls had been found there, and the larvae from them should have produced moths to carry on the colony. Possibly the species moves its ground from year to year.

From the fact that larvae had already pupated before 14th July, it seems probable that the species is double brooded. The mid-August

larvae could certainly have been the result of eggs laid at end of July by recently-emerged moths, but there is no proof of this.

An interesting point is that most of the galls were found on small plants which had not flowered. Some of these plants were no more than two inches in height, and the majority of galls found were on plants less than twelve inches high. The galls are usually a bright red in colour, of various shapes and sizes. For some unexplained reason backward patches of *Epilobium* were fairly frequent, with plants ranging from two to twelve inches high, and no flowers on them, and it was among such patches that the majority of the galls were found. These patches of stunted plants were usually on ground showing signs of having been burnt over within the last year or two. At the same time, not many yards away, there were often masses of plants three and four feet high in full flower. An occasional gall was found on these, always in the flowering portion of the stem, but one was tempted to concentrate the search among the small plants as they yielded so many more galls.

Mr. Ford tells me he found an empty gall some weeks later at Broadwater Forest, Sussex. I have also been informed by Mr. H. J. Burkill that he has seen the galls at Ockham in previous years; also at Ranmore, Surrey, and once in Yorkshire some years ago. Possibly the species will be found in many localities if searched for. Heathy ground previously burnt over seems the most likely spot to search. The Rosebay is sometimes called Fire-weed because of its habit of following up fires on heaths, etc.

In an earlier note it was mentioned that yet another allied species had been discovered by Mr. J. D. Bradley at the British Museum. His most enlightening article on the subject appeared in the *Entomologist's Gazette* for July 1951 (pp. 173-182, with genitalia drawings and plate). He has named the new species *subdivisella*, and mentions that it is superficially similar to *subbistrigella* Haw., but the genitalia structure shows closer affinity with *divisella* H.-S. (*decorella* Haw.). *Subdivisella* has been recorded only from Merton, Norfolk, where a series was taken in September 1894. All the specimens were in the Walsingham Collection, where they were found by Mr. Bradley among the series of *subbistrigella*. Larvae and foodplant are unknown.

Insects and Ivy-Bloom

By Paul H. Holloway, F.R.E.S.

The late season of 1951 continued, botanically, into the autumn. The ivy bloom in my Hampshire garden, which was just coming out on 25th September, was nearly two weeks later than usual. I am in the fortunate position of possessing a great dome of ivy which is rich in bloom from mid-September, in normal seasons, until the end of October, quite unscreened and therefore getting the full advantage of the sun.

Dysstroma truncata was the first arrival this year, on 26th September, accompanied by a few common wasps (*Vespula vulgaris*) which were merely resting, having imbibed too freely during the hours of daylight, and, of course, the ubiquitous earwig (*Forficula auricularia*). The first favourable night was on 1st October, rather warm even though a moderate easterly wind prevailed. Nine species were observed, mainly

on the leeward side, including *Phlogophora meticulosa*, too numerous to count, *D. truncata* in fair numbers, *Triphaena pronuba*, *Cirrhia icteritia*, both typical and ab. *flavescens*, *Agrochola circellaris*, *A. lychnidis*, *Agrotis segetum* (the autumn brood in Hampshire is quite strong), *Peridroma saucia* and *Amathes c-nigrum*. An ivy-feeding larva of *Ourapteryx sambucaria* hung from a leaf, others being observed on subsequent nights. The Crane-fly *Tipula oleracea* was prominent, following its recent abundance.

During the first half of October the number of moths lessened nightly as cold, foggy conditions increased, although each day was warm. Then came the moderately warm evening of the 14th, when nine species were again present: *A. circellaris*, *A. lychnidis*, *P. meticulosa*, *D. truncata* (recently common on very cold nights and occasionally the only moth present), *Agrochola macilenta* (very common), *A. lota*, *Conistra vaccinii*, *Hypena rostralis* and *Gortyna flavago*. Several recent appearances of *H. proboscidalis* have been noted but every moth was of smaller size than those of the summer brood. Several patches of ivy on nearby walls and trees are only just coming into bloom, being screened from the sunshine almost throughout the hours of daylight.

During warm October sunshine, of which we have had a generous share this year, *Polygonia c-album* and *Vanessa atalanta* are sometimes tempted by the faintly ambrosial aroma of the bloom, but their visits are infrequent, both species much preferring the rotting fruit of the orchard. *P. c-album* was the commoner of the two this season until mid-October, when *V. atalanta* made a colourful appearance against a background of semi-clothed trees and bare earth, but it was daily scarcer than in recent years.

I had almost given up hope of finding my favourite *Lithophane semibrunnea* until, on 20th October at approximately 11 p.m., I discovered dozens of commoners, mostly *P. meticulosa* and *A. macilenta*, and there among them was my *semibrunnea*, a lovely specimen in an advanced state of intoxication. Last year I collected three on 3rd October, and in most seasons it makes more than one appearance. It is sometimes found hibernating in the brick out-house on which the ivy grows, a century-old structure with ivy-roots penetrating the tiled roof. The frosts and rain of late October lessened my activities considerably, although a fair amount of bloom remained. On the somewhat damp night of the 28th only one moth arrived, the second *semibrunnea*! After hovering around the bloom sufficiently long for identification, it disappeared into the darkness.

In addition to those mentioned other ivy-visiting species included *Anchoscelis helvola* and *Conistra ligula*. One specimen only of *Allophyes oxyacanthae* was observed, on the 18th, whereas in recent years it has been well represented, about 20% being the dark var. *capucina*. This makes a full total of nineteen species, not a long list owing to the absence of several commoners that usually appear. Now let us, for a moment, sum up the species on my 1949 and 1950 records which were absent this year. *Caradrina clavipalpis*, *Plusia gamma*, *Hydraecia micacea*, *Eupsilia transversa* and *Agrotis ypsilon* were common, also the second brood of *Leucania pallens*, rather worn, *Amathes xanthographa* common but in most cases very rubbed, *Omphaloscelis lunosa* abundant, and in lesser numbers *Tiliacea aurago*, *Cirrhia gilvago*,

Celaena secalis and *Calothysanis amata*. To counter-balance this, however, was the abundance this year of individuals, the selection of several good series being an easy matter.

Searching the ivy-bloom has a fascination of its own: the scores of insect-eyes shining like tiny gems in the ray of my torch, the silent nocturnal feast, such a contrast from the boisterous diurnal banquet of bees and wasps and, from my garden, the macabre accompaniment of owls from the adjacent woodlands; the sinister, wavering passage of bats immediately overhead. On a still night, walking through the garden, the earthworms scuttling beneath the fallen leaves at every footstep. And how delightful to anticipate the arrival of the first-comers in the grey stillness of autumn dusk!

Collecting Larvae in Cranborne Chase

By H. Symes, M.A.

Cranborne Chase is a woodland area in the north-east of Dorset. It was formerly much more extensive than it is now and used to be a famous haunt of smugglers and poachers. In recent years much of the finest timber—mainly oak—has been felled, and the inevitable conifers have appeared. Writing in 1906 Sir Frederick Treves says of a certain wooded glen, designated on the map as Stubhampton Bottom, that its beauty was such that it might well have been called Lancelot's Glen: to-day its more prosaic name is much more appropriate. The scrub is still being cleared and the ground is being used for the raising of pigs: in view of the meagreness of the bacon ration perhaps even an entomologist may view this with somewhat modified regret. However, even to-day there remain patches of the primeval forest, in which the buzzard still breeds and botanists may find wild columbine (*Aquilegia vulgaris*) and henbane (*Hyoscyamus niger*), the latter in great profusion.

This has been a poor season for most lepidopterists, but on 8th September I paid a visit to Cranborne Chase and had one of the most successful day's larva beating that I have enjoyed for years. I was accompanied by the Rev. F. M. B. Carr. The trees and bushes beaten were ash, privet, hawthorn, birch, hazel and bramble, and between us we obtained the following larvae: *S. ligustri, N. dromedarius, L. camelina* (*capucina*), *H. derasa, T. batis, P. bucephala, D. pudibunda, D. falcataria, N. cucullatella, B. prasinana, C. glaucata, C. coryli, A. leporina, A. tridens, A. psi, C. ligustri, M. persicariae, E. lucipara, H. tersata, L. hirtaria, B. betularia, L. adustata, C. pusaria, A. pulveraria, C. elinguaria, O. luteolata.*

Much the most abundant species was *C. ligustri*, equally plentiful on ash and privet. Unfortunately mine were most unhealthy. Of about three dozen 50% proved to have been stung. The majority of the parasites were the same as those described so picturesquely (and accurately) by Mr. T. D. Fearnehough in the October *Record* as "sucking at the sides of the larvae like piglets at a sow". But in his case the larvae carried these parasites outside them when beaten: in mine the green grubs did not appear until several days or even a fortnight later and must have started life inside the afflicted larvae. As his larvae were *A. leporina* and mine *C. ligustri* this parasite would appear to have an affection for the *Acronicta* family. The other parasite to which my

larvae gave hospitality was an ichneumon that forms a black and white pupa, which I have bred from more than one species of larva, including *G. rhamni.*

Most of my *C. ligustri* larvae that had not been stung fell into the condition of the *A. alni* larvae described by Mr. H. S. Robinson in the October *Record,* and I should certainly have tried the effect of a T.C.P. bath on them had I read about this treatment in time. As it happened they all perished by degrees except four, and of these, two chose as their site for pupating a couple of empty pupa-cases of *O. antiqua* that had been left inside their cocoons in the breeding-cage. I cannot remember ever having had such poor results with a number of larvae and can only suppose that the deficiency of sunshine and excess of rain in August and September was bad for their health. Mr. Carr, though more successful than I, lost over 50% of his *C. ligustri* larvae. All the *A. leporina* we obtained—less than half a dozen—died, and all except one of the seven *A. tridens.* Among the numerous other species mortality was not abnormally high and the unhealthiness of *Acronicta* larvae from Cranborne Chase is the more remarkable in view of the much lower death-rate among a number of *A. tridens* and *C. ligustri* larvae that we obtained in other Dorset localities during the following week.

Here and There in 1951

By K. C. Greenwood

I found 1951 a better season than its predecessor, though the spring moths were on the whole scarce, and their emergence taken as a whole was later than usual. Sallowing was an almost total failure, and the weather at this period did not help. Similarly, throughout the season sugar lost its attraction, with very few exceptions.

With Mr. M. J. Leech I made two trips to Delamere Forest, on the 18th and 24th of February. On both occasions *Erannis marginaria* Borkh. was plentiful and in variety, and it was a pleasant sight to see several pairs of var. *fuscata* Moseley on the tree trunks. *Erannis leucophaearia* Schiff. was fairly common and two ab. *marmorinaria* Esp. were taken. One *Theria rupicapraria* Hubn. was noted on the 24th.

Dasychira fascelina Linn. is now quite uncommon at Formby, Lancs. In March I opened a ' sleeve ' on bramble, which should have contained twenty larvae of this species, bred from a female taken the previous year. All were dead, however, and a further twenty, kept in tins in an outhouse, suffered a like fate. This is my third failure with this species, though on one occasion a few larvae survived the winter only to refuse to recommence feeding in the spring. From my experience I should say that the ' hardness ' of the winter is not so big a factor with this as it is in the case of certain other hibernators. Perhaps we could hear from someone who has successfully bred this species from the egg?

In May, larvae of *Triphaena fimbriata* Schreb. were abundant, and, in a certain area near the shore at Formby, occurred in extraordinary profusion. Everywhere one could see fine, full-fed larvae sitting on the herbage, glowing orange in the light from the lamps. Larvae of *Actebia praecox* Linn. were also plentiful this year.

Cucullia chamomillae Schiff., new to the Formby list, was quite common. Several were taken on most nights, at light. But of *Orthosia advena* Schiff. (*opima* Hubn.), so welcome the year before, we saw only two specimens, taken by Mr. G. de C. Fraser and Mr. W. Reid.

At Grassington, Yorks., on 19th July *Ematurga atomaria* Linn. and *Anarta myrtilli* Linn. were common on the moors. In the woods an occasional *Pseudopanthera macularia* Linn. flew in the sun. Larvae of *Erannis marginaria* Borkh. and *E. defolaria* Clerck. festooned the Oaks. A Sloe bush was completely stripped by larvae of *Phigalia pedaria* Fabr. (*pilosaria* Schf.). Several larvae of *Griposia aprilina* Linn. were seen on oak trunks.

The first few days of July I spent at Witherslack, Westmorland. Here I enjoyed two excellent nights' sugaring, the only really good ones of the season. *Polia nebulosa* Hufn. and *P. tincta* Brahm. were plastered on the patches, with a fair sprinkling of *Amathes ditrapezium* Borkh., *Thyatira batis* Linn., and *Habrosyne derasa* Linn. For the hordes of commoners also present it was a case of " standing room only."

On my return to Southport twelve specimens of *Agrotis clavis* Hufn. came to light, a species new to the area. On the 21st July I took in Southport a fine specimen of *Xanthorhöe fluctuata* L. ab. *costovata* Haw. at mercury-vapour light. The aberration is a little more extreme than in the specimen figured in ' South,' vol. 2, plate 61.

From 22nd July to 4th August I enjoyed a stay in North Devon, near Ilfracombe. Here I met Mr. W. J. McCormick, whose knowledge of the district was a great help. Together we recorded 171 species of Macrolepidoptera during my visit.

A worn *Hadena barrettii* Doubl. came to light on my second night and was warmly welcomed, but was the only one seen. *Eilema caniola* Hubn., *Cryphia muralis* Forst., and *Hadena conspersa* Esp. were common at light. A good locality for *Miltochrista miniata* Forst. was found. The only immigrant of note was one *Laphygma exigua* Hubn. taken at light at Ilfracombe on 30th July.

A week at Symonds Yat, Herefs., from 11th August, was disappointing. Bad weather was a great handicap, and I had also planned my stay to coincide with a full moon. Singletons of *Ennomos quercinaria* Hufn., *Leucania straminea* Treits., and *Pseudoips bicolorana* Fuessl. were taken in the Forest, near Coleford. *Polygonia c-album* Linn. was fairly plentiful when brief periods of sunshine allowed, but only two *Leptidea sinapis* L. were seen. Three *Strymonidia w-album* Knoch. were netted flying with *Thecla quercus* L., which was common along the riverside. On thistle heads I found a few *Trichius fasciatus* L. (Col., ' The Bee beetle ').

In August *Hydraecia paludis* Tutt was much more plentiful than last year at Southport, and a varied series of the fine local form was secured. On the Mosses larvae of *Apatele leporina* Linn. fell into the beating tray more frequently than usual, though not a few proved to be ' stung.'

With Mr. G. de C. Fraser I worked mercury vapour light on Formby Moss on the 24th August. Many insects came to his portable lamp, among them *Deuteronomos erosaria* Borkh., new to the district.

A few *Celaena leucostigma* Hubn. were also boxed, in the intervals of giving blood-transfusions to hordes of midges.

At Witherslack in early September I was beset by several days of heavy rain, and the Mosses were too wet for comfort. While boxing *Pogonochaerus hispidulus* Pill. from aspen I carelessly trod on a pair of adders in the undergrowth. Both were evidently as fed up with the weather as I was, and slid off without further ado.

A few days at Grassington in mid-September were similarly unproductive, due to inclement weather. I was too late to dig pupae of *G. aprilina* Linn. from the oaks, but six pupae of *Atethmia xerampelina* Hubn. were obtained from ash. I also dug some from mountain ash, which I hoped were *Venusia cambrica* Curt., but *E. defoliaria* Clerck subsequently emerged.

On the 29th September, on Formby Moss, larvae of *Smerinthus ocellatus* Linn. and *Laothoe populi* L. were common on the sallows. In a patch of *Digraphis arundinacea* a large number of larvae of *Apamea unanimis* Hubn. were found in silken webs in rolled leaves. The birches in one lane bore many webs of *Swammerdamia heroldella* Hubn. conspicuously silvered with dew.

From mid-September to October the autumnal moths flew freely in the Formby and Southport districts. *Agrochola lychnidis* Schiff., *Rhizedra lutosa* Hubn., *Agrotis ipsilon* Hubn., and *Meganephria oxyacanthae* Linn. were in particular very frequent.

I then had to hang up my net for the winter, and content myself with looking forward, with the usual hungry expectancy, to "Season 1952."

Notes from East Essex

By A. J. Dewick.

During the first half of June the catch of *Plusia gamma* in my light-trap averaged only about three specimens a night, but on the 15th this figure suddenly jumped to 312 and the catch included a fine male *Heliothis peltigera*; a second occurred on the 22nd. On the 16th a male *Colias hyale* was seen flying over lucerne and five more were noted in widely separated areas up to 16th July. The first *Leucania albipuncta* of the season was taken on 18th June. The rest of the month and July were uneventful, with far fewer moths at light than during the same period last year.

On the last day of July, however, two *Lithosia quadra* and a *Laphygma exigua* were noted, while 1st August brought one of the biggest catches of the season and included male and female *Herse convolvuli*, 1,471 *P. gamma*, 49 *Nomophila noctuella*, 10 *L. quadra*, 4 *L. exigua*, and another male *H. peltigera*. After this, conditions promptly reverted to their previous state.

On the evening of 10th August, in pouring rain, I had just switched on the light and was removing the cover of the trap when an unfamiliar Noctuid was noticed resting on it. Reference to Kirby suggested it was *Calophasia lunula*, which identification was confirmed by the British Museum (Natural History). The specimen, a female, was fed and placed on *Linaria*; but it soon became obvious that she had not paired. This would appear to be the fourth British record.

On 18th August seven *Colias croceus* were seen in lucerne fields, but only three more have been noted since. *C. hyale* appeared again on 2nd September, and thirty were seen up to 22nd September. A fine female *H. convolvuli*, which subsequently laid freely, was found in the trap on 6th September. The year's biggest catch of *P. gamma*, 1,910, occurred on the 11th, with a male *H. convolvuli* and 13 *L. albipuncta*. Next night the *P. gamma* had dropped to 596, but there were a pair of *H. convolvuli* and two *L. albipuncta*.

On the night of 26th-27th September a small *Plusia* was noticed hanging from one of the wires supplying current to the trap: it proved to be a female, in excellent condition, of *Plusia limbirena* Guen. The first British record of this species was one taken at Swanage, Dorset, on 13th September 1947 (*Entomologist*, 1948; **81**: 201).

The 28th September produced two males and a female *H. convolvuli*; another male, the last of the season, was taken on 2nd October. On 3rd October, among 173 *P. gamma*, a small *Plusia* with a silvery blotch in place of the Y-shaped mark was noticed. It was determined at the British Museum (N.H.) as *Plusia gutta* Guen. This moth does not appear to have been recorded from Britain before. The night's catch included two *L. albipuncta* ♀♀ and a *L. vitellina* ♂.

Four specimens of *Nycterosea obstipata* occurred during the year; in addition to the female previously noted in May (*Ent. Rec.*, **63**: 148) a male was found on 23rd August and two males as late as 7th November.

Turning to resident species, more than a dozen were taken which had not been observed in previous years. Among the more interesting were *Heliothis dipsacea*, 21st July; *Eustrotia uncula*, 31st July; *Celaena haworthii*, 1st August; and *Catocala sponsa*, 12th September.

In such a backward season one would hardly have expected single-brooded species to produce a partial second brood, but *Euproctis similis* was taken on 18th October and a few *Leucania comma* about the middle of the same month.

The total number of species of macrolepidoptera recorded during the year in the light-trap was 325, an increase of 17 over 1950. As the trap is large enough for one to stand inside and examine the moths at rest on floor, walls, and ceiling, the reduced numbers of most species no doubt lessened the chance of overlooking the less striking ones.

Two features of the season seem to have been, first, the long period over which most species have occurred: *Catocala nupta* first appeared on 31st August and continued until the last few days of October; *Omphaloscelis lunosa* was first taken on 5th September and a good specimen occurred on the 7th November. Secondly, the long periods of scarcity of even the commonest insects, punctuated by an occasional night when moths poured into the trap in thousands.

It seems to have been a very poor year for butterflies locally, in which connection the following totals may be of interest:—

	V. cardui.	*V. atalanta.*	*V. io.*	*A. urticae.*	*C. croceus.*	*C. hyale.*
1950 ...	94	361	800	574	203	153
1951 ...	10	80	106	278	10	36

When the weather finally became more settled in late September and October acres of lucerne in bloom were deserted except for *Polyommatus icarus*, a few *Aglais urticae*, and an occasional 'White'.

The Oak Prominents

By An Old Moth-Hunter

(*Continued from Vol. 60, p. 19*)

I have already dealt in these pages with *Notodonta anceps* Göze (vol. 59, pp. 71-75) and *Drymonia ruficornis* Hufn. (vol. 60, pp. 15-19); it remains to say something about my own personal experience of the third British oak-eating Prominent—*Drymonia dodonaea* Schiff. (*trimacula* Esper). All three species were dealt with by Father Bernard Smith of Marlow in a series of articles called *Notes on the Notodontidae* which he contributed to *The Entomologist* in 1887 and 1888, and the only reason for these present jottings is that my experiences with them have differed considerably from those of the Reverend Father.—I hasten to add that as he was a far better lepidopterist than I am or ever was or ever shall be, a possible reason for the differences is *locality*. My observations of the three species were made chiefly in Montgomeryshire (where they are all quite common moths, perhaps more common than in any other county of this kingdom): his entomological activities were conducted at and in the immediate neighbourhood of Marlow on Thames, Bucks., properly known as Great Marlow. He incorporates the observations of others: I am concerned here only with what I have myself observed.

Drymonia dodonaea Schiff. is, I should say, a commoner insect than *Drymonia ruficornis* Hufn., by which I mean simply that a larger population is required in order to ensure the requisite ' survival density ' of the species. Yet its larva is not so frequently found as that of the rarer species. The reason for this is, probably, that *ruficornis* favours trees which are younger and therefore of smaller growth, consequently easier to search, and when full-grown it usually inhabits the lower outermost branches, I mean those which extend farthest from the trunk and are just above one's head. Also, when young the *ruficornis* larva sometimes favours leaves on the little shoots that spring from the trunk of young woodland oaks from two to five feet above the ground and in such a site it is of course very easy to find. (I fear I am writing very loosely: I should of course have said that the imago frequently oviposits on the trunk-shoots.)

Here I would interject that it is no use at all *beating* for the third or fourth instar larva of *ruficornis*. At the slightest warning—for this larva seems actually to *hear* one's approach—the larva apparently extends the crotchets of its abdominal feet on the protruding midrib of the leaf. In other words ' it locks its toes ' round the midrib; and *then* nothing will shift it. Only a direct hit with the beating-stick (which of course either kills or injures it) can make it loosen its hold. Father Bernard Smith actually advocates the use of the beating-stick; but he does not tell us how many of the beaten larvae he reared; he must have been stout of arm indeed, and the oaks in his neighbourhood must have suffered somewhat . . . It is a larva which is exceedingly easy to find and it occurs in places which are exceedingly easy to search; yet the experienced lepidopterist will not expect to find it readily, for it is undoubtedly a ' rare ' insect, at least in the larval stage, like *Harpyia bicuspis* and *Apatele alni*, though doubtless it occurs

in all fairly large woodlands throughout the southern half of this island. Like *D. dodonaea* it ranges well into Scotland. Occasionally the imago is found at rest on the bole of an oak. It comes readily to light, and virgin females can always be relied upon to attract males if treated properly. That at least has been my experience. Father Bernard found it " a difficult species to pair in confinement," and so, I should imagine, it is; for sexual selection obtains with most of the species of this Family. In the wild the female can pick and choose her mate.

D. dodonaea is quite a different proposition. It favours large oaks, usually isolated trees such as grow in parks and in glades in old woodlands. Barrett remarks (*Lep. Br. Is.*, 3: 135): " Most attached to open parks, and scattered oak timber but found also in woods." This has been my own experience—though I would have omitted the word 'most.' And unlike *D. ruficornis* the larva feeds high up in the tree, on branches higher than one can usually reach. Indeed Father Bernard once asserted that it feeds right up to the very summit of the tree, where he had found it by using a ladder. Be that as it may, it is certainly a rare event for the field lepidopterist to find this larva in the wild, whether by searching or beating. The only way I know of to find it is to get a companion to give you a ' leg up ' on to the lowest and largest branch on the northern half-circle of a goodly oak, then to walk as far out on the branch as you can and, sitting on the branch, to examine the leaves on twigs round about you and above your head. Naturally you will perform these acrobatics only on trees at whose bases you have unearthed the pupa previously. It feeds occasionally on beech, and on 2nd August 1943 I saw a third instar one on the trunk of a tall beech, ten feet from the ground. The previous day there had been violent wind and torrential rain, so presumably this larva had been blown or washed off its foodplant and had regained its tree not long before I found it. The lowest branch of this particular tree was at least twenty feet from the ground. The larva was collected and it continued to eat beech until 18th August, when it went to earth. Next May it produced a normal imago.

When not feeding, the larva rests, in all its instars, along the midrib on the underside of a leaf. Father Bernard Smith tells us that in Sherwood Forest, Notts, the larvae of *D. dodonaea* are found " nestling in the deep wrinkles of the bark of its aged oaks during the day " (*The Entomologist*, 21: 37), a remark which Barrett repeats (*op. cit.*, 3: 134). This local habit is so much at variance with the bionomics of the species in other localities as to suggest some confusion with *Griposia aprilina* L., *Lymantria monacha* L., or *Trichiura crataegi* L. Larvae which seek protection from predators by " nestling in the deep wrinkles of the bark " need to be of a dull brown colour if the race is to survive, and neither of the two authorities above quoted makes any mention of a pigmentary abnormality peculiar to the Sherwood Forest race of this insect.

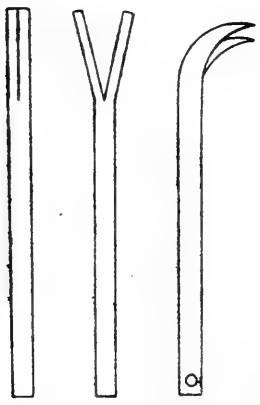
Yet although the collecting of *D. dodonaea* in the larval stage is usually impracticable (except apparently in Sherwood Forest), it is easily to be found in the pupal stage—far more easily than *D. ruficornis*. Happily for the field lepidopterist its pupating habit varies hardly at all: when once you have found a cocoon, and have examined

and memorised the details of the site, it is usually a simple matter to collect as many as one wants.

I must make another interjection here. An excellent book used by many lepidopterists, the *Text Book of British Butterflies and Moths* of Messrs. L. W. Newman and H. A. Leeds, describes the pupation site and cocoon of the ' Marbled Brown ' as " amongst roots of grass in an earthen cocoon." I have found many cocoons of *D. dodonaea* but never yet one that was " amongst roots of grass " nor ever one that was made of earth. But I have found many lying on the floor of the dark recesses of deep crannies and little tunnels right under the trunks of oaks where grass could not grow, and every cocoon I have ever found has been made of silk.

So if you want to collect cocoons of *D. dodonaea*—which you may profitably start to do in mid-September and continue until April—I recommend you to provide yourself first of all with a moss-pick. (It is surprising how few field lepidopterists possess this invaluable tool: I would as soon go for a winter walk without mine as I would without a pocket lens.) If you already possess one, you must skip the next paragraph; if you don't, you must read, mark, learn, and inwardly digest it.

The moss-pick is a simple tool which can be made in half an hour by any blacksmith or motor mechanic out of a piece of $\frac{5}{16}$ inch diameter round iron rod eight inches long. Saw a slit, $1\frac{1}{4}$ inch long, at one end, as shown in the accompanying diagram at A; then force the two sides of the slit apart until their extermities are exactly half an inch wide, as shown at B. Put the prongs in a vice and bend them as at C. Then file the prongs as shown. I repeat that the distance between the points of the prongs, when the tool is finished, should be exactly half an inch. It is a mistake to file the prongs sharp. If you do, they will (1) perforate or tear your pocket or haversack, (2) penetrate the bark beneath the moss and keep on getting caught up, and (3) perforate any cocoon they encounter and kill the pupa within. Therefore, let the extremities of the prongs be quite blunt, in fact, rounded a little. (In the accompanying diagram they are much too sharp.) It is a good plan to drill a hole through the handle extermity as shown in C, so that you can add a loop of *white* string. Then if you drop the pick in a bed of nettles or among that little clump of brambles at the foot of the tree you will be able to find it again without loss of temper.



This tool should enable you to collect as many cocoons of *D. dodonaea* as you require. Kneel before a little tunnel or passage that runs under the trunk of a goodly oak, and with your moss-pick *gently*, ever so gently please, draw out slowly towards you the debris which has collected at the far end of the tunnel. With great delicacy of finger examine this debris slowly and thoroughly, and if you find something elliptical, or at least oval, about an inch and a bit long, which is soft and has pellets of earth adhering to it, squeeze it very, very gently. Should this test assure you that it is a veritable cocoon containing a genuine

pupa you may lawfully conclude that you have discovered your (?) first *D. dodonaea*. Since the cocoon is soft, it is unnecessary for me to stress the importance of *blunt* prongs to your moss-pick and a *slow* withdrawal of the debris. And I can assure you that you must work slowly, for it is as easy as can be to overlook these cocoons and discard them with the debris.

The female moths which emerge will ' assemble ' readily if placed in an assembling-cage and taken back to their native oak at dusk. Don't net the first male that comes up: open the door of the cage and let him find the female for himself. If the female rejects his advances, box and remove him, and wait for another male to cast up.

The larvae are easy to rear provided that the prime essentials of larva-rearing are scrupulously observed:—cleanliness, a large airy cage in a shady place, abundant fresh air, fresh food *daily*, and the judicious use of a mist syringe charged with tepid rainwater.

Good luck to you.

On Rearing the *Lithosiinae*

By Philip Murray

Of all the larvae which the field lepidopterist rears probably he has found the ' Footmen ' to be the most susceptible to their environment. It seems to be almost impossible to rear them with any measure of success in an ordinary airy larva-cage out of doors or in a room, heated or unheated; for they are extremely susceptible to the water-vapour content of the atmosphere. They can sometimes be reared without undue difficulty if kept in a glass ' gas-jar ' with a ground-glass circle covering the top, such as one used in the labs at school. A useful size is 2 inches in diameter and 8 inches high. They, and the cover-glasses, can be obtained from any maker of chemical apparatus for a shilling or two. Insert in the jar a few dead leaves or a piece of bark or bough well furnished with the requisite alga or lichen, place the larvae thereon, then slide the cover-glass over the top of the jar after the cover-glass has been dipped in water.

It is a good plan to spray the foodplant with tepid rainwater by means of a mist syringe before one closes the jar. If there is a droplet or two of water here and there so much the better: Lithosiid larvae are as thirsty as ' Drinkers ' and one can often watch them sucking up these droplets with gusto. Even after the larvae have pupated (which they will do among the lichen or on the bark or in the leaves in a silken cocoon) they must be kept in fairly humid surroundings until the moths emerge. Two species, *Atolmis rubricollis* and *Eilema sororcula*, pupate in the autumn, and one can store the bark or leaves bearing their cocoons in an empty larva-cage on a shelf out of doors. The others nibble all through the winter and pupate in Spring.

Yet customarily these larvae are not at all easy to rear, especially if bred from the egg or collected in the autumn. Some algae and lichens, not to mention dead leaves, very easily become ' soggy ', and that is a condition which is as fatal to the Lithosiinae as it is to the larvae of most other Families. Many of our larger moths can be reared from egg to imago in unhygienic conditions, but not so the 'Footmen'; their environment must be ' just so ' or they will die.

The only method by which I have been successful is to keep the receptacle scrupulously clean and sterile and to change the foodplant every day. The leaves on a spray of sallow wither sufficiently in a few days (according to the state of atmosphere and temperature in early autumn if the spray is placed in an empty water-bottle and stood in a cool airy place) to be acceptable to most of these larvae. But one must scrutinize every leaf before it is offered to the larvae, and if one can detect a single mould-spot it must be rejected. With the advent of winter put the fallen leaves in an open wooden box and keep the box in an airy place. Stir the leaves about occasionally.

Remove the entire contents of the jar every day; wipe the inside of the jar with a cloth duster until it is quite clean and quite dry; insert fresh food; then replace the larvae. Spray with a mist syringe, and replace the wet cover-glass. Adopt the same procedure if lichen or an alga is the food; but here the food must be gathered in the wild just before the jar is replenished.

In autumn and winter moulds of various species, kept in suitable conditions, grow with the rapidity of Jack's beanstalk, and doubtless this is a principal reason for the mortality of young Lithosiid larvae in captivity. It is quite a problem; for the food must be kept in an atmosphere suitable to moulds, yet moulds must be rigorously banned. If anyone can evolve a sure and easy method of effecting this desideratum other than by exercising extreme care in the selection of the food and changing the food daily it is to be hoped that he will report his success in this magazine. What is really needed is a chemical agent which will prevent mould-spores from germinating and will kill the spores which have already begun to develop, and at the same time is quite harmless to lepidopterous larvae. I have not tried, with Lithosiid larvae, the dodge of spraying the foodplant with weak brine, which usually keeps moulds at bay; presumably to spray the whole foodplant thoroughly (as would be necessary) with saline solution would be to render it unacceptable to the larvae.

The Proper Care of Cabinets

By P. Siviter Smith.

I am continuously trying to obtain specimens of *Lycaena phlaeas* from all parts of the world, especially the more inaccessible parts, and also the other species of the genus *Lycaena*. Few people these days seem able to exchange, so when I am not exchanging I sometimes have to purchase, privately or in the Sales. I fairly frequently, therefore, see cabinets of one sort or another and I am surprised at the number of these which are in poor condition as far as cleanliness is concerned. This dirt must favour the existence of mites and mould. I do not continually clean my cabinets, yet they keep in reasonable condition, and as I am in process of changing over to Hill's interchangeable section cabinets, it may be that my treatment may be of interest to readers.

The main differences between what I do and what most people probably do lies in the use of water on the cabinets and drawers. This is so much the antithesis of preserving specimens that I feel attention

may be drawn specially to it, as I have not seen any similar advice given before.

There are three separate circumstances that meet the collector or museum. (1) The installation of a cabinet fresh from the maker; (2) the installation of a second-hand cabinet; (3) the normal upkeep of existing cabinets. The treatment I recommend for (1) and (2)—the installation of fresh or different cabinets—is identical.

When a cabinet is new, it is quite reasonably clean, but it is only "factory clean". It is not at all clean enough to put into use at once. Nor will even a thorough dust-out be sufficient to ensure a lengthy period of trouble-free service. Every part of the cabinet is covered with fine wood dust, and this, lodged in corners, not only creates dust for a long time as it is used, but provides perfect breeding places for mites of one sort or another. Every bit of this must therefore be removed, and once this is properly done, a substantial measure of permanent protection is given. The procedure I follow is based upon the one I use on antique furniture—I mention that merely to show that in no way can it be harmful.

Firstly the obvious loose dust must be removed from inside the cabinet frame. Therefore take out all the drawers and pile them out of the way. Then brush the interior of the frame very thoroughly, starting at the top and working downwards. I find a cheap bristle shaving brush ideal for this work. It is quite essential to brush well with a firm brush into all the corners and edges everywhere and particularly between the small blocks that are found about an inch apart at top and bottom. A thorough dusting of this sort of all crevices, corners, edges and surfaces will produce a surprising quantity of dust. Brush this in the "well" on to a sheet of paper and dispose of it. The cabinet frame is now half-clean. Care should be used as to where the cabinet is placed for this work, as the dust flies about and is also apt to get up one's nose. Working out of doors, or with open windows, and brushing from front to back all help to minimise these effects.

Now obtain a clean wash-leather (chamois), a bowl of luke-warm water (about 1½-2 gallons) and put into the water a tablespoonful of ordinary Vinegar. Thoroughly soak the leather in this water (it will not harm the leather at all) and then squeeze it out fairly hard—but enough water must be maintained in it to leave a wet smear when it is wiped firmly over a surface.

Then, with this wet leather, wipe very thoroughly all the inside surfaces, reaching every corner and edge as well as it is possible to do. This wet leather picks up all the minute dust and is the only way in which this can be removed. Do not worry about wetting the wood—this does no harm at all and it dries out in no more than five minutes—but do worry about collecting the very fine invisible dust. Swill out the leather to get rid of the dirt before using it again on the later stages—the same water may be used until it is obviously too dirty.

Now I consider that procedure is absolutely vital with any new or newly-acquired cabinet. If one happens to have a supply of compressed air, that would be easier than brushing-out, and a vacuum system also could be used; but in any case I think a brush should be applied as often small shavings get lodged and are very hard to shift. You will now have a frame that is perfectly clean inside; the outside-top, sides and par-

ticularly the back and underneath surfaces should be wiped with the leather in the same manner. By doing this you will be getting rid of the dusty corners and ledges that are so suitable for the existence of mites. The whole of this procedure on a ten-drawer section can be carried out in very little longer time than it has taken me to write this.

The drawers must then be similarly dealt with and they take a little longer to do. Take them one at a time and with the leather similarly damped in vinegared water, wipe the outside of the wooden frame and the underneath if that is wood, brushing out the corners on the outside again first. Open the drawer, lay the glass nearby and brush out the inside corners of the drawer thoroughly. If it is a papered drawer, finish by dusting the paper with a clean duster. If it is a drawer with a glass top and bottom, then after a very thorough brushing out of the corners, wipe strongly the whole of the glass and wood with damp leather; then wipe in the same way the outer surface of the glass. The inside and outside should then be dried off and well polished with a dry duster and then put on one side. Then do exactly the same with the top of the drawer, leather the glass thoroughly and then polish with a duster. Insert naphthalene (and the cork strips if it is glass top and bottom) and the drawer is ready for use. Treat them all the same—by the time the first drawer has been done the inside of the cabinet frame will be perfectly dry and they should be replaced as finished in the frame.

Properly treated in this manner (and it takes about 2½ hours to finish completely a section of 10 drawers that are glassed both sides) mites, mould and dust are to a very great extent eliminated for many years. The unpleasant " bloom " on the glass of the drawers is also kept at bay. Before replacing the drawers, I usually sprinkle in the " well " at the bottom of the cabinet frame about a tablespoonful of powdered naphthalene; this helps to impregnate the frame itself and further discourages mites from even reaching the threshold so to speak.

The routine for a second-hand cabinet is exactly the same and is certainly quite as essential. The previous owner probably did not clean it thoroughly and any accumulation must be removed. The drawers, too, will need thoroughly brushing out to get rid of broken antennae, legs and so on. In second-hand cabinets it is often very difficult to get rid of marks on the glass. Paint or other " solid " objects come off when scratched with a finger-nail or knife, but smears often resist the wet leather stubbornly; in such cases a rag soaked in methylated spirit will normally remove the smear. Use the wet leather and finally polish in the same way after using the spirit.

If cabinets and drawers have been subjected to that initial cleaning process, it is very easy to give them an annual " spring-clean " that will maintain them in fine condition. For the annual spring-clean, I take out all the drawers and wipe the inside of the frame and the outside with the leather soaked as before in vinegar water; I put more naphthalene in the well of the cabinet. I wipe over all the drawers also with the wet leather and polish the outside of the glasses with a dry duster. If they have been maintained in this manner, the insides will seldom require any attention but it would be an advantage to clean the inside of the glass lid before replacing, being careful as always to dry off and polish with a duster. Naphthalene can be replaced if desired, but if my treatment is followed it is my experience that the

drawers can safely be left for up to ten years without naphthalene—but I would not care to risk that unless I had carried out the full initial cleaning programme which I believe to be the most important factor of all. I do this spring-clean every year and it is a very easy and quick job and I am sure makes all the difference. Even if this was only done every second year, I believe the condition of the cabinets and specimens would be at a far higher level than most that I see now.

Written down, this looks a lengthy arduous job, but, in actual fact, it is quite simple and takes less time than one imagines, especially if a helper is available. Museums could easily get two people to run through this routine with their cabinets and could then relax more over the state of their specimens. But I emphasise that the original full clean-out must be done in the first place before the simple spring-clean becomes valuable. Existing old full cabinets will be found greatly improved if the inside of the frames and the outside of the drawers are cleaned as I have suggested; this could be accomplished by having a programme in which so many are scheduled to be so cleaned per week or per year, in addition to the spring-clean. The same procedure can be followed with store-boxes. The essential points of my system are: (1) the brush to get rid of dust in corners and in ledges and (2) the wet leather with the vinegared water. The amount of dirt such a leather will remove is astonishing. It does not harm polished surfaces at all, and it is very good on antiques or any furniture. Polish or cream may be applied after using the leather and drying off. On several old pieces I possess I brought back the original fine colour of the wood by getting off the layer of dirt on the top; this improves the patina of the wood, whereas a layer of dirt spoils it.

I believe naphthalene to be by far the best mite deterrent to use, but I believe cleanliness is even more powerful. If everything is properly cleaned an occasional lapse of memory in replacing naphthalene will have no ill effects.

At Burlington House

The Royal Society made a good bargain when the Government turned them out of Somerset House.—Our system of government of course assures that more accommodation for ever-growing departments shall be required by each successive administration; so it was bound to happen. Doubtless the Royal Society and many another learned body occupying Crown property will have to move again some day.—At all events as soon as it became clear that Somerset House would be required to accommodate government officials the question arose where the various societies who had rooms in that great warren should go. Accordingly in 1854 the Government, by vote of the House of Commons, bought Burlington House for £140,000, and the Royal Society, being the senior as well as the most important of the societies, had first choice of accommodation in the new premises.

The new house was a great improvement on the old. "Richard the Rich" as he was called—son of the "Great Earl" of Cork—who died in February 1697/8 at the age of 85, had been created Earl of Burlington "otherwise Bridlington"—for his family had hailed from the

Yorkshire town—and in the course of a long life had accumulated enough money to last his descendants for a very long time. The third Earl, being an amateur architect, pulled down the old family home in Piccadilly and erected the present building. It was his daughter and heir who brought Burlington House to the Cavendish family.

So the ROYAL SOCIETY did themselves well, and with a generosity in keeping with their traditions they do their guests well too, as indeed the 27th of October 1951 was to testify. For it was on this day that the "SOUTH LONDON" held its Annual Exhibition in the handsome rooms of the senior Society. And being a privileged person, to wit an old friend of one of its distinguished members, we were able to see for ourselves how well the SOUTH LONDON can do things when it likes.

This annual gathering—for it has become a good deal more than an exhibition—grows in importance every year; it has indeed become a Mecca to which, on the yearly festival, the entomological faithful gather from all parts of the Kingdom. Here one can meet for the first time pen-friends with whom one has been in correspondence for years; here one can renew or cement old friendships by fresh personal contacts; here one can obtain 'advance information' about matters entomological of the first importance; here one can consult the leading experts on one's own subject; and here one can see, in the flesh, species new to Britain and sometimes new to science. Best of all one can glean in conversation knowledge not to be obtained without months of letter-writing. The SOUTH LONDON'S annual "show" is indeed a boon and a blessing to men of the lamp, the net, and the sugaring-tin.

The first person we met on entering the exhibition room was the Society's indefatigable librarian and assistant secretary, E. E. SYMS, putting a last touch to the perfectly arranged exhibits, assuring himself for the *n*th time that everything really was as it ought to be. It was still early—we had hurried over a premature lunch in order to reach Burlington House before the rooms filled up—but already entomologists were coming thick and fast:—S. WAKELY, one of those wise men who regard the taking of pains as an achievement in itself, who make opportunities for field work when it seems quite impossible that they could ever occur, bringing news that he had succeeded in rearing that obscure rarity *Mompha nodicolella* from the gall and assuring us that the *Record* should be the first to announce his success; S. N. A. JACOBS of the Hercules frame who can set a Nepticulid against anyone, who also is a personal friend of microscopic larvae which dwell in obscure places and who makes a hobby of helping everybody; J. M. CHALMERS-HUNT, tall and graceful, fresh from his discoveries of the bionomics of our latest *Eupithecia*, one who has already made his mark in the world of Entomology and, unless we are much mistaken, is destined for greater achievements still; C. CRAUFURD, imperturbably good-tempered who, when we go collecting together, insists upon giving us every rarity that he captures; Dr. G. V. BULL (happily well recovered from a recent illness) up from the loveliest part of West Kent, where nothing entomological escapes his keen eyes.

Standing quietly at a side of the main room, after he had made scrutiny of the exhibits, and surveying a scene he has looked upon so many times, was one to whom nobody has ever posed a difficult problem of identity in vain, one whose life work has been to help others and

whose initials are known from China to Peru—W. H. T. Tams. And there was dear S. G. Castle Russell, beloved of all, of whom it was twice remarked to us " he taught me all I know ". From his pocket he diffidently produced a small box containing four or five aberrations, all taken in one year, such as you and I might seek in vain for half a lifetime. Colonel S. H. Kershaw was at his side, discussing butterflies and bringing descriptions of two new aberrations of *Argynnis aglaia* which had fallen to his net. Here too was the dynamic W. Reid of Sheffield, still active as a boy, whose delight is to provide his friends with eggs and larvae of ' good things ', who annihilates distance by road as he once did by air over enemy territory, and who left at six o'clock to be home in time for an early dinner. His exhibit—a marvellous black Buff Ermine—was quite impossible. But there it was, and you can take it from us that it was a genuine insect.

Another of the dynamic race, Eric W. Classey, of course was there, one of the most knowledgable of lepidopterists and always ready to tell you where to go and how to find it; alert of mind and body, as much at home among his books as his setting-boards, indefatigable in everything that he undertakes, works of supererogation being his *forte*. Here too was H. S. Robinson of ' m.v.' fame, who has given us a means of charting the range and distribution of rare species, bringing with him a breath of Hampshire woods and meadows into the room; A. L. Ransome, the Major-General who used to watch *Papilio machaon* flitting about no-man's-land while he directed a battle, spending his furloughs pursuing butterflies in foreign parts; N. D. Riley of the tireless patience, who divides his time between writing letters in answer to questions which are either recondite or ridiculous and celebrating his thirtieth year as editor of a magazine conducted for the benefit of his fellow men, devoting such time as remains over and above these pursuits to looking after the interests of the R. Ent. Soc. Bent at right angles over a case containing series rich in variation was H. B. D. Kettlewell, happily back among us again for, we hope, at least some years to come and busily gleaning matter for his genetical work at Oxford.

Last of all, for special mention, was the President, ready to talk with everybody on everybody else's subject, taking in all that was going on around him, eager to make everybody know everybody else, and opening the Exhibition with terse fluent speech. And, to make an end of this brief list, F. Stanley-Smith, anxious to impress upon us that really he had practically nothing to do with making the ' show ' a success and that it " runs itself ", whereas of course it is his organizing genius, tact and infinite patience—not to mention a capacity for real hard work—which have created this remarkable, and invaluable, levée.

There were, alas, friends for whom we looked in vain—late October is an uninviting season for elderly men to travel. Particularly we missed the giant of Tring, laid low for the present by that most hateful of middle age complaints arthritis. Happily he is mending and we shall look forward to seeing him, with renewed vigour, at Burlington House next year.

The exhibits? There were rows of *Catocala fraxini*, rows of *Minucia lunaris*, rows of *Luceria virens* and of many another good thing too. Studies in variation were provided in plenty, and there were photographs which bespoke a skill and a patience which only those who have

attempted these things can really appreciate. To our mind, these photographs of insects ' in action ' were by no means the least interesting of the exhibits.

One last impression of a memorable day was the moment when, having gone down to the hall, regretfully making our way to the door, we met S. G. CASTLE RUSSELL at the foot of the stairs, going up. As we pressed each other's hands " You'll come to Cranleigh again next year, won't you," he urged. And we, who are older than he in days though not in years, remembering our white hairs could only answer " *Si deus approbet* ". May it please the gods, and may we all meet again at Burlington House for many years to come.

O. M. H.

Mrs Glanvile and Her Fritillary: I

By P. B. M. ALLAN.

[NOTE.—A great many animals of all classes, probably many hundreds, have been named after their discoverer or the naturalist who first described them:—Thomson's gazelle, Prejevalski's horse, Natterer's bat, Steller's sea-cow, Bewick's swan, Willughby's char, and so on. In all these cases probably the identities of the persons whom these animals commemorate are well known; they are to be found in books of travel and natural history. But in the case of *Melitaea cinxia*, the Glanville Fritillary, the identity of the person to whom its English name is due has been "wrapt in mystery" ever since it was first propounded by Moses Harris in his book *The Aurelian*, 1766. "This Fly took its Name from the ingenious Lady Glanvil," Harris wrote, and hitherto, in spite of many attempts, no one has succeeded in identifying the "ingenious lady" or finding out anything at all about her. In this paper Mr. ALLAN identifies her with a Mrs. Elizabeth Glanvile who was a correspondent of the great naturalist James Petiver and apparently an ardent entomologist.—ED.]

On the 28th December 1702 Mrs. Elizabeth Glanvile wrote from Bristol to James Petiver in London to say that she had sent him a box containing 100 species of insects. After advising her correspondent about the manner of despatch she adds that she will be glad to hear their Latin and English names and whether they are common or rare. "Many are very small, but some I believe will prove new, unless you have got them lately." She also sends Petiver some mosses to be identified and ends by telling him that "I not being at home have preserved but few plants this year, and so long neglecting to clean my butterflies, being almost two years, the mites have done much mischief. I have lost above a hundred of my finest . . . For want of air the mites breed the more, and the beetles were moulded over with white crusty mould which when I went to clean them broke all to pieces. I hope while I live never again to let them be so long neglected . . . I rejoice to find by your Catalogue that you have got Mr. Charlton's blistered butterfly, it being my particular favourite."[1]

Unfortunately the identity of this Mrs. Glanvile is at present unknown, and since she says, from Bristol, " I not being at home," we

[1] I print the letter in full, with additional matter, in a forthcoming book.

have no means of finding out where she lived. Yet she has been speculated upon by several writers (notably by Dr. Malcolm Burr in this Magazine, vol. 50, p. 41) and had it not been for a curious misunderstanding which arose through a printer's practice, and the fact that Petiver's acknowledgment of her gift has only recently come to light, she might have been identified ere this.

The first stumbling-block to her identity was erected by the compositor who set up the type of Moses Harris's famous book *The Aurelian*, published in 1766. Dealing with 'The Glanvil Fritillaria' (*Melitaea cinxia* L.) Harris informs the reader that this butterfly owed its name to a lady named Glanvil, and this is how the compositor set up the type of the passage concerned:—

"This Fly took its Name from the ingenious Lady Glanvil, whose Memory had like to have suffered for her Curiosity. Some Relations that was disappointed by her Will, attempted to set it aside by Acts of Lunacy, for they suggested that none but those who were deprived of their Senses, would go in Pursuit of Butterflies. Her Relations and Legatees subpoenaed Dr. Sloan and Mr. Ray to support her Character. The last Gentleman went to Exeter, and on the Tryal satisfied the Judge and Jury of the Lady's laudable Inquiry into the wonderful Works of the Creation, and established her Will. She not only made the Study of Insects Part of her Amusement, but was as curious in her Garden, and raised an Iris from the Seed, which is known to this Day, by Miss Glanvil's Flaming Iris."

Every noun, it will be observed, begins with a capital letter; so it was not the compositor's fault that readers of Harris's book a century later should jump to an unwarranted conclusion about the social status of the lady. For in 1766 it was the custom in printing to begin all nouns with a capital, and in some of the printing-houses this time-honoured custom continued as 'the rule of the house' until almost the last quarter of the eighteenth century. Thus the "ingenious lady" Mistress Glanvil of the Flaming Iris acquired a title—doubtless to the no small surprise of her *manes*!

The other circumstance, the one which prevented subsequent writers from ascertaining Mrs. Glanvile's Christian name, was the fact that the information is contained on a single sheet bound at the end of a certain copy of one of Petiver's books and, so far as can be discovered, in no other copy. The leaf is headed "An Abstract of some Collections received, not mentioned in my former Centuries," and there it lay until, scrutinizing the volume page by page, the writer of this Note discovered it a few years ago. The passage in question constitutes an acknowledgment of the letter and box of insects from Mrs. Glanvile which Petiver had received shortly after Christmas 1702 and is as follows:—

> "10. Madam Elizabeth Glanvile. To this curious Gentlewoman I am obliged for an hundred *Insects* lately sent me (besides others she gave me before) which she had observed in the *West of England*, several of them being altogether new to me."

Harris's picturesque story about Mrs. Glanvile's will has been copied or quoted by many subsequent writers of books about butterflies; but nobody has yet succeeded in producing a single supplementary fact or

even a shred of corroborative evidence. Nothing whatever is known about the matter. No contemporary diaries, letters or domestic papers of any kind, no legal records nor documents, can be found which refer to it; in no known book or pamphlet or news-sheet has there been found any mention of the case. Up to the time of writing (October 1951) Harris's story is entirely uncorroborated.

One thing at least is certain: Harris was wrong in asserting that John Ray went to Exeter in or after 1703 (supposing that Mrs. Glanvile had died shortly after writing her letter to Petiver). In May 1702 Ray wrote to Derham: " I am now almost threescore and fifteen years of age " and mentions that he has " not been half a mile out of my house these four years." He never left Essex again and died on 7th January 1704/5. Throughout these last two years of his life he was in constant correspondence with both Sloane and Petiver; but in none of his letters is there any mention, any hint, of the matter which Harris attests.

In default of any corroboration whatsoever, in quarters whence it would have been most likely to be forthcoming, the story can, with reason, be considered apocryphal; for Harris was writing about an alleged event which took place, on his own showing, twenty-seven years before he was born. Like most of us at some period of our lives he probably ' got hold of the wrong end of the stick.' Had the alleged affair happened in Harris's own lifetime we might charitably, even in the absence of any kind of corroboration, have accorded him the benefit of the doubt; but since he merely relates (in a book published sixty years after the affair is supposed to have happened) a story which, if he heard it as a boy of twelve or fourteen, concerned an event alleged to have occurred forty years before he heard it, his ' evidence ' must needs—juridically—be ruled out of court. As Mr. Justice Stareleigh wisely remarked: " You must not tell us what the soldier, or any other man, said, sir; it's not evidence."

(To be continued)

Current Notes

NEW ABERRATIONS OF SELENIA BILUNARIA L.—In the Proceedings of the Chester Society for Natural Science, Literature and Art, 1950, published July 1951, the following new aberrations of *Selenia bilunaria* are described and beautifully illustrated by S. Gordon Smith:—Ab. *superba*, *brunneofasciata*, *connexa*, *tetrafasciaria*, *brunneo-pustulata*, *rubra*, *unilinearia*, *nigrovanellata*, *flavo-marginaria*, *mixta*, *nigra*, and *nigrata*. *Nigrovanellata*, with the basal area dark as far out as the median line, and *nigra*, sooty black except for traces of dark chocolate brown towards the outer margin and without pale transverse lines, are the most remarkable. R. E. Vaughan-Roberts describes ab. *schizomedia* with a double median line. The volume was issued, in wrappers, to subscribers in July; hence the ab. *centrilineata* of Lempke published in August 1951 is a synonym of Gordon Smith's ab. *unilinearia*.

INTERSEXES OR GYNANDROMORPHS OF SELENIA BILUNARIA L.—In the same publication, p. 83, S. Gordon Smith records that in the third generation in the spring of 1942 he bred from promiscuous pairings five

moths with pectinated antennae and female bodies. One of them contained eggs, the others were not examined. The colour especially of the under side varied, parts of the wings being reddish and richer in colour than normal females of this generation and these patches of colour were not symmetrical. Two of the five were seen in copulation with normal males, but no eggs were laid. There are numerous records of intersexes pairing and laying fertile eggs, but I cannot recall any record of pairing in the case of a gynandromorph.

In the *Tijdscrift voor Entomologie*, 1951, 94, 227-320, B. J. Lempke has published another instalment of his Catalogue of Dutch Macrolepidoptera. The date of publication was August 1951. It deals with the first part of the Geometrinae and many new aberrations are described and named. A large number of these has occurred in this country and others are likely to be taken here later. All entomologists who are interested in variation should consult this catalogue, which has been appearing for some years. For anyone who is naming new aberrations this is essential in order to avoid the creation of synonyms.

Will our readers please note that the provenance of Mr. E. P. Wiltshire's paper *Further New Records of Lepidoptera from Cyprus, Iraq and Persia (Iran)*, sent out with our last issue, was inadvertently omitted from the headline of its first page? It should have been: "Issued with *The Entomologist's Record*, October 1951 (vol. 63, No. 10)."

Notes on Life-Histories, etc.

Have any of our readers found, in the wild, the cocoon of *Abraxas sylvata* Scop. (*ulmata* Fab.)? The books say that this species pupates in the earth; but in a larva-cage the cocoon is usually (always, in our experience) spun amongst debris (*e.g.* moss, dead leaves, peat) on the floor of the cage. Barrett says: "In a slight cocoon *in* the ground or upon the surface among rubbish". We have read—unhappily a note was not made of the reference—that when full-grown the larva lowers itself to the ground by means of a silken thread, and as presumably this would be from an outermost bough it would follow that the larva would pupate at a distance from the trunk, where it would be very unlikely to be found by a lepidopterist.

In his famous essay on pupa-digging the Rev. Joseph Greene makes no mention of *Lithophane semibrunnea*, so presumably he never found the pupa of this species although he must have dug at the foot of ash trees (the only foodplant) occasionally; for he mentions other species found beneath that tree. We ourselves have not been any more successful, though on several occasions we have made a dead set at ash trees adjoining ivy whereat the imagines had been taken the previous autumn. The books content themselves with the bald statement "in an earthern cocoon" or "pupates in the earth", and in a cage the larva burrows to a depth of an inch or more, according to the degree of compactness of the pupating compost. Is this one of the larvae given to wandering before going to earth? The moth seems to prefer elderly trees growing on the low ground, such as meadows in a river valley.

The bionomics of *Lithophane semibrunnea* in the imaginal stage appear to be little known. Barrett (*Lep. Br. Is.*, 6: 25) remarks "The moth seems never to be observed at large in the daytime; probably it rests in trees" and goes on to suggest that "its resemblance, when quiescent, with its wings . . . . almost rolled round its body . . . . to a bit of stick is so close that it would almost certainly pass unobserved". But if the resting moth resembles "a bit of stick" why the suggestion that "probably it rests in trees"—unless Barrett had in mind the possibility that the moth rests by day not in a chink of bark but on a twig. Several times we have found its congener *socia* in crevices on the boles of oaks, but our diaries make no mention of ever finding *semibrunnea* at rest, though in the days when we practised pupa-digging assiduously from September onwards we took care to scrutinize ash boles no less than oak ones. Does the moth in fact roost high up? Have any of our readers ever found *semibrunnea* at rest in the wild?

In some moths whose larvae feed on forest trees (e.g. *Drymonia ruficornis* Hufn.) wing-expansion is complete in a quarter of an hour, whereupon the moth runs up the trunk to, sometimes, a considerable height before it comes to rest in a crevice amid a suitable background of lichen and alga. Specimens found by lepidopterists low down on trunks and posts and fences have probably been disturbed by birds and, flying bemusedly downwards from the source of light, have come to rest on the nearest perpendicular object. Virgin female *semibrunnea* kept *and fed* throughout the winter will usually attract males to them at sallow-time just as any other species with a similar life-cycle. Attempts to obtain pairings with bred males are often unsuccessful owing to the sexual selection which obtains.

Field Notes

We are so accustomed to seeing *Pieris brassicae* L. in our gardens, in other people's gardens, in the open country and in towns, that we look upon it as one of the commonest British insects. Yet compared with some of the Noctuae *P. brassicae* is almost a rarity. Is there any county —one could almost say field—in this island which *Amathes xanthographa* does not inhabit? Or *Agrotis exclamationis*? Or *Triphaena pronuba*? Or *Apamea monoglypha*? Are there elms anywhere which do not harbour *Agrochola circellaris*, or oaks devoid of *Orthosia cruda*?

Among these extremely common species *Hadena bicruris* (*capsincola*) might well be placed. It seems to be abundant wherever plants of the *Silene* and *Lychnis* genera grow. We have found it—or perhaps we should say have been unable to avoid it—on the fringes of Essex saltmarshes and on moors at 1,500 feet, from Scotland to Sussex, from Cardigan to Suffolk. It patronizes both the red and the white flowered species of these genera indiscriminately and indeed is to be found eating wellnigh every kind of *Lychnis* and *Silene* (not to mention *Saponaria* and Sweet William) which grows in our island. If anybody were to introduce a new species of any of these genera doubtless *H. bicruris* would at once adopt it as a foodplant.

Another member of this genus on the other hand, *Hadena dysodea* (*chrysozona*), formerly common enough almost everywhere, particularly

in kitchen gardens, has almost disappeared. In fact until a few years ago it was held to have deserted our island. However, it still exists in at least one county and, if well searched for, may presently be reported elsewhere. The seeds and flowers of garden lettuce which have been allowed to 'run to seed' form its principal food; but it occurs on the wild *Lactuca* (several species) too and—so the books say—*Crepis capillaris*. We should like to hear of any counties in which this species has been found this year.

Notes and Observations

GELECHIA HIPPOPHAELLA SCHRANK IN NORFOLK.—Since writing my Note (page 248) I see by the October number of the *Record* that *G. hippophaella* has been taken at Spurn in Yorkshire (pp. 219-220). No doubt the very retiring habit of the moth as mentioned both by Mr. Michaelis and me accounts for the fact that there are so few records of its occurrence. Also, when spun shoots of Sea Buckthorn have been collected these are liable to be thrown away after breeding sundry Tortrices under the impression that these had caused all the spinnings. To make sure that *G. hippophaella* is not present the leaves should be kept till the 1st August and then examined daily for a week or more by tipping them on to a piece of paper and watching for any movement.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5. 14.x.51.

THE SCARCITY OF TRIPHAENA PRONUBA L.—Mr. T. D. Fearnehough's note (*Ent. Rec.*, 63: 175) regarding the scarcity of this species in 1951 prompts me to record my own experiences with this moth this year. The first moth appeared at sugar in the Stewartry of Kirkcudbright on 15th June, a perfect night when one would have expected dozens. Moreover none were found in a mercury vapour lamp-trap operated the same night in the adjoining county of Dumfriesshire. On the 30th June the same wood was sugared; there were many moths but only one *pronuba*, and although the m.v. lamp-trap held over five hundred insects this contained only one solitary *pronuba*. During July, in Dumfriesshire, I occasionally disturbed an odd *pronuba*, rarely more than one in a day, this continuing until 21st July, when three or four came to the m.v. light. For the last week-end in July I was in Kent and did not see a single *pronuba*, nor did any more appear when I was in Scotland until the 15th August, on which date I returned to Kent for the remainder of the season. I did not see any at all until the end of the month, when a few were noted at buddleia flowers, and it was not until 2nd September that I could write in my notebook "*T. pronuba* fairly common at light". On 5th September I wrote "common" and on that night a well-battered *Lampra fimbriata* (*fimbria*) appeared—an exceptionally late date. The sugar patch in Darenth Wood did not produce *pronuba* on 6th September, but on that night few other species arrived, possibly because a heavy thunderstorm was brewing. None was seen until 29th September when a fresh moth was taken at ivy blossom at Cliffe, a night when the autumnal species such as *Agrochola lychnidis* and *Omphaloscelis lunosa* were well under way. In early October a few *pronuba* were seen at light and at ivy blossom, but the cold clear nights set in until the 13th, when only the autumn species came to light.

Apparently *T. pronuba* has been remarkably scarce and has also had an abnormally long period of emergence. This is all the more remarkable when one considers what a good season it has been for *Apamea monoglypha, Agrotis exclamationis* and some of the other usually abundant species.—D. F. OWEN, 3 Lockmead Road, Lewisham, London, S.E.13. 16.x.51.

COLIAS HYALE L. IN EAST DORSET.—On 18th October about noon while walking on the Purbeck Ridge 450 feet above sea-level a specimen of *Colias hyale* settled just in front of me. It was a male in fresh condition, evidently the offspring of migratory parents that must have arrived in late summer. The morning was quiet and sunny with a temperature of 62° F.—LEONARD TATCHELL, Rockleigh Cottage, Swanage. 20.x.1951.

FOODPLANTS OF ACRONICTA LEPORINA L.—With reference to Mr. T. D. Fearnehough's note on this insect in Derbyshire it was interesting to read that he found it on birches and aspens. Whilst these trees occur freely in Leicestershire, especially the birch, we have never taken the larva of *A. leporina* on them. By assiduously searching and beating alders which line the banks of the small streams in the north and north-west of Leicestershire we were able to get a few larvae in a day's work, but they could never be described as anything but uncommon. As this area is contiguous to Derbyshire it may be that given the foodplant, alder, it will also be found in the south-east of that county.—HERBERT A. BUCKLER, Sutton Bassett, Market Harborough. 22.x.51.

EFFECT OF "CROWDING" ON THE COLOURATION OF LARVAE.—In continuation of my note under this heading (*Ent. Rec.*, 63: 173), the brood of *Celerio lineata* L. referred to was a most disappointing one. All the larvae, some hundred and twenty in all, both batches and singletons, produced the same larval form. This was black speckled along the secondary segmental divisions with yellow, with a yellow subdorsal and sublateral line, a subdorsal series of elongate yellow spots, and an unspeckled black dorsal stripe and transverse stripe across each somite joining the subdorsal spots.—D. G. SEVASTOPULO, Kampala. 24.x.51.

FOODPLANTS OF EXOTIC SATURNIIDAE.—With reference to Mr. Shaw's article on Collecting in British Guiana (*Ent. Rec.*, 63: 165) I have found the following two plants very useful for the rearing of both Indian and East African Saturniidae: *Lagerstroemia indica* (Lythraceae), *Ricinus communis* (Euphorbiaceae). *Lagerstroemia* may not grow in South America, but I have no doubt that *Ricinus* (Castor) does so.

In addition to the above two, Mango (*Mangifera indica* (Anacardiaceae)) and Guava (*Psidium guyava* (Myrtaceae) are also useful foodplants for this family.—D. G. SEVASTOPULO, Kampala, Uganda. 24.x.51.

SLUGGISHNESS OF LYMANTRIID FEMALES.—With reference to the query regarding females of *Lymantria monacha* flying (*Ent. Rec.*, 63: 170), I have noticed that pronounced sluggishness is the characteristic of the females of many species of Lymantriidae. The female of *Orgyia basalis* Wlk. (included in *Dasychira* in Seitz) is an extreme example. The female is winged, but never flies in my experience—all it does is to climb slowly up the branch or tree trunk on which the cocoon was spun leaving a broad ribbon of ova behind it. It is easy to understand how winglessness has developed in the females of some Lymantriid species. I

have found newly hatched Lymantriid larvae very active and they seem to be dispersed to a great extent by wind. The fact that so many species are polyphagous helps in this respect as the larva has a good chance of alighting on something that it is prepared to eat.—D. G. Sevastopulo, Kampala, Uganda. 24.x.51.

Further Notes on the Distribution of Eupithecia millefoliata Rössl. in Great Britain.—We now know that in addition to being present in Kent this species occurs along part of the coast of Sussex and into Hampshire. Mr. G. Haggett has been good enough to supply me with his records, to supplement my Note of last month. He found the larvae on yarrow this year along the Sussex coast at Shoreham, Sompting, Rustington, Clymping, Arundel, Selsey, and Chichester, also at Portsmouth (Hants.). Mr. Haggett is I believe the first to discover this insect in Sussex and Hampshire. So far as I know, the larva has not been found more than about four miles inland and there is as yet no evidence that the moth was taken prior to 1939, in which year Mr. A. Richardson captured a single imago at Sandwich.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 2.xi.51.

Lithosia deplana Esp. in Kent.—On 26th July my friend Dr. Scott captured at light in his garden at Westwell a single specimen of this species, which he has generously presented to me. It is interesting to note that, so far as I am aware, there is only one other record of this species for Kent. Forty or more years ago several were taken in the neighbourhood of Margate, and these were exhibited by Blenkarn at a meeting of the South London Entomological Society in 1911.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent. 2.xi.51.

'Pink' Moths on Dartmoor.—In the March-April issue of this magazine (page 43) I related an experience on Dartmoor when I flushed, from the herbage on the banks of a streamlet amid the heathland, three 'pink' moths which I was unable to identify. Some months later, chancing to take up Schnack's little book *Das Kleine Buch der Nachtfalter* my attention was arrested by the picture (by Jacob Hübner) which this writer gives of the "Purpur-Bär" (*Rhyparia purpurata* L.). As this pretty Tigermoth, with cream-coloured forewings and pink hindwings, occurs not uncommonly near the coast of Brittany the thought crossed my mind that the moths which I saw on the western fringe of Dartmoor were possibly the progeny of an immigrant female *R. purpurata* which had flown across from Brittany and laid eggs in that warm sheltered spot the previous year.

Now, however, Mr. F. H. Lees has suggested to me a much more likely solution. "Early one evening about 6 p.m." he writes—"it was the 24th June this year—while at Bovey Tracey, on the other side of Dartmoor, I 'knocked up' a moth on the heath and my mind still retains a clear impression of *a pinkish-red flash*. Self-questioning as I moved rapidly after it I said "*are* the underwings in *sannio* pink?—or perhaps they are in the female—I can't remember seeing a female flying", and so on. My mind had to go back twelve years and I had failed to settle the point before the moth was in the net, and then—there were no pink underwings of course. I can only suppose that the red central spot and the pink border by a trick of movement and light suffused their more striking colour (to my eyes) over the whole area. At any rate that

was my "pink" (? underwing) moth—a lovely fresh male *sannio*! I wonder if your mystery in the same area might link up with this experience?"

Often, years ago, I caught male *D. sannio* as they flew about Hampshire and Berkshire heaths, and although I have no recollection of any impression of ' pink ' about them it seems to me that Mr. Lees' suggestion is more feasible than my ' fancy ' about *R. purpurata*. Barrett (*Lep. Br. Is.*, II, 257) describes the margins and cilia of the forewings of *sannio* as "light scarlet" with the discal spot "large" and "of a reddish colour". The cilia of the hindwings also are given as "light scarlet" and the margins of the underside, forewings, "light red". So it seems quite likely that moths of this species flying towards the western sun would give the viewer an impression of pinkness.—P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.

Notes on Microlepidoptera

By H. C. Huggins

The larva of the beautiful *Euxanthus aeneana* Hüb. may be found in December and January full-fed in the roots and lower stems of ragwort. If the stem be bent it will fracture two or three inches above the root and a slightly webbed burrow will be disclosed, like that of *Eucosma foenella* in mugwort but on a much smaller scale. The root should be carefully dug up and potted, and left out of doors till May. More irregular burrows in the lower stem found at the same time will probably be those of *Eucosma trigeminana* Steph., whilst burrows in the upper part should yield *Phalonia atricapitana* Steph. The last two species seem to be universally distributed in the south of England; *aeneana* is very local and, although not exclusively confined to it, seems to prefer a heavy clay. I have found it on many of the clay foothills in the Thames estuary, Chattenden and St. Mary's in Kent, Eastwood, Benfleet and Mucking in Essex, whilst it inhabits similar ground at Yarmouth I. of W., and Mr. Sheldon used to get it on a patch of heavy blue clay near Limpsfield.

Eucosma foenella Linn. may be obtained by bending the stems of mugwort, which will snap off about four inches from the ground and disclose the burrow, closed by a thick web. The roots should then be dug up and, as they are large and take up a lot of room, may be shortened to four or five inches below ground level. They must be kept in the open air but I have not found it necessary to pot them; the larva appears to get on quite comfortably if they are left lying on the surface of the ground under a pea-guard or some similar device to keep off birds. They should be brought indoors at the end of May. Plenty of *Hemimene simpliciana* Haw. will be bred at the same time.

The larva of *Eucosma cnicicolana* Zell. hibernates in the crown of fleabane, in the lower stem of which it feeds. The only way in which I have been able to get it is by trial and error, splitting the lower stem till a burrow appears and then digging up the root. As fleabane grows in patches of dozens of stems and *cnicicolana* is not usually very common even where it occurs, it is rather a tedious job to get any number. The roots should be potted as usual.

Loxostege palealis Schiff. I wrote a short Note on rearing this species for the *Record* a few months back, but as it arrived too late for the August number it is being held over for a year. From a very long experience of *palealis*, however, I do not entirely agree with all that Mr. Jacobs wrote in the September issue, page 183. In my experience *palealis*, though not uncommon in chalky districts, is equally plentiful in any semi-maritime district where its capricious fancy takes it. For over twenty years it has been found on a piece of the heaviest clay in the whole Southend district and, until the best part of this was ploughed in 1942, was exceedingly abundant there, much more so than I have ever seen it elsewhere. In 1935 I kicked up at least fifty in an hour in one afternoon, and towards the end of August every head of *Daucus carota* was infested; frequently there were two or three in one head. I took my friends, the late Mr. W. S. Gilles and the late Dr. Douglas Smart, to the place and each collected about a hundred larvae in a very short time; as wild carrot was very abundant, there must have been literally thousands there. *Palealis* is thinly distributed throughout this area from Benfleet to the river Crouch, but although it still lingers in its best locality the ploughing of so much of the ground has made it much scarcer than in the past. In the winter of 1935-6 the ground mentioned was under water for several weeks after heavy rain, but *palealis* was nearly as common in 1936.

Incidentally *L. palealis* is easy enough to rear if you treat it rough. In 1935 I collected about fifty larvae and put them in a 15-inch flower-pot which had drainage and six inches of light garden soil. I simply threw in the seed-heads containing the larvae and tied a piece of calico over the top of the pot and stood it on the garden path till next July, when I bred practically every one. In breeding *palealis* I have never found any lie-over and doubt if the larva ever overwinters in this stage in the wild state. I placed my pot in a shady place in mid-July so as to save bothering with a glass sheet, and lifted the calico cautiously every day to see how many moths were out. I took my first *palealis* in 1901 and have since found it on chalk downs, in cultivated fields on chalky soil, on coast sandhills, and particularly at the edges of clay marshes.

Collecting Notes

NOTES FROM DERBYSHIRE.—On 14th August 1951 a fine specimen of *Gastropacha quercifolia* L. was captured near an electric light at Heath, a village about three miles from Chesterfield. It laid sixteen eggs, which unfortunately were lost by the boy who found the moth.

On 6th September a fully grown larva of *Deilephila porcellus* L. was found at Walton, near Chesterfield. It pupated immediately. I searched the neighbourhood very thoroughly, but no more came my way. Perhaps the scarcity of the foodplant in this district accounts for the rarity of the moth, clumps of yellow bedstraw being few and far between. On the other hand rosebay willow-herb is extremely common and so is *D. elpenor* L. This year I have found, by searching regularly three patches of waste land whose combined area is forty-five acres, two hundred and forty-two *elpenor* larvae. I visited the same patch every evening at six o'clock and found the first full grown larva on 14th August while, to my

amazement, on 7th October I found the last of his tribe, still only half grown, feeding on a clump of willow-herb which I had examined many times before. I left this larva undisturbed in order to see what it will do when the frosts come.

I have looked carefully for *Catocala nupta* L. but so far I have not found one here. However, I have seen one which was found under a bridge at Codnor, a village ten miles south of Chesterfield.—J. H. JOHNSON, 53 Knighton Street, Hepthorne Lane, Chesterfield. 8.x.51.

HADENA ANDALUSICA STAUD. AND AGROTIS RIPAE HUB.—Whilst searching for the pupae of *Hadena andalusica* Staud. (*barrettii* Dbld.) in the West Country during the last week of September 1951 I had the opportunity of finding the larvae of *Agrotis ripae* underneath *Silene maritima* which was growing in small isolated clumps along the seashore. From my previous experience I have always found these larvae under various sea plants, *e.g. Cakile maritima* (Sea Rocket), *Arenaria peploides* (Sea Sandwort), *Glaux maritima* (Sea Milkwort), growing in sand, whereas the *Silene maritima* in question was growing among very small pebbles mixed with a very coarse sand. The textbooks do not appear to give *Silene maritima* as a foodplant, although Barrett does state "and probably on almost any plant which grows freely in sand within the immediate influence of the sea" (*Lep. Brit. Is.*, 3: 322). *Eryngium maritimum* (Sea Holly) was also growing in the vicinity, but no larvae were found under this plant. A search under all dead plants of *Silene maritima* produced pupae of *H. andalusica* in a very short time and in an easy manner, which contrasted strongly with previous efforts around rocky coasts.—L. E. SAVAGE, 65 Cranmer Avenue, Hove. 21.x.1951.

INTERESTING MICROLEPIDOPTERA AT MONK'S WOOD, HUNTS.—On 3rd June I visited Monk's Wood on the occasion of the Field Meeting of the South London Entomological Society. Larvae of *Argyroploce pomedax* Pierce were found to be quite common in rolled leaves of crab-apple, moths emerging about a month later. This species was first recorded from Devon in 1915, when it was differentiated from the oak-feeding species *A. profundana* Fab. Since then Mr. L. T. Ford found the larvae common in the Chiddingfold district of Surrey (about 1945). The discovery of this insect at Monk's Wood points to it being much more widely distributed than at one time thought. Several *Tortrix diversana* Hub. were also bred at the same time, but the larvae of these may have been beaten out of blackthorn. Another insect worthy of record is *Proutia betulina* Zell., several larval cases of which were found on blackthorn. I succeeded in breeding one small male on 19th July. Meyrick gives "Surrey, Middlesex, Essex, local" for this species, and we can now add "Huntingdonshire". Larvae of the plume *Alucita galactodactyla* Hub. were also found—on the leaves of burdock.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5. 10.x.51.

NOLA ALBULA SCHIFF. IN SOUTH WALES.—I took a specimen of the above-named moth in my portable light-trap at Tenby, Pembs., this year. The specimen was considerably worn and I was uncertain as to its identity. However, Dr. Chas. de Worms has seen the moth and confirms the identity. My specimen was taken on July 30th and constitutes a great extension in the known range of this moth which has not pre-

viously, so far as I am aware, been recorded from Wales.—Dr. Neville L. Birkett, 3 Thorny Hills, Kendal. 17.x.51.

Leucania vitellina Hub. in Devon.—On 28th October I took a specimen of *Leucania vitellina* Hub. in my moth-trap here in Torquay. This is a late record for me in every sense of the word. After the cold and then stormy weather during the past ten days I scarcely expected to get anything of interest when, at 9.30 last night, I thought I would chance my luck and set the trap going. It was the temperature reading in the porch below the window from which I operate the trap that decided me—it was 57° F. The *vitellina* is a 'washed out' but fairly perfect ♂. I have given it a feed of honey and shall release it on the ivy to-night. There were 61 other moths in the trap—9 different species, all common ones and including 41 *Amathes* (*Orthosia*) *lychnidis* Schf.; yet on the ivy early in the evening I saw but half a dozen insects altogether.—Frank H. Lees, The Gables, Maidencombe, Torquay. 29.x.51.

Cleora cinctaria Schiff. in Perthshire.—My observations on the Struan colony of *Cleora cinctaria* Schiff. may be of interest. The insect was first found there by Howard and Bowes in April 1938, when they took a few specimens flying over bog myrtle by night. John Bowes was good enough to tell me the spot and I motored over hopefully from Rannoch on 28th April 1939, only to strike a cold night and a late season. No insects were to be seen.

My next visit to Struan was on 20th April 1943, when I found three male *cinctaria* on posts by day and six more, including two females, flying at night. Next year I spent two days in the locality, 19th and 20th April; but the weather was cold and I found only one moth, on a post.

So far I had confined my daytime searching to posts and tree-trunks, but on 18th April 1945 I chanced to spot a female sitting on a rock. An examination of nearby rocks and stones showed the insect to be present in hundreds and among them we were very excited to find four albino specimens which I thought were new. In a nearby but separate colony some three-quarters of a mile away we found a high proportion of a strikingly banded form showing the black and white markings in strong contrast, ab. *submarmoraria* Fuchs. From Struan we went on to Aviemore where we met Captain Jackson who went down a few days later and got one more albino and four or five banded specimens. Later Dr. Cockayne told me that so far as he knew, the albino form had not been taken previously in Britain and that it had been named by a German ab. *schulzei* Heinrich.

Next year we were back again on 18th April, but found that much of the bog myrtle had been burnt. The season was late and the moth only just emerging. Three days' searching, however, produced some seventy *cinctaria*, including one albino and a striking variety, found by my wife, which I believe to be unique, also an asymmetrical specimen. During the next week Dr. Cockayne and Mr. E. J. Hare accounted for 6 albinos. I came back on 1st May and again found the moth in hundreds but only one more albino, another specimen having been taken the night before by Miss Carol Fraser at the light of a torch.

In 1947 we were otherwise engaged but heard that Struan had had a most unusually hard winter and spring. We came back on 22nd April

1948 and were somewhat horrified to draw an almost complete blank in the *schulzei* locality, one normal specimen only being found flying at night and none by day. Nor were any more in evidence on 1st May, though 26 specimens were seen in all in the *submarmoraria* locality nearby, all on posts. So far as I know the insect has been scarce or absent in the *schulzei* locality ever since. Why?—AUSTIN RICHARDSON, Beaudesert Park, Minchinhampton, Glos.

HYDRAECIA SPECIES FROM VARIOUS LOCALITIES.—Mr. W. H. T. Tams has recently been kind enough to go through my long series of *Hydraecia* species. A list of the species and their localities may be of interest:—*H. oculea* L.: Burren (Clare), Kinsale (Cork), Forres (Moray), Aviemore, Dalwhinnie (Inverness-shire), Rannoch (Perthshire), Windermere, Witherslack (Westmorland), Cirencester, Guiting, Stroud (Gloucestershire), Portmadoc (Caernarvonshire). *H. crinanensis* Burr.: Kinsale (Cork), Forres (Moray), Rannoch (Perthshire), Portmadoc (Caernarvonshire—new county record), Formby (Lancashire). *H. lucens* Freyer: Taynuilt (Argyll), Dalwhinnie (Inverness-shire), Rannoch (Perthshire), Portmadoc (Caernarvonshire—new county record), Witherslack (Westmorland), Slimbridge (Gloucestershire—new county record). *H. paludis* Tutt: Trearddur Bay (Anglesey—new county record), Dungeness (Kent), Nailsworth (Gloucestershire—new county record).—AUSTIN RICHARDSON, Beaudesert Park, Minchinhampton, Glos.

DIPTERA

Notes on the Distribution of *Pallopteridae* in Britain

By L. PARMENTER, F.R.E.S.

The publication of a key to a family or genus of British Diptera is always welcome in view of the dearth of literature in English dealing with many of the families of flies found in this country. Mr. J. E. Collin's key to the British species of *Palloptera* has cleared up several queries for those of us who previously used Séguy's key in the *Fauna de France* volume dealing with the Acalypterae. As the wing plates in Séguy's work will still be examined by those unable to readily consult Museum collections, it should be noted that:—

Palloptera neutra Pand. of Séguy is *Palloptera scutellata* Mcq. of Collin.
P. arcuata Mg. of Séguy is *P. quinquemaculata* Mcq. of Collin.
P. gangraenosa Panz. of Séguy is *P. umbellatarum* F. of Collin.
P. umbellatarum Mg. of Séguy is *P. parallela* Lw. of Collin.
Ocneros muliebris Harris of Séguy is *P. muliebris* Harris of Collin.

I have recently used Mr. Collin's key and wish to record under his names the species I have taken and those I have been allowed to see by my friends:—H. Britten, Jnr., J. Burgess, H. J. Burkill, C. L. Collenette, C. N. Colyer, P. W. E. Currie, E. C. M. d'A. Fonseca, A le Gros, K. M. Guichard, H. Last, D. Leston, M. Niblett, G. Waller and R. D. Weal. Their captures are indicated by their initials.

Palloptera scutellata Mcq.—Under *P. neutra* Pand. I recorded this species in 1950, *London Naturalist*, **29**: 120. I have taken further

specimens at Bookham Common, Surrey, as has Mr. E. C. M. d'A. Fonseca, all females and always about the pools and ponds there from 8th April to 10th June. A female 1 captured there on 14th October 1945, had been presented to the British Museum, Natural History. Two females were found at Tilgate Forest, Sussex, on 6th May 1949.

P. ustulata Fln.—June to September. Taken in Cornwall—Angarrack, Hayle (a male on ivy on a wall), St. Erth various dates; Essex—Wrabness, two females in an ash/oakwood, 11th July 1951; Norfolk—Langley, 25th June 1937; Pembrokeshire—Haverfordwest, a male on the leaf of a lime tree, 31st July 1948; Surrey—Banstead, females on window, 31st July, and in September 1951 (H.L.), Thornton Heath, females in July and August various years on the veranda of my house.

P. umbellatarum F.—June to August. Taken in Cornwall—Lelant, a male in a shaded wood, 5th August 1941; Norfolk—Langley, female, 25th June 1937; Nottingham—female, on damp earth in shade by the lake of Wollaton Hall, 8th July 1950; Suffolk—Flatford, in July 1951, in a damp shaded lane and the damp shade of Dodnash wood; Surrey—Banstead, female, 14th July 1951 (H.L.), Oxshott, female, 6th July 1941, Thornton Heath, female on my veranda, 8th July 1945.

P. parallela Lw.—May to July. Taken in Derbyshire—Parwich, female, 23rd July 1935 (C.L.C.); Kent—Swanscombe, female, from the saltings, 28th July 1946; Surrey—Beddington, on spear thistle, *Cnicus lanceolatus* L., 23rd July 1935. In 1942, *Ent. mon. Mag.*, **78**: 167-8, under the name *P. umbellatarum* Mg. of Séguy I recorded my breeding of the flies from heads of carline thistle, *Carlina vulgaris* L., from Boxhill, Surrey. I would again emphasise the variation in the wing markings due to immaturity. Mr. M. Niblett has also given me specimens bred in May 1946 from carline thistles from Fetcham Downs and Walton Heath and from the same plant from Farleigh in June 1950.

P. quinquemaculata Mcq. previously recorded as *P. arcuata* Mg.—May to June. Taken in Herts.—Brickett wood, a female found as the prey of the spider *Dictyna arundinacea* L., 22nd June 1947; Kent—Ashford, on 24th June 1945; Middlesex—North Finchley, two females, 27th May 1937 (G.W.); Northumberland—Wooler, 24th May 1943; Surrey—Limpsfield Common, 13th May (K.M.G.), and 4th June 1939 in the shade of trees, Oxshott, 14th June 1941.

P. trimacula Mg.—July to August. Taken in Cornwall—Bodmin, 20th August 1936; Herts.— Rickmansworth, 25th July 1948 (D.L.); Surrey—Bookham Common, " on umbel," 28th August 1949 (P.W.E.C.). On 11th December 1949 when with Mr. Niblett we collected a number of pupae on Bookham Common. They were found just under the epidermis of the stems of angelica, *Angelica sylvestris* L., also mined by larvae of the Agromyzid fly—*Melanagromyza lappae* Lw. Niblett's flies were kept in a garden shed and emerged on 29th May 1950. I kept my own pupae in a glass jar indoors and the flies started to emerge on 20th April 1950 and continued into May.

P. saltuum L.—May to July. Taken in Northumberland—Wooler, a male on 17th May 1943; Surrey—Bookham Common, a female on 13th July 1947 (C.N.C.).

P. muliebris Harr. previously recorded under the generic name of *Ocneros*. June, August to September. All but one females! Cornwall—a male at Phillack on ivy on a wall, 7th August 1949, Angarrack, a

female, 1st August 1941; Essex—Epping Forest, 14th June 1946 (R.D.W.); Hants.—Farley Down, crawling over a gate post, 11th September 1948 (A. le G.); Pembs.—Dale, on window of Dale fort, 5th August 1948; Surrey—Old Coulsdon, 8th September 1950 (H.B.), Fetcham, 29th September 1935 (H.J.B.), Streatham, no date (J.B.). It is evident that the wing waving habits attract the attention of entomologists!

REFERENCES.

Collin, J. E. 1951. The British Species of the genus *Palloptera* Fallen (Diptera). *Ent. Record*, **63**: Suppl. 1-6.
Colyer, C. N. 1951. *Flies of the British Isles*. London. 1-383.
Fonseca, E. C. M. d'A. 1951. Diptera collected in 1950. *Ent. Record*, **63**: 55-59.
Niblett, M. 1946. Diptera Bred from Flower Heads of Compositae. *Ent. Record*, **58**: 121-3.
—— 1951. Notes on Some Bred Diptera. *Ent. Record*, **63**: 150-2.
Parmenter, L. 1942. The Diptera of Limpsfield Common. *London Naturalist*, **1941**: 18-32.
—— 1942. *Palloptera umbellatarum* Mg. (*Dipt., Pallopteridae*) Wing Variation and Larval Habitat. *Ent. mon. Mag.*, **78**: 167-8.
—— 1950. The Diptera of Bookham Common. *London Naturalist*, **29**: 98-133.
—— 1950. Diptera in Northumberland. *Naturalist*. Lond., **1950**: 56-59.
Séguy, E. 1934. *Fauna de France*: 28 Diptères (Brachycères) (Muscidae Acalyptérae et Scatophagidae). Paris. 1-832.

94 Fairlands Avenue, Thornton Heath, Surrey. 31.x.1951.

A Note on Drosophila repleta Wollaston (Dipt., Drosophilidae).—This species was first recorded as occurring in Britain by Coe (*Ent. mon. Mag.*, **79**: 204-7). It was found in the West Central area of London in 1942 and 1943, developing in waste vegetable matter in the kitchens of canteens, restaurants and a hospital. I recorded it from 1945 onwards (Colyer and Hammond, *Flies of the British Isles*, Warne, 1951: 230) as occurring in restaurants and public houses in the S.W.1 area of London.

On 22.x.50 I took a single male on a window of a flat at Wood Green, London, N.22, some eight or nine miles from the locations previously mentioned, where incidentally it now occurs throughout the year, often in considerable numbers, in practically every catering establishment and public house I have visited. I have examined all *Drosophila* specimens I have managed to take in various parts of London during the past three or four years, but have not found the species except as mentioned. It would be interesting to know whether other readers are able to record it from other parts of London or from elsewhere in the British Isles. One might reasonably expect to find it in eating establishments in seaport towns at which shipping from more southerly regions arrives.—Charles N. Colyer, F.R.E.S., 26 Ewart Grove, London, N.22.

Ants in Scotland.—The following account relates to ants seen or collected during a brief motor tour of Scotland in July 1951. Localities marked with an asterisk are believed to be new records for the species named as they have not been recorded by Donisthorpe (1).

The presence of the uncommon ant *Myrmica schencki* Em. at Garve, E. Ross, has already been noted elsewhere (2). A dealated female of this species was taken near Loch Tulla, Argyll,* among pine. The locality at Garve would appear to be particularly favourable for *Myrmica*

spp. as six out of our seven species have now been found there, the latest addition being *Myrmica laevinodis* Nyl.* The habitat preferences of these ants were fairly well demonstrated as follows:—The *M. laevinodis* colonies were in an area of partial shade among trees, *M. rubra* colonies were found typically along the north facing slope of a long bank whereas *M. sabuleti, schencki* and *lobicornis* were found along the south face of this bank. These species and *M. scabrinodis* were also present in a sandy pasture in particular under stones in the exposures of shallow cuttings. It was noted that *M. schencki* workers used their stings quite freely differing in this respect from *M. scabrinodis* and *lobicornis*.

Myrmica sulcinodis Nyl. was abundant on the heather moor near Dava station, Morayshire.* Other county or vice-county records believed to be new include *Myrmica sabuleti* Mein. at Tummel, N. Perth,* *Myrmica scabrinodis* Nyl. at Tummel, N. Perth,* Loch Ness and Moy, Easterness, Banchory and Catterline, Kincardineshire,* and near Hawick, Roxborough.* *Myrmica rubra* Lin. was abundant in N. Perth,* S. Aberdeen,* Roxborough,* Selkirkshire,* and near Tomintoul, Banffshire.* *Leptothorax acervorum* F. was found wherever sought for on uncultivated land including Tulla, Argyll,* Dava, Moray,* Hawick, Roxborough,* Stow, Midlothian,* Banchory, Kincardine,* and Tomintoul, Banffshire.* This ant appears to be as widespread in the Scottish Highlands as the ubiquitous *Myrmica rubra*. *Lasius flavus* F. was abundant at Catterline, Kincardineshire.—C. A. Collingwood, Ashton-under-Hill, Evesham. 3.xi.51.

1. Donisthorpe, H. 1927. *British Ants*, 2nd edition. London.
2. Collingwood, C. A. 1951. Distrbution of Ants in N.W. Scotland. *Scot. Nat.*, 63, No. 1.

COLEOPTERA

Observations on the Diet of the Adult Hydrous piceus.—Although I have always understood this species to be strictly vegetarian in the adult state, and in the past have never had reason to believe otherwise, the behaviour of a female in my aquarium tank may be worth putting on record. A pair was purchased last December and housed in a tank with six common goldfish. The male died in July, but the female is active to this day. I have always fed the species on weeds such as *Elodea*, etc., but one day I noticed the female feeding on the dead body of a water-snail (*Limnaea auricularia*). Since then it joins in with the fish at feeding times. The fish food ("Dried Daphnia") floats on the surface, and the beetle, ventral side up and paddling furiously to keep at the surface, can be plainly seen to eat the daphnia one by one. It has never been noticed to attack any living snail or for that matter any other live food put in for the fish.—B. R. Stallwood, 19 Southfield Gardens, Strawberry Hill, Middx. 24.ix.51.

[Mr. A. A. Allen writes:—"I believe that several instances have been reported of *Hydrous* feeding on *dead* animal matter. Prof. Frank Balfour-Browne, our foremost authority on the water beetles, has remarked that the Palpicornia or Hydrophilidae 'in at least many cases enjoy animal food' ".]

SWARMING OF HELOPHORUS BREVIPALPIS BEDEL.—On 4th July 1951, at 1945 b.s.t., when talking to friends near our house I noticed a number of small insects in the air over their car. On looking towards the west I found that the air as far as one could see was shimmering in the light of the setting sun with myriads of these same insects. On looking closer I saw that those over the car were small Coleoptera and noticing that some had settled and died on the top of the radiator I swept a few into my hand. I sent these to my friend Dr. H. M. Vickers, who asked Mr. D. K. Kevan of Edinburgh to identify them. This he kindly did and determined them as *Helophorus brevipalpis* Bedel. The swarm stretched across two meadows and possibly much farther, but I did not investigate its limits. A slight westerly wind was blowing at the time and such movement as was apparent was very slow and in a north to south direction. The top of the swarm was at least thirty feet and may have been much higher.—R. D. R. TROUP, Hountwell, Buckland Newton, Dorchester, Dorset. 2.xi.51.

[This Hydrophilid is a common and abundant species throughout the country, but an aerial swarm on the scale described above is quite exceptional.—A. A. A.]

Fifty Years Ago

(From *The Entomologist's Record* of 1901)

TRACING VELLEIUS DILATATUS F. TO ITS HAUNTS.—My chief object in going to the New Forest in August was to try and find the interesting *Velleius dilatatus*. I am pleased to record that I was very successful, taking in all twelve specimens of this rarity. The first thing I set myself to do was to find a hornets' nest, and this I succeeded in doing after several days' search. I found a strong nest in a hollow birch tree, the hornets entering the tree at a hole about twelve feet from the ground. Sugaring at night proved unsuccessful, though with the aid of my lantern I actually saw a *Velleius* high up on the tree, but not on the sugar. It appeared to be seeking the nest, and flew off on my turning the light on to it. I now thought out and constructed a trap which enabled me to do without night work, and to visit it in the daytime, feeling safe that any beetles which had got in at night would be waiting for me next day. I visited the spot nearly every day, and out of this one trap I took in all ten specimens. Later on I found some other hornets' nests, but they did not prove nearly so prolific, as I only took one *Velleius* each out of two of the other nests, making up my total of twelve specimens. One of my specimens is a gigantic ♂. Fowler (*Col. Brit. Isles*, ii, p. 226) points out that the species varies very considerably in size and says that the largest specimens reach 25 mm. My large ♂ measures 32 mm.!—H. ST. J. K. DONISTHORPE.

EXCHANGES

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

Wanted—Papered or set, full data: *A. hegemone, selenis, oscarus, iphigenia, angarensis, jerdoni, gemmata, clara, elisa, kamala, childreni, ruslana.* What do you want —*Georg Christensen, Parmagade 24, III, Copenhagen S., Denmark.*

LIVING EGGS, LARVAE, PUPAE.

It must be distinctly understood that the publication of the undermentioned offers of exchange is in no way a guarantee for the British nationality, authenticity, or good condition of the species nor for the fertility of eggs. This Notice is not given to throw doubt on the bona fides of exchangers but to absolve the Editor from responsibility in case the privilege of publication on this page should be abused.

Duplicates—Larvae of *A. syringaria*. *Wanted*—Ova of *D. oo*, larvae of *A. villica*, *E. hera* (*quadripunctaria*).—*P. N. Crow, 'Belvedere', 40 Salisbury Avenue, St. Albans, Herts.*

NEW SUBSCRIPTION RATES

From JANUARY 1952 the Subscription to *The Entomologist's Record* in Great Britain and Northern Ireland will be payable in two instalments, viz. 10s in February and 10s in August. If desired, the Subscription may be paid in one sum (20s) in February, or a Banker's Order (which will be enclosed with the January issue) may be used. The OVERSEAS Annual Subscription will be £1, payable in January.

THE ENTOMOLOGIST'S RECORD is published on the FIFTEENTH day of each month.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

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

CONTENTS

TO OUR CONTRIBUTORS

All material for the magazine should be sent to the *Assistant Editor* at No. 4 WINDHILL, BISHOP'S STORTFORD, HERTS.

We must earnestly request our contributors NOT TO SEND US COMMUNICATIONS IDENTICAL with those they are sending to other magazines.

If REPRINTS of articles (which can be supplied at a very reasonable cost) are required, please mention this in your covering letter.

Articles that require ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST of the illustrations.

All reasonable care is taken of MSS., photographs, drawings, etc.; but the Editor cannot hold himself responsible for any loss or damage.

Printed by T. Buncle & Co. Ltd., Arbroath